Teachers' beliefs and attitudes towards information and communication technology (ICT) and related pedagogy for English for business purposes (EBP) in Chinese higher education

Hu, Ling

The copyright of this thesis rests with the author and no quotation from it or information derived from it may be published without proper acknowledgement.

END USER LICENCE AGREEMENT

This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International licence. https://creativecommons.org/licenses/by-nc-nd/4.0/

You are free to:

- Share: to copy, distribute and transmit the work

Under the following conditions:

- Attribution: You must attribute the work in the manner specified by the author (but not in any way that suggests that they endorse you or your use of the work).
- Non Commercial: You may not use this work for commercial purposes.
- No Derivative Works - You may not alter, transform, or build upon this work.

Any of these conditions can be waived if you receive permission from the author. Your fair dealings and other rights are in no way affected by the above.

Take down policy

If you believe that this document breaches copyright please contact librarypure@kcl.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.
Teachers’ Beliefs and Attitudes towards Information and Communication Technology (ICT) and related Pedagogy for English for Business Purposes (EBP) Education in Chinese Higher Education

Ling Hu

Thesis Submitted for the Degree of Doctor of Philosophy
University of London

Department of Education and Professional Studies
School of Social Science and Public Policy

KING’S COLLEGE LONDON, UNIVERSITY OF LONDON
Declaration

I, Ling Hu, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Ling Hu
Abstract

This thesis presents in-depth, qualitative cases study that explores teachers’ attitudes and beliefs about Information and Communication Technology (ICT) in English for Business Purposes (EBP) teaching in Chinese higher educational institutions and its impact on their ICT pedagogy. The exploratory study examined ICT pedagogy and EBP teaching in a context that has different educational history and the concept of EBP teaching from those in the UK and the USA. The Activity Theory framework was adapted to frame the study and to identify the driving forces of ICT pedagogy in this circumstance.

The study shows that teachers’ personal beliefs and attitudes were closely linked to their ICT pedagogy, which was observed as varied in levels of ICT applications and ICT pedagogical decisions. Evidence had also proved that there were links between contextual factors and teachers’ ICT pedagogy. Conflicts were identified in the teaching systems in two aspects. First, there were conflicts between teachers’ intended ICT pedagogical decision and the context for the realization of such decision. Second, there were conflicts between the required ICT pedagogy, which embedded the constructivist learning theory and the existing ICT pedagogy, which embedded in teachers’ beliefs, professional development history, university policies, and curriculum designs. Conflicts identified in the study suggested that ICT in Chinese EBP education was still underdeveloped and it needs more support for the implementation of ICT in its pedagogy.

Numerous future research opportunities emerged from the study. These include further development of the ICT pedagogy model, which could be adopted for professional development, curriculum design, balance between traditional pedagogy and ICT pedagogy, and the professional development that could be provided in the university.
Acknowledgements

I would like to express my sincerest thanks to my supervisors, Dr. Mary Webb and Dr. Ian Stevenson for their supportive supervision throughout the years. Without their guidance, the thesis could never have taken its present form.

My thanks go to Professor M.J. Cox, who supervised me for my first year study and gave continuing support after her retirement.

My thanks also go to China Scholarship Council and the K. C. Wong Educational Foundation who provided me with the scholarship to study at King's, and to The David Squires Information and Communication Technology in Education Research Scholarship for the research grants, which allowed the fieldwork to take place. Special thanks must be paid to the colleagues and students who had participated the interviews, classroom observations and focus group discussions for the provision of all the necessary data for this research.

I would express my appreciation to my friend Mr. Robert Hanson who proofread all my thesis chapters not once but twice or even three times. I would also like to thank my friends Mr. Jun Zhou, Mr. Tony Zou, Ms. Ying Zhang and Ms. Ayako Suzuki for their contributions to my thesis.

Last but not the least, my gratitude goes to all my family who have given me every support and encouragement throughout the journey. Beyond words are my thanks to my parents, my sisters Ai and Rong, and my daughter Bingyu. Without their love, I shall never have been able to start this work, not to mention finish.
# Table of Content

DECLARATION ............................................................................................................. 2  
ABSTRACT ..................................................................................................................... 3  
ACKNOWLEDGEMENTS ............................................................................................ 4  

## CHAPTER 1 INTRODUCTION ................................................................................. 10  
1.1 Introduction ................................................................................. 10  
1.2 Teaching English for Business Purposes (EBP) ......................... 11  
    1.2.1 Teaching English for Business Purposes (EBP) ...................... 11  
    1.2.2 EBP Teaching in China ......................................................... 12  
1.3 EBP and ICT ......................................................................................... 13  
    1.3.1 Integrating ICT into EBP Teaching ........................................ 14  
    1.3.2 Integrating ICT into EBP Teaching in China ......................... 16  
    1.3.3 Challenges to EBP Teachers: what matter? ......................... 17  
1.4 Research design ..................................................................................... 18  
1.5 Significance of this study ........................................................................ 20  
1.6 Key terms .............................................................................................. 21  
    1.6.1 ICT .......................................................................................... 21  
    1.6.2 English for Business Purposes (EBP) ...................................... 22  
1.7 Structure of the thesis ........................................................................... 23  
1.7 Conclusion ............................................................................................... 25  

## CHAPTER 2 LITERATURE REVIEW .................................................................... 26  
2.1 Introduction .............................................................................................. 26  
2.2 Theories about teacher change ......................................................... 26  
    2.2.1 The theory of Diffusion of Innovations ................................... 26  
    2.2.2 Ely’s conditions of change .................................................... 29  
    2.2.3 Theory of the meaning of Change and change process by Fullan 30  
    2.2.4 The Concern based adoption model (CBAM) by Hall ............ 33  
2.3 ICT pedagogy and related models .................................................... 37  
    2.3.1 Research on pedagogy and ICT in higher education ............... 37  
    2.3.2 ICT and pedagogy frameworks ............................................. 44  
2.4 Factors that influence ICT pedagogy .............................................. 52  
    2.4.1 Personal factors (Knowledge, attitudes and beliefs) ............... 52  
    2.4.2 Contextual factors ................................................................. 53  
    2.4.3 Professional development ..................................................... 54  
2.5 Conclusion ............................................................................................... 56  

## CHAPTER 3 PEDAGOGY IN CHINA ..................................................................... 58  
3.1 Introduction .............................................................................................. 58  
3.2 The historical influence of Confucianism .................................. 58  
    3.2.1 The importance of textbooks ................................................. 58  
    3.2.2 The importance of examination .......................................... 59  
    3.2.3 The importance of rote learning .......................................... 60  
    3.2.4 The absolute authority of the teacher and the students' modest self 62  
    3.2.5 The teaching approach .......................................................... 64  
3.3 The influence of imported pedagogy from former Soviet Union .... 65  
3.4 The influence of imported pedagogy from western culture .......... 68  
3.5 Pedagogy in higher educational language teaching ................. 71
<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.6</td>
<td>Conclusion</td>
</tr>
<tr>
<td>77</td>
<td>CHAPTER 4 METHODOLOGY: MULTI-CASE STUDY</td>
</tr>
<tr>
<td>77</td>
<td>4.1 Introduction</td>
</tr>
<tr>
<td>77</td>
<td>4.2 The research objectives and aims</td>
</tr>
<tr>
<td>79</td>
<td>4.3 Study approach: Multi-case study</td>
</tr>
<tr>
<td>81</td>
<td>4.4 Methods design</td>
</tr>
<tr>
<td>82</td>
<td>4.4.1 Semi-structured interview</td>
</tr>
<tr>
<td>83</td>
<td>4.4.2 Description of semi-structured interview schedule</td>
</tr>
<tr>
<td>84</td>
<td>4.4.3 Classroom Observation</td>
</tr>
<tr>
<td>86</td>
<td>4.4.4 The Classroom Observation Schedule</td>
</tr>
<tr>
<td>87</td>
<td>4.4.5 Focus group of teachers and students</td>
</tr>
<tr>
<td>89</td>
<td>4.4.6 Schedules of focus group</td>
</tr>
<tr>
<td>91</td>
<td>4.4.7 Data Triangulation</td>
</tr>
<tr>
<td>92</td>
<td>4.5 The selection of case study site</td>
</tr>
<tr>
<td>92</td>
<td>4.6 Data collecting process</td>
</tr>
<tr>
<td>94</td>
<td>4.6.1 Conducting the interviews</td>
</tr>
<tr>
<td>94</td>
<td>4.6.2 Conducting the classroom observation</td>
</tr>
<tr>
<td>95</td>
<td>4.6.3 Conducting teacher focus group</td>
</tr>
<tr>
<td>97</td>
<td>4.6.4 Conducting the student focus group</td>
</tr>
<tr>
<td>97</td>
<td>4.6.5 Focus group of teachers and students</td>
</tr>
<tr>
<td>99</td>
<td>4.7 Analysing data</td>
</tr>
<tr>
<td>101</td>
<td>4.7.1 The Theory of Reasoned Action</td>
</tr>
<tr>
<td>103</td>
<td>4.7.2 Technology Acceptance Model (TAM)</td>
</tr>
<tr>
<td>107</td>
<td>4.7.3 Theory of Planned Behaviour</td>
</tr>
<tr>
<td>111</td>
<td>4.7.4 Theoretical framework for data analysis</td>
</tr>
<tr>
<td>112</td>
<td>4.7.5 Data analysis</td>
</tr>
<tr>
<td>113</td>
<td>4.7.6 Dealing with data from different data collecting methods</td>
</tr>
<tr>
<td>113</td>
<td>4.8 The issue of presenting the findings in English</td>
</tr>
<tr>
<td>113</td>
<td>4.9 Ethical considerations</td>
</tr>
<tr>
<td>113</td>
<td>4.10 Conclusion</td>
</tr>
<tr>
<td>115</td>
<td>CHAPTER 5 CASE ANALYSIS</td>
</tr>
<tr>
<td>115</td>
<td>5.1 Introduction</td>
</tr>
<tr>
<td>116</td>
<td>5.2 Details of the university</td>
</tr>
<tr>
<td>118</td>
<td>5.2.1 Introducing the selected university</td>
</tr>
<tr>
<td>118</td>
<td>5.2.2 ICT resources available in the university during the period</td>
</tr>
<tr>
<td>121</td>
<td>5.3 Juan--- ICT as new affordances</td>
</tr>
<tr>
<td>121</td>
<td>5.3.1 History of teaching</td>
</tr>
<tr>
<td>121</td>
<td>5.3.2 Descriptions of an observed instruction</td>
</tr>
<tr>
<td>123</td>
<td>5.3.3 Attitude to ICT and the influence on her pedagogy</td>
</tr>
<tr>
<td>124</td>
<td>5.3.4 Beliefs about ICT and the influence on her pedagogy</td>
</tr>
<tr>
<td>132</td>
<td>5.3.5 Professional development and the influence on her pedagogy</td>
</tr>
<tr>
<td>135</td>
<td>5.3.6 Community influence</td>
</tr>
<tr>
<td>137</td>
<td>5.3.7 Institutional influence</td>
</tr>
<tr>
<td>139</td>
<td>5.3.8 Juan’s role in her teaching system</td>
</tr>
<tr>
<td>140</td>
<td>5.3.9 Conflicts in the system</td>
</tr>
<tr>
<td>144</td>
<td>5.3.10 Summary</td>
</tr>
<tr>
<td>146</td>
<td>5.4 Pin --- ICT for convenient adoption</td>
</tr>
<tr>
<td>146</td>
<td>5.4.1 History of teaching</td>
</tr>
<tr>
<td>146</td>
<td>5.4.2 Description of an observed instruction</td>
</tr>
</tbody>
</table>
7.4 Other than beliefs and attitudes -- multidimensional change ........................................... 278
7.5 ICT pedagogy for EBP in China -- contribution to educational literature ....................... 280
7.6 Approaches to study -- methodology design and its contribution ..................................... 282
7.7 Limitation of the thesis ..................................................................................................... 284
7.8 Future research opportunities ........................................................................................ 284
7.8.1 Development of the ICT pedagogy model ................................................................. 285
7.8.2 The ICT policy and ICT pedagogy ............................................................................. 286
7.8.3 Relationship between ICT pedagogy and traditional pedagogy .................................. 287
7.8.4 Informal learning as a major professional development approach ............................ 288
7.9 Final comment ................................................................................................................ 290
REFERENCES ...................................................................................................................... 292
APPENDICES ..................................................................................................................... 331
Appendix 1: EBP teacher questionnaire .................................................................................. 331
Appendix 2: Instruments for Interview .................................................................................. 340
Appendix 2.1 Information to the teacher prior to the interview ............................................. 340
Appendix 2.2 Interview schedule for ICT user ..................................................................... 341
Appendix 2.3 Interview schedule for Non-ICT user .............................................................. 342
Appendix 3: Instruments for classroom observation .............................................................. 343
Appendix 3.1 Lesson observation pro forma (summary sheet) ............................................. 343
Appendix 3.2 Lesson observation pro forma (commentary sheet) ........................................ 345
Appendix 4: Teacher focus group schedule .......................................................................... 347
Appendix 4.1 Invitation Letters to the focus group ............................................................... 347
Appendix 4.2 Questions for the teacher focus group ............................................................ 348
Appendix 5: Student focus group schedule .......................................................................... 349
Appendix 5.1 Invitation letter ............................................................................................. 349
Appendix 5.2 Questions for the student focus group ............................................................. 350
Appendix 6: Open coding node tree .................................................................................... 351
Appendix 7: Teach-Me Trade (TMT) ................................................................................... 355
List of Tables

Table 1- 1 The four categories of contents for EBP .......................... 11
Table 2- 1 Eight conditions for change by Ely (1990) ........................ 30
Table 2- 2 Stages of Concern (SoC) by Hall and Loucks et al 1975 .... 33
Table 2- 3 Level of Use (LoU) by Hall and Loucks et al 1975 ............ 34
Table 2- 4 Teachers’ developmental stages identified in ACOT project (1995, p. 16) ......... 35
Table 2- 5 Tool kit for online course delivery by Conole and Oliver, 1998 ....... 47
Table 4- 1 Demographic information about the seven teachers .............. 93
Table 5- 1 A summary of ICT available for teaching in the university .... 119
Table 5- 2 Commonly shared beliefs of perceived value of ICT in teaching .......................... 212
Table 5- 3 Links between attitude and pedagogy ................................... 223
Table 5- 4 Beliefs and teaching application ........................................... 225
Table 5- 5 Factors linked to teaching with ICT ........................................ 228
Table 5- 6 Contextual factors for teaching with ICT .............................. 233
Table 6- 1A model for differentiated ICT pedagogy ............................... 268
Table 7- 1 Conflicts identified in the study ............................................. 279
Table 7- 2 Themes emerged from data analysis ................................. 281

List of Figures

Figure 2- 1 The Diffusion of innovation model Source: Rogers (1995) ......................... 27
Figure 2- 2 Five categories of innovative adopters Source: Rogers (1995) ................. 28
Figure 2- 3 Conceptualization of Interactive factors affecting implementation by Fullan 200131
Figure 2- 4 Perspectives Interaction Paradigm by Squires and McDougall (1994) ........ 45
Figure 2- 5 Conversational framework by Laurillard (1993, 2001) ......................... 46
Figure 2- 6 The Computer Practice Framework (CPF) by Twining (2002) ............ 48
Figure 2- 7 Constraints and affordances of ICT by Kennewell, 2001 .................. 49
Figure 2- 8 Teacher role in ICT supported learning environment by Kennewell, 2001 ... 49
Figure 2- 9 Framework for ICT pedagogy by Webb and Cox 2004 .................. 50
Figure 4- 1 The data collecting process ................................................. 93
Figure 4- 2 Theory of Reasoned Action ................................................. 99
Figure 4- 3 Technology Acceptance Model (Davis et al., 1989, P. 985) ............... 100
Figure 4- 4 Ajzen’s theory of planned behaviour (1991) ................................ 102
Figure 4- 5 Based on Engeström’s (1987) model of an activity system ............ 104
Figure 4- 6 the visualization of objects in the EBP teaching system ............. 106
Figure 4- 7 Time line of data collecting and data analysis ......................... 107
Figure 4- 8 Nodes and Node trees during the open coding period ............... 108
Figure 4- 9 Example of open coding .................................................... 109
Figure 4- 10 Example of English translation for key quotes against its Chinese version 109
Figure 4- 11 Example of instruction data analysis ................................... 110
Figure 5- 1 Conflicts identified in Juan’s teaching system ......................... 143
Figure 5- 2 Conflicts identified in Pin’s teaching system ........................... 165
Figure 5- 3 Conflicts identified in Qyin’s teaching system ......................... 184
Figure 5- 4 Conflicts identified in Liao’s teaching system ......................... 203
Figure 6- 1A spectrum scale of teachers’ attitude to ICT ......................... 207
Figure 6- 2 Unique beliefs held by teachers with different attitudes .......... 213
Figure 6- 3 Conflicts identified in teachers’ activity system ....................... 246
Chapter 1 Introduction

1.1 Introduction

This thesis presents the process and findings of a qualitative multi-case study that explored Chinese higher educational teachers’ attitudes and beliefs of adopting Information and Communication Technology (ICT) in English for Business Purposes (EBP) (see section 1.2) teaching in a Chinese higher educational institution. The impact of contextual factors and personal beliefs on their ICT pedagogy will be examined. As this introductory chapter will show, the wide spread acceptance of ICT in EBP teaching in the world was echoed in Chinese higher educational EBP teaching. Such similarity makes it possible for the study to draw reference from researches in other countries for comparison. However, understanding of ICT and EBP teaching in a Chinese context is not exactly the same as that in the western countries such as the UK and the USA. This therefore makes the study distinguished for its special contexts as well as the way it approaches the research questions from the teachers’ perspective.

The study was conducted in a period when EBP teaching was in high demand in China (Lin 1999; MOE China 1999) after China became a World Trade Organization (WTO) member and experienced a rapid expansion of international trade (Pang, Zhou et al. 2002). This situation accelerated EBP teaching but also challenged the quality of EBP teaching because business and governments urged higher education to produce graduates with both English proficiency and business competence to be engaged in a more globalised working environment (Ye and Chen 1999; Lin 2004; Niu and Wolff 2005). At the same time, the National English Curriculum urged ICT to be adopted and integrated into higher education (MOE China 1999; Zhu 1999). In many universities, the use of ICT for teaching became part of the criteria for a qualified higher educational teacher’s teaching practice (Ye and Chen 1999). This was the context, which the teachers participated in this study.

The introduction chapter is divided into five sections. The first section provides readers with a brief background for the study. This includes both EBP teaching, and the adoption of ICT in EBP teaching worldwide and particularly in China. This section helps to set the context for the study. The second section introduces the methodology for the study. A
brief explanation about the use of some key terms in this thesis is presented in section three. The purpose of this is to express clearly how these terms were used in the context of Chinese higher education, which may be unfamiliar to many readers in the UK. In the fourth section, the significance of this thesis is discussed. The final section provides the structure of this thesis; the content of each chapter of the thesis will be explained in this section.

1.2 Teaching English for Business Purposes (EBP)

1.2.1 Teaching English for Business Purposes (EBP)

Teaching EBP has long been seen as a separate branch within English Language teaching (ELT). In recent years, teaching English for Business Purposes has become more and more popular. In 1994, among the ‘24 new published materials in ESP1, 21 were about Business English’ (Dudley-Evans and St. John 1998 p.9). Along with the popularity of EBP teaching is the introduction of ICT and the shifting of teacher-centred to a student-centred learning approach (Dudley-Evans and St. John 1998; He 1999; Zhang 2004).

Table 1-1 The four categories of contents for EBP

- Business communication skills are about the core skills of business activity, these activities include negotiation, letter corresponding, telephoning etc. They depend on both verbal language skills and other skills such as organisational skills, non-verbal language and awareness of audience.
- Business context refers to the discipline specific materials such as finance and marketing. The aim of these materials is to transfer known knowledge of language and skills to a specific field, for example, discussion of particular products or theoretical debate on business.
- Business studies materials are materials adopted from business courses. Different materials may be offered to learners of EBP according to their different levels of language proficiency.
- Language in business settings is the material that aims to help the pre-experienced learners in the EBP world. Materials in this category are closely related to EFL material and form the core of EGBP teaching.

1 ESP stands for English for Specific Purposes
St. John (1996) summarised the contents of EBP into four categories: business communication skills, business context, business studies materials and Language in business settings.

The unique features of the materials in the four categories require different teaching methods to achieve the various goals. It thus becomes a major concern for ICT in EBP teaching (Chapter 1.3).

1.2.2 EBP Teaching in China

The teaching of English in China dated back to the 1830s. It is worth noting that from the very beginning, the contacts between the Chinese and English were all generally for Business Purposes. The EBP teaching in China after the 1980s became more and more important because of the development of the Chinese economy, and the expansion of bilateral and multilateral trades between Chinese businesses and foreign companies. In the 1993 National Curriculum, it was clearly stated that

A foreign language is an important tool for interacting with other countries and plays an important role in promoting the development of the national and world economy, science and culture. In order to meet the needs of our Open Door Policy and to accelerate socialist modernization, efforts should be made to enable as many people as possible to acquire command of one or more foreign languages (Adamson and Morris 1997 p.21).

The 1993 National Curriculum indicates that English teaching in China, especially in higher education is partly for the purpose of students’ business communication in their future careers or jobs.

Recent years have witnessed innovations in curriculum design in many colleges and universities; B.A. in Business English attracted a large number of students every year (Lin 1999; He and Xiao 2004). By 2004 (He and Xiao 2004), more than 400 colleges offered EBP courses and about 100 of them established Schools of Business English. Researchers in China claimed that EBP has been developed into a branch of applied linguistics independent from English for General Purposes and English for Academic Purposes (Lin 2001; Chen 2004).

Researchers in China classified EBP courses into two categories, picking up the names
used in the UK and the USA: English for General Business Purposes (EGBP) and English for Specific Business Purposes (ESBP). However, the meanings of the two courses in the UK and the USA are different from those in China. In the English speaking countries, EGBP refers to courses provided to those with little business experience. ESBP refers to the courses provided to those who were in business for many years. Some learners could even be senior members of business organisations.

The situation in China is different. EBP courses are provided as a discipline for undergraduate or postgraduate studies in Chinese higher education (Gong 1999; Lin 2001; Lin 2004). While most students in the Chinese higher educational system are pre-experience learners, differences between EGBP and ESBP courses in Chinese higher education are in two aspects. First, EGBP is for Year 1 or Year 2 students while ESBP are for Year 3 or Year 4 students. Second, EGBP focuses more on language competences while ESBP focuses more on business professional knowledge or skills.

Specifically, EGBP courses are designed for two types of students: those who majored in economy and international trade, finance, accounting and international law, and those majoring in traditional English language and literature. Popular courses include general business English, Business English Correspondence, English for Finance, English for Marketing and English for Law. ESBP courses are offered to those students who major in EBP. They attend ESBP courses when their English proficiency reaches a certain level. When participating in an ESBP subject, students are expected to identify key business features, to apply management theories to a specified situation and evaluate the result of relevant actions and management or business decision. They are more likely to focus on one or two language skills and specific business communicative events. The core of an ESBP subject is not the accuracy and fluency of languages but the outcome of the work (St. John 1996). ESBP subjects may include international marketing, economics, advertising, cross culture communication and management, etc.

Although EBP Teaching is booming in the Chinese higher education system teaching, it is criticised as intuition- or experience-led (Chapter 3). More research is needed in relation to Business English curriculum design and the corresponding teaching pedagogy.

1.3 EBP and ICT

In the last two decades, there was a global discussion in higher education about the
application of ICT and its impact on teaching and learning (Darby 1992; Bates 1995; Catalano and Catalano 1997; Bates 2000; Collis, Peters et al. 2000; Browne and Jenkins 2003). These included research on the influence of ICT on effective management (Hurst 1983; Lim and Hang 2003), the efficiency of the ICT (Darby 1992; Collis, Peters et al. 2000; Hinostroza and Mellar 2001) and the impact of ICT on learning outcomes (Jong, Joost et al. 1992; Catalano and Catalano 1997; Cox 1997; Jakobsdottir 2001; Loveless and Ellis 2001; Louvieris and Lockwood 2002; Lim and Chai 2004). The application of ICT has also been studied and reported in a number of EBP related studies, and will be discussed in this section.

1.3.1 Integrating ICT into EBP Teaching

EBP teaching is always pioneering in the field of education that applies the latest technology into its teaching process (St. John 1996). The improvement of teaching materials has for a long time been seen as a critical part for EBP teaching (St. John 1996). Reports (Reed and Nolan 1997; Klassen and Milton 1999; Brett 2000; Flinders 2001) showed that large quantities of ICT related teaching materials such as audio cassettes, the videos, the TV programs, courseware and Internet-based interactive courses were available in the market. It is therefore understandable that some researchers would focus their studies on the improvement of teaching materials for EBP education. For example, Gain (1999) reckoned that ‘there is almost no guidance available in the textbooks for students of English for academic or special purposes (EAP/ESP) who wish to use this means of communication (Email) proficiently’ and therefore started a project to investigate the features of real examples of Email messages and its implication for EBP teaching. There were also introduction of websites, which contained groups of electronic documents relevant to the demands of the ESP classroom and to meet the needs of ESP learners (Peterson 1999).

Another group of studies investigates the impact of ICT on EBP teaching. Learners’ experience in a multimedia CD-ROM learning environment was a highlighted topic in EBP learning. The results of these studies were contradictory. For example, a research project (Klassen and Milton 1999) was carried out at the City University of Hong Kong in 1997 to explore the effectiveness of multimedia-enhanced instructional materials, an interactive multimedia CD-ROM, Business English, in an English language learning curriculum. Comparison between Multimedia Mode (MM) learners and classroom
learning (CL) learners indicated that MM students had demonstrated significant improvement in listening skills when compared with CL students. It also reported positive attitudinal changes for MM learning among the learners. However, a study (Trinder 2002) conducted in Austria reported negative impacts of ICT among a group of IT experienced learners for the application of multimedia CD-ROM into their (Business) English language programme. The questionnaire survey indicated that although learners were aware of the benefits of Multimedia for their learning, only 67% of them would choose continuous application of multimedia for their learning in contrast to a 100% when the study started. Complaints came from lack of pedagogical design of the contents and the unclear layout of critical functions in the programs. Similar findings were reported by Brett (2000) when he investigated 60 undergraduates’ experiences of learning through CD-ROM based materials and found in his study a massive decrease (48.1%) in the attitudes and perceptions to the benefits of ICT for self-directed learning.

The limitation of these studies was threefold. First, they focused on one particular type of ICT, such as a CD-ROM package (Klassen and Milton 1999; Trinder 2002), and for the purpose of improving teaching materials (Gains 1999; Peterson 1999). Second, they approached the application of ICT from the learners’ perspective (Klassen and Milton 1999; Brett 2000; Busch 2003), learners were the centre of the studies. This reflected St. John’s (1996) conclusion that research on EBP education was learner driven and teachers were not the main subject of academic research projects. Third, they each focused on one particular skills of language, such as reading, or writing, or pronunciation etc. (Slaouti 2002). Many of them collected data through questionnaire, or pre- and post-tests for learners’ achievements but lacked observation of teaching, learning and interactions in the EBP classroom.

Many studies reported participants’ positive attitudes towards the integration of ICT in EBP (Brett 2000; De Beaugrande 2000; Busch 2003). However, compared to papers and other publications on Teaching English as a Second/Foreign Language (TES/FL), research on EBP teaching is still limited. The reason may lie on the fact that the field is ‘practice led’(St. John 1996) and many EBP courses in the UK or the USA are offered within private companies or language schools. Research requires data, people and time. However, the administration would not be willing to cooperate with researchers for academic purposes. St. John (1996) argued that as more and more students are now
studying Business English, there was likely to be more research in the field in future. However, ten years have passed, and few studies focused on EBP teaching are reported or published.

1.3.2 Integrating ICT into EBP Teaching in China

With regard to the application of ICT in Chinese EBP teaching, the Chinese government encouraged the uptake and implementation of ICT in higher education. The 21st Century Teaching Content and Curricula Innovation Project in Higher Education Project launched in 1997 by the Ministry of Education targeted a fundamental change of pedagogy and educational philosophy, an innovative modelling of talent cultivation and the modernization of teaching facilities, teaching content and curriculum design.

In 1999, the State Council issued and enacted the 21st Century Education Revitalization Project, one main propose of the Project was to ‘set up an open educational network based on modern educational technology’ and to ‘construct a lifelong learning system for the people’. Funded by the central government and universities, there were several projects launched in this period to improve the design and improvement of courseware, online teaching and learning resources, and other ICT integration process to the EBP teaching in China.

One good example was a cooperative project among three major EBP course-providing universities in China (The Guangdong Foreign Languages University, the Hunan University and the Beijing Foreign Economy and Trade University). Teachers in the three universities worked collaboratively for the design and development of a series of 12 pieces of web-based EBP courseware to assist students’ learning. The project lasted for more than three years (from 2000 to 2003). It was the first nation wide project in integrating ICT into EBP teaching in Chinese higher education and was claimed to have achieved some important outcomes.

In addition, many universities and colleges developed their campus virtual learning resources to help students with their EBP learning (Zhu 1999; Zhou and Shi 2003; Liu and Hu 2004; Zhu 2004). For example, Guangdong Foreign Languages University

---

2 The project has published a series of 12 textbooks for students of EBP, 12 web-based courses ware. An evaluation program was conducted in 2003 which quality the success of the project. The result was based on the feedback from students who were using the courseware and textbooks and the comments from some academic experts in the field of EBP teaching and course ware design respectively,
developed their language laboratory, using authentic economic news reports and financial information for the EBP teaching and learning (Zhou and Shi 2003). Hunan University set up a virtual business environment laboratory to help students get familiar with the international trade process (Liu and Hu 2004). A number of universities declared that the abilities of teaching with ICT became part of the criteria for teacher qualification (MOE China 2005). These practices accelerated students’ enthusiasm in EBP learning and teachers who were engaged in these projects reported positive changes in their attitudes towards ICT and teaching practices\(^3\) (Liu and Hu 2004; Wang and Zhang 2004).

There were concerns raised in the process of introducing ICT into higher education, particularly those related to students’ autonomy (Lim and Chai 2004), and teacher professional development (Supovitz and Turner 2000; Dexter, Seashore et al. 2002; Littlejohn 2002; Zhou 2002). In the field of EBP teaching, a study (Pang, Zhou et al. 2002) conducted in Zhejiang Province in 2001 highlighted the need for pedagogic improvements in EBP teaching in higher education. At the same time, some business English practitioners also reported their own experiences of using ICT in EBP teaching (Zhu 1999; Zhou and Shi 2003) and the application of Corpus to business English learning (Zhang 1999). These reports suggested that modern educational technology such as the Internet, and the web-based courses should be introduced to EBP learning to make life long learning a possibility for every learner by joining the effort of universities with companies and businesses. However, these reports were often simplified and the ICT related pedagogy was only as an additional part in the report rather than as a major concern. Studies on ICT related pedagogy in China is still limited, and researchers (Lin 1999; Lin 2001; Chen 2004; Lin 2004) call for more studies, especially empirical studies in this field to promote and improve EBP teaching in China.

### 1.3.3 Challenges to EBP Teachers: what matter?

The introduction of ICT in EBP teaching in Chinese higher education position EBP teachers to a dynamic changing situation because ICT is always updated and the theories about how ICT may support learning are changing (Gong 1999; Zhang 1999; Zhang 2002; Zhou 2002; Ma 2003). Change is time consuming and uncomfortable for most of the participants in the process (Rogers 1995; Fullan 2001). At first glance, ICT challenges

---

3 This is the conclusion of the final report of the project conducted by the three major EBP offer universities (The Guangdong Foreign Languages University, the Hunan University and the Beijing Foreign Economy and Trade University). The report was submitted to the Ministry of Education in October 2003.
teachers' ICT competence. Teaching with new technologies requires new skills. Teachers need to learn the use of new hardware and software in their classrooms. Looking deeper into teaching, more factors need to be considered. ICT challenges teachers' existing pedagogy of EBP teaching, their beliefs about students' learning, and their relationship with students. Teachers have to fit technology to their teaching practices and to adapt themselves to their new roles (Fullan and Hargreaves 1992; Preston, Cox et al. 2000; Zhang 2002; Cox, Webb et al. 2004). This is important because 'they are gatekeepers for instructional technology' (1986 p.37). However, few reports about teachers and pedagogy in higher education were available (Pickering 2002) and even fewer publications related to EBP teachers in higher education.

Many factors could influence teacher change (Chapter 2). However, most of the relevant studies were conducted in the UK or the USA. It is not clear which factors may influence EBP teaching in Chinese higher education. Therefore, the core issue for this thesis is to identify these factors to help EBP teachers to understand their ICT pedagogy.

1.4 Research design

Due to the limited literature on teaching EBP with ICT identified in both China and the rest of the world, it was decided to conduct an exploratory multi-case study to search for the answers to the research questions. To design methods for the study was challenging. The difficulty came from three aspects. First, the integration of ICT to higher education being a privileged educational reform in Chinese higher education (MOE China 1999), and it was not easy to capture the dynamic change within a very limited period.

Second, the lack of empirical studies in Chinese EBP literature made it difficult to determine the focus of the research at the initial stage. When the study started in 2003, it was not clear how ICT was actually adopted in EBP teaching and what the main issues about ICT in Chinese EBP teaching were. It was therefore decided to have a small-scale questionnaire survey in some Chinese universities to establish a picture for the main study reported in this thesis.

The third difficulty came from the two different contexts for the study, namely, the one where this study was conducted and the one where the thesis was drafted. The data were collected from China where Chinese is the native language, while the thesis should be written in English. This raised the issue of what language should be adopted for data
collecting. The final decision for the study was to use Chinese for primary data collecting and data analysis. There were two reasons behind the decision. First, it was possible to encourage the participant teachers to express themselves fully, and second, the meaning of the data could be completely examined in its original form. However, data being quoted in this thesis were translated to English.

A pilot study was conducted between March and April 2004 (see chapter 4.2). Questionnaires were sent out to three universities that offered undergraduate EBP courses. The survey identified two issues that needed more attention: 1) teachers' beliefs and attitudes towards ICT and their pedagogy and 2) the contextual factors that influenced their ICT pedagogy. These two issues formed the theme of the main study and the core of this thesis. The findings of the pilot study that facilitated the design of the main study included the proposal of the research questions, the methodology design and the choice of data collecting methods.

Three key questions were proposed for the main study:

1. How ICT is adopted pedagogically to EBP teaching in Chinese higher education?
2. What is the relationship between teachers' attitude and beliefs to ICT and their ICT related pedagogy? And
3. What is the relationship between ICT pedagogy and the contextual factors teachers are working with?

The first question focused on the current ICT pedagogy in EBP teaching in Chinese higher education. The second and third questions are to investigate the influential factors that affect EBP teachers ICT pedagogies. Therefore, data should be collected on the following aspects:

- EBP teachers' attitudes and beliefs of ICT in education, for example, the positive and negative attitudes towards ICT in lesson preparation, instruction and assessment; their perceived value of ICT in teaching; the perceived role of teacher and students in an ICT supported environment
- The influence of attitudes and beliefs of ICT on their pedagogy, for example, how lessons were planned and presented in the classroom with or without ICT facilities
- Contextual factors such as the EBP community, the ICT policy in the university
professional development on teachers’ competence in the new environment and the culture that influenced teachers’ attitudes and beliefs and ICT pedagogies.

Qualitative data were collected through semi-structured interviews, classroom observations and focus groups. Instruments were developed for data collecting (Chapter 4). Thus, data collected could be clearly related to the research questions. The multi-method research design provided multi approaches to the data being collected and enabled the data triangulation that guaranteed the validity and credibility of the study.

Data collected for the main study were put into Nvivo2 for open coding (Strauss and Corbin 1998) and then framed by the Activity theory model (Vygotsky 1978; Engeström 1987) for the interpretation of the categories identified. The reasons for the combination are two fold. First, the open coding analysis techniques assured the attachment of the analysis to empirical data (Strauss and Corbin 1998). Second, by identifying conflicts within an activity system, the Activity Theory highlighted the driving forces of ICT related teaching and the possible reasons behind them.

This thesis focuses on EBP teaching in Chinese higher education and the findings of this study can promote future research opportunities that will focus on ICT pedagogy and teacher change. These are of significant importance and will be explained in the following section.

### 1.5 Significance of this study

There were calls for more studies on EBP teaching and ICT pedagogy in China when this study started in 2003 as a result of the booming of EBP teaching (Schleppegrell and Royster 1990; Lin 2001) in China after the 1980s. EBP teaching in Chinese higher education are different from that in the UK and the USA. Firstly, the nature of EBP teaching in China is different (See Chapter 1.5.2). Researchers (Breen 1985; Horwitz 1986; Zhu 1994; St. John 1996; Yogman and Kaylani 1996; He 1999; Trinder 2002; Xiao 2002) have noticed for a long time the differences for first language (L1) learners and second language (L2) learners. Such differences led to different teaching materials, the use of media types and the teaching approaches. Secondly, the application of ICT in Chinese higher education is also different from that in other countries such as the UK or the USA. The scale of Chinese higher education has enlarged in the last decade. This made ICT (Chapter 1.5.1) in Chinese higher education more a supplemental tool to
incorporate increases in student numbers. It is thus of significant importance to see how this special context had influenced EBP teachers’ thinking and implementation of ICT pedagogy. Moreover, the study was conducted when limited studies on teachers’ pedagogical change in the information society in Chinese higher education (Lin 1999; Lin 2001; Zhao and Zhu 2002; Levin and XU 2005) were conducted and researchers in EBP teaching were urged to investigate the relationships between teacher, community and their pedagogy in a changed, ICT enriched environment. This study can help researchers, teachers and teacher developers to gain insight into teachers’ change and factors that could have influenced their change in EBP teaching. Consequently, findings of this study can help EBP teachers to gain support for their change in ICT pedagogy based on improved understanding of their experiences.

1.6 Key terms

The two key terms used in this thesis are ICT and English for Business Purposes (EBP). Although both terms are used in the UK and China, there are some differences in the two contexts. It is therefore necessary to distinguish the differences and bear them in mind throughout the whole research.

1.6.1 ICT

ICT is a well-accepted term in the West, which generally refers to the integrated use of computers and communications facilities such as the internet, Email, CD-ROMs and video conferencing within the curriculum to support teaching and learning⁴. However, it needs to be pointed out that, in China, Educational Technology in the educational community has a wider implication. According to Nan and Li (1998)

The Educational technology is the collection of technologies and methods in educational and/or teaching and learning activities in the human society. Here technology refers to physical technology while methods refer to intelligent technology (p.4).

The definition suggests that Educational Technology includes not only the newer digital technologies of computers, the Internet, the Email, the World Wide Web, wireless technology, etc, but also the older technologies of print, radio and television that have

⁴ This quotation comes from 21st Century skills: realising our potential, Skills Strategy White Paper, Department for Education and Skills (Chapter 4), 2003.
been used extensively in both distance education and classroom instruction. In this study, ICT is adopted from its application in the UK. Therefore, traditional technology types are not considered as applications of ICT in teaching. However, because this study is conducted in China, and Chinese was adopted as the working language, the terms ICT and Educational Technology will be used interchangeably in this writing.

1.6.2 English for Business Purposes (EBP)

Although the term EBP is used worldwide, it refers to slightly different contents in different countries. In western European countries and the UK, EBP is commonly regarded as vocational courses provided for those who wish to improve their 'language skills in business contexts' (1996 p.4). In other areas, such as East European countries and China, many concepts of economy and marketing society are new to the learners, thus, for an EBP teacher in this context, she/he actually teaches 'a wholly new business culture' (St. John 1996 p.4). Researchers (Lin 1999; Lin 2001; Chen 2004) in China have highlighted the importance of keeping the balance of business competence and language competence in EBP teaching. For example, Lin (1999; 2001; 2004) and Chen (2004) emphasised on different occasions that EBP teaching in China should be based on the particular situation in China: to provide the market with business personnel with well-developed language competence. This indicates that the differences of EBP teaching in China and the UK are evident.

EBP is generally classified into two subcategories: English for General Purposes (EGBP) and English for Specific Purposes (ESBP). According to St. John (1996), 'EGBP courses although set in business contexts, follow EFL course design and can largely be equated with pre-experience, open registration, extensive courses (p.4)' while ESBP courses are generally about 'post-experience, intensive' and often based on specific company context. EBP courses in China picked up the names but their meanings are different (See Chapter 1.3 for details). In this thesis, EBP teaching refers to the offering of business English course to those who do not have previous experience in a business context. Thus, to some extend, it was the EGBP course as described by St. John (1996). It is therefore not necessary to distinguish EGBP or ESBP teaching in this study as defined by St. John but have to be as defined in Chinese contexts. That is because ICT resources for the seven teachers were provided through different sources. To be more specific, ICT for EGBP courses (Year 1 and Year 2) was organized by the university course scheduling office
while ICT for ESBP courses (Year 3 and Year 4) by the foreign languages college and the business English department.

1.7 Structure of the thesis
To search for the answers to the research questions, the thesis will be structured around the following seven chapters:

Chapter 1: Introduction
This chapter is a description of the context of study and empirical evidence regarding the EBP teaching in general and the integration of ICT in EBP teaching and the requirement for teachers of EBP in particular.

Chapter 2 Literature review on teacher change and ICT pedagogy
As an important part of the whole study, chapter 2 presents a detailed review of theories about teacher change and the studies of ICT pedagogy in higher educations. ICT pedagogy related frameworks are identified and factors that influence teachers' ICT pedagogy are summarised by the end of the chapter. The chapter is classified into three sections, namely: the theories about change, the ICT pedagogy research in higher education and the pedagogical models, the factors that influence ICT pedagogy. The literature review has identified the niches for the current study.

Chapter 3 Review on traditional Chinese pedagogy and its impact
An additional chapter is added to the literature review, which focuses on the pedagogy in Chinese context. This chapter presents the historical issues of pedagogy and its influence on current pedagogical practice in Chinese higher educational institutions. The educational system in China has an over 3,000-year history. The importance of education and the highly respected social positions of teachers in this society made it quite a different context for ICT to be introduced into the system. The uniqueness and long history of traditional pedagogy in this country and its substantial impact on existing teaching throughout the complete educational system becomes the core of this chapter. The aim of this chapter is to present a clear and specified context for this study, which focused on EBP teachers' ICT pedagogy and the influential factors for their pedagogical decisions.
Chapter 4 Methodology

A very important issue for an academic study is to design a methodology. This is presented in Chapter 4. The chapter explained the rationales for the adoption of a multi-case study for the thesis and the choices of varied methods for data collecting. In the middle of the chapter, the process of data collecting is reported. The data analysis is discussed at the third part of this chapter. When it approaches to the end of the chapter, issues about the translation of the instruments for the Chinese contexts and the Ethnic issues are discussed.

Chapter 5 Single case analysis

Four out of seven teachers' beliefs and attitudes to ICT and their ICT pedagogy were presented in this chapter. The single case study drew data collected from semi-structured interview, classroom observation, teacher focus group and student focus group. The four cases present the varied attitudes and beliefs of ICT in teaching and the different ICT pedagogies of the four teachers. Other factors that influenced teachers ICT pedagogy are discussed in each case. The single case analysis aims to view the individual teachers' activity from each teacher's particular experience.

Chapter 6 Cross case analysis

Based on the single case analysis, a cross case analysis is conducted in order to have a thorough understanding of EBP teachers' ICT pedagogy in Chinese higher education. Cross-case analysis draws evidence from all seven teachers for arguments. The cross case analysis also presents an opportunity to investigate further the influence of contextual factors on teachers' ICT pedagogy, for example, the influence of culture and traditions on both teachers' pedagogy, curriculum design and ICT policy in the university.

Chapter 7 Conclusions and implications for further research

A summary of the main findings of the study will be presented in this chapter at the beginning of this chapter and the implication of the findings. The chapter then moves to the contribution of this study to the literature and methodology design. The next two sections discusses about the limitations of the study and the future research opportunities.
1.7 Conclusion

This chapter introduced briefly the background for the study and the issues needs to be addressed in this thesis. The chapter begins with an introduction to the background of the study. It then briefly reviewed EBP teaching, ICT in Chinese higher education, followed by the presentation of the research questions and methodology. Significance of the research and the structure of the thesis comprise the last section of the chapter. The design of a study relies heavily on a profound and critical review of its relevant literature. Since the foci of the thesis are the ICT and pedagogy. It is therefore necessary to have a thorough understanding of the research in this field. It is also important to have understanding of pedagogy for EBP teaching in Chinese higher education. The next two chapters focus on literature of ICT pedagogy (Chapter 2) and pedagogy in China (Chapter 3). The two chapters provide contexts for the thesis.
2.1 Introduction
Change has been a major theme in higher education over the last five decades. Teachers have not only been agents of these changes, they have also been forced to change themselves. The introduction of ICT into higher education has been a continuous and significant part of these changes. ICT forced and continues to force teachers to change their pedagogy as they incorporate ever-changing ICT into their teaching. It is therefore necessary to review theories relating to these changes. This chapter will review the relevant literature across four key areas: the theories of teacher change; research on ICT and pedagogy in higher education; frameworks of ICT and pedagogy; and factors that influence ICT pedagogy.

2.2 Theories about teacher change
Literature about teacher change reveals four closely related theories:

- The theory of diffusion of innovations classifies adopters (teachers) of change according to their innovativeness.
- The theory of conditions of change indexes contextual situations that would support or hinder teacher change.
- The theory of the meaning of change identifies all the 'change agents' and the factors that could influence the change.
- The Concern Based Adoption Model (CBAM) specifies teachers' concern and level of use of an innovation (ICT technology for teaching).

These four theories explain how changes are processed, how changes influence teachers and how teachers react to changes. They provide a general background for researchers to understand Chinese EBP teaching and EBP teachers’ behaviour.

2.2.1 The theory of Diffusion of Innovations
The theory of Diffusion of innovations explains how innovation passed from the innovator to other individuals within the organisation. Among the contributors (for example, Havelock 1969, 1971; Rogers 1962, 1971, 1983 and 1995), Rogers is the most influential figure. Rogers (1995) defined diffusion as ‘the process by which an innovation
is communicated through certain channels over time among the members of a social system' (p. 5). Therefore, the four elements theorized in this model are 1) an *innovation*, 2) communication through certain channels, 3) over time and 4) among the members of a *social system*. Rogers emphasised that an innovation ‘is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. The perceived newness of the idea for the individual determines his/her reaction to it (Rogers, 1995 p. 11).’

![Diagram of the Diffusion of Innovation Model](image-url)

Figure 2-1 The Diffusion of Innovation model Source: Rogers (1995)

For an individual (teacher), a typical innovation decision process consists of a series of actions and choices over time at five stages. These are 1) knowledge awareness, 2) persuasion of positive attitude, 3) adoption decision, 4) implementation, and 5) confirmation. The theory suggests that potential adopters of an innovation have to learn about an innovation and to be persuaded to try it out before making a decision to adopt or reject the innovation. One should notice that the adopters could also decide to either continue using the innovation or stop using it in the following adoption and implementation, i.e. at any stage of the process where teachers are adopting and implementing ICT, they can choose to accept or reject change.

One important implication of the theory is that the adoption of an innovation is not a momentary or an irrational act but an ongoing process that can be studied, facilitated and
supported. Individuals may process the five steps to decide whether they would adopt or reject an innovation, such as applying ICT into their teaching through interpersonal interactions in the social system.

A second implication of the theory is people may adopt an innovation at different points in time. Rogers and his colleagues (Beal, Rogers et al. 1957) found there were both innovators and laggards in a university. To implement the innovation, rewards and incentives for faculty and administrators had to be provided and be in place; if not, the innovation would likely disappear. In fact, studies (Rogers, 1995) have shown that the distribution of the adopters over time tends to follow a bell-shaped curve (p.257). The adopters could be classified into five categories according to their level ‘innovativeness’, which was defined as ‘the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a social system’ (p.262). These groups are: 1) innovators, 2) early adopters 3) early majority 4) late majority and 5) laggards (p.262).

Rogers’ theory of diffusion of innovations has been applied to numerous ICT related studies in education from the teachers’ perspective (Mandinach and Cline 1994; Jacobsen 1997; Anderson, Varnhagen et al. 1998; Harmon and Jones 2000; Braun 2003; Shea, Pickett et al. 2005; Klobas and Renzi 2003). A study was conducted in the USA where Mandinach and Cline (1994) explored teachers’ adoption of technology in high school. They identified four stages of teacher change in ICT supported teaching. Anderson et al
(1997) compared early adopters and later adopters in Canadian higher education. Shea et al (2005) explored teachers’ adoption of online learning in higher education, teachers were asked by questionnaire about their perceptions of their adoption of online teaching according to the five categories of innovative adopters. The result of the study showed that adopters in different categories encountered different barriers for their adoption of online teaching.

However, the theory assumes that the interpersonal influence pattern is the determinant factor that leads to the adoption of change but tends to ignore other influential factors such as personal attitudes and beliefs, policy decisions, etc. The theory also assumes that the innovations to be adopted are initiated and developed outside the adopting system. This assumption cannot describe fully the complexity of social change that is constantly changing throughout the process (Hall, Wallace et al. 1973).

2.2.2 Ely’s conditions of change
Unlike Rogers’ research on change in higher education that emphasised the innovation itself, Ely’s theory (Ely 1990; Ely 1999) describes the impact of contextual factors on teacher change. His research suggested that innovations are not the only influencing factors. Ely argued that the ‘characteristics of the innovation are not the only factors influencing its adoption...the environment in which the innovation is to be introduced can play an equally important role in determining a change effort’s success’ (Ellsworth 2000 p.66). Ely (1999, p.24-25) identified eight conditions that facilitate teachers’ technological innovation implementation.

Ely’s framework functioned as a diagnostic tool (Newton 1993; Tearle 2003) to improve the change process because participants especially teachers will not have direct control over the environmental elements. However, it is reasonable to expect that improved knowledge about the working situation of individual teachers can lead to improved working conditions.

Ely’s model has been applied to a number of studies on ICT (Ely 1990 (a); Ely 1990(b); Ely 1993; Ely 1999; Tearle 2003), language teaching (Newton 1993) and has been set in varied cultures (Ely 1990). The results of these studies show that the eight conditions of change can be applied to most settings. For example, Newton (1993) investigated the vocabulary acquisition in a US college classroom. In addition to the eight conditions
described by Ely, he identified ten additional conditions specially related to the vocabulary acquisition context of adult education. Tearle (2003) investigated the implementation of ICT in a large number of UK secondary schools based on a framework that combined the application of the theory of diffusion of innovations, CBAM and Ely’s conditions of change. The findings of the research indicated that the implementation of ICT was substantially influenced by the eight conditions (Ely 1990; Ely 1999).

![Table 2-1 Eight conditions for change by Ely (1990)]

<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Dissatisfaction with status quo’;</td>
</tr>
<tr>
<td>Adopters’ insufficient knowledge and skills of the innovation;</td>
</tr>
<tr>
<td>Easy access to resources (e.g. hardware, software, publications, audio-visual media, funding;</td>
</tr>
<tr>
<td>Enough time to learn, adapt and integrate knowledge and skills and to reflect;</td>
</tr>
<tr>
<td>Rewards and/or incentives for involvement;</td>
</tr>
<tr>
<td>Encouraged or expected participation in the decision-making process by all;</td>
</tr>
<tr>
<td>Visible support; and</td>
</tr>
<tr>
<td>Evident leadership</td>
</tr>
</tbody>
</table>

However, because Ely’s conditions of change focus on contextual conditions, the influence of personal factors is not included in his theory. Given that many studies (Prawat 1992; Woods 1996; Somekh 1998; Preston, Cox et al. 2000; Pelgrum 2001; Pickering 2002; Tearle 2003) have identified that both personal and contextual factors attribute to changes, the application of this theory should be cautious.

### 2.2.3 Theory of the meaning of Change and change process by Fullan

Fullan’s theory of the meaning of change and change process emphasises the complexity, multidimensional nature, and multi-agents (such as teacher, principal, student, district administrator, government etc.) involvement in a change process. Fullan (1991; 1992; 2001; 2003) argued that educational change is multidimensional. Fullan argued that a change comprises at least three dimensions:

1) the possible use of new or revised materials (such as curriculum materials or technology, 2) the possible use of new teaching approaches (i.e. new teaching strategies or activities, 3) the possible alteration of beliefs (e.g., pedagogical assumptions and theories underlying particular new policies or programs).
Fullan emphasised that all three dimensions are necessary because ‘they represent the means of achieving a particular educational goal or set of goals’ (2001, p. 71).

Fullan’s theory states that change is influenced by three clusters of factors. The first cluster is the nature of the change. Fullan (1991) argued that change is a constantly changing process and the characters of a change may vary at the three phases of change. The second cluster is the local district, which include school district, the community, the principal and the teachers and are the immediate social contexts for change. The third cluster is external factors such as government departments and agencies that place the change in a broader social context. The three clusters of factors suggest the involvement of a group of stakeholders such as students, parents and teachers in the change process. Furthermore, Fullan (2003) emphasised the contextual factors, in which changes are situated, are dependent variables instead of a given condition.

Fullan (1991) outlined change into three phases: Initiation or Adoption, Implementation, and Continuation or Institutionalization. Each phase takes one to three years to complete depending on the scale of the change. Among the three phrases, Fullan (1991) argued that the phase of implementation is ‘critical because it is the means of accomplishing desired objectives’ (p.70) and the outcome of a change ‘depends on the degree and quality of...
change in actual practice' (p.70) that could be influenced by the three groups of factors.

According to Fullan (2003), the implementation of changes depends on

... the characteristics of the nature of the change, the makeup of the local district, the character of individual schools and teachers, and the existence and form of external relationships interact to produce conditions for change and nonchanges. It takes a fortunate combination of the right factors—a critical mass—to support and guide the process of relearning, which respects the maintenance needs of individuals and groups and at the same time facilitates, stimulates and prods people to change ...(p. 93)

With regard to the teachers who are facing changes, Fullan found that special attention must be paid to them because 'educational change depends on what teachers do and think' (2003, p. 115) and teachers are the people in the classroom to implement the innovation. If teachers resist implementation, implement without critical components of the change, or merely adopt it superficially, the change will not succeed.

Fullan’s theory has substantially influenced research about ICT in education, including professional development (Newmann, King et al. 2000), adoption of ICT and organisational influence (Pimenta and Machado 2002). For example, Newman and his colleagues (2000) studied nine urban elementary schools in the USA and identified five factors necessary to facilitate change: 1. Knowledge, skills and dispositions of individuals; 2. Professional community; 3. Program coherence; 4. Technical resources; and 5. Principal Leadership. A study (Koutromanos 2005) was conducted in Greece, based on Fullan’s model of implementation and Ajzen’s Planner Behaviour Theory, to explore how the beliefs and attitudes of different stakeholders impacted on adopting ICT in primary school. A case study (Pimenta and Machado 2002) traced innovation in undergraduate courses at a traditional Portuguese university department on the basis of Fullan’s theory. The study found that organisational and information system contexts were key influences on the process necessary to create conditions conducive to change within a particular educational setting.

However, because Fullan attempted to address the complexity of change in education, the application of his theory to studies is very difficult for data collecting and analysis. Although Fullan’s work has been much quoted in educational literature, only a small
number of studies have applied his theory empirically to data collection.

Fullan’s theory is developed from his work on secondary and primary school education in the USA. The contextual factors such as the role of local communities and the role of governments are specific in his studies. For the current study, there are two important differences from the studies conducted by Fullan and his colleagues. First, the study focuses on higher education. Second, the study is located in China and its influence of local factors, and external factors are different. For example, the role of parents and the local government to the implementation of ICT in the site university is very weak. This is because many students in higher education are far away from their family and universities in China are seldom asking parents for their opinions when making decisions. Weak local government influence resulted from the fact that the university is attached to the ministry of education rather than local government.

2.2.4 The Concern based adoption model (CBAM) by Hall

Hall and her colleagues’ (1973) work particularly focused on teachers’ concerns in the change process. Here, the concept of ‘concerns’ has been described as ‘the composite representation of the feelings, preoccupation, thought, and consideration given to a particular issue or task’ (Hall and Hord 1987 p.59). They argued that change is a process not an event and it is necessary to examine the various concerns experienced by individuals in relation to change because ‘depending on the personal make-up, knowledge, and experience, each person perceives and mentally contends with a given issue differently; thus there are different kinds of concerns’ (Hall and Hord 1987 p.59).

Table 2- 2 Stages of Concern (SoC) by Hall and Loucks et al 1975

- **Stage 0 Awareness**: Teachers may be aware of the innovation but have little concern or involvement with the innovation.

- **Stage 1 Informational**: Teachers concern occurs when they would like to know more about the innovation.

- **Stage 2 Personal**: Teachers want to learn about the demands of the innovation and their own ability to meet the demands. They question how the innovation will affect them.

- **Stage 3 Management**: Teachers concern about the administrative or logistical challenges of the innovation. They focus on knowledge about information and resources.
Stage 4 Consequence: Teachers question the innovation's impact on students.

Stage 5 Collaboration: Teachers worried about the cooperation with other teachers in implementing the innovation.

Stage 6 Refocusing: Teachers consider the benefits of the innovation and think of additional alternatives that might work even better.

Two dimensions of the Concerns-Based Adoption Model (CBAM) (Hall and Loucks 1975; Hall, A. et al. 1979; Hall and Loucks 1979) deal with teacher changes. These are the stages of concern (SoC) and the level of use of innovations (LoU). Stages of concern focus on seven kinds of concern teachers experienced as they adopt a new practice. While Stages of Concern (SoC) on teachers' feelings, preoccupation, and thought, the Level of Use (LoU) presents the behaviour progress in implementing the innovation.

Table 2-3 Level of Use (LoU) by Hall and Loucks et al 1975

- **Level 0 Non-Use:** The teacher knows little or nothing about the innovation. They are not involved in it anyway or taking any action to be involved.
- **Level I Orientation:** The teacher is taking the initiative to gain information about the innovation.
- **Level II Preparation:** The teacher is ready for the first time to be involved in the innovation.
- **Level III Mechanical:** The teacher focuses on short term, specific use but do not have enough time to reflect their use.
- **Level IVa Routine:** The teacher is making few or no changes and has an established pattern of use.
- **Level IVb Refinement:** The teacher is making changes to increase both short- and long- term outcomes.
- **Level V Integration:** The teacher is making deliberate efforts to coordinate with their colleagues in using the innovation.
- **Level VI Renewal:** The teacher is seeking major modifications or new innovations that might improve the effects of the original innovation after re-evaluating it.

The CBAM suggests that teachers need time to alter their 'concerns' about the change. One significant factor of CBAM is that the two dimensions discussed above are closely
related. They provide a metric for the same change process of individual teachers across time (Hall and Hord 1987), taking into consideration of both concerns and behaviours. CBAM also offers a unique way to track the progress of teachers in an innovation and to describe systematically the implementation of an innovation. In this sense, it is a powerful framework for assessing and tracing innovative progress at the level of individual teachers.

Both SoC and LoU have been applied to ICT related research. Much research offers insights into the importance of concerns with reference to technology integration (Martin 1989; Hope 1997; Mills 1999; Atkins and Vasu 2000; Newhouse 2001; Vaughan 2002). For example, Hope (1997) in a study of 16 elementary teachers found that ‘the intensity of teachers’ concerns about an innovation and the degree to which those concerns can be resolved have bearing on successful innovation implementation’ (p. 150). Vaughan (Vaughan 2002) conducted concern based research into the benefits of a two week intensive technology integration program on 79 K-12 teachers which utilized both the SoC questionnaire and qualitative methods in order to add complexity and depth to the SoC findings. Dobbs (2005) explored higher education faculty concerns when faced with developing a course for the online environment, using the Statement of Concerns Questionnaire (SoCQ) from the Concerns Based Assessment Model (CBAM). The results of the study indicate that classroom training and hands-on laboratory training are effective in addressing the concerns that participating faculties face when developing an online course for the first time.

Table 2-4 Teachers’ developmental stages identified in ACOT project (1995, p. 16)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Examples of What Teachers Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry</td>
<td>Learn the basics of using new technology</td>
</tr>
<tr>
<td>Adoption</td>
<td>Use new technology to support traditional instruction</td>
</tr>
<tr>
<td>Adaptation</td>
<td>Integrate new technology into traditional classroom practice. Here, they often focus on increased student productivity and engagement by using word processors, spreadsheets, and graphics tools.</td>
</tr>
<tr>
<td>Appropriation</td>
<td>Focus on cooperative, project-based, and interdisciplinary work-incorporating the technology as needed and as one of many tools.</td>
</tr>
<tr>
<td>Invention</td>
<td>Discover new uses for technology tools, for example, developing spreadsheet macros for teaching algebra or designing projects that combine multiple technologies.</td>
</tr>
</tbody>
</table>

With regard to the LoU, one example is the Apple Classrooms of Tomorrow (ACOT)
projects, which found that teachers must travel through a number of developmental stages before they have fully integrated technology into their teaching (see Table 2-4).

The Levels of Computer Use assessment (LCU) questionnaire (Marcinkiewicz and Welliver 1993; Marcinkiewicz 1993), which was based on CBAM, could be applied to classify teachers’ use of computers into three levels. The questionnaire has been applied to a number of studies (Marcinkiewicz and Welliver 1993; Marcinkiewicz 1993; Atkins and Vasu 2000; Koszalka 2001) among primary and secondary school teachers. The findings of these studies indicate a correlation between the LCU and SoC. Similarly, Levels of Technology Implementation framework (LoTi) (Moersch 1995) is aligned conceptually with the CBAM and has seven discrete implementation levels ranging from Nonuse 0 to Refinement 6. The questionnaire has been applied in several studies (Mills and Ragan 2000; Moersch 2001; Mills and Tincher 2003) to evaluate the levels of technology integration for a group of K-12 teachers. However, the application of the CBAM theory means the adaptation of certain assessment instruments for the specific context. When the current study was conducted, little was known about the ICT use in Chinese EBP teaching, which suggested that such contextualisation of instruments would be premature. However, it would be possible after an exploratory study, such as the one described in this thesis.

To summarise, the review of teacher change in higher education provided insights into the nature of change and the process of change. It also identified factors that influence the adoption and implementation of change. Change is a complex, time-consuming process (Hall, Wallace et al. 1973; Hall, A. et al. 1979; Ely 1990; Fullan 1991). It is a learning experience for the agents involved in the process. The review of the theories of change has identified five clusters of factors that influence teachers’ adoption and implementation of innovations:

- Change is a process, there are stages to adopt a change (Hall, Wallace et al. 1973; Hall, A. et al. 1979; Ely 1990; Fullan 1991).
- Teachers’ adoption and implementation of a change varied and they need time for the process (Hall, Wallace et al. 1973; Ely 1990; Fullan 1991; Rogers 1995).
- Teachers’ personal factors such as concerns about change, perception about change, could influence their change and their concerns change along the changing process (Hall, Wallace et al. 1973; Hall and Loucks 1979; Dwyer,
• Contextual factors such as the situation of school, the support from the management and/or policies about change influence teacher change (Ely 1990; Newton 1993; Ely 1999; Tearle 2003)
• Teacher change is embedded in a complex social system (Hall, Wallace et al. 1973; Fullan 1991; Fullan and Hargreaves 1992).

2.3 ICT pedagogy and related models
Researchers in both secondary (Cuban 1988; Fullan 1991; Webb 2002; Cox, Webb et al. 2004) and higher education (Laurillard 1993; Dearing 1997; Laurillard 2001) argued that ICT should be pedagogically sound to fulfil its potentials to support learning and teaching and it is important to change pedagogy to fulfil the potentials of ICT. This section examines literature on pedagogy and ICT in higher education. The section will also discuss a number of pedagogical frameworks that have emerged not only in higher education but also in secondary education. This is because the application of pedagogical frameworks often goes beyond its original setting and is applicable for varied educational levels.

2.3.1 Research on pedagogy and ICT in higher education
A survey in the UK (Browne and Jenkins 2003; Browne, Jenkins et al. 2006) showed that by 2003 86% of UK higher education institutions who responded to the survey now have at least one VLE in use. The same survey reported that the use of VLEs was predominantly supplementary to face-to-face teaching. In China, a similar survey (MOE China 2005) was conducted in 2004. The result indicated that by the end of 2003, more than 70% of Chinese higher educational institutions who responded to the survey had established campus intranets. The introduction and integration of ICT into higher education has substantially changed teacher and teaching practice in higher education. Research (Laurillard 1993; HEFCE 1997; Conole and Oliver 1998; Watson, Blakeley et al. 1998; Loveless and Ellis 2001; Oliver, MacBean et al. 2002; Paulson 2002; Kirkup and Kirkwood 2005; Browne, Jenkins et al. 2006) investigated the pedagogical soundness of ICT in higher education. Such research approached ICT and pedagogy from three aspects:

• Pedagogy embedded in course design
• Pedagogy in students' learning
• Pedagogy from teachers’ perspectives

The first group of studies focused on the pedagogy embedded in course design (Laurillard 1993; Squires and McDougall 1994; Bates 1995; McDougall and Squires 1995; Conole and Oliver 1998; Shrivastava 1999; Bates 2000; Squires, Conole et al. 2000; Conole and Oliver 2002; Cantoni, Cellario et al. 2004) attempted to explore efficient pedagogical functions of educational programs. The findings of this research assist course design for better learning outcomes. For example, Squires and McDougall (1994; 1995) suggested that the design of educational software should consider three issues: how students’ learning can be improved by using software, how teachers use software to improve and extend their teaching, and how teachers and students interact in classrooms in which software is being used. Shrivastava (1999) emphasised the convergence of varied technologies such as hardware, software, web design and authoring, instructional design, telecommunications, and Internet and Intranet network management for online learning environments design. Laurillard (1993) analysed different teaching medias such as audio-visual, hypermedia, interactive media, adaptive media and discursive media and discussed effective teaching with multimedia methods in higher education through ‘conversations’ between the learner and the tutor. Conole and Oliver (1998) furthered the work by specifying the level of interactions and grading the pedagogical functions of each media type in a ‘learning scenario’ to help teachers choose media for ‘pedagogically – driven’ ICT supported learning.

Studies focused on ICT and course design analysed the pedagogical application of ICT in education and provided the possibilities for using ICT to construct new affordances for specific learning or teaching activities. These studies are of particular help to course designers and their decisions about media use and the format of learning contents.

The second group of studies approached ICT pedagogy in higher education from students’ perspectives. In fact, reports about students’ experiences in ICT-supported learning are predominant in the field of ICT and pedagogy research (for detail see a review by Sharpe and Benfield 2005).

Except for the studies reporting positive achievement, two noticeable aspects are students’ changed learning activities and concerns raised by students about using ICT in learning (Mason and Weller 2000; Lockyer, Patterson et al. 2001; Baptista-Nunes and
McPherson 2002; Milliken and Barnes 2002; Salmon 2002; Fox and MacKeogh 2003; Salmon 2004; Sharpe and Benfield 2005; Sharpe, Benfield et al. 2006). For example, benefits for collaborative learning (McConnell 2000; Nachmias, Mioduser et al. 2000; Vermeer 2000; Lockyer, Patterson et al. 2001; Fox and MacKeogh 2003; Salmon 2004) and increases in students' autonomous learning (Jong, Joost et al. 1992; Zhang 2004) are two repeatedly reported findings in many studies on students' learning in higher education. For example, a study (Nachmias, Mioduser et al. 2000) involving 115 graduate students from six courses at the Tel-Aviv University School of Education found enhanced students' collaborative learning with the support of Web-based tools.

Researchers also noticed concerns raised by students about using ICT in their learning. For example, Mason and Weller (2000) reported the result of a large scale and carefully evaluated student satisfaction survey about a course from the UK Open University, 'You, Your Computer, and the Internet'. The research revealed that three factors were important for a positive student learning experience: amount of time they spent on the course, support from the tutor or other staff or students and the course design. Similar findings were reported in Allan's (2004) and Cramphorn's (2004) studies. Hughes and Daykin (2002) found it was difficult for students to go beyond interactions of socialisation and information sharing. Ramsey (2003) found it difficult to engage students in productive peer feedback in online learning environment.

Studies from students' perspective provided special lenses for researchers and teachers in higher education to look through and understand the impact of ICT on students' learning and their needs, perceptions, and motivations in a new environment. Teachers should understand that ICT could enhance student's autonomy and foster their learning achievements. However, students have concerns about their learning with ICT, they need support from their teachers to overcome their concerns such as managing time, collaborating with peers and obtaining constant feedback from teachers. The findings of these studies provided rich references for teachers to make their pedagogical decisions based on a student-centred approach.

The third group of studies focused on the role of teachers in the ICT supported environment, though the number is limited. Researchers in school education (Fullan 1991; Cuban 2001; Cox, Webb et al. 2004) argued that teachers are of crucial importance to implement ICT pedagogy and it is necessary to understand teachers' behaviours and the
reasons for their behaviour to support their change in the new teaching environment. Even studies on students from both school and higher education (Burge 1994; Annand and Haughey 1997; Galanouli and Collins. 2000; Anderson, L. Rourke et al. 2001; Santallusia 2002; Mackinnon 2003; McPherson and Baptista Nunes 2004) recommended changes to the role of teachers to scaffold fully students’ learning (Kennewell 2001). ICT required a shift from teaching as the transmission of knowledge to teaching as the facilitation of learning (Kember and Kwan 2000), which implied a change of teacher’ knowledge, beliefs, pedagogical knowledge and their role to support the shift in the locus of control over student learning. Thus, studies on teachers in higher education focused on three aspects: teachers’ knowledge, teachers’ beliefs and teachers’ role in teaching process.

The first topic about teachers in higher education is the teachers’ knowledge base (Shulman 1987; Freeman 1993; Freeman 1996; Woods 1996; Borg 1999; Freeman 2002; Borg 2003; Mullock 2006). Researchers (Loveless and Ellis 2001; Webb 2002; Webb and Cox 2004; Loveless 2006) called for more attention to change teachers ICT related pedagogical knowledge and ICT pedagogical content knowledge (Shulman 1987) in order for ICT to be integrated into teachers’ current teaching practice. Laurillard (1993) argued that:

Teachers need to know more than just their subject. They need to know the ways it can come to be understood, the ways it can be misunderstood, what counts as understanding: they need to know how individuals experience the subject. But they are neither required nor enabled to know these things. (p.6)

Similarly, Berge’s (1998) and Schifter’s (2000) studies in distance education implied that teachers need to update their knowledge of theories of learning and teaching so as to overcome the difficulty and teach smoothly in ICT supported or online education. However, the acquisition of pedagogical knowledge in higher education was not common among teachers. For example, researchers (Kolari and Savander-Ranne 2002; Pickering 2002; Kreber 2003; Loveless 2006) argued that teachers in higher education are usually strong in content knowledge relating to their discipline but limited in knowledge of theories of learning and strategies of teaching.

The second topic about teachers in higher education is teachers’ beliefs and attitudes to
ICT and their teaching practice. Many studies (Fullan 1991; Fullan and Hargreaves 1992; Woods 1996; van Driel, Beijaard et al. 2001; Fullan 2003) owe the failure of past educational reform to lack of understanding of teachers’ existing knowledge, beliefs, and attitudes, which ‘seemed to underlie everything that the teachers did and said’ (Woods 1996 p. 282). Becker (2000) found that an individual teacher's general attitudes towards student learning may directly affect how that teacher utilizes ICT in his or her classroom. McFarlane, Green, and Hoffman (1997) found that in addition to the perceptions about ICT in teaching, the usefulness of the technology for job performance and its ease of use became two very important issues for teachers’ ICT related pedagogical decisions. Studies conducted in secondary and primary school by Preston, Cox, and Cox (2000) had similar findings. In their study, Preston et al (2000) noticed that motivation is a very important factor, which encourages teachers to uptake and implement ICT in the classroom. Here motivation refers to a series of beliefs that positively supported teachers’ adoption of ICT in teaching.

Research on teacher behaviours (Prawat 1992; Woods 1996; Prawat 2000) in recent years has incorporated teachers’ knowledge and beliefs, assumptions (BAK) as a set of interrelated ‘propositions ... and the relationships among them’ (Woods 1996 p. 196). Woods (1996) argued that knowledge, assumption and beliefs are not distinct concepts, but rather are points on a spectrum of meaning (p.195). This is because perceptions represent knowledge with qualitative, spatial and temporal limitations (Dewey 1938) and beliefs are often considered as part of knowledge (Fenstermacher 1986; Pajares 1992). The use of BAK avoids the unnecessary dispute over the subtle distinction between the three concepts. The aim of this study is to explore the factors that influence teachers’ ICT pedagogy. Though the focus of the study is teachers' beliefs and attitudes, the thesis does not intend to separate beliefs from knowledge and perceptions due to their nature as a spectrum of meaning (Woods 1996).

Studies on language teachers’ knowledge were reported from mid-1980s (Horwitz 1985; Horwitz 1985). One group of researchers studied teachers’ beliefs and knowledge’s about language teaching (Horwitz 1985). A number of studies (Horwitz 1986; Horwitz 1988; Horwitz 1989; Cotterall 1995; Kern 1995; Cotterall 1999; Peacock 1999; Peacock 2001) in this field found that many EFL pre-service teachers had incorrect beliefs about foreign languages learning that could effect their teaching in the future. These authors also found
that the incorrect beliefs were difficult to be removed from student trainees if tutors ignored them. Another group of researchers (Freeman 1993; Freeman 1996; Freeman and Johnson 1998; Borg 1999; Gatbonton 2000; Freeman 2002; Savukova 2002; Borg 2003; Mullock 2006) focused on teachers’ ‘unobservable cognitive dimension of teaching’ (Borg 2003 p. 81) and has incorporated teachers’ beliefs and knowledge into one concept (Woods 1996). Development of teachers’ knowledge and beliefs was strongly affected by their prior language learning experience (Golombek 1998; Gatbonton 2000; Peacock 2001; Savukova 2002), professional coursework (Smith and Schirato 1990), contextual factors (Breen 1985; Burns, Joyce et al. 1996; Tsui and et al. 1996), and classroom practice factors (Woods 1996; Breen, Hird et al. 2001). However, these studies were only about language teachers’ knowledge and beliefs of language teaching and learning, none predominantly discussed about teachers’ knowledge and beliefs of application of ICT to language teaching.

With regard to EBP teaching, little literature is available about teachers’ beliefs and knowledge about teaching and learning, not to mention the application of ICT. This might reflect St. John’s (1996) argument that EBP teaching is learner centred and little research is done from teachers’ perspectives. Some books (Ellis and Johnson 1994; Breiger 1996; Dudley-Evans and St. John 1998) about EBP teaching published in 1990s talked about teachers’ need to know students’ needs and teachers must be experts in English but it was not necessary for them to be business experts. This was however, based on the authors’ observation that many learners in EBP courses in the UK or the USA were experienced business experts, they came to the courses to improve language efficiency rather than business expertise. Such is not the case in China because many EBP learners in Chinese higher education have no or little experience in business (Chapter 1.2.2 and Chapter 1.5.1). Therefore, researchers (Lin 2001; Pang, Zhou et al. 2002; Chen 2004; Lin 2004) in China called for a balance between English proficiency and business expertise for its EBP teaching. Researchers (Lin 1999; Chen 2004) claimed that EBP teaching required teachers to be professional in both business and English knowledge. Such claims were based on their understanding that quite a number of EBP teachers who were converted from general English teaching lacked enough knowledge about business. However, no empirical study is reported on teachers’ pedagogical knowledge base and their beliefs about EBP teaching.
The third topic about teachers in higher education investigated the teachers' role in the teaching process after the incorporation of ICT into the teaching environment (Catalano and Catalano 1997; Harden and Joy 2000; McPherson and Baptista Nunes 2004). As discussed earlier in this section, even studies focused on students' learning reported the necessity for teachers to change their role to support student learning. Studies focused on teachers further identified the role of teachers in the ICT supported teaching environment. For example, a study (Harden and Joy 2000) in UK medical education summarised the teachers' role in an ICT supported course into six aspects. Teachers were (1) information provider; (2) role model; (3) facilitator; (4) assessor; (5) planner; (6) resource developer. Anderson and Rourke et al (2001) delineated three critical roles that a teacher performs in the process of creating an effective teaching presence. The first is the design and organisation of the learning experience that takes place both before the establishment of the learning community and during its operation. Second, teaching involves devising and implementing activities to encourage collaborative learning between and among students, between the teacher and the student, and between individual students and groups of students and content resources (Anderson 2003). Third, the teaching role also involves direct instruction to add subject matter expertise to students.

Other researchers (Berge 1995; Paulsen 1995) had similar a classification of teacher roles in e-learning environments. The classifications of teacher roles by these researchers are overlapping in many aspects. This suggests a widely accepted opinion that teacher roles are changing to fit the more student centred learning approach in higher education where knowledge is not given but constructed by students from autonomous or collaborative learning supported by teachers and ICT. New learning theories resulted in teachers changing their role from that of traditional teacher centred teaching to one of student centred learning.

In the last two decades, researchers (Anderson 1993; Cortazzi and Jin 1996; He 1999; Boyle 2000; He 2000; Berry 2003) called teachers in China to change their teacher centred teaching approach. Foreign language teaching was criticised for its inefficiency in many cases (Dai 2001; Hu 2002; Cai 2003; Cai 2004; Cai 2004). Some researchers (Jing 1999; Hu 2002; Cai 2003) claimed this was the result of unchanged teacher centred pedagogy (see Chapter 3).

However, research on pedagogy in higher education is limited. For example, few papers
on pedagogic related research in higher education were accepted for publication (Baume and Baume 1996; Healey 2003) and ‘little attention is being paid to how knowledge in this field is acquired and constructed (Kreber 2003 p.118). Healey (2000) observed that ‘debates about progress in the disciplines have focussed on the content and methodology of the subject and have largely ignored the role of teaching’ (p. 173). He argued that such a situation was not supportive for pedagogy research in higher education. Nevertheless, studies on pedagogy drawn from education at school level have improved our understanding of ICT pedagogy and a number of pedagogical frameworks have been developed which are discussed in the following section.

2.3.2 ICT and pedagogy frameworks

Along with the research on ICT pedagogy for both higher education and school level education, a number of pedagogical frameworks were developed to assist teachers’ pedagogical change. These frameworks focused on three aspects, namely, course design (Laurillard 1993; Squires and McDougall 1994; Conole and Oliver 1998), students’ learning outcome (Twining 2002), and teacher and learners (Reimann and Goodyear 2003; Cox, Webb et al. 2004; Webb and Cox 2004; Webb 2005). However, because pedagogical research in higher education is limited and because research on pedagogical frameworks in school education can be applied to higher education to some degree, the pedagogical frameworks in this section draw from research in both higher education and school education.

2.3.2.1 Pedagogical frameworks focused on course design

- 2.3.2.1.1 Perspectives Interaction Paradigm by Squires and McDougall (1994)

A starting point is provided by the Perspectives Interaction Paradigm (PIP) of Squires and McDougall (Squires and McDougall 1994; Squires and Preece 1999). This framework for software evaluation recognises the influence on learning of three main perspectives (software designer, teacher, and student) and takes into account three sets of interactions between them as shown in figure 2.4:

- Teacher-student: a two-way direct interaction: One of the main variables here is the teacher role, which may be ‘resource provider’, ‘manager’, ‘coach’, ‘researcher’ or ‘facilitator’.

- Designer-student: primarily a one-way influence, although the designer’s perception of a student’s characteristics and activities will also be influential implicitly.
- Designer-teacher: again, primarily a one-way influence, with the designer's perception of the teacher having some influence.

![Designer-teacher model](image)

Figure 2- 4 Perspectives Interaction Paradigm by Squires and McDougall (1994)

The PIP framework is intended to evaluate the pedagogical soundness of educational software. It is therefore more applicable for programmer designers when thinking about the application of the certain pedagogical functions of ICT elements in educational software than for teachers to apply ICT in the classroom.

- **2.3.2.1.2 Conversational framework by Laurillard (1993, 2001)**

The conversational framework (Figure 2.5) developed by Laurillard (1993; 2001) approaches the design of learning technology from the viewpoint of student learning. She argues that 'it is clearly important to base a teaching strategy on an understanding of learning... The character of student learning is elusive, dependent on former experiences of the world and of education and on the nature of the current teaching situation' (Laurillard 1993). Laurillard (1993) identified four main aspects of the teaching-learning process as follows:

- Discussion between the teacher and learner at the level of descriptions
- Interaction between the learner and some aspect of the world defined by the teacher
- Adaptation of the world by the teacher and action by the learner
- Reflection on the learner's performance by both teacher and learner
Laurillard argued that only technology that could meet the aims of the four aspects is the ‘multimedia tutorial simulation’. Laurillard (1993) proposed the forming of an information rich environment in which the student has control in discovering knowledge, supported and scaffolded by extra guidance functions for subsequent learning. For example, the computer based intelligent tutoring systems and tutorial simulations can achieve one-to-one learning through the conversation between a student and the program with varying degrees of success.

Figure 2-5 Conversational framework by Laurillard (1993, 2001)

Laurillard developed a set of criteria for pedagogical application of media types for different teaching or learning activities. The framework is able to help significantly in the design and development of computer based courseware. It can also help teachers to decide the media types they are going to use for particular actions in the classroom instruction involving the use of ICT types. Laurillard’s framework has been further developed by Conole and Oliver (1998) for a pedagogical methodology, which aims to embed ICT effectively into the curriculum.

- 2.3.2.1.3 Tool kit for online course delivery by Conole and Oliver, 1998

Conole and Oliver (1998) proposed a methodology for embedding ICT curriculum design, which involves five steps (Table 2-5)

Along with the methodology, a series of media comparison tables are developed for
practitioners to make a choice for the relevant activity in a learning scenario. According to Conole and Oliver (1998), a learning scenario is characterized as media type, media use, required preparatory work, supporting educational interaction and delivery constraints (p.7). Analysis of the learning scenario can identify the interactions between teacher and students, mediated by ICT and other media types.

Table 2-5 Tool kit for online course delivery by Conole and Oliver, 1998

<table>
<thead>
<tr>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reviewing the current course structure</td>
</tr>
<tr>
<td>Identifying areas that could be enhanced</td>
</tr>
<tr>
<td>Establishing replacements or additions to the current structure by working through the media comparison tables</td>
</tr>
<tr>
<td>Deciding the final adopted structure for a ‘learning scenario’</td>
</tr>
<tr>
<td>Linking the learning scenarios to an integrated course</td>
</tr>
</tbody>
</table>

Adapted from Conole and Oliver, 1998 p. 13-14

Both the conversational model and the embedding ICT curriculum model identify issues to be considered for ICT-based curriculum design. They also provide tools to assist the decisions. However, neither framework goes behind teachers’ decisions or the relationship between the pedagogical decisions and teachers’ knowledge or perception and attitudes. It is therefore, not applicable for studies that aim to explore such relationships.

2.3.2.2 Pedagogical frameworks focused on student learning outcome

2.3.2.2.1 The Computer Practice Framework (CPF) by Twining (2002)

Twining (2002) proposed a computer practice framework (CPF) to investigate ICT as learning tools in students’ computer related learning practice. According to Twining, CPF is to provide ‘a conceptual tool for thinking about and comparing the educational practices surrounding computer use’. As shown in figure 2-6, the CPF consists of three core dimensions called:

- **Quantity**: the proportion of time of computer use by students in a school day (all available learning time)
- **Focus**: the objectives supported by the computer use, which could be further divided into 1) developing IT skills, knowledge and understanding, 2) supporting learning other than IT skills and 3) other
- **Mode**: the impact of computer use on the curriculum (content and process) in the
broadest sense from three aspects: supporting, extending or transforming

![Diagram]

Figure 2-6 The Computer Practice Framework (CPF) by Twining (2002)

One should notice that the Focus dimension only applies when there is some computer use and the Mode dimension only applies when the computer use falls into the Learning Tool category on the Focus dimension.

The CPF focuses on the actual application of ICT to students' learning activities. It can be applied to identify the different degree of computer use for learning purpose in two contexts. However, it does not attempt to explain the underlying factors on which those practices are based, nor the teachers' role in the process.

2.3.2.3 Pedagogical framework focused on teacher and students

• 2.3.2.3.1 Constraints and affordances of ICT by Kennewell, 2001

Kennewell (2001) proposes a framework (Figure 2.7) to gain 'a clear view of the contribution made by ICT to the effectiveness of teaching and learning (p102)', based on the concept of affordances and constraints of ICT in a teaching episode. According to Kennewell, the attributes of the supporting features can be classified as affordances (Gibson and Walker 1984) and constraints (Greeno 1994).

'The affordances are the attributes of the setting which provide potential for action; the constraints are the conditions and relationships amongst attributes which provide structure and guidance for the course of actions. ... Constraints are not the opposite of affordances; they are complementary and equally necessary for activity to take place (Kennewell 2001 p.106)’. Therefore, in a teaching episode, students’ progress towards the task goal ‘depend on the potential for appropriate action provided by the affordances of the setting, and the structure for appropriate action provided by the constraints of the
setting together with their abilities'.

Meanwhile, the role of the teacher is to orchestrate the affordances and constraints in the setting in order to maintain a gap between students’ existing abilities and those needed to be achieved in the task outcome either directly or indirectly (Figure 2.8).

Kennewell’s model emphasizes the impact of ICT on students’ learning and the role of teachers to support students’ learning. Successful identification of affordances and constraints for students’ learning activities will help teachers to understand the nature of ICT and to guide pedagogical decisions to scaffold students’ learning. However, though the framework can help teachers to make decisions, it does not touch the area about how teachers can identify the affordances and constraints and what other factors except ICT itself may influence teachers’ decisions.

Furthermore, the assumption of this framework is that teaching is set in an ICT-supported environment. Therefore, it is not applicable for the analysis of those teaching without ICT.
support.

- 2.3.2.3.2 ICT pedagogy model by Cox and Webb

Webb and her colleagues (Webb 2002; Webb and Cox 2004; Webb 2005) proposed an ICT pedagogy conceptual framework, which as shown in figure 2.6, incorporates the pedagogical reasoning of teacher (Shulman 1987), linking teachers' knowledge, beliefs and values, to their ICT pedagogical decisions and teaching behaviours.

The framework highlights the needs for change in both teachers’ and students’ beliefs and knowledge. For the teachers, they

...need to understand the relationship between the affordances of a range of ICT resources and the detailed knowledge of the concepts, processes and skills in their subject. Teachers need to use their knowledge of learners together with their subject expertise to select appropriate ICT resources that will provide affordances to enable students to meet the learning objectives. They need to decide how to deploy these resources in whole class, individual and small group teaching so that appropriate affordances are provided and students perceive and understand the affordances and are motivated to make use of them (Webb 2002 p.727).

Figure 2-9 Framework for ICT pedagogy by Webb and Cox 2004

That is to say, as a teacher who wants to teach successfully in an ICT rich environment, he/she needs to change or adjust in the following aspects for the new teaching
environment.

- Improving subject knowledge, general pedagogical knowledge and ICT pedagogical knowledge used in his/her pedagogical reasoning and pedagogical practices
- Understanding his/her crucial roles in planning the learning experiences of their students using ICT and in promoting their learning
- Change of his/her beliefs about ICT and teaching
- Change his/her beliefs about students’ learning

The framework emphasised that teachers’ beliefs and knowledge base are key to the implementation of ICT pedagogy. It has also identified the complicated process of teachers’ ICT pedagogical decisions in a teaching activity. It also included the physical contexts that the teaching activity is situated. However, the contextual factors in the framework were limited to the setting of the classroom. The ICT pedagogy framework does not provide specific tools or instruments to collect data for comparisons.

- **2.3.2.3.3 Teacher as manager and designer by Reimann and Goodyear (2003).**
Based on their investigation of the literature of ICT supported pedagogical frameworks, Reimann and Goodyear (2003) identified two main roles emerging for teachers that work with ICT and within one or more of the pedagogical frameworks: the teacher as a designer and the teacher as a knowledge manager.

By saying teacher as a designer, Reimann and Goodyear (2003) argued that the core task of future teachers is to

... analyze students’ needs in specific curriculum areas, plan for the use of learning resources in their classrooms and at home, select among available alternatives, configure resources for supporting specific learning activities, manage the classroom, and critically evaluate students’ learning and their own practice (p. 34)

This task described here is similar to the instructional role of teacher (Anderson, L. Rourke et al. 2001) but focuses more on activities of selection and configuration (Brown and Edelson 2003).
The teacher as manager implied that teachers are not just responsible for keeping the discussion among students going, but for making sure that these discussions go somewhere where new insights and ideas become possible (Scardamalia and Bereiter 2003).

Reinman and Goodyear’s model defined teachers’ roles in an ICT supported environment. There are two assumptions behind the model. First, ICT has already been applied to teaching and therefore, the model emphasised design of classroom activity and teaching content to fit the ICT supported teaching environment. Second, all teaching activities are organised on a student-centred approach and teachers are fully aware the potential of ICT for students’ learning when making ICT related pedagogical decisions. The model did not applicable to this study for two reasons. First, the model assumed that ICT has become essential elements of teaching (first assumption). When the study for this thesis started, little was known about the uptake and integration of ICT for EBP teaching in Chinese higher education. Second, the model assumed that all teaching activities have been organised on a student-centred teaching approach (second assumption). However, literature review (Chapter 3) indicated that pedagogy in China was still teacher centred. This implied that EBP teaching in Chinese higher education would still be teacher centred even after the introduction of ICT to its teaching.

2.4 Factors that influence ICT pedagogy

The review of pedagogical research in higher education and the pedagogical frameworks emerging from the related research have identified factors that influence teachers’ implementing of ICT pedagogy. These include personal factors such as teachers’ knowledge, attitude and beliefs of ICT and pedagogy; the contextual factors such as ICT related policy, support from the university and the availability of professional development. This section is a summary of the factors that have been identified from the literature that has been discussed in the previous sections. Cultural influence on teachers’ pedagogy has also been identified in this study. The review of cultural influence on Chinese EBP teaching will be presented in Chapter 3.

2.4.1 Personal factors (Knowledge, attitudes and beliefs)

important determinants and predictors of teaching practices because belief systems are key to understanding pedagogic knowledge and pedagogic practice. Kagan (1992) argued that 'the more one reads studies of teacher beliefs, the more strongly one suspects that this piebald of personal knowledge lies at the very heart of teaching (Kagan 1992 p.85). For example, Woods (1996) examined the beliefs, assumptions, and knowledge (BAK) of eight language teachers and found that BAK 'seemed to underlie everything that the teachers did and said' (p.282). It was only by addressing individual beliefs and values that it would be possible to work towards understanding of teacher behaviour and the changes of their behaviours (Smylie 1995).

Attitudes and beliefs system were identified as significant elements which influence teachers' adoption and integration of ICT in school teaching (Fang 1996; Jonassen, Peck et al. 1999) and university teaching (Laurillard 1993; Becker, Ravitz et al. 1999; Becker 2000; Becker 2000; Anderson and Petch-hogan 2001). Jonassen, Peck and Wilson (1999) suggested that the changed teaching practice required the change of teachers' beliefs and knowledge about learning and teaching. Studies in the UK (Webb 2002; Webb and Cox 2004) indicate that teachers needs to improve their ICT pedagogical knowledge and ICT pedagogical content knowledge in ICT supported teaching.

2.4.2 Contextual factors
Researchers (Preston, Cox et al. 2000; Loveless and Ellis 2001; Cox, Webb et al. 2004) pointed out the influence of the political and cultural environment around. The contextual factors cover a wider landscape with policy decision, local government and school support as well as the formation of learning communities. As Preston et al (2000) argued the change of environment factors in the field of ICT in education is of more importance than other educational change because many reforms are initiated by governments. Teachers must feel that they will be supported by those in leadership roles (O'Connell and Freidus 2001).

Fullan listed nine interactive factors that could effect the implementation of educational change. Teachers are interactive with a number of contextual factors in the process of change. These include the characters of the school, the local community, the principal, the government and other agencies. Fullan (2002) identified staff development and participation, support from the head, good communications and an internal (or local) consultant to support teachers as some key features that will lead to a successful
innovation. Ely’s conditions of change also highlighted the powerful influence of contextual factors in a change process. His work suggests that teachers need to be supported for their change as change is not a comfortable process (Somekh 1998).

\subsection*{2.4.3 Professional development}

One issue closely related to the changed teaching is professional development or staff development (Fullan 1991; Fullan and Hargreaves 1992; Reinen and Plomp 1993; Beare 2001; Darling-Hammond, L. et al. 2002; Fullan 2002; Guskey 2003; Ruthven, Hennessy et al. 2004; Loveless 2006). ‘There is a significant relation between the knowledge and skills base of teachers and training they have received (Reinen and Plomp 1993 p.164)’.

Fullan (2002) argued that educational change is a ‘learning experience for all adults involved in the process (p.70)’ and staff development is one key factor for a successful innovation. All serious reform efforts are bound to fail if the quality of teachers is not taken into serious consideration (Hargreaves and Fullan 1998).

Teachers' professional development can take many forms, both formal (Little 2001; Darling-Hammond, L. et al. 2002) and informal (Lieberman 1996; Marsick and Volpe 1999; Lieberman 2000; Marsick and Watkins 2001). For example, Lieberman (1996) identified three settings in which teacher learning occurs — conferences and workshops, in-school activities such as coaching and action research, and networks or groups outside the school.

In recent years, the community of practice has attracted more and more attention, a community of practice is a ‘joint enterprise understood and continually renegotiated by its members through mutual engagement that bind members together into a social entity to develop a ‘shared repertoire of communal resources (routines, sensibilities, artefacts, vocabulary, styles, etc.)’ over time (Lave and Wenger 1991). A community of practice can embed effective informal learning within the members of the community. Since all knowledge is situated in some context, grounding teachers’ learning experiences in their own practice is important. It is known that using teachers’ own experiences as the basis for their learning provides valuable opportunities for teachers to learn to think in new ways (Fuller 1969; Tsui and et al. 1996; van Driel, Beijaard et al. 2001). It is known that authentic, engaging professional development for teachers involves opportunities for rich intellectual discourse about research, theory, and ideas associated with their practice in order to think differently (Smylie 1995; Johnson 2000; Supovitz and Turner 2000;
Littlejohn 2002; Healey 2003). When these ideas are clear and compelling, teachers can apply them to their own classroom settings; when the ideas are remote from their practice, teachers will not use them to think differently (OFSTED 2002; Boyle, While et al. 2004).

However, it is criticised (Smith 1997; Kreber and Cranton 2000; Trigwell and Shale 2004; Kirkup and Kirkwood 2005) that higher education has encouraged staff development only on disciplinary knowledge but teaching and the obtaining of content pedagogical knowledge are ignored. The needs to change the practice in higher educational institutes structurally and culturally were highlighted when ICT was first being introduced into higher education (Dearing 1997). For example, Darling-Hammond et al. (2002) concluded that ‘teachers’ qualifications based on measures of knowledge and expertise, education, and experience account for a larger share of the variance in students’ achievement than any other single factor, including poverty, race, and parent education’ (p.10). Little (2001) warned that the importance of professional development should not be underestimated. Saying

Emerging research on teacher learning underscores the importance of professional development that focuses on learning in and from practice, and that concentrates on the combination of knowledge of subject, knowledge of teaching, and knowledge of particular groups of students (p.37).

To summarise, the review of ICT pedagogy in higher education has demonstrated diversified research in this field, investigating ICT and pedagogy from different perspectives, namely, perspectives of the designers, of the learners and of the teachers. Three clusters of influential factors were identified for the implementation of ICT pedagogy:

- Personal factors such as beliefs, attitudes and knowledge being important determinants and predictors of teaching practices (Fenstermacher 1986; Dwyer, Ringstaff et al. 1991; Kagan 1992; Pajares 1992; Prawat 1992; Kern 1995; Fang 1996; Ertmer, P. et al. 1999; Peacock 1999; Higgins and Moseley 2001; Pickering 2002)
- Contextual factors that cover policy decisions, local government and school support as well as the formation of learning communities (Preston, Cox et al. 2000; Loveless and Ellis 2001; Cox, Webb et al. 2004)
- Professional development or staff development (Fullan 1991; Fullan and

However, many issues remain uncertain with regard to EBP teaching in China. For example, what would be the determinant factors to teachers' ICT pedagogy? How these factors would support or hinder teachers' change when ICT was introduced to EBP teaching? How ICT related professional development would be conducted in China?

2.5 Conclusion

This chapter reviewed the theory related to educational change. This is because the introduction of ICT to EBP teaching in Chinese higher education is changing for all the participants, i.e. students, teachers, managements and the government in it. It is therefore necessary to understand about factors influencing teachers in the change and the way they incorporate change into their pedagogy in relating to ICT. The chapter then reviewed research on ICT pedagogy in higher education and a number of pedagogical frameworks relating to ICT and pedagogy. There are some studies on ICT and pedagogy in higher education but seldom did they relate to EBP teaching or language teaching. The research on pedagogy and ICT in higher education is also limited. Thus, the researcher had to draw on research from school education for pedagogical frameworks. Six frameworks were presented and discussed in this chapter. These frameworks approached ICT and pedagogy from different perspectives. However, they all helped to identify the influential factors that could affect teachers' implementation of ICT pedagogy. The literature indicates that ICT pedagogy can be influenced by personal factors such as teachers' attitude and beliefs to ICT in their teaching. It can also be influenced by contextual factors such as support, incentives and the leadership of both university and government.

Three limitations are identified in these studies. First, research on ICT pedagogy in higher education is still limited (Darby 1992; Hammond, Gardner et al. 1992; Jong, Joost et al. 1992; HEFCE 1997; Tolmie and Boyle 2000; Hawkridge 2003; Kirkup and Kirkwood 2005; MOE China 2005). Researches on ICT pedagogy in higher education have started, but little has been done on teacher and teachers' ICT pedagogy. Given the 'crucial' role of teachers and pedagogy in higher education, it is necessary to investigate ICT pedagogy from teachers' perspectives. Such investigation could provide opportunities to understand how ICT can be integrated into classrooms rather than floating over the campus.
Second, most studies in the literature were focused on science or engineering education. The application of ICT to EBP learning is well recorded (St. John 1996; Reed and Nolan 1997; Klassen and Milton 1999; Zhu 1999; De Beaugrande 2000; Flinders 2001), research on ICT pedagogy from teachers’ perspective in EBP education was, nevertheless rare (St. John 1996; Raya 2003; Zhu 2004). Few studies were conducted to investigate EBP or ESP teachers’ knowledge, beliefs and attitudes about ICT and their ICT pedagogy. In China, researchers (Lin 2001; Cai 2004; Lin 2004) called EBP teachers to refer substantially from their ESL/EFL teacher fellows for pedagogical decisions since there were not much direct references available. Furthermore, focuses of the limited literature on EBP learning available are mostly about English as native language and approached from learners’ perspective. This indicates an urgent need for researches on ICT pedagogy that take into consideration the subject differences of EBP teaching in the context where English is a second/foreign language.

Third, most studies were conducted in developed countries like the UK and the USA, where ICT facilities and equipments are more commonly applied. Few studies were located in developing countries with limited ICT application to education.

Fullan (2000) stressed that the increasingly powerful technology in education indispensably required teachers to be experts in teaching and learning process.

Technology generates a glut of information, but it has no particular pedagogical wisdom—especially regarding new breakthroughs in cognitive science about how learners must construct their own meaning for deep understanding to occur. This means that teachers must become experts in pedagogical design (Fullan 2000 p. 582).

This implied that studies focus on teachers’ ICT related pedagogical experiences are of significant importance for the implementation of ICT in higher education. The study conducted for this thesis was guided by these two principles: that it focused on teachers’ experiences and that it was situated in English as second language context.
Chapter 3 Pedagogy in China

3.1 Introduction
As described in Chapter 1, although EBP teaching has a long history in China, the substantial development of it started only after 1980 when the country reopened its door to the English speaking countries. EBP teaching was categorised as a branch of foreign languages teaching (Lin 2001; Cai 2004), it was suggested that ‘the adaptation of the pedagogy of foreign languages teaching to the EBP teaching was appropriate’ (Lin 2004 p.6). Therefore, it is necessary to understand the foreign languages pedagogy development in China and its influence upon the current EBP teaching. To be more specific, the ESP pedagogy in China has been influenced by three aspects: the historical influence of Confucianism, the imported pedagogy from the Soviet Union in the 1950-60s, and the influence of imported pedagogy, especially the pedagogy based on various EFL and ESP learning theories from western countries. The following sections will consider these three aspects separately.

3.2 The historical influence of Confucianism
The pedagogy in China has been teacher dominated for over 2000 years. It was based on the philosophy of Confucius and had been improved by his followers over a long period. Confucius had steadily put together a system of principles of teaching, of which many corresponded to the general laws of pedagogies (see Yang 1993 for more details).

However, Confucian principles became rigid and inflexible over their long history as adjustments were added to fulfil the requirements of government, particularly after the standardisation of the imperial exam system from the 7th century onwards. Even today, Confucius’ own work and practice as ‘the greatest teacher’ influenced the complete educational system substantially. Chinese people have kept faith with these principles. Academic achievements and hard work are seen by many as the main way of moving up the social ladder for the Chinese around the world (Bond 1992; Cheng, 1994 cited in Chan 1999). Overall, the Confucianism influenced the pedagogy, the teaching content, the role of teacher and students and the role of education in the society.

3.2.1 The importance of textbooks
The importance of textbooks has been highlighted even in Confucius’ own teaching
practice. He drafted six manuals which were considered to be the foundation of teaching and learning in ancient China: the Book of Odes (Shi); the Book of History (or Documents) (Shu); the Book of Rites (Li); the Book of Music (Yue); the Book of Changes (Yi); and the Spring and Autumn Annals (Chunqiu). These books aimed to instil 'the moral values of feudal society in them, the basics of an all-round culture and the capacities required to exercise official responsibilities (Yang 1993 p.214)'. These six books have been respectfully referred to as Jing (Canonical Works or Classics). Though only five books remained after the loss of the Book of music, these five books (Classics) served for more than 2,000 years as the basis for education in feudal China. No other didactic work in the world could compare with such consistency over such a long period.

In the Song Dynasty, Zhu Xi\(^5\), a representative of Neo-Confucianism, selected The Four Books, or the Four Classics\(^6\) to introduce systematically Confucianism. From then on, the Four Books, along with the Five Classics had been officially assigned as textbooks from primary education to higher education for over a dozen centuries. A very important task for students in China throughout history was to memorize all the content of these nine books so that they might have a chance to achieve one of the limited top places in the imperial exam and eventually achieve the goal of becoming a scholar: to pursue a senior position in the government. The emphasis of the importance of following the content of a designated textbook still exists in today's higher education. In the site university, the university teaching management office required that each course should have at least one textbook for the designed curriculum.

3.2.2 The importance of examination

Confucius believed that the only way forward in a hierarchical Chinese society was to develop a 'morally-motivated bureaucracy' (Chun, 1991 cited in Chan 1999). He also advised his disciples Zilu that 'You believe you have studied enough? Then take up a post in the civil service' (Analects\(^7\), Zi Zhang) During the Han dynasty which lasted from 206BC to 220AD, imperial rulers began to broaden the accessibility of power to

---

\(^5\) Zhu Xi or Chu Hsi (1130–1200) was a Song Dynasty (960-1279) Confucian scholar who became one of the most significant Neo-Confucians in China. Zhu Xi was also influential in Japan, where his followers were called the Shushigaku (朱子学) school.

\(^6\) the Great Learning, the Doctrine of the Mean, the Analects of Confucius and the Mencius

\(^7\) Analects (Simplified Chinese: 论语; Traditional Chinese: 論語; Pinyin: Lùn Yǔ, or Lún Yǔ as some might insist), also known as Analects of Confucius, is a record of speeches by Confucius and his disciples, as well as the discussions they held. Its Chinese title literally means 'discussion over (Confucius') words'. http://en.wikipedia.org/wiki/Analects
commoners so that it was no longer restricted to the elite by introducing the world's first examination system, the Civil Service Imperial Exams at the time. This method of recruitment of officials was organised over a period of eleven centuries (from 788 to 1893 AD). Although the imperial examination system was abolished in 1911, many Chinese continued to strive for exam success in order to better themselves. Even today, the Chinese people have kept faith to examination. This served to reinforce the fact that academic achievement and hard work is seen by many as the main way of moving up the social ladder for the Chinese around the world (Bond 1992; Cheng, 1994 cited in Chan 1999).

With regard to the importance of examination in EBP teaching and learning, TEM4 and TEM8 were good examples. All English majors at the end of the first two years of their degree studies take the national TEM 4 (Test for English Majors) and at the end of the four-year degree take the TEM 8. In some universities, students' achievement in TEM 4 linked not only to their festivity of obtaining their degree diploma but also their teachers' potential promotion and bonus. Despite the number of increasing complaints about the effectiveness of both examinations on current English proficiency, they are still important methods to evaluate students' achievements for their English learning. Given the historical view of the importance of examinations in the Chinese educational system, it is not surprising that students often prefer the exam-orientated approach of their Chinese teachers and are enthusiastic about courses, which by Western standards would be dull and geared simply towards examinations (Wang 1999).

3.2.3 The importance of rote learning
Following the importance of textbooks is the importance of rote the Classics and Books for the Civil Service Imperial Exams. The exam system required the candidates to memorize a vast amount of classical material but never to demonstrate the ability to either theorize or challenge a particular premise. Today, the traditional educational methods (such as rote learning and the application of examples) have remained largely unchanged. In fact, students' learning still focuses on the acquisition of a vast store of knowledge through rote memorization at the expense of creativity (Chan 1999).

There are quite a number of sayings in Chinese, which emphasise the importance of rote in students' learning. For example, 'If you can learn the Three Hundred Tang Dynasty Poems by heart, even though you cannot write poetry, you will be able to recite poetry.'
Generally, it is believed that this kind of learning method would eventually lead to a full understanding of it. Another old Chinese saying goes like this, ‘read a book a hundred times, the meaning behind the words appear automatically.

The important role of rote learning in Chinese students’ learning strategies has been constantly reported by many researchers even in recent years (Liu 1986; Yee 1989; Biggs 1996; Marton, Alba et al. 1996; Wei 2003; Bao 2004). For example, Yee (1989) pointed out that Chinese students had little choice but to resort to rote learning of the essentials in order to pass the examinations. It is therefore, the dominant classroom behaviour for Chinese students not only in Mainland China. Liu (1986) pointed out that memorization has always been an accepted way of learning, even when committing to memory things not totally understood. Concerns over the negative influence were also reported in a number of research projects (He 1999; Hu 2003; Bao 2004). The calling for a shift of the traditional learning method has been echoed by many researchers (Yee 1989; Bao 2004). For example, Bao (2004) pointed out it was necessary for the current higher educational system to shift students’ focus on rote memorization of knowledge to application of knowledge and cultivation of innovative ability. Wei (2003) argued that the traditional pedagogy in China, which perceived knowledge as a skill that needed to be practiced constantly, would automatically result in the emphasis of knowledge transferring, rote and mechanical drills rather than the development of students’ creativity. Such pedagogy seriously neglected the students’ role in the learning process and could diminish their motivation to learn in the long term. In addition, Yee (1989) has found students who depended on rote learning lacked originality in their thinking. He argued that Chinese students should be guided on how to ‘integrate knowledge and make use of what they have learned’ in order to break away from rote learning.

Rote learning is also deeply rooted in business English learning. For example, Martinsons and Martinsons (1996) observed management undergraduate’s English learning experience in two Hong Kong universities. Their research showed that traditional learning strategies were applied for those students. Native Cantonese-speaking students simply learn their lecture summaries (or copies of the lecture overheads) verbatim instead of using them as guidelines, or as means of promoting understanding. Students also memorized additional facts, largely from instructor-specified textbooks as supplementary materials to prove their ‘understanding of the topic’. Lin (2001) called for business
English teachers to shift from traditional teaching methods and leave more opportunities to students to improve their knowledge through creative learning activities rather than ‘simply memorize what teachers talked in the classroom’.

3.2.4 The absolute authority of the teacher and the students’ modest self

Respect to teachers has always been at the core of Confucianism for two reasons. First, Confucianism encourages the Chinese to respect hierarchical relationships between individuals so that teachers are expected to teach as well as guide students. The situation became particularly serious after the Han dynasty when the government decreed that ‘all schools of thought except the Confucian doctrine shall be prohibited for teaching and learning’. Teaching as a profession has been promoted to one of the five extremely respected social positions in China namely ‘the heaven, the earth, the emperor, the parents and the teacher’. Second, Chinese learners have been brought up to respect wisdom, knowledge and expertise of parents, teachers and trainers, they have been socialized to respect highly those who provide the knowledge and to avoid challenging those in authority. Teachers are authorities and resources of knowledge. Teachers are subject specialists before they are regarded as teachers. Therefore, they have the authority and power to decide which knowledge is to be taught, with students accepting the information readily and rarely questioning or challenging teachers in the classroom. If teachers are continually asked by their students in the class to express their opinions or to solve problems, their authority positions are challenged and therefore are not welcome.

Such still exists in China today. For example, He (1997) compared classroom activities in the USA and in China. He found that American students feel free to interrupt their teacher’s instruction and to raise their own opinions or ideas. In contrast, no students in a Chinese classroom dare to behave in this way without their teacher’s inquiry or permission. Boyle (2000) described differences between Chinese English teachers and their foreign colleagues and believed this could be regarded as Confucian cultural legacy.

In the West, it is not necessarily considered shameful for a teacher to admit that they do not know the answer to every question asked by pupils. In Chinese tradition, a teacher who is an English language specialist would be expected to give a definite answer to each and every question on the grammar of the English language. ... a culture which has traditionally looked up to teachers enormously, expecting them to be not only intellectually but also morally
unchallengeable, and to be in a sense shapers of their students' characters. (P.153)

Compared to students in European and American countries, Chinese students are less autonomous, more dependent on authority figures and more obedient and conforming to rules and deadlines (Sue and Kirk 1972 cited in Boyle, 2000). They are reluctant to 'stand out' by expressing their views or raising questions, particularly if this might be perceived as expressing public disagreement (Song 1995).

In contrast to teachers' authority role, Chinese students used to refer to themselves as 'not worthy' before their teachers. Traditionally, Chinese prefer not to express their true opinions so as not to embarrass or offend others, thus it is common for Chinese to be modest in front of other people. In addition, because Confucianism values stress the importance of harmony over conflict, and of collective rather than individual self-expression, there is a strong emphasis on maintaining face and the 'value of harmony, urging individuals to adapt to the collectivity, to control their emotions, to avoid conflict, and to maintain inner harmony' (Kirkbride and Tang 1992). Under such circumstances, students are not encouraged to challenge their teachers in anyway as any challenge between teacher and student may cause conflict. In the classroom, students would perform as modestly as possible to avoid 'losing face'. They also seldom challenge their teachers in case the teachers' response might fail to meet the expectations and cause embarrassment. On the contrary, students prefer to ask questions in private with the teacher rather than in class (Volet and Tan-Quigley 1999).

Researchers (Anderson 1993; Song 1995; Liu and Littlewood 1997; Boyle 2000; Hu 2002) are concerned that the traditional expectation of teacher and student's role still substantially influence current practices. First, teachers are not ready for the change from knowledge authority to knowledge construction facilitator. For example, Boyle (2000) noticed that English language teachers in China were expected to be not only intellectually but also morally unchallengeable. They were also expected to be guides of their students' characters development (p.148). Thus, student centred teaching approaches are not readily accepted by Chinese English teachers. For instance, students are more likely to ask questions 'about the idiomatic English usage' in a relatively unstructured teaching context. If the teacher could not give a respond to the question immediately, he/she might lose face and feel his/her teacher's authority challenged. Hu’
study (2002) suggested that the failure of the communicative teaching approach in China was largely because of the conflict between the different expected roles of teachers' in the two teaching approaches. As Hu (2002) argued,

... (traditionally) a good teacher is one who knows what is useful and important to the students, has an intimate knowledge of the students’ level, carefully prepares lessons, has all the correct answers at all times, and dissects, presents and explains knowledge in a masterly manner to ensure ease of learning by the students. ...it is little wonder that learner-centred, interactive methodologies such as CLT\(^8\) that allow freedom, unpredictability, spontaneity, and student initiatives in the classroom are generally not well received (p. 99 -100 )

Students’ modest self in front of their teachers also made them readily accept teacher-centred pedagogy in which they receive knowledge rather than interpret it (Liu and Littlewood 1997; Hu 2002). For example, Hu (2002) argued that traditional pedagogical approaches like the grammar-translation method and audiolingualism that offer teachers maximum planning/control and opportunity to transmit knowledge are in favour with most Chinese teachers. English teachers in Hong Kong would most probably have agreed with a distinction made by Anderson (1993) that ‘the communicative methods are good for teaching Chinese people who are about to go to English-speaking countries to live and study, but not for other Chinese students of English’ (p. 473). Liu and Littlewood (1997) noticed that in most reading classes, students read new words aloud, imitating the teacher. The teacher explains the entire text sentence by sentence, analyzing many of the more difficult grammar structures, rhetoric, and style for the students, who listen, take notes, and answer questions (Oxford and Burry-Stock 1995). Moreover, Chinese students also tend to be suspicious of activities such as peer evaluation because they believe it is the teacher’s job to evaluate and that peers are not qualified to correct others’ work (Jones 1995).

3.2.5 The teaching approach

The Chinese teaching approach is often described as ‘didactic and trainer-centred" (Kirkbride and Tang 1992). Typically, Chinese classroom activities are dominated by lectures. Compared to the education models in Medieval and Renaissance universities in

\(^8\) Communicative Language Teaching
European countries where students were encouraged to engage in disputation, students in Chinese higher educational institutions are more accustomed to remaining silent in the classroom and listening to their tutor’s lectures. Questions and problems are asked and solved only after the lesson through students’ collaborative learning (Biggs 1996) or private conversation with the tutor in rare cases. This makes the introduction of some participative approaches such as communicative language teaching and content-based teaching that are commonly used in Western language teaching problematic for Chinese learners (Hu 2002).

Researchers (Biggs 1996; Cortazzi and Jin 1996; Liu and Littlewood 1997; Berry 2003) have noticed different teaching approaches in Chinese English education. Cortazzi and Jin (1996) argued that ‘there seems to be a clear contrast between Chinese and Western ELT (English Language Teaching) approaches: the former tends to emphasize English language knowledge, content, teacher-centred classrooms and exam results; while the latter favours the skills and realistic use of language, student-centred classrooms and the process of learning’ (p.72). Biggs (1996) described the typical English classroom teaching in an 1990 as ‘not much variation in teaching methods, learning is rote-based and teacher-centred, content is presented out of context, class size is big, classroom climate is not so warm, students use low-level cognitive strategies (students-as-tape-recorder), and assessments are often conducted in a threatening atmosphere’ (p.47). Berry (2003) argued that English Language Teaching in a large part of China seems to involve merely a low level of cognitive skills in grammar and exam-oriented teaching where the attention is still focused on the grammar points, the expansion of vocabulary and understanding of sentences, and active interaction between teaching and learning is not so often identified.

Similar reports found in EBP teaching (Lin 2001; Zhou 2002; Zhang 2002 ). Many researchers thus call for a change in the current EBP teaching in Chinese higher educational institutions (for example Lin, 2001, 2005; Zhang, 2002; Shen and Shi, 2003). They argued that the current teacher centred teaching approach do more harm than good to business English education. Students in business English also complained that traditional teaching developed them into nothing but a ‘labour’(Niu and Wolff 2005)

3.3 The influence of imported pedagogy from former Soviet Union
In the 1950 and 1960s, with the slogan that education ‘must completely and
systematically learn from the advanced experiences of the Soviet Union, 9 Soviet textbooks were massively translated. Six hundred Soviet experts were invited to teach and even participated in school management. Famous Russian educators such as Anton Makarenko and I. A. Kairov, especially Kairov became authorities. Kairov (1893-1978) was first introduced into China on November 14, 1949 when his works were published in the People’s Daily. The influence of Kairov was of vital importance (Zhou and Xu 2002).

To summarise, among all the books on education that were imported from the Soviet Union in the 1950s, Kairov’s Pedagogy had the largest reader population and was therefore the most influential. A large number of normal universities and colleges at that time designated it as textbooks or major teaching reference book. At the national educational working conference in 1958, comrade Lu Dingyi10 said, ‘there are old and new versions of Kairov’s Pedagogy ... at present, all normal universities and colleges are teaching his theory. Even when presidents are required to attend courses at the Educational Administrative College, they also focus on this.’ At that time, Kairov’s Pedagogy has been a ‘Bible’ for the measurement of educational problems in China.... It became the only measurement of teaching quality and teachers’ competence. (p 118)

Kairov’s pedagogy was a typical teacher-centred lecture method. An ideal instructional process based on this pedagogy usually follows this pattern: organizing instruction – reviewing – delivering new content – enhancing knowledge learned – giving assignments. Teachers are the predominant, determinate factor for both education and teaching practice because they are the only path to realise the teaching process from teaching content, methods, to even the organisation and practice in the classroom activities. Teaching is a process where teachers’ guide their students to the mastery of all knowledge and skills pre-designed in an instruction11. As Cheng and Manning (Cheng and Manning 2003) described, the Soviet schooling was performance based and teacher centred in its nature:

Soviet education developed some distinct characteristics, including a rigorous

---

9 For example, Qian Jun-rui, Vice Minister for Education, spoke at the first national education conference that learning from the Soviet experience was designated as the direction for building a new education (China National Institute for Educational Studies, 1984, p.4).
10 the minister of education at that time
system of academic disciplines, strict distinctions between subjects and grades, high rewards for academic excellence, and education-based social distinctions. Intellectual development was stressed as the priority in schooling, so much so that grade five or full credit was expected to be pursued by every student. Soviet education also heavily relied upon institutional facilities, and education was perceived as revolving around teachers, textbooks, and classroom activities. (p.365)

The ‘theoretically and mechanically’ (Zhou and Xu 2002) leaning and acceptance of Kairov’s pedagogy did not last long. This was due to two reasons. First, the completely rigid systematic copy caused conflicts because of the different educations contexts of the two countries. Second, the political links between the two countries were getting worse after 1957. Because of these reasons, Kairov’s Pedagogy was heavily criticized and eventually abolished in China from 1966 (Zhou and Xu 2002).

The systematic application of Kairov’s pedagogy in the Chinese educational system from primary school to higher education institutions lasted only for about 10 years (He 2000; Zhou and Xu 2002). Its influence in Chinese higher education however remained, especially during the late 1970s and 1980s, which was due to the special situations of English teaching in China (Li and Xu 2001; Wei 2001; Hu 2002; Cai 2003; Niu and Wolff 2005). There are several reasons for this situation. First, China cut itself completely with the world between 1966 and 1976 (Cheng and Manning 2003). The development of pedagogy in the rest of the world had no influence in China during those ten years. Second, English teaching was removed from the curriculum until 1968, though the importance of English teaching regained its legitimacy when the education system started to return to its routine after 1976 (Cai 2004). Third, the English curriculum at that time emphasised knowledge rather than language competence and skills and suggested a combination of the grammar-translation method and audiolingualism teaching approaches (Adamson and Morris 1997).

Additionally, English teachers at that time were students in the 50s and early 60s who had no or little awareness of the latest developments on educational theoretical research and practice. They had to rely on their previous knowledge of Kairov and traditional Confucian pedagogy in China. Thus, the dominant pedagogy in English classrooms was still substantially influenced by the teacher centred, textbook centred and examination
oriented pedagogy (Adamson and Morris 1997; He 1997; Li and Xu 2001; Chen 2002; Hu 2002) inherited from Confucianism and Kairov’s pedagogy. As Hu (2002) pointed out that Kairov’s theory was still dominant in teaching practice and related research such as pedagogy and instructional design.

At present, the theoretical framework was still dominated by Kairov’s pedagogical theoretical system, including teaching process, principle, content, teaching method and classroom management. Although there are attempts to enhance the current framework or even to develop a complete new one, the whole situation is not fundamentally improved.

From http://www.edu.cn/20020814/3064260_3.shtml last access 08/03/06

To compare Kairov’s pedagogy with that of Confucian pedagogy, similarities between the two are evident: both are teacher centred and textbook centred, both emphasised the predominant role of teachers in the teaching process and the importance to achieve high scores in examinations. Teachers are viewed as authority and knowledge is transmitted from teachers to students. In both pedagogies, students are passive throughout the learning process. Apart from the political reasons, which accelerated the wide acceptance of Kairov’s pedagogy, the similarities of this pedagogy to the long existing Confucian pedagogy might have also contributed to its popularity (there were other pedagogies introduced from Soviet Union at that time but Kairov’s had the largest reader population) in China. Researchers in students English learning experiences in Hong Kong and Mainland China often have similar findings. Given that traditional Confucianism was critically discarded for almost 30 years (1949-1976) in mainland China and within which Kairov’s pedagogy was dominant for 20 years in mainland China, the similarities of teaching and learning in the two areas might have resulted from the similarities in the two pedagogies.

3.4 The influence of imported pedagogy from western culture

The introduction of western philosophy of education started in the early 20th century with the New Culture Movement campaign, which tended to be against Confucianism. New

12 (Also called) the May Fourth Movement (Chinese: 五四运动; Pinyin: wǔ sì yùn dòng) was an anti-imperialist, cultural, and political movement in early modern China. Taking place on May 4, 1919, it marked the upsurge of Chinese nationalism, and a re-evaluation of Chinese cultural institutions, such as Confucianism. The movement grew out of dissatisfaction with the Treaty of Versailles settlement and the effect of the New Cultural Movement (from
teaching and learning theories from the United States and European countries were introduced to Chinese educational system. For example, Herbart and his pedagogical research, the five steps instruction-planning model that was very widely used in America during the late nineteenth and early twentieth century was introduced to China in 1920s. The influence of the campaign remained only in the coastal cities, though. In the wide rural area of China, even if the teaching content might have altered, the Confucian pedagogy still existed. Furthermore, introduction of new ideas from the western culture (except the former USSR) was halted between 1949 and 1976 when China separated itself from the world for various reasons.

Student-centred teaching approach appeared in China only in the 1990s after the ‘new’ learning and teaching theories had been gradually introduced to China in the 1980s when contacts between the Chinese and the western educational researchers were re-established (He, 1997). For example, works by Ausubel Skinner, Piaget, and Vygotsky etc were introduced into Chinese educationalists in many academic articles and books, even newspapers. According to He (1996; 1997; 1999; 2001; 2004), the constructivism learning theory, a very important theory related to ICT in education, was introduced to China in the early 1990s together with the development of ICT in education. The theory is regarded as a strong theoretical foundation to change the existing teaching theory and practice in China and has been applied to English teaching in many cases, especially the application of multimedia since the late 1990s (He 2002). However, many of these introductions tended to explain the new ideas mechanically and therefore remained superficial (Zheng 2004).

Meanwhile, researchers are attempting to transform educational theories into Chinese contexts. For example, He (2001) and his fellow researchers proposed a new teaching model based on the teaching history of China and its globalisation needs. The model highlighted the important roles of both teacher and student that lead to constructivist and meaningful leaning. He named it the ‘Zhudao (Leader)-Zhuti (Subject) Teaching Model’ in which a Web-based teaching is described as follows:

- Teacher is the teaching organiser, student’s knowledge construction improver and students morality developer;

• Student is the subject for information and motion experience and active constructor of knowledge meaning;
• The teaching medias are not only supplemental presentation tools for teaching but also cognitive and motivational tools to promote students autonomy;
• Textbooks are not the only teaching content. Students are able to learn from various objects (teacher, classmate and experts) and teaching resources (books, online resources) through teachers’ guidance, autonomous learning or collaborative learning.

The model claimed to have been based on the new constructivist learning theory but have still maintained, or at least hinted the unchanged important role of the teacher in its traditional meaning. This model seemed to be a compromise between the traditional pedagogy and the expected ICT pedagogy. The model could be regarded as an attempt to promote student-centred pedagogy without causing over-reacted resistance from the teachers, whose beliefs and attitudes about teaching and learning were influenced by the traditional pedagogy in China.

However, language teachers’ pedagogy knowledge or pedagogical content knowledge in higher education is not as sufficient as that of subject knowledge. For example, a group of researchers (Wei 2001; Lu and Wei 2003; Lu, Qiao et al. 2004) in China carried out a range of research on pedagogy and the curriculum in higher education institutes from 2001 to 2004 from both students and teachers points of view. They argued that the courses about research on pedagogy focused narrowly on the development in the 1950-60s (Wei 2001). Introductions and localisation of the latest development on education principles and philosophy are missing (Lu and Wei 2003). The out of date teaching content enhanced teacher centred teaching models (He 1997; Zhang 2004). Consequently, pre-service teacher students lacked interest in attending pedagogy related courses. They also lacked motivation to apply what they have learnt to their teaching practices (Lu, Qiao et al. 2004). They argued that such situations prevented further development of pedagogical research in China. The findings of these studies were echoed in other studies (Li 2003).

Even He (1997) admitted that the change in the teaching practice was very limited and the negative influence of the behaviourism-based teacher centred pedagogy on students’
Until today, many a school still over emphasizes that students’ only and exclusive task is to absorb and understand the talk of their teachers. Students are regarded as spoon-feeding objects, external stimulation acceptors and storages of accumulated knowledge and experiences by previous scholars. Their subjectivity and creativity as real human beings are ignored. ... Students form blind worship to books and teachers. What is printed in a book must be classic, what is spoken by teacher must be correct. One should not suspect the accuracy of the content in a book.

From http://www.edu.cn/20010829/209326.shtml last access 08/03/06

It is therefore common for researchers to find out that language teaching in Chinese classrooms remain largely unchanged.

3.5 Pedagogy in higher educational language teaching

Despite the call from the academic researchers for a new pedagogy, a gap between research and teaching practice exists. Many studies in Chinese higher education found that English teaching has remained unchanged in the past 30 years when higher education in China restarted in 1977. According to a survey in 2003 (Liu), English teachers spent 68.7% of the instruction time explaining vocabulary and text. This is similar to the findings in other studies (Zheng and Wei 1996; Zhou 2002; Zhang 2002). A study (Zhang 2002) focused on eight language teachers' classroom activity organisation found that students’ talk only occupied 7.37 minute in a 45 minutes instruction. The interactions between students and teachers are mainly for assessing the knowledge that has been transformed rather than practicing language skills. They are not ‘real communication’ between students and teachers (Zheng and Wei 1996). Although teachers are talking about new teaching methods, studies show that the actual application of such teaching methods is far from successful (Johnson 1997; Gu 2001; Hu 2002; Zhou 2002). For example, Hu (2002) and Niu and Wolff (2005) argued that student centred teaching approaches such as content based communicative language teaching were not successful because neither teachers nor students have enough understanding of these teaching approaches. Although Hu’s study (Hu 2002) focused on college students’ experience in their secondary school English education, his finding might have also reflected the situation of English education in higher educational institutions because ‘currently, the
English teaching in colleges and universities is ... only a repetition of what the students learned in high school. And again, the English class for postgraduates is a repetition of their college classes’ (Haibing, China Daily, 11/3/2003).

Similarly, Johnson (1997) found out that the immersion language teaching approach was not successful even in Hong Kong, an area with its 150-year history of being a British colony, much greater internal use of English, and more favourable conditions for learning English. Based on his teaching experience in Hong Kong and the research on Chinese students’ English learning, Johnson concluded that it was not likely that such a language acquisition model could be successful in mainland China where neither English environment nor knowledge of English teacher was better than that in Hong Kong.

In mainland China, where English is a language used mostly in classroom and not beyond, a survey (Zhou 2002) was conducted by the China Foreign Languages Education Research Centre in 2002 to investigate the classroom English teaching activities. Questionnaires were sent to English teachers in 48 higher educational institutions in China, and more than 900 copies were returned. The result showed that the most popular activities in the classroom were interpretation of text and text related exercises (over 60%). The least popular activity was ‘group learning’. However, the questionnaire did not have a clear definition of ‘group learning’. The most common after class activity designated by teachers was ‘text related exercises and text preview’. The result also showed that 84.15 % teachers believed that it was a waste of time for students’ to be involved in activities such as discussion and collaborative learning. 66% of teachers emphasised the accuracy of their students’ English rather than fluency. The results also indicated that a majority of those English teachers taught according to their own learning experiences as students. They lacked basic understanding or awareness of modern educational concepts, language acquisition theories and pedagogy development. The survey also found that teachers still regarded themselves as experts and authorities of knowledge, with their major tasks being to transmit knowledge and their experiences to students while the students are subjects of the transmission process.

With regard to the EBP teaching, in the western contexts, researchers (Ellis and Johnson 1994; Breiger 1996) on EBP teaching have agreed for a long time that it was a product of market oriented English learning and should be student-centred for its teaching process. In China, EBP teaching is also claimed (Lin 2001; Zhou 2003; Lin 2004) as naturally
learner centred because 'the learners are not un-experienced children, they are those who have certain degree of education, working and social experiences. ... It requires a student-centred teaching model. The traditional teaching model is very harmful for business English learning, and therefore should be discarded' (Lin, 2004; p.60). Researchers (Gong 1999; Lin 1999; Ye and Chen 1999; Zhu 1999; Chen 2004; He and Xiao 2004; Lin 2004; Zhu 2004) also highlighted the importance for teachers to realise the specialty of business English and the importance to change their traditional role in the teaching process. In other words, they need to shift their classroom teaching to a student centred teaching approach where teachers acted as facilitators and guides (Zhang 2002; Liu and Hu 2004).

Along with that, various teaching methods such as audiolingualism, content-based instruction, task-based instruction, and communicative teaching methods, were introduced to teachers in order to change the traditional grammar-translation teaching method. Technology development also offered opportunities for further English teaching reform. The call for students' autonomous learning and collaborative learning in EBP teaching required teachers’ to be aware of their new roles for students’ learning (Zhou 2002; Zhang 2002; Lin 2004).

However, the current EBP teaching was substantially influenced by pedagogy research and practices of general English (Lin, 2001). This becomes more evident along with the rapid development of EBP teaching after the 1980s when many general English teachers came into EBP teaching and brought their normally adopted pedagogy in general English teaching to their new teaching career (Lin, 2001). Research findings indicate that EBP teaching is still teacher dominated and dominated by rote learning (He, 2001, Wang, et al, 2006, Lin, 2001). A common teaching model for quite a number of Chinese English teachers could still be described as ‘spoon-fed, listening and taking notes with teachers standing at the front and doing most of the talking’ (He 2000). For example, Zhang (2004) commented critically that universities’ English classrooms are still dominated by traditional ‘objectivism, determinism, and spoon-feeding approach. ... Knowledge is still viewed as fixed truth that could not be challenged. Students’ minds were ‘empty pails, pieces of white paper’ or ‘mirrors’ (p. 55) and the learning process was simply to fill the empty pails, or to print beautiful pictures to the paper with decontextured theoretical conclusions. Students’ achievement in the exam becomes the only and exclusive
evaluation of the students’ knowledge. Teaching is a fixed preconditioned highly repetitive process with expected effects with 80% of the classroom activity time being occupied by teacher’s talk. She also argued that the current practice needed change to fit students’ needs. Furthermore, grammar-translation teaching model was still viewed as a mainstream teaching approach in both business English (Wang 2003; Wang and Yan 2006) and general English teaching (Zhu 1994). Negative influence of traditional pedagogy on students’ learning outcome was observed in some studies, for example, Niu and Wolff (Niu and Wolff 2005) observed some business English students who could not make an English speech at the end of their four years of college life in Henan province. They attributed those students failure largely to the traditional pedagogy, which was teacher-talk dominated.

Researchers identified reasons that attributed to the current dominantly teacher centred business English pedagogy. In addition to the historical Confucian and Kairov’s pedagogy, three reasons were highlighted. The first reason was the lack of training provided to in-service business English teachers (Lin 2001; Zhang 2002). Many ESP teachers in China did not have systematic pedagogical training because they were not initially trained as teachers but rather specialist in linguistics (those graduated as English majors) or business (those graduated as business majors). For example, Niu and Wolff (2005) observed that few Chinese English teachers accepted systematic knowledge about language learning and language acquisition. Some college Chinese English teachers had no language acquisition training at all. Second, the large number of teachers who had been converted from general English teaching (Zhang 2002) complicated the situation. It was common for these teachers to apply their general English pedagogical knowledge and experience which was substantially influenced by Confucianism and Kairov’s pedagogy in their EBP teaching (Lin 2001; Zhang 2002). The third reason came from the goal of English education in higher education. ‘The objectives for English-as-major (business English students are regarded as English majors) courses are to train qualified and higher level personnel working as interpreters, researchers, teachers, administrators in fields of foreign service, business, culture, journalism, publishing, education, scientific research and tourism’ (Dong 1966 p.4). Such objectives that emphasize language skills (i.e. basic knowledge and basic skills) suggest a combination of grammar-translation and audiolingualism teaching approach (Adamson and Morris 1997) and can easily lead to teacher centred pedagogy.
3.6 Conclusion

To summarise, the current EBP teaching in China is deeply influenced by its historical Confucian teaching traditions, the Kairov's instruction model and various teaching methods such as grammar translation method, audiolingualism, content based teaching, task-based teaching and communicative teaching attached to different second language learning or acquisition theories. The dominant teaching model in EBP teaching, however, is still teacher centred. The instruction process follows Kairov's model. The teacher is still regarded as knowledge authority. Teaching is the process to transmit knowledge from teacher to students whose minds are empty pint pots and ready to be filled. Students depend on their teachers' guidance for learning. They rote learn large quantities of materials from textbooks or other print materials from teachers without really understanding them. Students' achievements on language are evaluated mainly by examinations such as TEM 4 or TEM 8. Even after the application of ICT in teaching, the pedagogy largely remains unchanged. Chinese academic researchers urged the change from traditional teacher-centred pedagogy to student-centred pedagogy.

There are various reasons for the current situation. The most influential reason is the deep-rooted Confucianism (Jones 1995; Boyle 2000; Hu 2002). Other reasons might include the inconsistent links between Chinese and European and American educational researchers (Cheng and Manning 2003), and the lack of substantial translation and analysis of the research results from the European and American countries (Hu 2002), the lack of introduction of the latest educational theories and paradigms to pre-service teachers and students (Wang 1999).

Chapter 2 and Chapter 3 present a thorough literature review on teacher change in higher education, the changed pedagogy in higher education when ICT is integrated and pedagogical frameworks to support teaching and learning with ICT. It also reviewed the special contexts for EBP teaching in Chinese higher education. The review examined the cultural background for the existing EBP pedagogy in China. The literature review identified gaps between EBP teaching and research related to the application and integration of ICT. It also provided the context for the study to be conducted. EBP teaching is a very important part of both language and business studies in China. However, teachers and pedagogy in EBP teaching are not very well studied. Literature review revealed that teachers are crucial to the successful integration of ICT to education; studies
from teachers’ perspective are therefore indispensable. Such research requires a thoroughly designed methodology to optimize the exploration of the research questions. The next chapter will discuss this issue and present the research methods for the study.
Chapter 4 Methodology: Multi-Case study

4.1 Introduction

Literature review has identified three limitations of ICT and pedagogy studies in higher education, namely deficient studies on ICT pedagogy in higher education, limited studies on EBP and limited studies on ICT and pedagogy for EBP in China. A close review about pedagogy in Chinese higher education also identified that pedagogy of EBP is still substantially influenced by traditional teacher-centred teaching approaches. While the learning theory underpinned the application of ICT to education to EBP teaching implied student-centred pedagogy, this meant that the introduction of ICT to EBP teaching challenged teachers’ existing pedagogy. To adopt ICT to their teaching, teachers’ need to change their pedagogy to fulfil the potential of ICT for students’ learning. It is therefore necessary to explore teachers’ ICT pedagogy to support their change. This determines the starting point of this thesis: an exploratory study in Chinese higher education, focusing on teachers and ICT pedagogy. In this chapter, the methodological approach to the study will be discussed. The chapter will be presented in the following four sections:

- The research objectives and aims
- The research approach
- The instruments design and data collecting process
- The data analysis process

Research objectives and aims of the study are presented in the following section.

4.2 The research objectives and aims

Literature review indicated that teachers’ ICT pedagogy was influenced by both personal factors such as their attitude and beliefs, and external factors such as community norms, cultural influences, regulations and organisation (Fang 1996; Higgins and Moseley 2001; Pickering 2002; Webb 2002; Cox, Webb et al. 2004). However, these studies were located in Western cultures and contexts, which were different to the practices in China. The researcher wondered whether there were other particular factors involved in ICT pedagogy for EBP teachers in China. Alternatively, one would ask whether the Chinese teachers’ were merely practising similar teaching activities as their colleagues in the western countries such as the UK and the US do.
When this study began in 2003, little was known about ICT and pedagogy in China. Although there were a number of studies about ICT and English education reported, these studies focused more on general English. Based on these considerations, a small-scale questionnaire survey (see Appendix 1 for the questionnaire) was conducted among EBP teachers in three higher educational institutions in South China. The survey aimed to present a brief description of the current situation of the uptake and implementation of ICT by China EBP teachers in higher education: how ICT was used by EBP teachers at the time of the survey and what were their general attitudes towards ICT in teaching.

The questionnaire design was based on two sources: the literature review (see Chapter 2 and Chapter 3) that had identified the influential factors to ICT pedagogy, and questionnaire that had been developed for studies in the UK schools (Preston, Cox et al. 2000), Greece (Koutromanos 2005), Chilli(Castillo Valenzuela 2006) and Chinese higher education (Ma 2003). Items were adapted for the context of Chinese higher education. As is shown in Appendix 1, the finalised questionnaire survey includes sections of exploring the existing application of ICT for EBP teaching in Chinese higher educational institutions, teachers’ perceived ICT competence, barriers to their applications, general attitudes and beliefs about ICT in teaching and life, and their desire for professional development. The questionnaire was designed in English but was translated into Chinese, adopting Brislin’s (1970) model for translating and back-translating instruments to avoid translation inherence. The questionnaire had been piloted by EBP staff in a college located in South East China to guarantee the accuracy of its Chinese version before it was sent out to the three participant universities for data collecting. The three universities were selected because they represented three typical levels of higher educational institutions in China that offered EBP courses, namely, the key universities, the provincial universities and specialised colleges. Data collected from the three universities provided better understanding of ICT for EBP teaching at a wide landscape. However, all three universities had small EBP teaching staff, and the survey was small (30 sent out and 23 valid returned).

The findings of the survey indicated that teachers’ use of ICT was diversified in ICT types, frequency of ICT use and pedagogical functions of ICT types. All 11 listed ICT types were applied to EBP teaching. In terms of the frequency of ICT use, the word processor was the most frequently used ICT type as 55% of the responders used it daily. Other ICT
types were used in much lower frequency. With regard to the pedagogical use of ICT, 78% of teachers claimed that ICT was applied to teaching. The most frequently applied functions were word processor, Email and WWW. ICT was mainly applied for presentation. Only one teacher was using a virtual learning environment for business practice. The survey identified teachers’ varied attitudes towards ICT in their teaching, though the majority of them acknowledged the possible benefit of ICT for their students. The results of the survey provided enough information for the researcher to identify two aims for the main study as follows:

1. The relations between EBP teachers’ attitude and beliefs to ICT and their ICT related pedagogy; and
2. The relations between contextual factors and EBP teachers’ ICT pedagogy

Specifically, the following three questions are asked:

1. What were teachers’ attitudes and beliefs towards ICT in teaching?
2. What were the links between attitudes, beliefs towards ICT and the related pedagogy?
3. What were the other factors that influence these teachers’ pedagogy?

To explore these questions, in-depth data were required using appropriate methods. Because of deficient empirical studies on EBP and ICT in China, this study was defined as an exploratory study at the very beginning. It explored both epistemological and behavioural aspects that influenced ICT pedagogy from teachers’ perspective. A qualitative multi case study research approach was adopted for the study. The next section specifies this study approach and the design of data collecting methods for the research.

4.3 Study approach: Multi-case study

As stated in the previous section, the foci of the research were to explore the relationship between teachers’ beliefs and attitudes, contextual factors and their ICT pedagogy, which required a look into teachers’ epistemology and behaviours. A multi case study approach was considered appropriate to achieve such purposes. A case study, as defined by Gerring (2004), is ‘an in-depth study of a single unit where the scholar’s aim is to elucidate features of a large class of similar phenomena.’

In the current study, the approach was considered appropriate for four reasons. Firstly,
Chapter 4 Methodology

according to Yin (2003), to make a methodological decision for research, there were three conditions to be considered:

- the type of research questions to be proposed
- the extent of control over behavioural events to be studied and
- the nature of the events to be studied, i.e. whether they were contemporary or historical

Case study as a research methodology, as Yin summarised, was most appropriate when ‘a ‘how’ and ‘why’ question is being asked about a contemporary set of events, over which the investigator has little or no control’ (Yin 2003 p.9). These words were indeed the summary of the current study. The three research questions, which tried to identify the direct relationship between teachers’ ICT related pedagogy and their attitudes and beliefs were about to explore the ‘how and why’s. Such beliefs, attitude and their teaching practice were not controllable by researchers. Participant teachers in this study had their own opinions and ideas for their practices. They related their practices to certain curriculum requirements, the policy of their working university and/or other situations. In addition, the study concentrated on teachers’ beliefs, attitudes and behaviours in their ongoing teaching practices, identifying issues that needed to be observed and studied. This indicated that the nature of this study was about contemporary events.

Secondly, human behaviours are embedded in the context where they are living; making it necessary to delve into their ways of understanding the world and find out what influences them. An EBP teacher’s beliefs and attitudes towards ICT as well as his/her relevant behaviour were shaped by the community. The community, in turn was shaped by beliefs and behaviours of various members of the community. According to Yin (2003), case study is distinguished from other research approaches when a researcher ‘deliberately wanted to cover contextual conditions-believing that they might be highly pertinent to the phenomenon of study’(p.13). Cohen and Manion et al (2000) also point out that ‘situations are fluid and changing rather than fixed and stable: events and behaviour evolve over time and are richly affected by context” (p.22). Case studies can ‘observe effects in real contexts, recognizing that context is a powerful determinant of cause and effects’(Cohen, Manion et al. 2000 p. 22).

Thirdly, back to the questions posed in this study, in order to know how the three variables
(teachers’ beliefs and attitudes, teachers’ pedagogical behaviour and their professional development history) were related and why they were related in such a way or ways, an in-depth investigation was required. Compared to other research methodologies such as survey, experiments that struggle with the limitation of variables to collect data intensively, one of the primary virtues of a case study was the ‘depth of analysis that it offers’ (Gerring 2004 p.348 original emphasis). Gerring (2004) also pointed out a case study allowed for the ‘generation of a great number of hypotheses, insights that might not be apparent to the cross unit researcher who works with a thinner set of empirical data across a large number of units ...’ (p. 350). The case study approach can investigate people’s beliefs and attitude in detail and insight, and thus help identify the relationship between their beliefs and their behaviour.

Moreover, the case study approach also allowed a researcher to be ‘integrally involved in the case’ (Hitchcock & Hughes, 1995 p. 317, quoted in Cohen, Manion et al. p.182) as a result of interaction over a period of time with the informants. This enabled the researcher to view a thing or event from the participants’ perspectives and helped to gain insights when interpreting the data. Hence, the case study approach provides the researcher with a more holistic understanding of the informants’ realities. In this study, a multi-case study was considered as appropriate for two reasons. First, teachers have different experiences, and therefore form different beliefs, attitudes and perceptions about the change in their teaching. Second, a multi-case study enable the researcher to compare and to identify the similarities and differences between cases for better understanding of EBP teaching with ICT in Chinese higher education.

4.4 Methods design

Case studies have been often challenged for being ‘soft’ and lacking reliability and constancy of their data. However, these disadvantages can be minimised through carefully designed conceptual framework, methods of data collecting and management of the data collecting and analysing process. Case studies invite and encourage researchers to collect a variety of types of data (Denscombe 2003). This helps ‘to see the things from different perspectives and to understand the topic in a more rounded and complete fashion than would be the case has the data been drawn from just one method’ (Denscombe, 2003 p. 84), and to build up a more detailed picture of the issues under investigation and assists with data triangulation. With regard to this study, data were collected through three
different methods: semi-structured interviews, classroom observations and focus groups. The following sections discuss the rationales and designs of the relevant instruments.

### 4.4.1 Semi-structured interview

Interviews may provide data ranging from understandings, opinions, what people remember doing, attitudes, feelings and the like that people have in common, to more exploratory and qualitative data concerning distinctive features of situations and events, and also about the beliefs of individual or sub-culture. As a research method, interviews are seen as being able 'to gain explanations and information on material that is not directly accessible: perceptions, attitudes and values, matters which are difficult to obtain by alternative methods' (Partington 2001) and to 'explore areas of broad cultural consensus and people's ... special understanding' (Denscombe 2003 p.4).

There are three formats of interviews (Robson 1993): a structured interview, which is conducted with a pre-determined standardized set of questions; a semi-structured interview, in which the interviewer introduces the topics and then guide the process by asking questions that can be modified; and open-ended interviews, in which the interviewer raises certain topics but has few specific questions.

This study uses semi-structured interviews, which are defined by Robson as a conversational process:

> where the interviewer has worked out a set of questions in advance, but is free to modify their order based upon her perception of what seems the most appropriate in the context of the 'conversation', could change the way they are worded, give explanations, leave out particular questions which seem inappropriate with a particular interviewee or include additional ones. (Robson, 1993 p. 231)

Semi-structured interviews were chosen for two reasons. First, it is able to elicit in-depth data with certain controls over the topics and boundaries of the content. Second, it provides flexibility to the interviewees to answer questions as fully as they want to (Robson 1993; Denscombe 2003).

There are, however, some concerns of applying interviews to a study. The first concern is about reliability. Data collected via interview method are 'unique owing to the specific
context and the specific individuals involved’ (Denscombe 2003 p.137). It is also relatively hard to generalize from interview findings (Arksey and Knight 1999 p.56-58; Patton 2002). This means that a researcher must be cautious about the representativeness of participants’ response. It also suggests a more practical view of the interview data, i.e. seeing them as insights into the practice of a small number of academics in a particular university, at a specific point of time.

A second concern of interviews is about data quality. According to (Patton 2002), it is difficult for the interviewer to share their private worlds. Interviewees can ‘fabricate tales of self that belie actual facts’ (Denzin 1989 p.114). It is therefore important to establish empathy and rapport with those being interviewed ‘if respondents are to disclose information to interviewers and ideally this is done over a period of time’ (Denzin 1989; Partington 2001).

Steps were taken to minimise these concerns. The first step was the application of triangulations (see Chapter 4.4.7 for detailed discussion). The second step was to invite those acquainted to the researcher. The third step was to establish empathy and rapport by introducing the researcher to possible participants via mutual friends. These steps helped to establish and maintain as harmonious relations as possible with the participant teachers. Additionally, informal chat and other social activities were also organised during the period of data collecting to gain acquaintances. All these actions enabled the participant teachers to feel more comfortable to express their minds without feeling threatened during the interview (Partington 2001).

4.4.2 Description of semi-structured interview schedule

A schedule (See Appendix 2) was developed to guide the semi-structured interviews to collect data for the following three purposes. First, it identified teachers’ general beliefs and attitudes about ICT in education, i.e. how they viewed their use or none use ICT in teaching. Second, it collected data from those teachers by asking them to describe a specific classroom teaching period/section with or without using ICT. Data that were collected from the questions asked in this section aimed to understand teachers’ pedagogical decisions. Third, questions were asked about factors such as ICT policy, professional development, and colleagues that influenced ICT related teaching decisions. To summarise, the interviews generated data on three aspects: teachers’ attitudes and beliefs in relation to their ICT teaching practice, their self-report about ‘actual’ use of ICT
in their teaching practice, the influential contextual factors for their teaching.

There were ten questions for the interviews. Question 1 and 2 asked the informants about their general teaching history (Question 1) and the history of using ICT in teaching (Question 2). These questions functioned at two aspects. First, informants were familiar with the content of these questions. Second, these questions opened up a window through which general beliefs and attitude towards ICT in education could be identified.

Question 3 focused on the teachers’ pedagogical behaviour. This question asked for individual teachers’ behaviour in the classroom, the specific beliefs and attitudes that supported their behaviour. Question 4 asked the informants about their general beliefs about learning.

Question 5 tried to identify constraints of teachers’ using ICT in the classroom. The question asked the interviewee to talk about contextual factors and the role of the ICT in their pedagogy. Question 6 explored how teachers cooperated with the contextual factors for their teaching and what factors were involved in the process.

Question 7 and Question 8 looked at the community influence. Question 7 asked for information about colleagues’ influence and Question 8 asked about the influence from other members within the activity system.

The questions in the last section of the interviews were more general. Question 9 investigated teachers’ pedagogical change over time and Question 10 reconfirmed the beliefs and attitudes of the teachers by asking them how they viewed the future of ICT in education.

The interview schedule was piloted in London with a visiting professor of ICT in education from a Chinese higher educational institute. The pilot interview process was discussed with the visiting professor, other PhD students in the college as well as the supervisors to assure the validity and the accuracy of both these questions in two languages (Chinese and English) adopted for the research.

4.4.3 Classroom Observation

People might be aware of their own contradictory beliefs and attitudes but did not want the researcher to notice such contradictions (May p.149), direct observations provided an
opportunity to learn about contradictions between what a teacher said he/she had done and what he/she actually did in the classroom (Patton p.263). Cohen et al described observations as ‘powerful tools for gaining insight into situations’ (2000 p.300) and to gather data first hand.

Three observations styles in academic research are identified. They are 1) a highly structured observation worked on the base of an in-advance category, looking for certain behaviour in given contexts; 2) a semi-structured observation worked on a pre-determined agenda, gathering data in a less strict scheduled and more flexible situation; and 3) an unstructured observation which relied on the significant findings in the field to determine further study.

With respect to the current study, the purpose of classroom observation was to gather “live’ data from ‘live’ situations’ (Cohen et al. 2000 p.305) and to retain the ‘naturalness of the situation (Denscombe p.193, original emphasis)’ as much as possible without any manipulation of the setting (Cohen et al. 2000, Denscombe, 2003). To achieve this aim, a semi-structured observation was adopted for two reasons. First, the pre-determined agenda gave certain control of the data being collected, which enabled concentration on research questions. Second, semi-structured observation also provided flexibility to identify specific phenomena in certain classrooms in relation to the use or non-use of ICT.

Concerns about observations lie in two aspects. The first issue is about ‘observer effects’ (Cohen et al. 2000 p.315). The presence of an observer may alter behaviour of the observed. Researchers were also warned about the reliability of participant observation since the data were filtered through the researcher, which led to difficulty in checking the reliability of data (Wragg 1999; Denscombe 2003). Another problem with participant observation is about the generalization of findings from only limited numbers of settings being studied (Denscombe 2003 p. 209). May (2001) described the findings lack of ‘external validity’ (p.170-171) as the observations were local.

To avoid observer effects as much as possible, the seat for classroom observation was chosen carefully in the classroom so that least attention would be paid to the observer during the teaching. In addition, data triangulation (see Chapter 4.4.7) was applied to minimise the effect.
4.4.4 The Classroom Observation Schedule

Semi-structured observations were used to explore the actual pedagogical behaviour in authentic classroom instructions. To be more specific, data were collected on the following aspects:

- Purpose of each lecture
- The availability of ICT resources
- The structure of lesson
- Teacher’s behaviour in the classroom
- The selection of ICT resources
- Students’ behaviour in the classroom
- The organisation of the lesson, including the way the content was delivered, the activities assigned for the students and the interaction between teacher and student

An observation schedule (see Appendix 3) was adopted from a research project --- An investigation of the research evidence relating to ICT pedagogy (Cox, Webb et al. 2004). The classroom observation, which was used as one of three data collection methods of the case studies, collected data on both teacher and student ICT related behaviour in the classroom. The classroom observation schedule includes two separate sheets: the classroom observation summary sheet (see Appendix 3.1) and the classroom observation commentary sheet (see Appendix 3.2):

1. The classroom observation summary sheet was applied to summarise the lessons being observed. Data generated from this sheet include general information such as the teacher’s name, the date of observation, and the class being observed as well as overall impression of the lesson such as the theme of the lesson, the ICT being used and the observer’s comment. The physical environment for the lesson were also recorded, i.e. the layers of the classroom and the types of ICT available in the class. For some observations, materials were collected and thus a brief summary of each piece of material was recorded on the summary sheet.

2. The classroom observation commentary sheet was to record the behaviour observed and comments to the observed instruction that occurred to the observer at any point during a classroom observation. Activities in the classrooms such as presentation, board writing, and use of materials, delivery and teacher-student interaction were recorded.
format of the sheet provides the necessary flexibility to record activities with or without the application of ICT facilities in the classrooms. It also is a tool to distinguish between the observed behaviour and researcher’s reflection on the spot. However, application of the sheet challenged a researcher, especially a beginner researcher’s ability to concentrate on issues relevant to the study because the schedule required the researcher to decide what events were critical to the study during the observation and recorded those events immediately. Therefore, it was necessary to review the observation notes as soon as possible after each observation in order to keep an accurate record.

Though the observation schedule had been tested and verified in a previous study (Cox, Webb et al. 2004), a pilot study was conducted based on three PGCE lectures at King’s College London to establish familiarity with the instruments and to assure the suitability of the instruments to the higher educational context. The pilot classroom observation was conducted in a situation similar to the main study ones. Each had a class size of 20-30 students. The instructions were face-to-face with two of them involving ICT and the third one not. Observational notes were analysed and the results were discussed with the supervisor to ensure the mastery of this research method. The pilot study also helped to establish confidence in applying the method for main study data collecting.

4.4.5 Focus group of teachers and students

Separate teacher and student focus groups were utilized as the third data collecting method for the study. Focus groups, as a research method,

... are a form of group interview that capitalises on communication between research participants in order to generate data. Although group interviews are often used simply as a quick and convenient way to collect data from several people simultaneously, focus groups use explicitly group interaction as part of the method. This means that instead of the researcher asking each person to respond to a question in turn, people are encouraged to talk to one another: asking questions, exchanging anecdotes and commenting on each other’s experiences and points of view (Kitzinger p.299).

The method was viewed as a particularly useful tool to explore people’s knowledge and experiences, to examine both people’s thoughts and the reasons behind those thoughts, to effectively explore the attitudes and needs of staff (Kitzinger 1995) and ‘the ways in
which individuals discuss certain issues ‘as members of a group’” (Bryman 2004 p.346, original emphasis).

With respect to the current study, the focus group was chosen as a research tool for two reasons. First, this study focused on EBP teachers’ attitudes, beliefs, and their behaviour in relation to the use of ICT in teaching. One assumption of this study about teacher was that teachers’ beliefs and behaviour were embedded in certain contexts (Engeström 1987; Lave and Wenger 1991; May 2001). While teachers were asked individually on these issues in interviews and observed in their classroom, a focus group offered the opportunity to see how individuals react to each other in the community they belonged to and to explore teachers’ views in ways that would be less easily accessible in a one to one interview. Second, Data generated from a focus group contained many ‘different forms of communication that people used in day to day interaction, including jokes, anecdotes, teasing, and arguing.’ The access to this information was useful because people’s knowledge and attitudes ‘are not entirely encapsulated in reasoned responses to direct questions (Kitzinger p.299)’. In this sense, ‘focus groups reach the parts that other methods cannot reach, revealing dimensions of understanding that often remain untapped by more conventional data collection techniques’ (Kitzinger 1995 p.300).

However, focus groups were criticized for preventing participants from contributing fully to data generation. For example, Fern (1982, cited in Morgan 1996 ) determined that each focus group participant produced only 60% to 70% as many ideas as they would have in an individual interview. However, the results of Fern’s study also suggested that two eight-person focus groups would produce as many ideas as 10 individual interviews. On the other hand, though a focus group was not introduced to Chinese education as a method of research and had not been reported in academic journals (the Chinese academic magazines database) in mainland China, some researchers, based on their own experiences, found the focus group an appropriate method for academic research. For example, Twinn (1998) compared two research projects she conducted among Hong Kong Chinese women nurses and doctors. She found participants in her research were willing to offer their feelings and opinions with others whether or not they were strangers or colleagues. Twinn (1998) also suggested that ‘the richness of data and the willingness of participants to contribute their experience and views should encourage the use of this method with participants from this ethnic group’ (p. 660). In addition, as part of the
combined methods of data collecting, the focus group helped the consolidation of data generated in this project.

In parallel to the teacher focus group, a student focus group was conducted near the end of the data-collecting period. The purpose of this student focus group was to gain further understanding of how teachers were applying ICT in education and how students perceived such ICT supported teaching. There were two reasons for conducting a student focus group. First, teachers in their individual interviews kept on mentioning the importance of students' competence and students' feedback in their teaching. It thus seemed necessary to find out how students really thought of their experiences of ICT supported classroom learning and what they thought of their teachers' practice. Second, the student focus group enriched the data of the study and made it possible to see teachers' behaviour in the classroom through a different 'lens'.

4.4.6 Schedules of focus group
The purposes of the teacher focus group were two fold. First, by putting teachers in 'the community', it was possible to gain understanding of their beliefs and attitudes to ICT through interactions between members. A focus group offered such a chance for them to communicate, to debate and to express their opinions through direct interactions. Additionally, the focus group also allowed supplementary data to be collected and certain issues to be clarified. According to the initial analysis of the data gathered from interviews and classroom observations, the following issues had been identified:

- The isolation of teachers from each other
- The cautious attitudes towards the teaching with ICT
- The inadequacy of ICT related CPD

To sum up, the purposes of the focus group were to identify:

- The role of the EBP teachers' community on their teaching with ICT

And to clarify:

- Teachers' perceptions of the value of the ICT activities in their teaching
- Teachers' perceptions of their pedagogy in ICT related teaching

The goals of the focus group were to identify:
• The evidence of the community influence
• The members’ influence upon each other
• The perception of pedagogy in teaching with ICT
• The perception of ICT in higher education
• Teachers’ roles in the teaching with ICT context

Based on the specified goals described above, ten questions were designed for the focus group (see Appendix 4.2). Question 1 asked about community influence. Question 2 and Question 3 identified influence from other members in the community. Question 4 double-checked factors that influenced teachers’ implementation of ICT pedagogy. The question was asked because participant teachers emphasised the influence of social factors and pressure from their students in individual interviews. Questions 5 and Question 6 explored the perceived ICT related pedagogy shared by the community. Questions 7 and Question 8 identified the constraints and their needs for teachers’ implementing ICT pedagogy. The last two questions explored the perceived value of ICT in higher education and teachers’ role in the changing contexts.

The student focus group was conducted using a different schedule because, as mentioned in the previous section, the reasons of conducting a student focus group were to understand students’ perception of ICT related teaching and their opinions on teachers’ behaviour in the classroom. The theme of student focus group was listed as follows:

• Students’ experience of ICT supported teaching; and
• Students’ perceptions of teachers’ application of ICT in the classroom

The goals of the focus group included:

• The courses that applied ICT in teaching
• The experience of their learning in such courses
• The perception of their teachers’ application of ICT in the classroom activities
• ICT influence on their learning

Eight questions were designed for the student focus group. The focus group commenced by asking students’ perception of ICT in education and their general attitude towards using ICT for teaching and learning. Question 2 asked about students experience in the ICT supported teaching. This question examined teachers’ ICT pedagogy from learners’
perspective. Question 3 and Question 4 were about the perceived value of using ICT in teaching. In Question 3, students were asked to compare those courses with ICT to those without ICT, how they felt about the differences of the two different classroom teaching and learning experiences. To understand the perception of teaching with ICT from the students’ point of view was the object of Question 4. The question also asked how students realised the constraints and limitations of teaching with ICT. Question 5 focused on the comparison of various teachers’ pedagogy in students’ experiences.

The last three questions concentrated on learning with ICT. These questions were asked because three of the seven teachers involved in the project had part of their teaching plan completed by students’ self-directed learning using different software packages. However, teachers were worried about their students’ learning achievements under such conditions because they thought students were not able to control themselves and their attention might be distracted. It therefore needed to investigate students’ opinions on this issue. Specifically, Question 6 asked how ICT were used to assist learning. Question 7 was about the influence of ICT on learning and Question 8 on students’ perception of how ICT could best assist their learning.

4.4.7 Data Triangulation

Triangulation was applied to encounter the criticism that case studies were ‘soft’ and lacked reliability and constancy. Triangulation can be defined as ‘a process of using multiple perceptions to clarify meaning, verifying the repeatability of an observation or interpretation’ (Stake 2000 p.443), and it helps to reduce the likelihood of misinterpreting a case.

In this study, methodological triangulation was achieved by collecting a wide range of data through different methods to draw a more detailed picture of the EBP teachers’ application of ICT in Chinese higher education. For example, each interviewee was observed at least three times for their classroom teaching after the interviews. Students of those teachers were also invited to attend the focus group. When analysing the data, it was possible to triangulate the key findings that had emerged both between individual interviews and by matching them against the data from classroom observation and student focus group data. Data triangulation (Denzin 1989) was achieved by interviewing and observing seven EBP teachers who were applying ICT in their teaching at various levels.
By using multiple data collecting methods and interviewing a number of people (Denzin 1978; Yin 2003) in the university, triangulation ‘offer[s] perspectives other than [my] own’ (Borman, LeCompte and Goetz 1986 cited in Berg 2001). This triangulation led to multiple measures of the same phenomenon, thereby reducing potential problems with construct validity in qualitative research (Yin 2003).

4.5 The selection of case study site
The site for the data collecting was a Business English Department of a key university in South China (see Chapter 5.2 for detail). The site was chosen because it met the following three criteria.

First, the site was a representative of ICT related EBP in Chinese higher education. The university itself was regarded as a pioneer in the application of ICT into higher education during the last decade. This provided the feasibility to find teachers who were actually integrating ICT in teaching and the data generated in such a context was natural. When it came to the Business English Department, though the department itself was relatively new, the history of EBP teaching in the university could be traced back to the early 1960s'. The department also had a good reputation for encouraging teachers to use ICT into teaching. In the last ten years, teachers in this department had completed several ICT related research projects on EBP teaching funded either by the MOE, China or by the university. Second, as a former staff of the university, the researcher was able to gain access to the department for the permission of data collecting and support from the department leader. Third, the fact that the university had been one of the three universities for the questionnaire survey for the study assisted the establishment of a rapport with the potential participant teachers for reliable qualitative data collection.

4.6 Data collecting process
Both formal and informal contacts were used to obtain access for this research. In January 2005, telephone contacts were made with the university’s administrative office to request formal authorisation for access. The official approval was confirmed at the third telephone contact on 14 January 2005. Meanwhile, personal relations were used to contact teachers in the Business English Department through Emails and telephone calls. The unofficial contacts offered this research the advantages of economy and efficiency in the negotiating process.
Table 4-1 Demographic information about the seven teachers

<table>
<thead>
<tr>
<th>TEACHER</th>
<th>GENDER</th>
<th>TEACHING YEAR</th>
<th>AGE</th>
<th>COURSE</th>
<th>ICT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIAO</td>
<td>MALE</td>
<td>&gt;30</td>
<td>&gt;50</td>
<td>ESBP</td>
<td>NO</td>
</tr>
<tr>
<td>SHENG</td>
<td>MALE</td>
<td>12</td>
<td>35-40</td>
<td>ESBP</td>
<td>YES</td>
</tr>
<tr>
<td>TING</td>
<td>FEMALE</td>
<td>6</td>
<td>&lt;30</td>
<td>EGBP</td>
<td>YES</td>
</tr>
<tr>
<td>LU</td>
<td>FEMALE</td>
<td>11</td>
<td>30-35</td>
<td>EGBP</td>
<td>YES</td>
</tr>
<tr>
<td>JUAN</td>
<td>FEMALE</td>
<td>9</td>
<td>30-35</td>
<td>ESBP</td>
<td>YES</td>
</tr>
<tr>
<td>QYIN</td>
<td>FEMALE</td>
<td>16</td>
<td>35-40</td>
<td>ESBP/EGBP</td>
<td>NO</td>
</tr>
<tr>
<td>PIN</td>
<td>FEMALE</td>
<td>16</td>
<td>35-40</td>
<td>ESBP</td>
<td>YES</td>
</tr>
</tbody>
</table>

Seven teachers were recruited for the research. The demographic information of the seven teachers, aged from 28 to 58, was listed in Table 4.1. Among them, one was a professor, three were associate professors, two were lecturers, and one was a teaching assistant. Two teachers were mainly engaged in EGBP teaching. Four teachers were mainly ESBP teaching and one teacher taught both.

Figure 4-1 The data collecting process

With regard to the application of ICT to teaching, only two teachers did not use any type of ICT in their teaching during the data-collecting period. Others were more or less using ICT to support their teaching. However, it was noticeable that one of the two teachers who did not use ICT in her teaching repeatedly complained about the unavailability of ICT for her teaching, while the other was literally teaching in a multimedia classroom but
refused to use any of them. Figure 4.1 demonstrates the whole process of collecting data in these three months.

4.6.1 Conducting the interviews

All seven interviews were conducted based on the semi-structured interview guidance (section 4.4.2) as early as possible during the data-collecting period. A covering letter was sent to each teacher either through Email or by mail to explain briefly the research project and the methods of collecting data. Interview schedules were sent to all teachers through Email or by letters one or two weeks before the interview so that the interviewees had enough time to understand and think about the questions they would be asked. Four days after the letters or Emails had been sent further contacts were made with the interviewees to confirm date and location for each interview.

Each interview lasted for about thirty-five minutes. Interview locations were all chosen by the interviewees. Among the seven interviews, two were carried out in the department offices of the interviewees. Another two interviews were conducted in the teachers’ classrooms after they have just finished instructions. One was conducted in a staff room. The last two were conducted in the interviewee’s home. The purpose of giving the interviewees the option to choose the location was to ensure that they could feel relaxed and free to speak their mind. In addition, all interviews were preceded by a re-affirmation of the confidentiality of the data being collected. Confidentiality was emphasised because during the contacting period, several teachers mentioned that they disliked the idea of being tape-recorded and suggested whether they could be interviewed without the presence of a recorder. One teacher declined the invitation because he was very cautious about his voice being recorded.

All interviews began with a review of the teacher’s career path before exploring his/her own experience of teaching with ICT or his/her opinions on the issue. All interviews were audio recorded and transcribed fully to Chinese (the language for data collecting). The accuracy of the transcript was assured by inviting an academic from a different college in the area to check all the transcripts while listening to the audio records and correct the mistakes accordingly. The data were then put into a database (Nvivo2) for analysis.

4.6.2 Conducting the classroom observation

The classroom observations of each teacher were conducted after the interview.
Participant teachers were asked for schedules of their instructions and their preferred time to be observed. Some teachers had only one lecture each week for one course. Other teachers who had repetitive courses were asked whether they would like to be observed twice in one week. Thus, some teachers were observed for their repetitive lectures to find out how their pedagogies were modified to fit the students’ conditions and needs.

Each teacher was observed at least three times. Some teachers’ classrooms were visited four times in order to gain enough data needed for the project. Altogether, twenty-three classroom observations were conducted among the seven teachers (seen in figure 3.1).

It turned out that the year of 2005 for the university was the year for an important national teaching quality inspection. During the period of classroom observations, teachers in the Foreign Languages College were required to do peer-observations and to give comments and suggestions to their peers’ performance in order to improve teaching quality of the university. As a result, it was common for both teachers and students to have outsiders in their class carrying out observations. Because of this, little attention seemed to have been paid to the observer by students in the observed instructions.

The classroom observations were noted down using the observation schedule (Chapter 4.4.4). After each observation, the teacher was asked to clarify some of his/her behaviour in the classroom and these answers were then summarised. Because of the complicated nature of classroom observation, it was a challenge to record all that happened and sometimes the researcher was attracted by the content and forgot to note down the activities in the classroom. A review of the observation record was made that evening. Important issues that had not been recorded were added to the record when they were still fresh and clear in the researcher’s mind.

The classroom observation used both Chinese and English for recording depending on the nature of the class being observed. Teachers were using both languages in their lecturing and classroom management. In order to be as close to the origin of what was observed, it was necessary to record in the same language as the lesson being taught to reflect accurately the actual classroom teaching process. The data from observation were also put into the database (Nvivo2) for analysis.

4.6.3 Conducting teacher focus group

The teacher focus group was conducted two weeks after the end of the classroom
observation period. As indicated in figure 1, the classroom observations ended on 20th of April 2005 but the focus group was conducted on ninth of May. The two-week gap was due to two reasons. First, initial analysis and comparison of the data being collected were done during the two weeks to identify issues to be discussed in the focus group. Second, there was a national wide seven-day break from first of May to seventh of May in China. All teachers were off duty and it was difficult to ask teachers to attend a focus group in these circumstances.

All seven teachers were invited to attend the focus group. A covering letter was sent to each teacher before 25th of May both through Email and by post. In this letter, the significance of focus group was presented, the theme of the group was described and the schedule of the focus group was included. Further contacts were employed through phone call on sixth or seventh of May to confirm how many teachers could be attending the group discussion. Six teachers agreed to participate. Only one teacher was leaving for a business trip to another city for a week from eighth of May and she apologized for not able to attend the group. Several calls were made on 9th May, the day that the focus group was conducted, saying that one teacher had an urgent supervision that afternoon. A further two teachers called just one hour before the scheduled time and informed that they had a sore throat and could not attend the discussion. Thus, only three teachers attended the focus group. All were female.

The focus group lasted for about 50 minutes because there was a mock provincial English contest that evening and one teacher was a judge for it. The three teachers were quite involved in the focus group. An overall impression about the focus group was that teachers were willing to discuss some issues that they did not want to discuss in personal interviews. For example, teachers did not want to talk about their own constraints in the interviews but all three teachers mentioned their lack of ICT competence in teaching and their lack of adequate training to develop ICT competence in the focus group. Teachers in the focus group also mentioned the lack of communication in the community and felt that the focus group was an opportunity for them to share their opinions and information.

An academic was invited to assist the conducting of the focus group. As it is very difficult to write down people's exact words and the interactions between members and the construction of meaning within each session, the focus group was audio recorded and fully transcribed. The invited academic was also responsible for the double-checking the
accuracy of the transcript. The transcript was then put into the database (Nvivo 2) for analysis.

4.6.4 Conducting the student focus group

The original research plan did not include data collecting from students. However, after three weeks in the university, some students who were former students of the researcher explained in private that they felt that learning with ICT was quite annoying most of the time. One student mentioned that she ‘just could not keep up with the pace of the teacher’ as the PowerPoint slides went so quickly. Other students in the observed class also had similar opinions. They also felt the application of ICT could not match their perceptions that ICT should have improved their learning. Two of the teachers explained that they lacked feedback from their students on their use of ICT in the class. Moreover, all seven teachers thought ICT influenced students’ learning, though their opinions do not necessarily need to agree with each other. These became a trigger of conducting the student focus group.

A word document was sent to each student while they were having the TMT class via the task delivery system, briefing them of the main theme of the focus group (see Appendix 5.2) and volunteers were recruited for the focus group. Eventually, eight students were recruited for the focus group, four female and four male. These students were chosen from the volunteers by the assisting teacher based on a first-come-first-chosen principle. The focus group was conducted on 17\textsuperscript{th} afternoon in the office of the Business English Department Staff Office. The assisting teacher was invited to observe the process and take notes for the focus group while the researcher acted as the moderator. The focus group lasted for about 60 minutes. The process was audio recorded and fully transcribed. The assisting teacher and the researcher then made a cross check for the accuracy of the transcripts.

4.7 Analysing data

Several psychological theories and models such as the Theory of reasoned action, the model of attitude behaviour relations the health belief model, theory of action the technology acceptance model and the theory of planner behaviour have aimed at explaining the relationship between attitude and behaviour. The most commonly used models and theories in both educational and ICT research are: the Technology Acceptance Model, the Theory of Reasoned Action, and the Theory of Planned
Behaviours. This section briefly these theories and the reasons for not applying them to this study.

4.7.1 The Theory of Reasoned Action
The theory of reasoned action has been used to predict the relations between behaviour intention and behaviours. Ajzen and Fishbein (1980 p.62) argued that a person's behaviour is determined by his intention to perform the behaviour and that this intention is, in turn, a function of his attitude toward the behaviour and his subjective norm (as shown in figure 4.2). Behaviours change only after a change in the two sets of beliefs namely: (1) beliefs about the consequences of performing certain behaviours and the evaluation of those consequences (attitude); and (2) beliefs about what other people or referents think about the behaviours to be performed and the motivation to comply with those referents (subjective norm). That is to say, a person's behaviour is determined by his/her attitude towards the outcome of the behaviour and by the opinions of people in the social environment. Furthermore, attitudes are predicted by behavioural beliefs and evaluations of those beliefs while subjective norms are predicted by normative beliefs and the motivation to comply with those normative beliefs.

According to this theory, EBP teachers' application of ICT into teaching depends on their positive intention to adopt ICT into teaching, which is influenced by their attitude towards the application of ICT in teaching, the perceived pressure from the university and national ICT related teaching policy, and their colleagues', students' and family members' expectations of their use of ICT.

Accordingly, it is possible to identify EBP teachers' beliefs regarding the desired consequences of the pedagogical ICT application. For example, teachers may have positive perceptions about the value of ICT in their teaching, and then become willing to seek to application of ICT into their teaching. They may also perceive enhancement of teaching and learning in ICT supported environment and therefore intend to accept changes in their teaching for the desired outcomes. However, teachers may also perceive some negative influence of ICT on their teaching, their career and their social positions and as a result become reluctant to change their current pedagogy.
It is also possible to identify the perceived social pressure that may promote or hinder teachers’ decision of adopting ICT in their teaching. Studies in the UK and the USA have found that teaching practices were substantially influenced by people around them and the ICT policy in school education (see Cox et al. 2004 for detailed discussion). Cox (1999) pointed out that teachers may be influenced by such factors as the requirement from the government to change their pedagogy under new curriculum or the pressure from their colleagues’ practice. Teachers in China may face similar social pressure and policy, which require them to promote teaching efficiency through the application of ICT. In fact, the Ministry of Education, China has enacted a number of policies in recently years to promote the application of ICT in education (Chapter 1.3). There were also projects, which aimed to support teaching and learning with better ICT resources (Chapter 1.3). It is thus reasonable to predict that teachers face pressure from the management and policy to change their current practice.

The Theory of Reasoned Action had substantially influenced the research of attitude and behaviour throughout 1980s and 1990s. In the field of ICT in education, a Technology Acceptance Model was developed based on the theory and was successfully applied to many research settings. The following section discusses the application of the model to this case study.

4.7.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) (Davis, Bagozzi et al. 1989), which was based on the work of Fishbein and Ajzen’ Theory of Reasoned Action (see section 6.6.1),
investigates the determinants of computer acceptance that could be generally and theoretically justified across various end user population. The model, shown in Figure 4.3, links the perceived usefulness and ease of use with attitude towards using ICT and actual use (system use). In this model, perceived usefulness is 'the degree to which a person believes that using a particular system would enhance his or her job performance' (Davis, 1989, p.320 quoted in Koutromanos p.111). While the perceived ease of use refers to the 'degree to which a person believes that using a particular system would be free from effort' (Davis, 1989, p. 320 quoted in Koutromanos, 2005 p.111)

![Technology Acceptance Model](image)

Figure 4- 3 Technology Acceptance Model (Davis et al., 1989, P. 985)

The TAM model was first tested and validated in Davis, Bagozzi and Warshaw (1989)' study with 107 adult users, who had been using a managerial system for 14 weeks. The study indicated that people's computer use was predicted by their intentions to use it, and that perceived usefulness was strongly linked to these intentions. In the past decades, numerous study settings have proved TAM an efficient predictor of ICT use (for more details see Legris, Ingham et al. 2003 and Koutromanos 2005 for detail). For example, Preston et al (2000) used TAM model to measure teachers' attitude towards using ICT in teaching. They measured particularly perceived usefulness of ICT in teaching and perceived ease of use. Findings of the research indicated that the frequency of teachers' using ICT for teaching was closely related to the perceived easiness and usefulness of ICT to them, their teaching and their students.

In accordance to the TAM (as shown in Figure 4.3), the EBP teachers' degree of acceptance of ICT and the actual use of ICT facilities for their teaching could be predicted by their intentions to use ICT in their teaching which were in turn underpinned by their attitude towards the use of ICT. Thus, teachers who were negative about ICT were not
likely to accept ICT and use ICT facilities in their teaching, while teachers who were positive about ICT were likely to use ICT in their teaching.

Furthermore, the attitudes of these teachers would be determined by their perceived usefulness of ICT in teaching and their perceived ease of use of certain facilities in teaching. If a teacher had enough confidence of controlling ICT facilities smoothly in the classroom, he/she also perceived ICT as providing new affordance for students' learning. Therefore, the teacher may form a favourable attitude towards ICT and will eventually use ICT in his/her teaching. In contrast, if a teacher perceives that ICT has 'spoiled' students' learning by distracting their attention and narrowing the gap for them to consolidate their learning in the classroom, he/she may form a negative attitude towards ICT. The teacher is therefore less likely to apply ICT to his teaching even though he/she has been exposed to an ICT supported teaching environment for a long time.

4.7.3 Theory of Planned Behaviour

The Theory of Planned Behaviour (1991) (Figure 4.4) was extended from the Theory of Reasoned Action. The major difference between TRA and TPB is the addition of a third determinant of behavioural intention, perceived behavioural control. Thus, in the new theory, behaviours were influenced by one's intention to perform the named behaviour. Nevertheless, the intention to perform a particular behaviour is influenced by three independents rather than two independents, namely attitude towards the behaviour, subjective norm and the perceived behavioural control. The third determinant, perceived behavioural control indicates that a person's motivation is influenced by how difficult the behaviours are perceived to be, and how successfully the person is expected to complete the behaviour. If a person believes strongly that there are factors that will control the performance of the behaviour, the person will have high perceived control over the behaviour. On the contrary, a person will have low perceived control over the behaviour if she holds strong beliefs about factors that impede the behaviour. This perception can reflect experiences, anticipation of upcoming circumstances, and the attitudes of the influential norms that surround the individual.
With regard to the current study, in addition to the factors that have been discussed in section 4.7.1, the application of ICT in teachers’ teaching activities is determined by their beliefs about how easily they could change their current practice based on the confidence of their ability to perform it. In other words, it means if teachers are not confident about their ICT competence and their ability to control the classroom in an ICT rich environment, it is less likely that they will shift to ICT supported teaching or even if they adopt ICT to teaching, they would prefer not to change their traditional pedagogies in ICT supported instruction. Therefore, by identifying teachers’ confidence about applying ICT in teaching, it is possible to predict the likeliness for teachers to adopt ICT in their teaching. The different perceptions about ICT and the different perceived competence may lead to the teachers’ varied intentions to adopt different ICT pedagogies in their classroom instructions.

Apart from the perceived confidence of applying ICT to classroom teaching, teachers’ perceived ease of access to ICT facilities on their adoption of ICT in classroom teaching may also influence their determination of actual ICT use in the classroom. Therefore, if a teacher perceived a high level of difficulty in accessing ICT facilities and resources, he/she is less likely to seek opportunities to apply ICT to teaching.

Ajzen (1988; 1991) emphasised the importance of quantitative research for the application of Theory of Reasoned Action and The Theory of Planned Behaviour. This was because both theories were expected to predict a particular behaviour through the investigation and measurement of the relative importance of three variables: behaviour beliefs, normative beliefs and control beliefs, hence the importance of statistical
calculation while doing data analysis. A minimum return of 80 valid copies of the questionnaire for a research project was recommended. However, among the 600 universities that offered EBP teaching in 2003, most of them had very small EBP departments (He and Xiao, 2004). For example, the university recruited for this study was one of the top three universities in EBP teaching in China, but had only 14 staff member in the Business English department. This made quantitative research based on TRA and TPB not applicable when this research started. In 2006, when data analysis for this study was approaching to its end, the researcher attempted to adopt both TRA and TPB as frameworks for qualitative data analysis. The analysis revealed that elements in the frameworks such as teachers’ behavioural beliefs, normative beliefs and control beliefs could be identified from the data. However, without statistical analysis, the frameworks were weak in capturing change in the system. In contrast, the Activity Theory was proved to be a powerful framework because it was able to identify contradictions and tensions in a system. Furthermore, as stated in Chapter 1.3, the deficient empirical studies conducted in China left little evidence on how attitudes and behaviours were linked to ICT pedagogy in higher educational system. Researchers (Yee 1989; Biggs 1996; Martinsons and Martinsons 1996; Hu 2002; Hu 2002) also noticed that Chinese educational system and its culture were substantially different even from many Asian countries such as Singapore and Japan, not to mention the UK and the USA. To conduct a large scale quantitative based on TRA or TPB, researchers needed to identify factors either from pilot projects or from previous studies to design instruments. However, the deficient literature on EBP teaching and ICT pedagogy from the teachers’ perspective provided little understanding about the factors that could have influenced teachers’ practice. Additionally, as this study was located in a special context, it is not applicable to applying directly findings of studies conducted in the UK and the USA because of differences in culture, policies and educational systems. Taking the reasons and practice mentioned above into consideration, the three models and theories discussed were not adopted for the study.

4.7.4 Theoretical framework for data analysis

The data analysis was initialized by open coding, followed by application of the Activity Theory model as a framework for interpretation of the findings. This section explains the rationale for the decision.

Data analysis started from open coding using the computerised qualitative data analysis
program, Nvivo2. The decision for the adoption of open coding was made for four reasons. First, it was an exploratory research on EBP teaching and there was no predicted outcome of the study. It thus required the researcher to be open to any idea that emerged from the data relevant to the research questions. Second, open coding process enabled the data collected in this study to be objectively examined and analysed, making it possible for the researcher to interpret the meaning of the participant teachers' voice and to resemble the 'reality' (Strauss and Corbin p.12). Third, open coding provides a reasonable and reliable understanding of ICT beliefs and attitudes and teachers' ICT pedagogy. Finally, it provided an opportunity for the researcher to stand as an outsider from the data collected and to minimise the identity influence of the researcher as a participant during the data-collecting period.

After open coding of all the data, Activity Theory (AT) was adopted to explain the findings of the opening coding. The AT was based on the argument (Vygotsky 1978) that human activity entailed a complete system of human practices, which included purpose-driven activities, tacit and inexplicit methods for carrying out activities, physical and conceptual tools used as mediators when executing activities. A model was developed (Engeström 1987) to portray these elements of an activity system (shown in Figure 4.5) Engeström argued that the application of AT to a study 'can draw the researcher's attention to important factors to consider when analysing teaching and learning activities' (Mwanza and Engeström 2005 p.457).

![Figure 4-5 Based on Engeström's (1987) model of an activity system](image-url)

With regard to this study, the decision of adopting AT model was for two reasons. First, the researcher assumed that teaching practices were situated in certain contexts. Second,
Activity Theory was based on the assumption that human activities were context embedded. The AT model provides a systematic framework to understand contextual situated human activity. Furthermore, the AT model has been proved a powerful conceptual framework for many studies about ICT in educational context (Yocam, Wilmore et al. 1994; Tolmie and Boyle 2000; Lim 2001; Lim and Hang 2003)

However, to define the elements within an activity system was not an easy task (Engeström 1987) because each activity system under study had its unique features that were induced from the research questions. It was therefore necessary to define every element within the system to understand clearly the relationship within and between those elements. According to Engeström and his colleagues (2005):

The activity triangle model represents an outline of the various components of an activity system into a unified whole. Participants in an activity are portrayed as Subjects interacting with objects to achieve desired outcomes. Meanwhile, human interactions are mediated with each other and with objects of the environment through the use of tools, rules, and division of labour. Mediators represent the nature of relationships that exist within and between participants of an activity in a given Community of practices. (Engeström 2005:457, original emphasis)

Thus, to map EBP teachers’ ICT pedagogy into the model, codes were categorised into the system as follows (shown in figure 4.6):

The subject was an EBP teacher’s beliefs and attitudes towards ICT in education. The object was the teacher’s pedagogical decisions, which included the intended application of ICT for teaching and the perceived pedagogical functions. The tools that were applied for mediation were material side of ICT (i.e. hardware and software) available to the teacher and the psychological side of ICT (i.e. the teacher’s ICT competence). The rules for the system included the curriculum requirements, the ICT related policy of the department, the college and/or the university, and the assessment requirements. Members in the community of the system include colleagues, students, technician and family members and/or friends of those teachers. The division of labour in this system distinguishes the functions of the members in the community, namely the role of teacher, the role of students and the role of ICT technicians. The outcome of the activity system
was the actual behaviour that could be observed or self-reported in the classroom teaching, which included the use or non-use of ICT for teaching and learning in the classrooms.

Figure 4-6 the visualization of objects in the EBP teaching system

The Activity Theory was powerful in capturing contradictions within an activity system to understand the sources of change and development. According to Engestrom (2001), contradictions exist in the form of resistance to achieving the goals of the intended activity and as emerging dilemmas, disturbances, breakdowns, and ruptures both within and between elements. Contradictions can exist within an element (shown as 1 in Figure 4-6). For example, teachers’ beliefs about the positive impact of ICT on teaching and learning may be redirected by their concerns of losing their traditional, powerful image as the authority of knowledge. Thus, teachers may have conflicting beliefs about whether students should be given more autonomous learning opportunities or be constrained within prepared, teach-talk dominated schedule. Contradictions can also exist between elements (shown as 2 in Figure 4-6). For example, a contradiction may appear between subject (teacher) and community when a pioneering teacher is applying ICT innovatively in a community in which ICT was not an accepted concept/norm. Contradictions in an activity system indicate resistance and can cause crisis as well. They can also be the moving forces that will lead to changes and development of the system (Engeström, 1999). For this study, the AT model was applied for the purpose of understanding the contradictions in the system to establish an insight into the driving forces that could eventually lead to the acceptance and implementation of learner-centred ICT pedagogy in
the community.

4.7.5 Data analysis

Data analysis was interwoven with data collection. Initial data analysis started as soon as the first interview finished. This approach enabled the researcher to check the data and to identify the themes at an early stage. It also led the researcher to collect further data such as the student focus group in the field. Figure 4.7 is a synchronic line of the study from questionnaire survey to thesis drafting.

<table>
<thead>
<tr>
<th>Action</th>
<th>Time</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaire survey</td>
<td>March – April, 2004</td>
<td>23 EBP teachers from three Universities</td>
</tr>
<tr>
<td>Interview</td>
<td>March – April, 2005</td>
<td>7 EBP teachers in one university</td>
</tr>
<tr>
<td>Classroom observation</td>
<td>March – April, 2005</td>
<td>7 EBP teachers in one university</td>
</tr>
<tr>
<td>Teachers focus group</td>
<td>May, 2005</td>
<td>3 of the 7 EBP teachers</td>
</tr>
<tr>
<td>Student focus group</td>
<td>May, 2005</td>
<td>8 EBP students in the university</td>
</tr>
<tr>
<td>Transcript</td>
<td>March – June, 2005</td>
<td>Researcher and two assistant teachers</td>
</tr>
<tr>
<td>Open Coding</td>
<td>May, 2005 – February, 2006</td>
<td>Researcher, supervisors</td>
</tr>
<tr>
<td>Conflict analysis</td>
<td>June, 2005- May, 2006</td>
<td>Researcher, supervisors and feedback from conference</td>
</tr>
<tr>
<td>Translation of main quote</td>
<td>May, 2005 – May, 2006</td>
<td>Researcher, supervisors and feedback from conference</td>
</tr>
<tr>
<td>Single case report</td>
<td>August, 2005 – March, 2006</td>
<td>Researcher, supervisors</td>
</tr>
<tr>
<td>Cross case analysis</td>
<td>February – June, 2006</td>
<td>Researcher, supervisors and feedback from conference</td>
</tr>
<tr>
<td>Thesis drafting</td>
<td>July, 2005-December, 2006</td>
<td>Researcher, feedback from supervisors, participant teachers, and other PhD students,</td>
</tr>
</tbody>
</table>

Figure 4- 7 Time line of data collecting and data analysis

All interviews and focus groups were audio-recorded and then fully transcribed. To guarantee the completeness and accuracy, all transcripts were crosschecked by two academics in the field of ICT research. All transcripts, observation notes and focus group transcripts were then imported to Nvivo2 (QSR Nvivo2) for coding.

The first step of data analysis in Nvivo2 (see Figure 4—8 for an example) was to read
closely and study carefully all the semi-structured interview transcripts and observation notes. Codes were added to an idea, which was related to the key areas of concern for the study and the explicated questions posed in each instrument. In other words, beliefs and attitudes towards ICT in education, the selection of ICT types for teaching, the ICT related CPD, the described pedagogical behaviour (in interviews) and the actual behaviour (by classroom observations) were identified and used to form key concepts or codes. Issues such as the institutional influence, the community influence and the changing classroom teaching practices were also identified and classified into relevant categories. For example, EGBP teachers in the department reported that they were required to teach according to the National English Curriculum, which meant they had more constraints when applying ICT to teaching because the teaching contents were assigned to them. The ESBP teachers did not have such requirements and they could decide to a certain extent what they could teach for their course. However, data analysis suggested that they encountered with problems related to the curriculum when applying ICT to their teaching (See Chapter 5.3 and 5.4 for example).

![Figure 4- 8 Nodes and Node trees during the open coding period](image)

Coding of data collected from interviews, focus groups, and observations were different because of the different nature (see Chapter 4.7.6) and analysis purposes of the data. Coding of interviews and focus group transcripts at this stage was based on a sentence-by-sentence approach in order to express the data and phenomena 'in the form of concepts' (Flick 1998 p.180) or codes. This approach gave the coding process the sensitivity to details without compromising efficiency. There were over 200 nodes
identified at the end of the open coding (See Appendix 6).

Language became an important issue for this study (see Chapter 4.8). In order to minimize the loss of meaning of data, open coding was conducted on the original Chinese version (see 4-9). However, Nvivo 2 is based on western languages. It can display Chinese characters imported from RTF documents but cannot code in Chinese. In other words, nodes and descriptions cannot use Chinese. Therefore, nodes and descriptions were given in English. When open coding ended, nodes and descriptions were exported to word documents, together with important quotes that had been translated into English. In order to guarantee the accuracy of translation, data needed to be traced back to its original source at any time during the data analysis and thesis drafting. To do so, all original Chinese transcripts were divided into separate lines and numbered. These numbers were adopted as location index and were added to the related translated quotes (see Figure 4-9 for example).

Figure 4-9 Example of open coding

The coding of classroom observations was, however, different. Each teacher had been observed for three times and observation notes were written. The unit of analysis was based on a complete activity because the purpose of observation was to investigate the implementation of pedagogical decisions. Furthermore, for each instruction, actions...
related to ICT such as the functions of ICT in the classroom activity, teachers’ explicit view about ICT in teaching were coded.

Activity 2: An introduction on market research (50 minutes)
Pin used a PowerPoint presentation for this activity. The theme of the activity was to introduce the concept of market research and the steps for carrying out the research. Pin first explained the importance of gathering information for a business, using a graph to demonstrate this point. She asked students to express their opinions. She then commented on their responses and added some information. Next, she gave the definitions of specific terms in a market research programme. She read aloud the definitions shown on the screen and explained the meaning afterwards, using cases or briefing in Chinese. No questions were asked in this section. Pin then showed a diagram of the market research process with arrows to indicate the synchronous order. Pin seemed to have noticed that there were some differences between her PowerPoint presentation and the textbook. To this stake, Pin gave some time to her students to read a section in the textbook. Until now, Pin had talked for more than 10 minutes. Some students in the class began to do things irrelevant to the course. One boy on the back row was playing a computer.

Figure 4-11 Example of instruction data analysis The second stage of the data analysis was to re-categorise the nodes identified during the open coding. Data analysis at this stage was actually the interpretation of findings for the first stage. Teachers’ experiences with ICT were explored and were interpreted from the researcher’s point of view, using the AT model. Such interpretation provided an insight into ICT pedagogy for EBP teaching in China. As discussed in section 4.7.4, elements of the AT were defined and mapped into the model. The AT model (shown in figure 4.6) was applied to data analysis at the second stage to identify the driving forces within the teachers’ ICT for EBP teaching activity systems. All nodes identified during the open coding were further categorised and mapped into the six elements of the AT model. Accordingly, nodes were classified into seven categories. The first six categories, namely, the beliefs and attitudes, the ICT tools and ICT competence, ICT pedagogy (including both the pedagogical decisions and observed classroom teaching), the institutional policies and norms, the community, and the division of labour were the elements of the teaching activity system (see Appendix 6). The last category was the constraints of the system, which summarised the conflicts within and/or between the elements of the activity system. Conflicts within the system were the forces that drove the system to be expanded to a new system (Engestrom, 1987). However, the prominent conflicts of different activity systems were different. Therefore, the driving forces identified in this study have enhanced our understanding of the factors that had influenced teachers’ implementation of ICT pedagogy in Chinese higher education.
4.7.6 Dealing with data from different data collecting methods
The research adopted three different methods to collect data: semi-structured interview, observation, focus group and relevant materials for teaching and learning. This raised the issue of dealing with the different data.

Interview data provided a good source of information about people’s experiences, opinions, views and emotions. It helped to understand EBP teachers’ beliefs and attitudes towards ICT in their teaching career and these perceptions about the context of their working. However, it did not necessarily follow that those data were accurate, 'objective' reflections of their real world. For example, a teacher claimed to have used only two slides for a lecture in the semi-structured interview. However, the student focus group revealed that she used many more than the two slides she had claimed. Baker (1997) highlighted the joint production of data by interviewer and interviewee and suggested that interview responses should be treated as 'accounts' more than reports.

Observational data were useful records of what people actually had done in practice. They also enabled the researcher to triangulate data collected from interviews and focus groups for coherence or inconsistency. For example, in one semi-structured interview, a teacher claimed that she would add a CNN news section to her class if the classroom were ICT supported. However, the activity was not observed in two of her ICT supported instructions. Another example was in Liao’s case who expressed explicitly in his instruction that he was not favour the application of ICT in his teaching, and he never applied any ICT in his instructions (see Chapter 5.6.2). However, observation data were filtered through the lens of the observer and limited in what it could reveal about participants' motives, previous experiences and opinions. The researcher's presence might have altered the normal dynamics of the situation. According to Hammersley and Atkinson (1994), ‘All accounts must be interpreted in terms of the context in which they were produced”, this implied that a researcher had to be very cautious when interpreting observational data.

Teaching and learning materials provided useful records of decisions, arrangements and activity, unfiltered by a researcher. However, these documents did not show what actually happened in the process of producing them. For example, whether the assignment submitted by the students was actually completed within the Teach Me Trade (TMT) virtual learning environment. In this study, documentation was used for checking and
following up 'social facts' produced under particular conditions. Documentation data were used as evidence of what was on the 'agenda', i.e. what was taught in classroom and was compared with the accounts of students and teachers' experiences.

Thus different types of data provided a wider range of information about the situation being studied than could have been obtained through only using a single method. They also helped to triangulate the validity of the data for the research.

4.8 The issue of presenting the findings in English

Because all interviews were conducted in Chinese, both the transcription and analysis were carried out in the source language to minimise any loss of meaning during the analysis phase that could have occurred if the data was translated into English. However, after the analysis in Chinese, findings were then reported in English. Quotes of the interviews and the focus group were translated into English for the purposes of discussion and presentation.

Efforts were made in the process to ensure that meaning expressed in Chinese were clearly translated and represented in English. For example, one teacher described in her interview how difficult it had been for her to persuade the university to purchase relevant programs for EBP teaching. She used a dialect phrase 'Ban man'. The phrase was difficult to understand by anyone who was not a resident of that area. The implied meaning of the phrase could be expressed 'spare no effort' or 'even it was very difficult I managed to do it'. In certain circumstance, it could also mean that 'I was not satisfied with the situation but had to deal with it'. It thus made the translation a very difficult task to convert fully the meaning into a different language.

To present teachers' opinion as accurate as possible, constant contacts were made through Email, real time online chat or over the telephone with some of the seven teachers in order to get their opinions or comments. These maximised equivalence between the original transcripts and the presented English version without fundamental misunderstandings. Since illustrative quotations were 'more direct and self-evident in their implication than the narration of observed incidents or second hand opinions' (Bradley, Chesson et al. 1983 p.12), the translated quotations provided typical or unusual situations, conditions, structures, or process that emerged from the study.
4.9 Ethical considerations

It was necessary to pay close attention to the ethical issues involved in the research process. A researcher should respect the rights of all people involved, directly or indirectly in the study (Murphy and Dingwall 2001). People who are involved in research studies had the right to be fully informed about all the actions that they are involved in, the right to refuse to participate and the right to set specific conditions of their participation.

In this study, teachers were informed fully of the aims and the methods of the research before the research started. Teachers were volunteers of the research and they were guaranteed of their rights to withdraw from the research at any time. All information both about and from participating teachers was drawn only to address those issues relevant to the study. Both teachers and students in this project were assured both of their anonymity and of the confidentiality of their participation. Hence, pseudo names were applied to the university and all teachers and students reported in this thesis.

4.10 Conclusion

The focus of this chapter is to present the methodology for the thesis based on the theoretical and empirical evidenced obtained from the literature review. A multi-case exploratory study approach was adopted for two reasons. First, the research questions required an in-depth investigation of teachers’ behaviours and beliefs through close observation and dialogues. Second, the limited empirical evidence available in EBP teaching in China determined that the nature of the study is exploratory. The multi-case study approach made it possible to investigate ICT pedagogy for EBP teaching in Chinese higher education.

Three research methods were adopted for study to gain insight into EBP teachers’ ICT pedagogy in a Chinese higher educational institution. These included semi-structured interview, classroom observation and focus group discussion for teachers and students separately. These methods enabled the researcher to explore teachers’ attitudes, beliefs and behaviours through both teachers’ perception and researcher’s observation.

Open coding and Activity Theory were adopted to frame the data analysis. Open coding was processed at first to maximise the possibility for data to ‘talk about themselves’ (Strauss and Corbin 1998) while Activity theory was applied to identify the conflicts, or
the driving forces, that influenced teachers' ICT pedagogical decisions. In another word, AT was applied as a tool for the researcher to interpret teachers' beliefs, attitudes and ICT pedagogy from the researcher's perspective.

Fieldwork and data analysis were guided by the methodology and the next chapter moves to findings of the study, which formed the core of the thesis.
Chapter 5 Case Analysis

5.1 Introduction

In the previous chapter, rationales about adopting a multi case study for the research were explained and presented. The researcher argued that the approach provided an insight into teachers’ attitudes and beliefs towards ICT and their ICT pedagogy for EBP teaching in Chinese higher education. The chapter also explained the data collecting process (Chapter 4.6) and data analysis process. In this chapter, details of the site university were described. Data were collected from the seven participants through semi-structured interviews (Chapter 4.6.1), classroom observation (Chapter 4.6.2), teacher focus group (see Chapter 4.6.3), and student focus group (see Chapter 4.6.4). Data analysis of the seven single cases indicated that teachers’ experiences and their implementation of ICT pedagogies could be categorized into four groups. Hence, four cases that typically reflected each category have been chosen and presented in this chapter. In each case, findings will be reported in nine sections as follows:

- History of teaching
- Description of an instruction
- Attitude to ICT and pedagogy
- Beliefs of ICT and Pedagogy
- Community influence
- Institutional influence
- Role in teaching system
- Conflicts in the system
- Summary

The first section introduces the teaching history of the teacher. The second section is the description of one class observation. As discussed in Chapter 4.6, each teacher was observed for three instructions. The one presented in this chapter was the one that was agreed by the teacher to be a typical class instruction. The next five sections report major themes that emerged from data. The conflicts within the teacher’s activity system are then identified within or between various elements in the system. Each case ends with a summary.
At the end of the chapter is the conclusion about findings of the four single cases' analysis. As teachers' ICT related teaching was conducted under certain circumstance, it is therefore necessary to understand the general circumstance for their working. The following section details ICT related circumstance of the university where the seven participant teachers were working.

5.2 Details of the university

5.2.1 Introducing the selected university

The site university was chosen based on the three criteria discussed in Chapter 4.5, namely, its representativeness in ICT related reform, its representativeness in EBP teaching and the possibility to collect in-depth data for a qualitative study through the establishment of rapport with the potential participants. The university selected is a key university located in South China attached to the Ministry of Education China. It is also a member university of the National 211 Project\(^\text{13}\) and the national 985 Project.

The university has a history of more than 1000 years and a high reputation for its innovative and pioneering work in many teaching related reforms. Computer competence training has been offered to students since the 1980s when CALL courses were applied to teaching irregularly. The university, cooperating with China Telecom, established the first online university in China (Zhang 2002) in 1997. In the following year, approved by the Education Ministry, the university became one of the first five universities accredited to offer degree courses through distance education in China. The university had developed an IP-based system combining both the Internet and Video conference system to deliver courses to distance education students. The teaching content could be either synchronously accepted by students or retrieved later by students at their convenience asynchronously. Multimedia teaching classrooms were established. In the year 1999 and 2000, some undergraduate courses on the campus integrated ICT into teaching, mainly for the purpose of distance instruction and online teaching content delivery. Teachers were lecturing through a video conference system to several hundred students located in different teaching buildings. The practice at that time was viewed as a great innovative success as it realised the dream of 'teaching as many as possible at the same time'.

---

\(^\text{13}\) The 211 Project, which was launched by the Chinese Ministry of Education in the 1990s, was major project to improve the management and the quality of education. The major task of the Project was to select 100 key higher educational institutions from a total of 1800 and then financially support these 100 institutions for their developments in both academic research and teaching practices.
practice in the university was rewarded a first class prize in 2000 by the Ministry of Education and was regarded as a model for modern higher education in China. It influenced the practices of other higher educational institutions in China.

The Foreign Languages College of the university, to which the Business English Department is attached, was established when the university merge with another two colleges in the area in September 2000. At the period of data collecting, the college had a staff of 262 teachers with 16 professors, 50 associate professors, and 78 lecturers. Others were administrators and teaching assistants. The college was mainly engaged in teaching and researching two foreign languages, namely English and Japanese. Other languages such as Spanish, German and French were taught but only as optional courses.

The English section was further divided into three areas: English and translation, English for Business Purposes, and English for IT and communication. Although the Foreign Languages College had a comparatively short history, the history of EBP teaching in the university was long. Among the 14 teachers in the Business English Department during the pilot study, seven teachers were from the former International Business School (established in 1986) of the university. Another three were from the former Provincial Financing and Economics University whose history of EBP teaching could be dated back to the 1960s. All teachers had Bachelor degrees in English or English Teaching. Most had their master’s degrees in Economics or Finance. Teachers in this department were engaged in both ESBP and EGBP teaching.

However, one should notice that those teachers in the Business English Departments might also engage in English Teaching for General Purposes (EGP). This was because the college had required teachers to complete certain instruction hours for undergraduate student courses each academic year as a preposition to be fully paid. When the courses within the department could not help the teachers to reach the required teaching hours, teachers would be assigned to teach EGP courses. Thus, several participant teachers in this study had extra courses that might be irrelevant to EBP teaching. For example, Ting had two courses in the evenings for writing and reading skills for the International English Language Testing System (IELTS)\textsuperscript{14}. Juan instructed her TMT course as a

\textsuperscript{14} International English Language Testing System (IELTS) is a test of English language proficiency. It is jointly managed by University of Cambridge ESOL Examinations, British Council and IDP Education Australia. Candidates may choose either the Academic Module or the General Training Module. The Academic Module is intended for those
cross-college optional course for students in the university, in which case, she had more than 180 students to attend her instructions each time.

ICT had been an important discourse within the department after its establishment. The department had successfully conducted three important ICT related projects, one of which was sponsored by the Ministry of Education China. Such projects and other relevant activities enhanced the reputation of the department for its EBP teaching and research in China. According to the speech by the chair of the National Business English Teaching Association at the 2004 Annual Conference in Beijing, the university had become one of the top three EBP teaching and research organisations in Chinese higher education. The department had also developed EBP teaching curricula for both undergraduate and postgraduate studies respectively, which had been adopted by a number of Chinese higher educational institutions. The department invested substantially in ICT facilities. For example, teachers in the department had developed eight pieces of web-based EBP courseware by themselves between year 2000 and 2003. Along with the development of the courseware, the department also purchased an EBP package program from another university and established two EBP laboratories for teaching purposes. Teachers in the department were encouraged to use more ICT in their teaching. Classes were delivered through traditional face-to-face instruction, web-based teaching and other multimedia-based teaching models. During the second visit to the university between February 2005 and May 2005, two teachers had left the department but three more had been recruited.

The history of both EBP teaching and ICT related reform in the university suggested its adequacy as a field site to explore ICT and EBP teaching in Chinese higher education. The representativeness could possibly lead to the findings to be applied to a more general situation. The fact that the researcher was a former staff member in this university made it possible to form the required rapport between the researcher and the participants.

5.2.2 ICT resources available in the university during the period

The university had three separate campuses. While two were very close to each other (ten minutes walk from the centre of campus one to the gate of campus two), the third was wishing to enrol in universities and other institutions of higher education. The General Training Module is intended for those planning to undertake non-academic training or to gain work experience, or for immigration purposes. IELTS is accepted by most Australian, British, Canadian, Irish, New Zealand and South African academic institutions, by an increasing number of academic institutions in the USA, and by various professional organisations.
further away (about 20 minutes from the centre of campus one by bus). However, the activities of the teachers in this study were based on campus one and two. None of them had courses on Campus 3. According to the information supplied by the University Teaching Administration Office, ICT facilities available for teaching at that time were summarised in Table 5-1.

Table 5-1 A summary of ICT available for teaching in the university

<table>
<thead>
<tr>
<th>Campus 1</th>
<th>Multimedia room number</th>
<th>Seats for students</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Teaching building</td>
<td>28</td>
<td>3852</td>
</tr>
<tr>
<td>PG Teaching building</td>
<td>33</td>
<td>2378</td>
</tr>
<tr>
<td>Middle Teaching building</td>
<td>11</td>
<td>1743</td>
</tr>
<tr>
<td>Qianjing Teaching Building</td>
<td>16</td>
<td>1776</td>
</tr>
</tbody>
</table>

| Campus 2 (There is only one teaching building in campus two) | |
| Central teaching building | None |

| Campus 3 | |
| The second teaching building | 21 | 3659 |

There were altogether 101 multimedia classrooms in the three campuses, which could be used by all subsidiary schools and colleges. Multimedia classrooms in this university referred to the classrooms that were facilitated with a computer, a projector and a screen. According to the office, the Internet access was available if booked in advance. The rooms could thus be applied to demonstrate teaching materials such as PowerPoint presentations, audio and video clips, and real time online information.

A prominent impression of all these multimedia classrooms was their size. Even the smallest multimedia classroom could seat more than 50 students at the same time. Some classrooms were able to seat over 200 students. These classrooms were designed to deliver instructions to large numbers of students. According to the University Teaching Administration Office, as many as 49 classrooms in two different campuses (Campus 1 and Campus 3) could be networked to deliver the same instruction simultaneously. Additionally, as the system was flexible, it was also able to deliver various instructions for small groups of students. The possibility to conduct either one-to-one teaching or one-to-many teaching in those multimedia classrooms within and between any of the three campuses was the most widely acknowledged feature for the successful application of ICT to teaching in the university.

The office that was in charge of the maintenance of those ICT teaching facilities and related technical support was the Educational Technology Service Centre. The office was
a subsidiary of the University Teaching Administration Office. At the time of data collecting, the centre had altogether six members whose duty was to guarantee the smooth operation of all the facilities equipped on all these campuses.

On the other hand, ICT facilities were also offered by various colleges and departments of the universities. Some had their own labs and computer rooms to support the teaching and learning activities of both students and staff. These facilities were maintained by technicians employed by relevant schools and/or colleges. In the Business English Department, there were two such laboratories. Each was equipped with approximately 30 computers. The labs were available to those students and teachers for EBP courses only. In addition, a big language lab was established, supported by the Ministry of Education in 2004 as a result of a nation wide project to promote the integration of ICT in higher education. The lab occupied three classrooms; each was facilitated with over 70 computers and a number of language learning programs. A central control panel room for this lab was established to enable the teaching activity and other maintenance management. One technician from the Educational Technology Service Centre worked there fulltime. Three teachers in the foreign languages college were involved in the project, two of whom were recruited for this study.
5.3 Juan--- ICT as new affordances

5.3.1 History of teaching
Juan was a lecturer of English teaching. She graduated from a key normal university in 1996 and became a teacher of the current university directly after graduation. Juan gained her Master’s degree in Economics in 2002 at the same time as working in the International Business School of the university. Her teaching before 2002 was EGBP courses such as listening comprehension, negotiation skills and business writing. After she had gained her master’s degree, she began to teach ESBP courses. The courses she taught in the last three years were the principles of International trade and the Practice of International trade.

In late 2003, she began to teach the course Practice of International Trade using the Teach Me Trade (TMT) package (See Appendix 7 for introduction of the package). According to her, the application of ICT in her teaching has changed both her teaching and her students’ learning dramatically and she was quite satisfied with her students’ improving achievements.

Juan instructed the TMT course in the Business English Lab. The lab was located in the department office building with 30 sets of computers for students and a teaching control panel. TMT was installed in the lab and applied for teaching and learning. Student computers were fixed and labelled. The chair behind the teaching desk could hardly be moved. An Overhead Transparency (Viewgraph) Projector was positioned next to the teaching desk. The other projector was hanging from the ceiling. A screen covered half the space of the blackboard. There were two computers on the teaching desk. It was explained that one was for teaching and document storage while the other was a server for all the computers in the lab. Therefore, in this lab, Juan was able to use OHTP, Computers, Internet, Intranet and other ICT types such as Word Processor, Excel, PowerPoint, and CD-ROM materials etc. for her teaching.

5.3.2 Descriptions of an observed instruction

<table>
<thead>
<tr>
<th>Lesson Observation Date: 15/03/05</th>
</tr>
</thead>
<tbody>
<tr>
<td>The instruction was in the Business English Lab where each student had a computer for learning. There were about 28 students. The theme of the instruction was to introduce the price calculation modules for export transaction. The instruction was a combination of teacher talk using PowerPoint as a teaching content presentation tool and students’ hands on experience for export transaction pricing.</td>
</tr>
</tbody>
</table>
The TMT system was used for students to go over their submitted assignment and the preview of their next task. It was also used to provide information such as the price of the commodity, the insurance fee and the shipment price etc. The instruction could be divided into four sections: review and summary of previous task, instruction of the counter offer pricing calculation by the teacher, students’ hands on experience to understand the new concept, and the preview of the next tasks.

Activity 1 Review and summary 20 minutes
The class started 5 minutes earlier than the scheduled time. Juan asked students to log on to the TMT system and check the feedback she gave to them for the assignment they had submitted the week before. She said that she was not satisfied with their work. Students should check very carefully and find out why they made such mistakes. Juan announced the beginning of her instruction at 10 am. She asked a question, ‘what was the theme of our last instruction?’ Students replied that it had been the price calculation formula for export transaction. Juan then asked students to review the formula so that ‘we can find out what the mistakes are.’ Juan used PowerPoint to present a case. She read the case loudly, and then she asked her students to go over the three steps of the pricing calculation. Next, she asked students to recite the formula for the offering price calculation. Most students recited loudly with Juan and only a few remained silent. When the recitation was finished, Juan questioned ‘do you still remember the formula?’ she emphasised that it was complicated to do the calculation, ‘you must memorize it, keep it all the time in your mind.’

Juan repeated many times the formula and the meaning of each concept because she believed this was the most difficult part for the whole course. ‘If students cannot understand this formula, it is impossible for them to succeed on the course.

Juan then presented the formula on a PowerPoint slide, and went on to explain the relevant concepts in the formula, such as the exporting fare, the calculation unit, the selection of shipment container for the specific commodities, the insurance issue and the foreign exchange rate. She warned her students that this could be a problem for quite a few students. She emphasised again the principle of deciding the unit of price calculation and the unit of purchase costs should be the same as the unit of fare calculation. Juan responded in this section to a question about the calculation of the expected ratio of benefits asked by some students in the online forum. Juan took this chance to review the formula again by asking students to recite it together. She ended the activity by re-emphasizing the vital importance of the formula because it was the foundation of all the price calculation in international trade.

Activity 2 introduction of counter offer pricing calculation 15 minutes
Juan introduced that ‘it is not common for any international transactions to be made with only one contact. It is always a process of constant negotiation and compromise between exporter and importer involving a series of offers, counter-offers and counter counter-offers. She then asked ‘If the counter offer price is lower than expected, what you can do to solve the problem?’ Students did not respond for about 10 seconds, Juan hinted that ‘you can decrease your purchase costs’. Juan asked ‘What else you can do?’ again, students did not respond. Juan then talked about the possible solutions to the problem. She also emphasised that a transaction is a result of a ‘compromise between the two parties’. She then presented in PowerPoint a case about counter offer, she asked students to be ready for more calculation of prices before the compromise is reached.

Activity 3 hands on experience of counter offer pricing calculation 40 minutes
She said students could use the calculators or do the calculation on a piece of paper if that was their preference. Before the calculation, she asked her students to recite the formula again. Students then began to do the calculation, Juan waited for about two minutes before some students put up their hands to show they had finished the task. Juan asked her students to report their calculation. There were several different results. Juan went back to her desk and read out the correct answer to the class. She then asked if there was any question about the answer. Students said no. A new slide presented a new counter offer from the importer, Juan asked students to calculate the benefit and the expected benefit ratio under the new conditions. Some students complained about having to do too many calculations. Juan told them it was the actual situation if they worked in a company. They should not complain about that. More calculations were processed, each time Juan asked students to pay attention to certain concepts and how the basic formula should be applied to the calculation. When there were serious mistakes, she asked the students to check carefully to find out the reason for such mistakes. Each
became a very good opportunity for her to emphasize the importance of the formula or certain concepts in the calculation process.

**Activity 4 preview of new tasks 15 minutes**
Juan told her students that there was still sometime left; they could go on to the new task, Task 4, which they should complete next week. She then asked her students to log in to the TMT system and receive their tasks from the system. Some students began to tap the keyboard. The students PCs displayed different contents on different screens, some were webpage, some used word processor, and several students filled numbers in an Excel sheet. Juan went to the students' area. She watched some students carrying out the calculation and answered questions asked by some of the students privately. Every student in the classroom seemed to be busy with his/her task. When the instruction approached its end, Juan made some arrangements so students could continue their work in the noontime and afternoon. The instruction ended when Juan asked her students to backup their work so that they could continue next week.

### 5.3.3 Attitude to ICT and the influence on her pedagogy
Juan was positive about the integration of ICT into her teaching. When she talked about her own experience of integrating ICT into her teaching, she used such words as ‘improving’, ‘diversifying’ and ‘enlarged information’ to evaluate the application of ICT in teaching process. On the other hand, she was aware of the challenges that ICT brought to her teaching. She viewed it however more as a chance to improve herself than a trouble because ‘the others might not be as lucky as I am, they might also want to do what I am doing but do not have similar chances … at least, I know something that others cannot do at present’.

According to Juan, she volunteered to join in the initiative projects in the university to apply ICT in her teaching. She felt proud of being a teacher who was pioneering the application of ICT to teaching in the department.

I started to use ICT in my teaching in as early as 1998. At that time, we were not required to use ICT for our campus-based instruction. I used ICT in both my daily teaching and my teaching contest. People responded positively and said I was a pioneer at that time. [Interview]

Such pioneering working enabled her to be involved in more activities of integrating ICT for teaching in the department (see 5.3.6 for further discussion). When the TMT package was introduced, she was lucky to be chosen as the first instructor of the course TMT.

To summarise, Juan was positive about the integration of ICT for both her teaching and students' learning. She realised that there were challenges but she welcomed them. This attitude could be identified not only in her words but also in her actual teaching practice.
She was willing to improve her ICT competence and adopted various ICT types to her teaching. ICT was not only a presentation tool, an electronic blackboard, but also new affordances that enabled her students’ learning including searching for information, communicating with clients and negotiating for a successful transaction.

5.3.4 Beliefs about ICT and the influence on her pedagogy

Based on her positive attitudes, Juan formed strong beliefs about the positive influence of applying ICT in her teaching, with identified links to her pedagogical decisions and behaviours in the classroom.

**ICT diversified teaching and learning**

Juan strongly believed that the integration of ICT diversified both her teaching and students’ learning. This belief strengthened Juan’s desire to use ICT in her teaching. For example, ICT types such as video documentary and other CD-ROM based multimedia materials first entered her teaching as early as 1998. In contrast to the traditional textbook centred teaching, ICT enabled her to ‘to go beyond the limitation of one textbook, to provide students with diversified materials and teaching methods’ and thus to ‘make teaching more comfortable, more flexible and richer in information’ [Interview]. She also reported that when she was teaching the International Trade Principles the year before, she asked friends in export and import companies to collect and send her ‘authentic documents’ and presented those materials to her students via PowerPoint and other ICT types in the classroom. Students were ‘excited about the presence of such materials because they have never seen such documents with their own eyes before [Interview]’. The application of TMT brought ‘a dramatic change’ in her teaching. ICT was used more than just a presentation tool. It provided a context for students to go through a series of hands on experiences. It also changed her ‘way of teaching and being a teacher’.

With regard to students’ learning, ICT also diversified their learning in such learning enhanced environments. For example, she noticed that students were motivated in her spoken English courses when they were presented with business negotiation in English through CD-ROMs and other video documents. Juan believed that ICT afford wider access to knowledge and information, thus students could learn from not only teachers and books but also from other materials available to them. Juan particularly highlighted the change of students’ learning in her TMT course where students had to ‘be independent and active’ throughout the whole learning process. She commented that such changes
‘could not be achieved in traditional teaching’.

**ICT improved authenticity and production**

Juan emphasised authenticity as one of TMT’s most important features in her teaching because students experienced exactly what it should be like in their future careers. As Juan commented:

> Many students feel this course is very practical. It is very useful to their future careers. Many courses they have in university were too theory-oriented. You can hardly tell their value at the time of teaching. At least, the value is invisible now. However, this course is *very* authentic. If you want to be involved in international trade, it goes just like this. [Interview]

According to Juan, the simulation system offered all needed information for an international transaction from commodity description, shipment fees, and insurance rate to international monetary exchange rate. Students could be either exporters or importer in the system and the system afforded the context needed for a transaction. Juan emphasised authenticity as an outstanding point of the TMT system.

> It gives an internship opportunity for all students without having to be in a real company. What is more, they could hardly have such experience in a real company. A company normally would not let its interns access every step of an international transaction. [Interview]

The ICT supported teaching system provided students with ‘authentic’ experience of international trade in a virtual world. The virtual learning environment guided students to undergo every step of an international transaction. It also provided possible solutions to problems they could meet in the transaction.

Apart from the authenticity of teaching and learning in the system, Juan claimed that ICT improved productions for both learning and teaching. First, Juan believed that TMT has evidently and substantially improved students’ learning. For example, students became completely independent in their learning because they had different tasks and had to finish by themselves in the system.

> Because in this system, you have to, you must do your task by yourself. No one
Juan noticed the change of pedagogy after ICT was integrated into her teaching. When she was asked to compare her teaching practice before and after the integration of ICT, she admitted there were differences in these two conditions. She further explained that some activities could be conducted in both circumstances; some are unique and could not be done under the previous traditional teaching. She believed that the most advanced feature of her course was that the students had to do all the tasks by themselves, which was not possible under traditional teaching. This autonomous learning process motivated students’ learning interests. They became eager to be involved in every step of their learning. Many students were active to obtain information about teaching content and feedback from their teacher.

According to Juan, most students registered on the course benefited from their learning experience in the TMT virtual learning environment because the hands-on experience of every step of a transaction enabled them to ‘understand at least, if not 100 percent, the basic process of the transaction’.

Second, the application of the TMT system also improved Juan’s teaching efficiency. For example, Juan thought it a very valuable feature to assign each student a different task because this enabled her to identify each student’s learning problems ‘at a glance’.

I can tell whether a student understood a specific concept at a glance of his/her work submitted to me. It is as clear as orange and apple... that is because every one has specific task and no one could copy from other classmates. [Interview]

The understanding of each student’s specific problem in learning made it possible for Juan to help specific students to find solutions to particular problems. It also enabled her to identify common mistakes or misunderstanding and to give adequate guidance on these problems.

Every time, I can identify the common mistakes among them, to tell what has been left behind ... Students feel my evaluation and comments on their assignment very useful. They listen to me very carefully each time. [Interview]

A change of pedagogy compared to traditional teaching
Juan noticed the change of pedagogy after ICT was integrated into her teaching. When she was asked to compare her teaching practice before and after the integration of ICT, she admitted there were differences in these two conditions. She further explained that some activities could be conducted in both circumstances; some are unique and could...
only be realised in ICT-supported teaching. For example, the section of presenting new concepts to the whole class could be conducted in both conditions in similar ways with different efficiency. The traditional board writing would cost more instruction time while PowerPoint presentation could present more content within the same instruction time span. On the other hand, activities, such as assigning different tasks to each student were ‘impossible’ in a traditional teaching condition because of the ‘huge numbers of students’ (120 as compulsory courses + 180 as minority course)’ in her course, ‘I will give them only one task.’ As a result, ‘they could still go through it, but there is neither differentiation nor autonomy in their classroom learning. Students would feel less motivated’. Additionally, Juan admitted that she ‘could not give that much individual guidance in a traditional teaching classroom’ because more classroom time would be occupied by teacher talk.

Juan’s comments as such implied that she had realised the two different teaching approaches in the two different contexts. In a traditional non-ICT supported teaching context, teaching could be processed but students’ autonomy and critical thinking ability were ignored. In the new teaching context, students were regarded as human beings and their learning creativity and autonomous learning became the focus of teaching and learning arrangements.

Another difference in the TMT course was the need for more efficient interaction with students to assist individually their learning, though active interactions with students had always been a preferred classroom organisation method in her teaching. Juan spent more than half of her instructional time in individual assistance for her students’ learning for the TMT course.

I divide each section into two parts. Each occupies 2 hours. The first part is my presentation of new concept to the class, while the second part is a completely autonomous learning period. Some times, the second section could be even longer because I gave them extra time after my instruction periods. Students are doing their own job while I gave them individual assistance … they asked for my help with any problems they encountered … I keep walking around the room all the time in these two hours [Interview]

**Changed student and teacher role**

The changed pedagogy was reflected in Juan’s comments on the changing roles of her
and her students. In the semi-structured interview, Juan viewed herself as a guide and facilitator to her students' autonomous learning. The presentation to the class was described as a 'general guidance' to students, and her response to students' specific questions in the autonomous learning period was to 'give them individual help'. In both cases, she used the same Chinese phrase 'Zhidao' which means 'guidance or tutor' in English.

The change of teacher's role from knowledge authority to a guide and facilitator accompanied with a paralleled change of students' role in her teaching. Juan emphasised that the change of student role was 'dramatic'. Compared to traditional teaching where students were a passive audience, monitored and controlled by their teachers for classroom activities, students in the TMT course had to depend largely on themselves to complete tasks assigned to them.

To attend this course (the TMT) means a dramatic change to their learning...They have to depend on themselves... no one could come to my class, just being a passive listener ... they could not keep up with the pace. [Interview]

The changed pedagogy, which required students to be the master of their learning changed students' attitude towards learning. Juan believed that students became more engaged in the classroom instruction and autonomous learning.

They (students) feel very much concerned when they are having any difficulty in understanding the content. Their learning in this course was not similar to their previous experience where they could manage to pass the examination of a course without understanding it. Such method does not work any more. They have to understand it. Otherwise, they could not complete the task being assigned to them. [Interview]

They also became more concentrated on their learning. Juan talked about students' possibility of surfing the web during her instruction time, however, her students 'never spend their instruction time on web surfing, they won't do it even in their autonomous learning activities, not until they finish the assigned task'. In the student focus group, students expressed similar opinions, saying that they did not have time to surf the net because 'we have to finish our work first.' They further explained that their work 'costs a
lot of time because each assignment covers a lot of new concepts and we have to do everything by ourselves’. However, students felt the TMT course was well organised because ‘each task was clearly designed and each of us knows what to do’.

Juan believed that the changed student role could be identified in their behaviours to some degree. For example, students became more active in asking questions after class, and obtaining relevant information for their following instructions and tasks. They were also eager to get feedback from their teacher, Juan. In the student focus group, all eight-participant students admitted that they were more concentrated on their tasks in the classroom because they felt the pressure of ‘having to do everything by ourselves’.

**Motivated student learning**

Juan also believed the changed student role motivated their learning and helped to establish student self-esteem.

They had a sense of pride ... They feel ‘what I am doing is not the same as what you are doing. I won’t depend on you, I am thinking independently’. When they are processing a task in the system, they feel they are doing it all by themselves. They are not echoing what their classmates are doing. [Interview]

In the student focus group, students expressed that learning in ICT supported environment improved their confidence.

Student 5: at least it improved my confidence, especially after I have successfully finished two tasks. I feel very confident now, when I am doing this, I know I am making progress. [Focus group]

Student 8: ... just like this TMT, if you do not depend on yourself, you will not achieve anything; you have no other choice but to do it. [Focus group]

**Challenges for up to date subject knowledge and ICT competence**

Accompanied with all the changes in her pedagogy, the integration of ICT challenged Juan’s current subject knowledge and ICT competence. Juan’s students came from all over China. They had varied ICT competence. Some students who came from rich areas or families were very experienced and skilful in using computers while others who came from poor areas or families that had little access to computers were very poor in computer skills. It seemed that the university did not provide any systematic computer competence training to undergraduate students yet. Thus, the first task that Juan encountered for her
TMT course was to ensure all students had the ability to operate a computer for their learning activities in the lab. Students in the focus group also clearly expressed that they wished to have systematic training in how to use computers before they entered an ICT supported course.

Because Juan had to help her students with their computer skills as well as manage the smooth operation of all ICT facilities in her teaching, she felt it a challenge to her current ICT competence. On the one hand, she had to support students for their use of Excel, word processor, and calculator, sending and receiving Emails as well as how to add an attachment to an Email message. On the other hand, some students who were skilful in using computers would change the initial setup of a computer and cause troubles to their fellow students who needed to use the same computer in the following instructions. There were also disturbances in the system caused by viruses, spy wares and unstable Internet access in the system. In most cases, Juan had to solve problems by herself because the technical support was not always readily available for her. Juan admitted that ICT problems at her first teaching experience of TMT were ‘so many’ that she ‘spent quite some time on it at the first two or three weeks’.

Furthermore, ICT also brought challenges to her subject knowledge. According to Juan, the challenges came from two aspects. First, ICT enlarged students’ access to information, thus they might have accumulated enough information about the instructional content when they came into the classroom. However, as teachers were traditionally expected to be more knowledgeable than their students were (see Chapter 3 for detail), it thus challenged Juan in deciding the content of her instruction along with the method of presenting ‘known’ information to students. Juan commented that she ‘had to find ways to obtain some information unique to attract students’ attention and to motivate their learning’. Second, the integration of ICT enlarged the capacity of teaching content in one instruction, which made the re-organisation of the teaching content for one instruction a challenging task. According to Juan, an instruction may ‘cover as many as 50-60 pages of the textbook’. This meant a huge amount of reading and preparing for her instruction and it some times became ‘a headache’ for her.

Some of Juan’s activities organised in and beyond her instruction (described in Section 2) reflected her beliefs about the application of ICT in teaching. For example, Virtual-learning environment was integrated into her teaching (Activity 1, Activity 2 and
Juan --- ICT as new affordances

Activity 3). She encouraged students' 'involvement' in her instruction by giving them hand-on experience along with her instruction (Activity 2 and Activity 3) and interacting with them through constant inquiries (Activity 1, Activity 2 and Activity 3). Students were also given autonomous learning opportunities where they could make their own decisions on their learning activities (Activity 4). She (was) also volunteered to provide opportunities for her students to access learning activities in the lab (Activity 4). In the autonomous learning activity period, she was very keen on giving personalized assistance to individual students. Such activities observed indicated she was shifting her pedagogy to a more student-centred approach. On the other hand, ICT multi functioned in her instructions. For example, in Activity 1 and Activity 4, ICT afforded virtual learning context and enabled students to learn autonomously. In Activity 2 and Activity 3, PowerPoint was used for presentations, while calculators and excel were used to assist students' learning. Evidently, ICT in Juan’s teaching went beyond the typology described by the MoE China (2005) survey in 2004, where 99% application of ICT was PowerPoint as presentation tools.

However, there were also inconsistencies in her beliefs and her behaviours, particularly in the presentation section (see Activity 1 and Activity 2) where Juan was previewing and presenting new teaching content to her students. Teacher talk was still the predominant feature in these two activities. Juan had asked many questions in both sections and asked her students to complete certain tasks in the process. However, both questions and the tasks she assigned in these two sections were pre-designed and the outcome predicted. The presentations reflected the traditional knowledge-transmitting model. Juan’s role was that of a traditional teacher rather than, as she claimed, a guide and helper to her students’ learning.

Additionally, the responses of students in the two activities also needed some attention. In Activity 1, students were active in responding to Juan’s questions while in Activity 2 they seemed to be very inactive and passive. Students did not respond to her questions several times in this activity. This, I believe, could be a reflection of the substantial influence of Chinese traditions in current higher education system (see pedagogy review china). In this instruction, the aims of the two activities were different. Activity 1 aimed to review the teaching content of previous instruction, questions were asked to remind students of the core concepts. It was therefore ‘safe’ to respond to such questions because they were
'known'. Activity 2, however aimed to present new concepts, the questions were about contents that students were not sure. To reply to such questions abruptly may cause some embarrassment either to students or to teacher, thus, it was not safe. In a culture where teachers were still authorities and students were expected to be modest and to avoid causing embarrassment in public, it was thus safe for students to keep quiet in an uncertain situation like the one in Activity 2.

Juan’s behaviour in these two activities also indicated that she was still influenced by traditional norms. The behaviours also verified her claim that students came to her class ‘to learn’ and her duty was to ‘give them something new, something they do not know before’, which implied a role of knowledge transmitting in teaching. Additionally, her concern about the consequence of students’ widened access to information also hinted the influence of the traditional ‘teacher as authority’ norm in her teaching. As Tao and Gunstone (1999) put forward changing educational beliefs is a gradual process and that during the transition, multiple conceptions can coexist. Teachers who face conflicts in their behaviours and beliefs might experience an interactive process and undergo ‘a major change in beliefs and/or practices’ (Richardson 1994 p.102).

Furthermore, in the focus group, some students mentioned that the use of Email for communication with their teachers offered ‘great convenience’ because they were able to ‘ask any questions’. Given that students in this college had many chances to meet their teachers in person and direct communication was not a problem, such highlighted advance could also partly be explained as the influence of traditional teaching norms not raising conflict publicly. The discussions through Emails could avoid such public conflict but still enable the exchange of ideas between teacher and students in a private but safer way. Thus, such pedagogical decisions as observed in Activity 2 seemed to be acceptable to both students and teacher.

5.3.5 Professional development and the influence on her pedagogy
ICT substantially changed Juan’s current teaching practice, which required her to improve ICT competence and subject knowledge to ‘be well prepared to adapt herself to such changes’.

As Juan was the first instructor in the department to teach the TMT course, she went to the university that developed the programme to attend a short training course. This was the
only formal ICT related training course she had had for her teaching career. For most of
the time, she had to depend on herself for the improvement of her ‘subject knowledge and
ICT competence’.

According to Juan, that short training lasted for two days. She was introduced to the
operation of the system, plus a demonstrative instruction for the application of the
programme. Juan commented the training as ‘almost nothing’. However, her pedagogy
was influenced by this training. For example, she introduced to me her instruction plan
for the week when her semi-structured interview was conducted. She added that ‘the
teaching of these several weeks is the most important’ because the instructor in the
training program had emphasised its importance. The trainer instructor claimed that ‘if
students could not understand this part, they would not be able to go through the whole
trade processes’. In the observed instruction, Juan emphasised many times the formula
(see Activity 1 and Activity 2) and in her semi-structured interview, she mentioned that
the formula was described as the core of the TMT course by the demonstrative instructor.

As Burton (2003) argued, teachers ICT related professional development experience
could facilitate a change in their beliefs regarding teaching and learning as well as a
change in their roles to a more student centred teaching approach. In Juan’s case, although
her professional development training was short, the influence was evident in her
following teaching practice and her perception of teaching in an ICT supported
environment.

Juan felt the challenge to her ICT competence of teaching smoothly in an ICT supported
environment and thus highlighted the importance of improving it. ‘You do not know what
problems you will encounter in your teaching.’ She believed that a teacher should have a
thorough understanding of various ICT types that would be adopted in the teaching
process. She also felt that the most effective way of improving ICT competence was to
‘learn from your own hands on experience. You learn from error’.

Well, you see, you gain computer competence gradually. When you have a
problem this time, you will know how to deal with it next time. You learn from
your hands on experience. You learn from error. [Interview]

Although Juan thought the professional development of her ICT competence was
important, she was more anxious to seek opportunities to renew her subjective knowledge.
Even as a master of economics that focused on international trade, she felt that the updated knowledge in the course was so demanding for her teaching that she would place priority on her subject knowledge professional development over ICT competence professional development. She admitted that lack of authentic experience in international trade and lack of substantial support for integrating ICT into teaching brought her substantial pressure. As there were few subject knowledge upgrade opportunities available to her, she had to spend much time on self-directed learning.

I focus my self-study more on subject knowledge because I did not have much practical experience in international trade. After all, you need to understand all the teaching content before you go into the classroom. But to understand some concepts is not that easy, sometimes it is even a headache for me ... especially after the application of ICT and you will cover 50-60 pages (of the textbook) in one instruction. [Interview]

Juan’s concern about her subject knowledge might reflect her belief that students’ diversified access to information weakened her traditional teacher-as-authority role. Juan was expected to give students ‘something new’. In the past, students had limited reference materials and relied mainly on teacher’s instruction. However, the situation changed after the introduction of ICT because of students’ improved learning outcome scaffolded by ICT and their varied understanding of a concept due to their personal differences when they came to class. It thus became difficult for teachers like Juan to ensure that there was ‘something new’ to their students and ways to explain the ‘new’. These could have been the reason for Juan’s anxiety in improving her subject knowledge.

Compared to her explicit anxiety for pursuing subject knowledge professional development, Juan seemed to be less concerned about her ICT competence, ‘what we need to use in the course are word processor and Excel, both ... are not big problems to me. As long as there is nothing wrong with the computer itself, I can manage my teaching smoothly.’ This might be a result of her over six-year experience of applying ICT to teaching and her ‘learning by trial and error’ methods to improve ICT skills. According to the observation and her semi-structured interview, various ICT types were adopted in her teaching process. For example, in the instruction observed, PowerPoint was used to present her teaching content (Activity 1 and Activity 2), TMT package was used as students’ autonomous learning contexts (Activity 3 and Activity 4), calculators and Excel
were used for calculation and spreadsheet generation (Activity 3 and Activity 4). She also used online communication with her students (see Activity 1). When asked by students, she would also explain to students how to ‘attach assignments to the intranet communication system’.

Juan’s experience indicated that teachers like her who acted as pioneers of integrating ICT into their teaching lacked adequate professional support for their subject knowledge as well as ICT competence. As regard to the ICT related pedagogical knowledge, it seemed an even more serious problem in their professional careers. Although changes were observed in her teaching, Juan did not realise them. She insisted that her pedagogy did not change, what she had changed was ‘my teaching methods.’

Researchers (Fullan 1991; Loveless and Ellis 2001; Santallusia 2002; Andris and Ilze 2004; Cox, Webb et al. 2004; Kangro and Kangro 2004) emphasised the importance of improving teachers’ ICT competence and content of pedagogical knowledge to guarantee the success of applying ICT to their teaching practice. In Juan’s case, however, she felt that the development of her subject knowledge became an even more urgent need; this seemed to have brought a new issue for the current professional development programme. At present, many initial teachers in Chinese higher educational institutes are encouraged to pursue at least a master degree for their teaching subject. However, little attention seemed to have been paid to those teachers who had obtained their master degrees. Juan’s experience reflected this situation.

5.3.6 Community influence
Juan emphasised a very important benefit in her application of ICT in her teaching: it strengthened her status in the EBP teaching community. Chinese culture emphasised seniority, professional experience and social status in a community. As a young teacher, Juan had none of these. However, mastery of advanced knowledge or new teaching skills could afford her an opportunity to enter into dialogue with others in the community with equal, if not privileged status. The integration of ICT provided such an opportunity for Juan. As Juan claimed, the application of ICT enabled her to ‘know something in advance, at least one or two years’ before her colleagues did. In the semi-structured interview, Juan emphasised her pioneer position in the department in applying ICT in teaching from 1998 and thereafter. She also believed it was because of her previous pioneering practice that gave her the privilege of being chosen as the first instructor of TMT. The professional
development opportunity was both a task for her future work and an honour to her previous teaching practice.

It seemed that the application of the TMT package in her teaching further strengthened her advanced status because she was the first one in the department to be involved in a virtual learning environment. In addition to being chosen as the first TMT instructor, Juan also talked about her successful experience of applying to be the instructor of another course: the international trade principles. The course was instructed by another colleague who was senior to Juan but had no interest to add ICT elements to his teaching. Juan talked with the director of the department and expressed her willingness to be the instructor of this course because ‘it is consistent with the TMT course’ and if she could be the instructor of both courses, she would be able to ‘better combine the resources of both courses and keep the consistency’. Her proposal was accepted. Juan believed that her ability to integrate ICT into the course had guaranteed the acceptance of her proposal.

However, Juan felt that it was sometimes difficult for her to exchange with her colleague experiences on teaching with ICT. There are three reasons she attributed for this difficulty. First, although teachers in the Business English department were more or less exposed to teaching with ICT, the application of ICT in the College was not widely accepted. Thus, ICT seemed to be only the business of those who were in it. Juan noticed from her peer observations in the college that ‘none of these colleagues I observed used any ICT types in teaching’. Even in the Business English department, teachers who were using ICT were ‘not using them the way I am doing’. Second, Juan complained that her work overload made it difficult for her to be active in contacting with her colleagues. For example, Juan had had over 300 students for the TMT course and she was expected to give each of them feedback and comments for each assignment they submitted to her. This meant substantial work in addition to regular preparation of instruction and individual assistance to students’ learning in the classroom. A third reason was that some colleagues were ‘not willing to accept peer observations’, a major method of colleague communication from Juan’s point of view. As Juan said, ‘I know Ting is using the business lab for instruction and I know she had a courseware. However, I do not know how she teaches. I guess the students should be able to read quite a lot.’ It seemed that teaching was a private business for her.

Juan’s feeling might reflect the contradiction between her personal beliefs that ICT was
advanced for students' learning and the norm in the college that ICT was still alien. As
Juan stated many of her colleagues in the college were not interested in ICT. Their focus
was still on their teaching in a non-ICT supported environment. Similarly, students
expressed their frustration in the focus group because teachers did not ask students
whether they would like ICT to be integrated into the classroom teaching even though
students were eager to add ICT to their learning. Such a situation indicated that ICT was
far from being integrated into the shared norm in the college. Therefore, teachers like
Juan who were involved in using ICT became alienated and found it difficult to cooperate
with other colleagues. Furthermore, the more innovative activities a teacher was involved
in, the more likely she/he would feel alienated from their colleagues.

5.3.7 Institutional influence

Professional supply and professional development training
Juan instructed in the Business English Lab, which was located on the ground floor of the
college administrative building. The location of the lab seemed to give her convenience
for on time professional support from the college. She talked about the support she
obtained from the technician in the college whose office was on the second floor.

You see, some students would change something in PCs, such as the initial
setting up of the operating system, but I cannot tell what they have changed.
Such is quite problematic because I do not know how to deal with it. There are
also other problems. For example, the operating system problems, once some
PCs in the lab could not be turned on. Virus is also a problem ... I have to
depend on him. [Interview]

Juan also talked with the technician about off campus access to the TMT system. The
result was negative because the technician was primarily concerned about the security of
data in the lab.

In addition, the policy of the university motivated the process of Juan’s application of ICT.
Juan was rewarded for her application of ICT in teaching in 1998. She won a first class
reward for the teaching contest that year. This became an important stimulation for her
consistent use of ICT thereafter. Additionally, she was also offered an opportunity to
accept formal professional training for her teaching in 2002 for the TMT course.

Juan claimed that she had gone beyond the point of whether she should use ICT or not. 'I
am confident about its value now. I am thinking more on how to make it better than whether I should use it or not.’

*Availability and reliability of ICT facilities*

Because Juan was teaching in the lab established within the Business English Department, ICT facilities available for her teaching could fulfill her needs to some extent. For example, she was able to use TMT package, intranet, the Internet and other software such as word processor, excel etc in the lab for her teaching. ‘It is also lucky’ for her students because they could learn in such an environment, each having a computer at hand.

This however, did not mean there was no problem in ICT facilities. Juan’s problems could be divided into two categories: limited access and the reliability of the existing facilities. First, although various facilities were available to her, time for access was limited. She was guaranteed the use of the lab for her teaching in the scheduled time. However, because the course required a large amount of student hands on experience in the TMT environment and the scheduled time was far from sufficient, she thus had to find extra time for her students’ learning. Additionally, the TMT system could only be accessed through computers in the lab. This meant she had to spend a lot of time in the lab, conducting works such as marking students’ assignments and sending online feedback to them at her free time. This was also the reason why she had to find extra time for her students’ learning activity beyond instruction time. In fact, I believe this problem in Juan’s teaching reflected a requirement by the teaching model of ‘any time, any where’ learning. It also reflected the higher security management capacity of a university required by the new teaching model: balance between the accessibility of database and the security of it. Second, the unreliability of ICT facilities in the lab also caused trouble for her teaching. Juan reported such problems as virus, changed setup by students and the collapse of operating systems in either teaching PC or student PCs. Some problems were out of her control. In such case, she had to wait for technical support. The waiting may well cost much of her instruction time and thus delay the teaching schedule.

*The curriculum requirement from the university*

Juan did not talk too much about the curriculum influence on her teaching. Her concern came from the scheduled instruction time designated to the course. She believed that it would be ideal to have a consistent four hours, namely a whole morning or a whole afternoon designated for one section of her teaching. Thus, she could go through the
complete teaching process smoothly and flexibly. However, the course scheduling office declined her proposal. Instead, she was given two hours each week for the course, which meant she had to split her teaching procedure. Juan admitted this caused problems as 'you can cut the procedure into two even periods. You will see sometimes, students were required to do their work for about 30 minutes this time and then come back next week ...a little bit ridiculous.'

Another problem Juan reported was about the teaching hours of the course. She had only 32 hours for the course. That is to say, she had exactly four hours for each section. Such an arrangement caused tension to both her and her students.

Time was very limited. They do not understand when ICT is used, it requires more time than traditional teaching. The diversified autonomous learning and the unique task each student assigned to complete required more time. Students need more time to search relevant information and make their decision, I also need more time to guide them and give them feedback. [After observation comments]

This problem reflected the conflict between changed pedagogy after the integration of ICT and the unchanged curriculum design based on the traditional teaching approach. Under traditional teaching, teacher’s talk was the core of students’ learning, thus the scheduled time could be determined by the time a teacher needed for his/her talk. ICT based teaching rendered students’ learning the centre of an instruction and teacher’s talk should no longer be the only indicator for the duration of a course. In Juan’s case, student autonomous learning occupied more time than teacher’s talk. However, the current curriculum did not consider student learning and thus caused troubles in Juan’s classroom activity organisation.

5.3.8 Juan’s role in her teaching system
Juan was a pioneer in the applying ICT to pedagogy. Her initiative in the application of ICT was correlated to the ICT policy in the university. Because of her pioneering work, she gained some power to express her opinions in the community. For example, she successfully applied for the course of International Trade.

However, Juan’s power in the system was weak. When she required more student-centred application of ICT in her teaching, the existing policy and practice in the university
hindered her application. She attempted to solve this problem. However, her attempt failed because the university had not produced any regulation to support her. Her limited power in the system hampered her implementation of ICT pedagogy.

5.3.9 Conflicts in the system
The following conflicts in Juan’s teaching system could be identified.

**The availability of ICT types vs. the accessibility of ICT**
Juan was able to use various ICT types in the Business English Lab for her teaching. Any ICT types equipped in the lab was readily available for her teaching in the scheduled time and periods. However, conflicts came when Juan wanted to fulfil the ‘any time any where’ teaching and learning procedure. The fact that access to ICT types was limited within the lab in scheduled instruction time failed such an attempt. Juan attempted to solve this problem by talking with technical staff of the college. The technical staff refused to extend accessibility of the TMT system because they could not guarantee the safety of it with current security measures. Such a conflict reflected the contradictory teaching approaches in the university, namely, the traditional teacher centred approach and the innovative student centred approach.

**Student centred teaching approach vs. teacher centred curriculum**
There is a conflict between Juan’s student centred teaching approach and the teacher-centred teaching curriculum. Because the current curriculum referred only to teacher and teacher talk for each course design, students’ autonomous learning activities were ignored. Under such conditions, Juan was not able to fulfil her student-centred teaching plan as she expected. Juan admitted that the tension between curriculum and her practice in the classroom was a serious concern in her teaching plan. She had to seek for solutions beyond the curriculum, sacrificing her spare time for both her teaching and students’ learning.

**Student centred teaching approach vs. limited ICT accessibility**
Juan had realised the change of her and her students’ roles in the new teaching system. She was shifting from knowledge authority to a guide and facilitator in her teaching. She also pushed her students to take more responsibilities for their own learning. Both her teaching and students’ learning required convenient access to ICT facilities, especially the
TMT system. However, the current practice constrained their access to it. Students were only able to use the facilities in the scheduled time. Beyond this, the lab was either used for other course instructions or locked for security reasons. This constraint caused trouble in organizing students’ autonomous learning. To solve this problem, Juan had to negotiate for extra time for students’ to access the lab. In addition to that, because she needed to check students’ submitted assignments and send them feedback in the system, Juan had to stay in the lab beyond her instruction time.

Although the superficial reason for this conflict was ‘safety of the TMT system’, it was actually a reflection of the conflict of the new teaching approach against the traditional teaching approach. Juan’s innovative pedagogy challenged the existing ICT facility system designated around the traditional teacher centred approach. The conflict could only be resolved when a balance is reached between the two systems.

**Teacher centred ICT policy and practice in the university vs. Juan’s innovative teaching**

Juan’s teaching experience in the university also provided evidence for a conflict within the university’s ICT policy and practice. On the one hand, Juan was encouraged to adopt ICT in her teaching. When she took the initiative in 1998, she was rewarded. However, after moving to the stage of innovative integration of ICT into her teaching, she encountered conflicts with university policy. Because the current ICT policy in the university such as curriculum design and course scheduling process were still teacher centred, it was difficult for Juan to organise innovative teaching activities.

Even worse is that Juan’s additional effort to solve her problems and to fulfil her innovative teaching plan could not be recognised and compensated in the current policy system in the university. At present, Juan accepted the current practice in the university probably due to the fact that she regarded the balance between benefit and cost of applying ICT to teaching was at her favour (Fullan, 1992). It did not mean that she would accept it in a long term. When more and more teachers join her line and the benefit she gained from such practice becomes less and less evident, the willingness to sacrifice may also decrease. As Fullan (1992) pointed out, the success of innovative reform largely depends on a consistent supporting system that can offer teachers opportunities to practice their innovative ideas. In Juan’s case, the conflicts within the current policy system in the university might negatively influence her innovative teaching. This means a
change in the policy system that adopts the changed cultural norm (Tichy 1983) of ICT in education is not only a need but also a must in the end.

Desire for more professional development in ICT and subject knowledge vs. limited opportunities offered by the university

Juan highlighted the importance of improving her ICT competence and subject knowledge after ICT was integrated into her teaching. Professional development for in-service teachers is now regarded as an essential part of life long learning. The significance of professional development has been reported in many research projects. In Juan’s teaching experience, she had only one opportunity to attend a formal professional development project for her teaching of the TMT system. As has been discussed earlier in this chapter, the short training experience had influenced Juan’s perceptions of the course and her practice in the college. On the other hand, Juan’s case indicated that current professional development opportunities in neither her ICT competence nor her subject knowledge were adequate. First, the university did not have a consistent plan to support teachers’ application of ICT in their teaching. Juan’s training of TMT was a ‘one off’ opportunity. The result was she became the only teacher in the college who had accepted the training. This implies that if she leaves the college, no other teacher can immediately take her position without problems. Additionally, there was no consistent support for
Juan --- ICT as new affordances

**Juan’s activity system**

**Teaching beliefs:**
- diversified teaching and learning
- improved production and authenticity
- changed pedagogy
- changed role of teacher and students

**Learning beliefs:**
- enhanced autonomy
- improved motivation and attainment

**Attitude to ICT:**
- Positive CPD needs in ICT and subject knowledge

**Tools:**
- various ICT availability
- confident of ICT competence
- ICT security and accessibility

**Object:**
- Pedagogical decisions
  - Full ICT based teaching vs limited accessibility
  - Innovative teaching vs traditional Curriculum
  - Autonomous learning vs ICT accessibility

**Outcomes:**
- Virtual learning
- Student centred teaching
- Teacher as facilitator
- Changed students’ learning

**Rules:**
- Curriculum: traditional, teacher centred
- University policy: Limited CPD support
- ICT initial stage policy
- Norms: Teacher-centred culture

**Community**
- positive peer observation
- lack of communication
- ICT privileged her position

**Division of labour**
- Pioneer in ICT teaching
- Privileged in getting ICT facilities

**Key**
- Strong conflicts within the elements identified
- Strong conflicts between elements identified
- No strong conflicts identified

Figure 5-1 Conflicts identified in Juan’s teaching system
teachers' ICT competence in the university. Juan reported that all her competence came from her self-directed study. This could also explain why she emphasised the 'learn from error' method to improve her own ICT competence, as this could be her only choice in most cases. Second, Juan felt the challenge to her subject knowledge in the ICT supported teaching context (see professional development and influence section for detail), which increased her desire to improve her knowledge. However, it seemed the university did not pay much attention to teacher's needs in this aspect. In the site university, teachers are required to have a master degree for their teaching. There are also policies and measures to motivate and assist teachers' study for master degrees. However, for those teachers who have a degree of master or above, there are no measures to assist their professional study through either short training courses or long-term study. Teachers like Juan are left on their own to battle to obtain new knowledge in their profession.

5.3.10 Summary

Figure 5-1 was a summary of Juan's teaching activity system. Juan was positive about ICT in her teaching. She was also eager to learn and to integrate ICT into her teaching. Her experience indicated that ICT improved her teaching and enhanced students' learning. Compared to her previous traditional teaching experiences, she was impressed by students' substantially strengthened autonomy and motivated learning interests. Additionally Juan enjoyed certain privileges by being a pioneer in the college who applied ICT into her teaching. This strengthened her beliefs that to apply ICT in her teaching was necessary because the practice could privilege her in gaining professional development opportunities, having a say in the EBP teaching community and enabling her to keep up with the pace of educational policy development, which was viewed as a symbol of being successful in her career in China.

There were however, problems in her teaching with ICT. Conflicts were identified in her teaching system. As shown in Figure 5-1, the shadowed (,) indicates strong conflicts identified within particular elements, tools (limited tools for learning) and rules (ICT policy and curriculum). Conflicts between elements are also identified, indicated by shadowed (,) in the middle of a bold arrow. These include conflicts between her personal belief system and those norms and beliefs that supported the current policy and practice in the university. These conflicts reflected the contradictory situation of ICT as an innovative force in a system that was based on a traditional non-ICT supported teacher
centred system. It reflected the conflict between different change process of Juan as a teacher and the university as an organisation. While Juan’s ICT based teaching required a change of teaching paradigm based on constructivism learning theory, the current policy and practice based on traditional knowledge transformation learning theory in the university hindered Juan from organizing specific activities based on a new paradigm.
5.4 Pin --- ICT for convenient adoption

5.4.1 History of teaching

Pin taught in higher education for over 15 years. She came to the department when her former university merged with the State University in 2000. She was the deputy director of the department and her duty at this position included the scheduling of relevant courses each term and the scheduling of Business English Labs for teaching. As a teacher, she taught EGBP courses for the first 5-6 years. After that, she had three ESBP courses, namely, Finance English, Payment and Settlement and International Marketing. Pin applied ICT in all these three courses.

Pin had also been an instructor for one distance educational course: Finance English. She thought her history of applying ICT for teaching was long. According to her, she started to use ICT supported language lab for teaching since 1998 when ICT was available in her former university.

Pin was an instructor for the course of International Marketing at the time of this research. She used the Business English Lab (See 5.3.1 for description of the lab) for her instruction as Juan did. Additionally, there was a particular web-based courseware, which matched the textbook, available for her teaching in the Business English Lab through the Intranet system.

5.4.2 Description of an observed instruction

Pin’s instruction in the Business English Lab

The instruction was situated in the Business English Lab (see the availability of ICT for her teaching for detailed description). There were about 28 students and each had a computer. Pin said that once a student was designated to a seat in the lab, she/he could not change it throughout the whole term. The reason for this was to guarantee better operations of facilities in the lab.

Activity 1 Review 12 minutes

After greeting her students, Pin asked them to review the topic ‘culture environments’, she asked whether students had visited a website and read the relevant online materials. Some students said no. Pin then emphasised the importance to read the designated material. She also introduced a book to the class, ‘International Business Culture’, for students’ reference on this topic. Then she opened a Word document. It showed a case about a businessperson called Harry in a trip to some European countries. Pin asked a question, ‘Will Harry be successful in this trip? Why or why not?’ No student gave an
Activity 1, introduction to market research (2 minutes)

Pin --- ICT for convenient adoption

immediate response. She then picked on two students to give their opinions and made comments after each response. The activity was finished when she urged students to read the required material and be more active in answering her questions.

Activity 2 an introduction on market research (50 minutes)

Pin used a PowerPoint presentation for this activity. The theme of the activity was to introduce the concept of market research and the steps for carrying out the research. Pin first explained the importance of gathering information for a business, using a graph to demonstrate this point. She asked students to express their opinions. She then commented on their responses and added some information. Next, she gave the definitions of specific terms in a market research programme. She read aloud the definitions shown on the screen and explained the meaning afterwards, using cases or briefing in Chinese. No questions were asked in this section. Pin then showed a diagram of the market research process with arrows to indicate the synchronous order. Pin seemed to have noticed that there were some differences between her PowerPoint presentation and the textbook. At this stage, Pin gave some time to her students to read a section in the textbook. She then explained the steps based on the content from the book. Until now, Pin had talked for more than 10 minutes. Some students in the class began to do things irrelevant to the course. One boy on the back row was playing a computer game. Another was sleeping. A girl in front of the researcher is typing something into a word document, which seemed not relevant to the course. Another girl was viewing a PowerPoint presentation for the course of English of Branding and Advertising. Pin asked a question at this time, but she got no respond from her students. She answered it by herself. Pin continued her instruction until the end of the period without asking any more question. She was talking about the specified steps of market research process. At last, Pin spent about six minutes to introduce the structure of drafting a market research report.

Activity 3, online case (3 minutes)

In this activity, Pin used the Internet and the web for her teaching. When she finished her presentation, Pin searched the internet and showed several online examples of market research reports to the class. She asked students to observe at the differences and similarities of the cases. She then started to explain the similarities and differences of those cases.

Activity 4, after instruction assignment (15 minutes)

After that, Pin asked students to find one more case from the internet for discussion next time. She mentioned that students were required to undertake some small market research themselves in groups and presented their report to her electronically as their half term examination. Pin asked those students who had no access to the Internet at that moment to read the cases in their textbook and do the online case search by themselves after class. She asked that each students find ‘two cases, one successful and one failed’ for their after class assignment and submit them to her using Email. Some students started to do the search. Some were reading their textbooks.
5.4.3 Attitude to ICT and the influence on her pedagogy

It seemed that Pin was quite happy that ICT had been introduced into her teaching. A phrase that she used frequently to describe ICT was ‘convenience’. It was convenient for her to access ‘the various ICT facilities in her teaching, to download referencing PowerPoint presentation documents for her lesson planning online and to repetitively use those teaching materials for her instruction. For example, she claimed that she did not need to spend a lot of time on preparing teaching handout because she could conveniently download the materials from the Internet. She preferred the use of PowerPoint presentations because she did not have to write the same teaching content on the blackboard four times a week. When preparing her instruction, she only needed slightly modification of the materials instead of doing ‘a whole load of new thing’. In addition, since the department had finished designing a piece of web based marketing courseware and had it installed in the Business English Lab intranet system, ‘it is a kind of waste if you do not use them’. After all, ‘the establishment of the two Business English Labs was aimed to bring convenience to teachers in the department’. Pin even admitted that after many years of using ICT, especially the use of PowerPoint for her instructions, it would be ‘very inconvenient’ if she was asked to teach in a non-ICT supported classroom.

In her pedagogical decisions, such convenient applications were also identified as seen in the instructions described in table 5.4. For example, various ICT types that were available in the Business English Lab such as word processor, PowerPoint, intranet, the Internet and the World Wide Web were adopted for this instruction. The convenient availability apparently had diversified the instruction in both teaching materials and instruction styles. Pin was aware that limited ICT resources in the university had caused inconvenience to her students. For example, she knew that it was difficult for her students to print out their writings in the computers or online materials. While her assignment required the use of online materials in many cases, she asked her students to submit their assignment directly to her via Email. For her, the altered method (see Activity 4) brought convenience to both her students and her. That is because her students could complete and submit their assignments online without worrying about the print and storage; in the meanwhile, she could check the submitted assignments at home or in office when she had access to the Internet. In addition, the download of referencing materials from the Internet also saved time on lesson planning, and improved instruction time efficiency by not having to draw complicated diagrams on the blackboard, which she had to do when teaching without ICT.
It seemed that ICT was applied whenever it saved time or energy or brought convenience to her teaching. As Cuban (1988) pointed out, a teacher is likely to accept a reform when the outcome overcomes the cost of practicing it. Pin’s use of the word ‘convenience’ seemed to imply that the cost/benefit ratio from using ICT was favourable on balance.

5.4.4 Beliefs about ICT and the influence on her pedagogy

In the previous section, I described Pin’s attitude towards ICT in her teaching practice, namely, ICT brought convenience to her teaching. This section presents her ICT related beliefs and the influence on her pedagogy.

First, the application of ICT improved production of teaching activities such as lesson planning, instruction and communication with students. ICT improved efficiency of lesson preparation. For example, Pin could download materials from Internet for PowerPoint presentations and display. For her repetitive instruction, she only needed to ‘spend five minutes to go over the PPT, and think about the topic the day before and then I am ready for it’ [Interview].

ICT also improved the efficiency of presenting teaching materials in the classroom. For example, Pin explained that before the introduction of ICT the course of International Marketing had a 54-hour syllabus. The new curriculum assigned only 32 hours for the course. The reduction in teaching hours did not become a problem for Pin’s teaching plan because the application of ICT had saved time for board writing and improved efficiency.

The use of ICT saved a lot of time in the classroom teaching. Why I do not feel the 32 hours course schedule is tight? I think the use of ICT saved a lot of time. You get what you want just by a simply click, which is more time efficient than drawing a diagram or a table on the blackboard. It did save a lot of time! [Interview]

The application of ICT enabled her to have a broader range of teaching materials and diversified presentation methods. For example, Pin expressed her preference of applying the Internet into her teaching. In addition to the advantage that it ‘largely reduced your workload of lesson preparation [Interview]’, she emphasised the possibility for her to refer to ‘hundreds of online professional PowerPoint documents on the same topic’. …, you see, for such courses like finance and marketing, you do not need to do
lesson planning. You can download all PPT documents for your reference. Whichever chapter or whatever topic you want to talk about, you just simply search the Internet, key in the word PPT and some other word like pricing etc. You will get hundreds of results, and you can then select the best for your teaching, or you can integrate several into one. [Interview]

The access to Internet also improved the authenticity of her teaching. For example, she reported that during the worldwide Sudan I Dye affair period she asked her students ‘to surf the net during breaks to see how it happened, and the responses of each company involved. My teaching plan did not cover that part yet…, but it gave them some sense. … [Interview].

ICT also improved the communication efficiency in her work. For example, Pin emailed her teaching materials from home and downloaded it to her teaching computer when she arrived at the classroom. It also enhanced the communication between teacher and student. First, ICT enhanced the ability to share information between teacher and students. For example, Pin had set up a folder in her teaching computer, keeping all her teaching materials in it in the Business English Lab. When students were in the lab, they could read those materials online or copy them to their own disks. Another enhanced communication was the management of assignments. When students finished an assignment, Pin would upload selected samples to the information-sharing folder for students’ reference, which ‘is very convenient to put them all together and let students share them.’ Pin even recommended this strategy to her colleagues in the focus group, saying it ‘an efficient method in the application of ICT in teaching’ [Focus group].

ICT improved the quality of feedback to her students. For example, the selected samples uploaded to the intranet were evaluated and commented upon by Pin, so when her students read those materials, they could learn from both their classmates writing and teachers comments. Some cases were adopted for her classroom instructions, which according to Pin, was more significant for students as they ‘came from materials prepared by themselves’ [After observation questions].

There were some concerns about the negative influence of ICT on students’ learning. Although ICT might bring convenience to both teacher and students, the application of ICT did not always mean improvement of learning achievements. ICT challenged
students’ learning ability and self-control. For example, Pin expressed in both her semi-structured interview and the focus group discussion, that ICT was suitable for only those students who were very active and had high self-esteem. Otherwise, ‘although you are trying to create an environment for them, to organise activities, they would not give you any response. [Focus group/Pin]’ Pin was very concerned that some of her students were unable to concentrate on their learning during her instructions. ‘Sometimes, you can hear the clicks from the students’ area. Then you know immediately that they are not listening to you, they are doing things irrelevant to your instructions …’ [Interview]. Therefore, attention was needed to monitor or control student activities. For example, she felt it was necessary to find some method to ‘warn them and stop them from doing such thing’ [Interview].

Some of her pedagogical decisions reflected the beliefs that were described above. As shown in Table 5.4, in this 90-minute instruction, there were five activities organised. All five activities involved the application of ICT in the process. In Activity 1 and Activity 2, ICT (word processor and the PowerPoint Presentation) were applied as presentation tools. In Activity 3, the Internet and Web functioned as referencing tools for authentic case materials for the teaching content. In Activity 4, ICT (the Internet, World Wide Web) were applied as autonomous learning tools for her students, which also involved online reading and communication between students and teacher via Email.

In this instruction, ICT types were applied for various functions throughout the teaching process. In the lesson preparation period, ICT served as teaching materials resources and reference. Referencing PowerPoint presentations were downloaded from the Internet and modified for the specific instruction. Contents of certain websites were listed, and the links were emailed to the students in advance so that they could be applied in teaching. Thus, ICT enhanced the range of choices for her lesson planning and the possibility of presenting diversified teaching materials in her instruction. Several ICT types were applied as presentation tools in the instruction. For example, in Activity 1 and Activity 2, word processor and the PowerPoint were adopted to present teaching content. Pin even presented the content from various websites in Activity 3 and Activity 4. In Activity 5, Pin asked her students to find two marketing cases through online search. In this activity, ICT became a new affordance for students’ autonomous learning activity.

The application of ICT enhanced teaching productivity. Pin had admitted in her
semi-structured interview that she was not able to draw graphs and diagrams on the blackboard as professionally as she could present them using PowerPoint presentations downloaded from the Internet. She also highlighted time efficiency of presenting professional designed diagram with 'just a simple click'. She claimed that compared with traditional blackboard writing, the integration of word processor and PowerPoint for presentation substantially enhanced her instruction.

ICT also extended authenticity of her teaching. Activity 3 in the described instruction was an example. In this activity (see table 5.4), Pin presented several market research report samples to her students immediately after her explanation of the processes of market research. The use of such online reports, which were based on real market research by professional market consultancy companies, might narrow the gap between students' learning and reality because students were reading the authentic products of a commercialized business, which they might be in after their graduation. Such up-to-date access to authentic cases in the global market provided her students with first hand materials and they could 'have a sense of what the real market was like'. Pin commented that these materials motivated her students to learn more autonomously.

Students show great interests on such materials. Reading these materials pushes them to think more critically. Students are willing to search diversely on relevant cases. ... I asked them to find three successful marketing cases... They reported so many cases... [Demonstrate a folder in the teaching computer].

[Interview]

Such extended authenticity and referencing were widely accepted in Pin's pedagogy. In another observation, Pin used materials from an American website as a main source for her lecturing on the topic of international cultural environment.

The improved communication between teacher and students offered more support to student autonomous learning. ICT improved Pin's ability to communicate with her students. Pin's teaching file folder in the lab enabled her students to learn and to review teaching contents whenever they were in the lab. Pin also permitted her students to copy the content from the folder to their own storage. This further improved student access to teaching material and could lead to more flexible autonomous learning beyond the class. Pin also created a particular Email box for the course. The Email functioned as a path for...
students to submit assignment and a method to share information. She could trace the assignment submission time of each student. She could also give feedback and comments to their assignment online. When she wanted to share materials with her students, she sent them out via the Email so ‘every student has the chance to read it’ [After observation question]. In Activity 4 of the observed instruction, students were required to integrate various ICT types such as the Internet, the World Wide Web, word processor and Emails to their learning. According to Pin, the wide access to online information gave students more flexibility. ‘They could make their own choice and each presented their learning differently to me’. 

The above analysis indicated that ICT did alter Pin’s pedagogical decisions and teaching practice. However, a further examination of the structure of the instruction revealed that her instruction was still teacher-dominated with limited interactions between teacher and students. The structure of the instructions could be described as reviewing the content of previous instruction (Activity 1) – presenting new content (Activity 2) – applying the new concept to given cases (Activity 3) – the practice by students (Activity 4). One would argue that the appearance of Activity 4 in the classroom indicated the shift of teaching approach because many researchers had pointed out that in China students did not have time to learn independently. They were spoon fed almost all the time in the class (Chapter 3). In Pin’s case, this activity was organised primarily because of students’ limited access to ICT (computers and online resources in this case) after class as described early in this section. Though various ICT types were used, the activities organised in the instruction showed that all were pre-designed, pre-targeted, and teacher-centred. Only Activity 4 enabled students to learn autonomously. In the other three activities, the classroom was dominated by Pin’s talk while her students were a passive audience. Interactions between Pin and her students were observed in Activity 1, they were not the kind of interaction that reflected student centred learning. Rather, the interactions were pre-planned and controlled by the teachers. All the responses were known in advance and prejudged by the teacher. The so-called ‘interaction’ was rather rhetorical. Furthermore, neither interactions nor collaborative learning activities between students were observed in the following activities. Such teacher dominant teaching approach was more evident in Activity 2, the core activity of the instruction when she talked almost solely for more than half of the 90 minutes instruction time. In this activity, she did not give much chance for her students to join her talk. She did not ask any question in the last 20 minutes of her talk.
This might partly explain the phenomenon that many students were doing things irrelevant to her teaching. Activity 3 was also dominated by her explanation of the similarities and differences of various structures of marketing research reports, and still, students were only passive listeners.

To summarise, ICT has altered Pin’s teaching, as it has changed some of her pedagogical decisions and behaviours which could be described as technical changes in Tichy (1983)’s definition. On the other hand, she was aware that ICT based teaching and learning was based on the teaching approach different from her current practice, which could be viewed as a cultural change in her teaching activity system. Such a change was not identified though it might be in process. Fullan (1992) argued that teachers might adopt innovation for ‘symbolic political and personal reasons’ (p. 28 original emphasis). Some researchers in China (Lin and Yu 2001; Chen 2002) also pointed out that at present many innovative programs in Chinese higher education were politically driven, in such case, ‘verbal adoption of innovation may be entirely sufficient’ (Pincus, 1974 quoted in Fullan, 1992). Pin’s special position in the department (deputy leader who was responsible for teaching arrangement) might have pushed her to pick up the ‘innovation’ as she was expected by the university to some degree. She should at least accept the innovation symbolically.

Cuban (1988) classified reforms in education into two categories: the first order changes aimed to improve the efficiency and effectiveness of what is currently done ‘without disturbing the basic organisational features, without substantially altering the way that children and adults perform their roles’ (p.342). While the second order changes meant a fundamental change in organisational structures, roles and goals. Cuban also pointed out that most second order reforms either diverted or adopted to the first order change, ‘allowing the system to remain essentially untouched’ because of the ‘quiet but persistent resistance of the teachers and administrators’ (1988, p.343). His opinion was supported in Fullan’s (1992) research on Changes in Schools. Back to Pin’s case, in the later focus group discussion, Pin admitted that ‘theoretically teaching should be teacher guided and student centred’ after the introduction of ICT. However, according to Pin, there was no such shift in her teaching due to shortened teaching hours in the new curriculum. With the teaching hours being shortened from ‘64 hours to 32 hours … you have to talk in the class for 60-70 minutes, it is lucky if there is 20 minutes remaining for students to work on their
own'. It seemed that Pin had adopted ICT to her teaching in terms of Cuban’s first order changes. All her beliefs and activity system, namely, her teaching approach, pedagogy were slighted altered by ICT while her role in the classroom remained almost unchanged. There were technical changes such as ICT being used as presentation tools and referencing resources etc. in her pedagogy but the natural of the instructed activities in the classroom and beliefs behind her decisions remained almost unchanged. Her teaching approach remained teacher-centred rather than student-centred.

5.4.5 Professional development and the influence on her pedagogy

Though Pin claimed that she started to apply ICT to her teaching in 1997 and 1998 and that she had used PowerPoint every year since then, she still felt her ICT competence a problem in preparing an ICT integrated lesson.

It is still a difficulty, you know, to design the courseware, to use the multimedia, if you do not have anything at hand and have to do everything by yourself [Interview].

She thought the design of simple PowerPoint presentation slides ‘may not be difficult, but it is difficult to make it posh’. She thus preferred to ‘download PPT designed by others from the Internet’ and ‘made some changes to fit’ her teaching purpose afterwards [Interview]. She commented that her own PowerPoint design as ‘not that beautiful’ compared to those she downloaded from the Internet when she demonstrated them to me in the Business English Lab during the Semi-structured Interview. In addition, Pin admitted her use of ICT types in the classroom ‘is limited’ and her competence was ‘just enough to manage it’ [Interview].

She felt her competence in ICT was not comparable to her own twelve-year-old daughter, a primary school pupil. While her daughter was able to ‘design PowerPoint presentation, flash and Photoshop images’, she hinted that she was comparatively lower in competence in all these aspects. When she was talking with her colleagues in the focus group, she admitted that as an EBP teacher she was very confident in subject knowledge, but not very professional in ICT.

ICT competence affected her pedagogical decisions in the following aspects. First, she relied heavily on the referencing online materials for her lesson planning. For example, she clearly stated that she searched and downloaded online PowerPoint presentations
designed by ‘foreign professionals’ before she made ‘slight changes’ of those downloaded materials to fit her own presentation in the class.

Second, she avoided using unfamiliar ICT types and their functions in the classroom. Pin admitted that the use of ICT in her instruction was ‘limited’. Given that she actually used various ICT types in her instruction, the word ‘limited’ here seemed to imply the pedagogical functions of ICT types. For example, because she was not familiar with the application of graph programs, she avoided drawing complicated diagrams by herself. Instead, she copied them from others. When materials were not available, she asked students to read the print materials available to them (textbook as described in Activity 3). According to the observation, the pedagogical functions of most ICT types in the classroom functioned as substitute of print handout, board writing or hard copies of other printed materials.

This seemed to imply that one reason behind the symbolic adaptation of ICT in her teaching was that her ICT competence was limited. For example, in the group discussion, Pin admitted that her competence could not compare with that of her subject knowledge. Thus, when ‘we were confident in our subject knowledge, our ICT competence was not professional at all’. She further expressed that because of such non-professional computer skills, it was difficult for her and her colleagues to fulfil ICT potentials in teaching.

### 5.4.6 Community influence

It seemed that Pin had frequent communications with her colleagues. To improve her ICT competence, Pin admitted, ‘Basically I would ask people around me for help’ [Interview]. She talked with her colleagues about ICT application techniques. For example, she talked with her colleagues on ICT techniques such as document formation [Interview] and document edit functions in word processor [Focus group].

In the focus group discussion, Pin gave pedagogical suggestions to her colleagues. For example, she talked about the application of Internet for teaching ‘as being really convenient’ because it saved time for ‘lesson planning’ and enlarged teachers references when ‘you can download hundreds of PPT documents on this topic’. She also suggested how to search information on the Internet and to store this information in the teaching computers so that it could be shared with students by ‘simply copying it to their own
disks' [Focus group]. She admitted however, that discussions on such topics were rare though ‘there are such requirements from the university’ [Interview].

As a leader of the Business English Department, Pin encouraged her colleagues to apply ICT in their teaching by asking them at the end of term whether they ‘needed to use the lab in the coming term’ [Focus group]. In the focus group, she promised to put one of her colleagues on the list so that the colleague could teach in the lab in the next term.

Pin’s active role in the EBP teacher community on ICT issues might partly originated from her social position as a group leader. Pin had more knowledge about the ICT related policy and practice in the university than her colleagues did. For example, the other two teachers in the group discussion had no information about both training courses available to them and the annual ICT investment figure in the university. Both teachers attempted to apply for multimedia classrooms for their instructions from the University Course Scheduling Office. They did not know, however, that the Business English Labs were under the management of the Business English Department rather than the University Course Scheduling Office. Neither did they know that the Business English Labs were available to any ESBP courses in the department.

On the other hand, the community also influenced Pin’s beliefs on teaching. For example, Pin was aware that teaching after the introduction of ICT should be student centred even though her teacher centred teaching approach remained unchanged. Such belief was shared by other teachers in the community (Chapter 6). In the past decade, the application of ICT to education had been a major innovative reform in Chinese education (Huang, Zen et al. 2002), new concepts have been introduced to teachers. However, such introductions were top-down and superficial (Chen, 2001, cited in Zhou 2005), they were widely received but not accepted by teachers in the classroom (Zhou 2005).

Overall, Pin’s role in the community seemed to be very influential. She offered more suggestions to the community than she receives. She was also able to decide (at least in the EBP teacher community) ICT access within the community. However, since the community was not professional at integrating ICT into teaching, Pin’s competence of ICT could not be fully developed within it. As such, she sought help from beyond the community: her daughter and the technician in the college.
5.4.7 Institutional influence

Pin had some negative perceptions of institutional influence on her teaching. These influences could be categorised into the following aspects: the shortened ‘ICT-supported’ teaching hours for the course, the ICT facility support policy of the university and the ICT related continuing professional development support to teachers from both the college and the university.

Curriculum Requirements

Pin was a teacher of Year 3 and Year 4 students, the National English Curriculum requirement was only an optional choice for her teaching and as such placed less pressure on her. She had the flexibility to decide textbooks for her students and was able to ‘name three or four optional textbooks’ so that students ‘can buy these options as long as they can afford them’ [Focus group]. Pin was also able to decide the topics she taught in the classroom. Therefore, she could use up-to-date cases such as the case of Sudan I Dye in her teaching. However, she was not satisfied with the shortened teaching hours due to the introduction of ICT into the curriculum although she could manage it (see previous section). The instruction time of the course had ‘shrunk to 32 hours’ [Focus group]. Pin thought to teach so much content within this limited time was hard. As a sacrifice, much of students’ activity time was omitted.

The time for the course was really limited, though the quantity of information of a period has been increased. I mean, the time for many of our courses was originally 64 hours, now it had shrunk to 32 hours, no matter how efficient the ICT is, many things should be mentioned... [Focus group]

The observation of her class activity seemed to prove her claim. As stated in Chapter 1, EBP teachers in China had two tasks: They need not only to improve students’ English competence but also the professional business knowledge. To maintain the balance is hard. There is even debate on the management of balance of language proficiency and subject knowledge in EBP teaching in China (Lin and Yu 2001; Li 2004). English is a foreign language to both Pin and her students. To understand professional business knowledge in a foreign language is hard for students who did not have previous business

---

15 The introduction of new curriculum was a result of not only the introduction of ICT but also the political decisions made by the government, which aimed to improve students’ autonomous learning. The current curriculum design required students in and after classroom learning ratio to be 1:3. (According to the university curriculum design guidance)
experience. In some cases, Pin had to explain meaning to her students in Chinese, which required even more teacher talk time in the classroom. This could partly explain why Pin’s talk in Activity 2 was so dominant. In all the three observations, teacher talk was dominant in the section of introducing new concepts. Interaction between her and her students was rare. Even if she asked questions, students were not given much time to think and respond. Students’ participation in discussions or collaborative learning activities was hardly observed in her classroom.

**Institutional ICT related policy**

Pin had about 30 students for each of her instructions. She understood the policy that ‘... if your class size was not large enough, they would not give you a multimedia classroom’ [Interview]. She had been very active to lead the establishment of the Business English Labs as it provided her with a solution to this problem.

Pin felt the university’s ICT policy and practice was problematic. She pointed out three problems in the university. First, the availability of ICT facilities was limited for teaching and learning compared to large quantities of students and faculties on the campuses; second, it was not appropriate to ask students to pay for their access to ICT facilities in the campus and third, the availability of ICT facilities in the university did not reflect the huge investment.

Compared to the large quantity of students, the ICT facilities were very limited. Students in foreign countries ... had free access to the Internet. Here it does not work. You have to pay, like, in the library, you pay such and such for an hour ... you have access in you dorm, but you also have to pay. The president claimed that there was a total investment of 200 million in the past 3 years. ... but I could not see many facilities in the teaching buildings. ... If there was actually a 200 million investment, at least you could equip each classroom with a computer, right? [Interview]

In addition, though the university had a very good reputation for being innovative in integrating ICT in teaching, it was ‘difficult ... to negotiate with the university to gain ICT related investment’. Her experience of leading the establishment of the Business English Labs was a very good example.

... You have to try your best to gain it... Like these labs, we spared no effort to
get them. It was very inconvenient for us (without these labs), you see, we sent dozens of application reports for it. At first, to bid for the budget for the software, then the budget for computers purchase. I cannot tell how many times we had sent the budget reports. ... You cannot imagine how difficult it is to negotiate with the university to gain ICT related investment ... [Interview]

In fact, Pin herself, to some extent, was part of the university management. As the leader of the Business English Department, she had the power to deliver the ICT resources within the department. She could decide who could use the Business English Lab for teaching. From her point of view, that she was able to teach in the ICT-supported classroom was a reward of her own work because according to the current policy, she and her colleagues who taught Year 3 and Year 4 were not privileged to use ICT supported classroom as they had only about 30 students for each instruction. She was thus active in seeking alternative solutions, not only for herself but also for the whole Business English department. Such was as she described ‘... even though the conditions were not permitted, we tried every effort we could to create appropriate conditions for our teaching and hence the Business English Labs... I could not remember how many application reports I had submitted to them (university) [Interview].’ In her own department, Pin was active to support those who were willing to apply ICT in their teaching. For example, she promised one colleague in the focus group that ‘If I am still in charge of the course scheduling for next academic year, I will put you on the teaching in lab list16.’

The ICT related professional support

For Pin, there were two levels of professional support for her teaching, the support from the college and the support from the university. She was positive about the professional technical support from the college. For example, Pin mentioned on several occasions a technician in her college, saying he was the very person that she would ask for help on such issues as installing programs or in sorting out net connection problems. According to Pin, the technician was available for such tasks as installing programs in the lab for teaching purposes [Focus group/Pin], to solve the net connection problems [Interview], to assign certain controls to students’ learning activities in the classroom [After observation questions]. There might be two reasons for her feeling satisfied with the technical support

---

16 Pin was planned to spend one year abroad as a visiting scholar. She would leave in July that year and this was why she had not been sure at that moment.
from the college. First, the lab was a property of the college and it was the technician’s
duty to maintain it. Second, the lab was in the same building where the technician was
working could be a reason for her to ask for his help.

Pin was the only teacher in this study who admitted there were specific free training
courses available to teachers at college level. It might have been because she was a leader
of the department and therefore had more chances to obtain relevant information.
However, as the instructor of the training courses ‘was himself not an ICT graduate’ and
the audience included ‘all the teachers and administrators in the college’, she felt neither
the quality nor the content of the training was adequate. Apart from these, the fact that the
course was ‘scheduled on evenings and afternoons’ further diminished her motivation
from attending it [Focus group].

Pin felt negative for the inconsistent professional technical support from the university.
She had her PowerPoint documents prepared by professional technical persons in the
university around 2000. However, ‘that was what had happened. They won’t do this
anymore’ [Interview]. She depended totally on herself during my visit to the university.
She felt lucky because she had ‘kept a backup of all those documents’ so it ‘was
convenient’ for her to use them in her following teaching.

Pin also criticized the ICT competence development policy in the university. It seemed
that formal ICT related training courses for teacher was not common in the university.
Even as a leader, she knew only one ICT related improvement opportunity offered by the
university’: the ‘promotional test’ which ‘had nothing’ to do with pedagogy and was
‘totally useless’ for teaching with ICT [Interview]. Besides, teachers had to pay if they
wanted to attend relevant training courses [Interview].

5.4.8 Pin’s roles in her teaching system
Compared to her colleagues, Pin had more knowledge about the ICT related policy and
practice in the university. She was also able to determine within the EBP teachers’ group
who could have access to certain ICT facilities. Her role in the EBP teacher group was
influential. It seemed that she was aware of her influence and she was willing to use this
influence to improve her colleagues’ application of ICT. In the group discussion section,
she acted as an information supplier, that is, she gave information, suggestion and other
possible solutions to her colleagues’ problems with ICT. Though she admitted her ICT
competence was not comparable to her subject knowledge and her ICT competence could not compare to some of her colleagues either, it did not influence her power of delivering ICT related resources and suggesting possible pedagogical solutions.

Pin’s view about technicians was conflicting. On the one hand, she sought help from the technical staff available to her. She even told her students that she would ask the technical staff to install a certain program to control their online activity and thus seemed to give technical staff a kind of authority. On the other hand, she did not think technical staff were professional or qualified because ‘to employ such kind personnel should be quite [raise her tone] cheap [Focus group]’ and their obligation was just ‘to manage a Lab, you see, just to keep it clean, maintain the normal operation’ such a person did not ‘need to know much technical knowledge’.

In the classroom instruction, Pin thought her role as a teacher did not change much though she was aware that ‘theoretically teachers should be a guider, and the instruction should be student-centred’ [Focus group]. As stated in the previous section, Pin thought this was mainly due to the shortened teaching hours of the course and she had to deliver a large amount of teaching content within the limited teaching hours. In addition, Pin also emphasised that ICT was suitable for only those students who were very active and had high self-esteem. She even warned her students that she would ask the technician in the college to install specific programme to stop students’ irrelevant activities on her teaching time.

One noticeable point about Pin’s teaching belief was that she emphasised the importance of review. She faithfully practiced the traditional Chinese teaching philosophy that ‘To review is to learn’. In the observed instruction, she spent about 12 minutes reviewing the content of her previous instruction (Activity 1). She explained that this 12-minute review that day was an exception because she normally spent ‘at least 30 minutes to review the content of the previous instruction’, which she believed to be ‘effective’. Her concerns about students’ autonomous leaning also reflected the traditional Chinese teaching philosophy that ‘students need to be strictly controlled for their learning activities’. Pin said ‘You have to push them hard, ensure that they have something to do,’ because ‘students nowadays lack self-discipline’. However, students had different point of view, for their behaviours irrelevant to Pin’s instruction in the classroom (see Chapter 5.4.2). The reason, as stated by students in the focus group was that Pin ‘did not give us many
tasks to do during the process [Student focus group].

5.4.9 Conflicts in the system

Figure 5.2 maps Pin’s teaching activity system with ICT. Tensions could be identified in both Level 1 and Level 2.

There were conflicts between Pin’s teacher-centred teaching approach that accumulated from experience and the student centred teaching approach demanded by the introduction of ICT to the system. In Pin’s case, her teaching experience and her own satisfaction with her teaching might be reasons for her unwillingness to change to latest teaching approach. On the other hand, her views on ICT as a convenient tool for her teaching seemed to imply that only those are convenient would be accepted by her immediately. Thus the conflict between these two teaching approaches; namely, teacher centred teaching approach and student centred teaching approach, would remain unresolved in the immediate future.

Shortened teaching hours and teacher centred approach

Pin thought the shortened teaching hours influenced the adaptation of her teaching approach. Because the new curriculum halved teaching hours for the course, and even though ICT facilities had higher information capacities, it was still difficult for her to deliver all the teaching content without being teacher centred because ‘You have to talk about so many things’.

Limited professional support and her ability to teaching with ICT effectively

The tension between the limited professional development support for her teaching and her needs for such development was identified. Pin was aware of her lack of ICT competence and expressed her willingness to ‘spend some time on a thorough ICT training courses’. She expressed the lack of such opportunities in both college and university level. At the university level, there was no training course except for the commercialized promotional related ICT competence test training, which she considered to have low quality in content. At the college level, certain courses were offered. However, the content again was problematic for Pin. According to her, it was about the things that ‘we knew already’. Furthermore, as the participants of the course included every staff members of the college, the teaching could not be pedagogically oriented.
Tension between her teaching methods and teaching approach

Tension was identified between the ICT related pedagogical decisions and her unchanged teaching approach. Because Pin was teaching in the Business English Lab, various ICT types were available to her. Pin was applying various ICT types to her teaching. For example, ICT was used in her teaching as a presentation tool, as referencing and authentic information provider. It also served as a communication tool between her and her students. However, because Pin’s role as a teacher was dominant in the classroom and her students did not have much chance to learn autonomously, the tension the teacher centred teaching approach and the actual functions of ICT types that required a more student centred environment in her teaching seemed to be serious in her teaching system.

The availability and reliability of ICT types and her pedagogical decisions in the classroom

Pin’s access to ICT was comparatively diversified for teaching purposes. However, there was still tension between the reliability of such ICT types and her possible pedagogical decisions in her instruction. According Pin, the Lab has only one IP address, which meant that only 16 PCs in the lab could access Internet. ‘Those who are quick are the lucky ones. Others have to wait patiently’. When Pin asked her students to surf the net for information, she had to assign alternative tasks to those who had no access to Internet. Furthermore, the speed of the Internet seemed also a problem for her teaching. When the content of an American website was adopted for presentation, Pin asked her students several times not to retrieve information from the Internet at the same time because the speed was too slow to present the content to the class in a short time.

However, she did not have difficulty in accessing ICT facilities for teaching, though her students did. As Pin had pointed out, this was one serious problem for ICT related teaching practice in the university. Students did not have adequate access to ICT facilities after class, and they were forced to pay the Internet access to finish their assignment. Pin reported that she had to change some of her teaching decisions because of this. For example, she no longer asked her students to download information for assignments; she also left some time in an instruction for her students to do an assignment. If possible, she came to the lab earlier and left some time later than scheduled, which brought some convenience to her students.
Pin's activity system

### Teaching approach
Teacher Centered vs. awareness of student centered

### Teaching beliefs
- convenient improve teaching productivity;
- diversifies references and authenticity

### Learning beliefs
- review improve learning
- Proper attention;
- Be self esteemed

### Attitude to ICT
- Positive
- ICT CPD needs

### Tools
- Various ICT availability
- Limited ICT competence
- Limited for learning

### Object
- Pedagogical decisions
  - ICT: diversified for teaching
  - teacher centred instruction
  - delivery of large information within limited teaching hours

### Outcomes
- Classroom behaviours diversified application of ICT teacher centred
  - authentic information

### Community
- EBP teachers
- Student
- IT staff

### Division of labour
- Colleagues: powerful, influential
- Classroom: teacher centered
- IT staff: cheap and not qualified

### Rules
- Curriculum: shortened teaching hours
- University policy: big size instruction
- Limited CPD support
- College: technical support;
- Norms: Teacher as authority
  - Teacher-centered

---

**Figure 5-2** Conflicts identified in Pin's teaching system

---

**Key**

1. Strong conflicts within the elements identified

2. Strong conflicts between elements identified

---

No strong conflicts identified
5.4.10 Summary

Figure 5-2 is a summary of Pin’s teaching activity system. Level 1 conflicts are identified in the elements of tool and subject. In Pin’s view, ICT was a convenient tool that assisted her teaching. Her integration of ICT in class teaching was because ‘it was there’. Though various ICT types were applied to her teaching, it is not likely that her concept of ‘ICT for convenience’ would lead her to explore the possibilities of ICT beyond the scope of ‘convenience’. This is linked to her ICT competence, her current teaching approach and the ICT types available to her. In Pin’s case, she did not have much difficulty in obtaining various ICT types for teaching purposes. She also understood that she was expected to adopt a student centred teaching approach in an ICT enriched context. However, the ICT competence and teaching approach prevented her from switching from a teacher-centred to a student-centred teaching approach, hence the conflicts between these elements (rules vs. objects, subjects vs rules, subjects vs. objects and tools vs. objects).

As Cox, Webb et al (2004) put forward, teaching approach was critical for the integration of ICT in teaching practice and pedagogical oriented rather than ICT skill oriented professional development was required to support the process. Pin’s case seemed to reflect these findings. It seemed that to extend Pin’s scope of ‘convenience’ in applying ICT to her teaching, namely, her competence of ICT and her ICT related pedagogical knowledge or experience could be the key to her teaching with ICT in her future career.
5.5 Qyin --- ICT for occasional applications

5.5.1 History of teaching
Qyin, associate professor of English teaching, worked in higher education since 1990. Prior to becoming a member of the current college, her teaching had focused on general English skills for Year 1 and Year 2 students who majored in Economic and International trade.

Qyin regarded her experience before 2000 more as a teacher of English for General Purposes (EGP) than as that of English for Business Purposes (EBP). According to her, EBP teaching only began after 2000 when she was appointed as the instructor of the course entitled Business Negotiation and Business Interpretation separately. Unlike many of her colleagues, Qyin did not have a master degree, nor was her first-degree business related, about which she felt a little unease. However, she insisted that her rich practical experience in the field of translation and interpretation for business purposes gave her enough confidence.

Qyin used technology in her teaching from time to time. For example, she reported that she used Transparency Projector for her teaching before 2000. Although she had not applied computers or other facilities in the classroom, she used computers to search information and plan lessons at home. Qyin was one of the earliest teachers that were appointed as distance educational course tutors in 1998. The course she taught at that time was EGP. For this reason, Qyin started to be involved in teaching with ICT in 1998. According to her, she applied computer, PowerPoint, video conference system in her teaching.

Qyin was teaching two courses during the data-collecting period. One was International Business Negotiation and the other was an EGP course. She did not apply ICT to her teaching to either course. For the International Business Negotiation course, she had four instructions each week for four classes of students. All her instructions were located in non-ICT supported classrooms. She claimed though that she had an unsuccessful attempt to apply for an ICT supported classroom for her teaching from the University Course Scheduling Office.
### 5.5.2 Descriptions of an observed instruction

**Lesson observation Date: 01/04/05**

The instruction was in a Non-ICT supported classroom. There were 28 students. The theme of the instruction was shorthand skill training and interpretation for conference speeches and the practice of dual interpretation of numbers. The instruction could be divided into three sections: student presentation, number interpretation skills and conference speech interpretation. The shorthand skill training went throughout all the activities in all three sections.

**Activity 1: Warm up (11 minutes)**

Qyin divided the 28 students into two groups and asked them to compete with each other for better interpretation of sentences she was to read to them, from either English to Chinese or Chinese to English. The winning group would be credited for their final achievements for this course. She then started to read some sentences from an article entitled 'what a mother would say'. Each time she finished a sentence, a student would be selected from the volunteers to interpret it. During the exercises, Qyin reminded them that it was a very important sub-skill for them to be able to predict the content beforehand. The exercise lasted for 11 minutes. Students were active, about 20 of them were chosen for the exercise.

*Two example sentences she read: I can teach you what is wrong, but I cannot decide it for you. I can buy you beautiful clothes, but I cannot make you beautiful*

**Activity 2: Student Presentation (34 minutes)**

There were two student presentations for this instruction. Each had two students. One used English, the other Chinese. Each group had written down some Chinese phrases/sentences on the blackboard in advance. The first presentation was a conference speech by a provincial governor for an automobile manufacturing joint venture investment project a month before. The other group’s presentation was adapted from an interview of Premier Wen by Chinese Central TV (CCTV) about two weeks before the instruction. Each presentation lasted about 15 minutes. For each presentation, one student talked in Chinese, the other was the interpreter. The interpretation for each presentation lasted 5 minutes. Once the speech was finished, other students in the class rushed to the blackboard to write down the English translations to the Chinese phrases that had been written in advance according to the notes they had kept during the speech or interview. After that, the presentation group checked the answers on the blackboard. Qyin occasionally joined the checking process by giving alternative translations or reminding them of spelling mistakes. At the end of each presentation, Qyin asked other students in the class if they had extra questions to the presentation group. She also asked questions to the presenting students together with the audience students. During the process, Qyin sat with students, listened carefully and kept notes. She did not interrupt students’ activities except for giving suggestions in the answer checking periods or brushing off the duplicated answers written on the blackboard. When both presentations were finished, Qyin asked students to read the notes for one minute before she brushed off all the English. She then asked three volunteer students to give the English translation to all the phrases again. She emphasised this as another important skill for interpretation: short time memory.

*Extra questions asked at the end of this activity*

spelling of 问题很多的 problematic, Qyin gives answer and spell together with students orally.

*Another asks about the translation of 攻关年 the toughest year*

**Activity 3: Number interpretation training (12 minutes)**

Qyin first emphasised the difficulty in number interpretation. She suggested that exercises be done gradually from very simple to very complicated ones and student practice them after class. She then put the Chinese number unit and its English shorthand on the blackboard before the exercise began.

Qyin writes on the blackboard

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>百</td>
<td>1H</td>
<td></td>
</tr>
<tr>
<td>千</td>
<td>1th</td>
<td></td>
</tr>
<tr>
<td>万</td>
<td>10th</td>
<td></td>
</tr>
</tbody>
</table>
She then started to read aloud a group of five large numbers to the class in Chinese. When she finished, volunteer students were chosen to read the numbers in English while Qyin wrote them on the blackboard using English units, for example, \(1 \times 309^{th} 200^{th} 123\). After that, other students were chosen to read these numbers back in Chinese.

**Activity 4: Note taking training and conference speech interpretation (30 minutes)**

In this activity, Qyin first reviewed some phrases that had been practiced in previous instructions. She read the Chinese and students gave English translation together. Qyin gave alternative translations in some cases. She then asked students to take out their shorthand notepad. She first asked students to review the adequate skills of keeping notes for a conference, such as that the notepad should be used in landscape, and that English notes and Chinese notes should be kept separately. She then announced the start of the exercises. Qyin read slowly a speech in Chinese by a delegate leader in an international trade exhibition. She read two or three sentences each time to the class while students made notes. She then asked students to discuss with their classmates in small groups for one or two minutes while a volunteer student was chosen to write down his/her notes on the blackboard. When the student finished board writing, Qyin asked him/her to repeat the content according to the notes on the blackboard. The next step was to check the notes on the blackboard together with the class and to give suggestions to make them more concise in content and more prompt for notes keeping. For example, use one Chinese character, small diagrams or a combination of both to represent a phrase or a meaning. Qyin also suggested that the differences between the two languages made notes keeping difficult. Thus, the order of notes should be properly scheduled for the convenience of interpretation. She also suggested students to take notes in English directly whenever possible.

After checking the note keeping, Qyin then asked volunteers to translate the sentences into English. Qyin gave suggestions for the accurate use of phrases and sentence patterns in the process. In some cases, extra examples were given to students for a specific phrase or a sentence pattern. There were three turns altogether for the exercise. The activity ended when all the sentences were read again to the class and a student volunteered to do the whole interpretation.

### 5.5.3 Attitude to ICT and the influence on her pedagogy

Qyin was aware of the value of ICT in her teaching. She thought ICT was ‘good though’ because it brought convenience to teachers, it also was ‘informative’ and enabled students to have access to ‘authentic materials’ such as conferences and international business affairs.

She was, however, quite cautious in the use of ICT in classroom activities. She was strongly against the use of ICT ‘for the sake of ICT itself’. For example, she criticized the poor quality of applying multimedia for large-scale English instructions when hundreds of students sat in different classrooms watching a vague image of their instructor on the corner of the screen shown together with PowerPoint slides. She emphasised that ICT could be applied efficiently for classroom teaching only when the application of ICT types matched the teaching content.
Qyin was concerned that a teacher’s role as the source of information was also challenged by the introduction of ICT to students’ learning, because students had too much information. She further explained that it was difficult for a teacher to make sure that she/he had full understanding of all the materials his/her students had read. She worried that the powerful position of a teacher as an authority in the classroom was threatened if students had full access to the source of teaching content online since ‘they can do it all by themselves!’

Such cautious attitude influenced Qyin’s pedagogical decision. For example, in all four activities in the 90-minute instruction described above, Qyin did not use any ICT types for instructions. According to her, there were three reasons for this. First, the university did not provide enough ICT facilities and resources for her teaching. Second, the textbook for the course did not provide ICT based materials for teaching. Third, her instructions required face-to-face based interaction rather than computer mediated one. She doubted the benefit of putting a computer in her instruction because it was against the nature of interpretation, namely face-to-face interactions. After the first observation of her instruction, she was asked whether it was possible to add some multimedia factors to her instruction, her answer was ‘where do you think I should add ICT?’ The answer suggested that Qyin was in doubt about the benefit of ICT in classroom teaching.

This did not mean that ICT was not involved in her teaching at all. On the contrary, Qyin used latest ‘information such as news, both domestic and international from the Internet’ for the preparation of her teaching. For example, in Activity 1, the sentences that she read to her students were adopted from a web page about the Mother’s day. She also claimed that she had encouraged her students to use whatever methods including Internet and other ICT types to learn English after class. She explained that students’ autonomous learning was ‘of vital importance’ and ‘it was not enough for students to have just this 90 minutes instruction in the classroom, not enough even for the instructions from all the teachers in the department’. Qyin gave 30 minutes to students each of her instruction time for presentation (Activity 2). She viewed presentations as a good method to encourage after class autonomous learning since each pair of students ‘would have to spend one or two weeks to search information and prepare their presentation’. Moreover, the presentation provided an opportunity ‘with other students to share their learning’.

To summarise, Qyin was aware of the positive influence of ICT on both her teaching and
students' learning. She had also realised challenges brought about by the introduction of
ICT and was concerned about the teacher's role in an ICT supported teaching context.
This attitude influenced her pedagogical decisions about the use of using ICT in her
teaching. Her pedagogical application of ICT was normally outside the classroom and
was restrained to lesson planning and students' autonomous learning. ICT was more as an
information tool to her and her students than as an instructional tool in her teaching.

5.5.4 Beliefs about ICT and the influence on her pedagogy
To Qyin, ICT was informative and authentic. There was 'up to date information available
online, such as news, either domestic or international that had happened just the day
before my instruction'. Access to the latest information improved the quality of her
teaching materials. She claimed that two imperative features of her teaching were that her
teaching materials were 'always new' and 'to the point'. Qyin's pedagogical decisions as
such reflected her firm belief that it was important for her teaching to be new, authentic
and to meet students' interests.

Qyin questioned the reliability of ICT facilities in classroom activities. For example, to
use audio players for instructions, it was difficult to locate exactly a sentence that she
'wanted them (her students) to listen to. You have to rewind or forward the file many
times. A waste of time, I think. 'She also reported several frustrated ICT related
experiences in her teaching. For example, she had planned a 'five-minute oral English
exam' via video conference several years ago for her distance educational course. The
exam eventually cost her more than an hour and ended up an exam via telephone. The
problem was either she or the student examinee could not hear the other. On another
occasion, she was required to apply ICT to an instruction for a teaching contest. The
instruction was not conducted as expected because the audio-video system did not work
efficiently.

The unreliability of ICT caused doubt about applying ICT types such as CD-ROMs and
MP3 Players to her instruction. Qyin thought that traditional teaching method were more
reliable in many cases. She thus preferred to read materials to her students by herself
rather than use an unreliable computer or digital recorder. Her failed attempt to apply ICT
to examination had diminished her interest for further attempts because she believed it
could negatively influence her students' performance.
Qyin firmly believed that teachers should be the authority of information and knowledge, "my job, my vocation is to make students to learn, to progress. If they do not feel this way, and they are not making progress, it is my fault that they could not learn anything from me" [Interview]. One concern she talked about in the group discussion was that students diversified access to various information challenged teachers’ authority. Thus, ‘if a student read an article once, a teacher might need to read 10 similar articles for a hundred times’ in order to guarantee that ‘she/he had a full understanding of what the students have read’ and ‘won’t be uncomfortable with students’ questions’ [Focus group]. She was concerned that the application of ICT would diminish teacher’s authority because ‘their (students’) knowledge is enriched’ and their questions sometimes were ‘very challenging’ [Interview].

Qyin was therefore very cautious in selecting suitable materials for teaching. For example, during the semi-structured interview, she talked that part of the teaching materials for her instruction on that day was ‘an online English news report’ broadcasted the day before, which she had translated into Chinese. The Chinese version was used as material for students’ interpretation practice. She felt it was a difficult task for her to select teaching materials for two reasons. First, it was difficult to make sure that as a teacher, she ‘understood all teaching materials completely, as well as figure out meaningful points for the instruction.’ Second, it was hard to predict whether her students had already read the relevant materials or not. To avoid this, she had to converted materials into different formats to guarantee that they were new to her students. Thus, Qyin believed that the selecting of teaching materials in an ICT rich society challenged her teaching. It challenged her ability to search for online materials, her interpretation of these materials, and her perception on how the materials could attract her students’ attention and stimulate their learning enthusiasm as well as the pedagogical decisions in the classroom.

Qyin believed that the pedagogical decisions were demanding after ICT became an element for EBP learning and teaching. Though ICT did not actually appear in her instruction, she felt it necessary for her to re-analyze her students’ needs and wants before she could design her classroom activities. She believed that ICT had been integrated into the after-class routines of her teaching and her students’ learning. Such ‘invisible integration’ demanded highly skilful and efficient pedagogical decisions for her teaching.

For the lesson planning, the content must be ‘new’. In addition, you have to
think carefully and thoroughly. Will they like it or not? Did they know it already? How much do they know? What information can I pass to them? You see, I must be very informative and I must guarantee that they had enough information, large amount of information for each instruction. [Interview]

Qyin was quite pressed by the challenge. She felt 'tired' because of the substantial effort in selecting suitable information from various resources including the Internet, planning her lessons and structuring her classroom activities solely by herself. She felt she was involved in a lonely long march without substantial support. She had not many opportunities to discuss with her colleagues and exchange their experiences. In other words, she felt that the link within the EBP community was weak (see Chapter 5.5.6 for further discussion)

5.5.5 Professional development and the influence on her pedagogy

Qyin’ beliefs about the challenging ICT in her teaching raised the issue of her needs for professional development on both her subject knowledge and pedagogical knowledge. Such needs were expressed several times in her interview and further highlighted later on the focus group discussion when she stated that ‘It is a challenge to me. It forces me to improve myself. [Focus group]’ ‘if a student read an article once, a teacher might need to read 10 similar articles for a hundred times [Focus group]’ and after ‘the introduction of ICT, you could not feel comfortable, on the contrary, it forced you to improve yourself. [Focus group]’

Qyin claimed that all her ICT related competence came from her own experience. She described her ICT skills as ‘not professional’ and her experience of applying ICT for the contest instruction as ‘worrying to death’ because ‘I had never done this by myself before. I mean I had seen somebody do it, and that was all.’ She felt the whole process was like a ‘joke’.

The limited competence of ICT influenced the result of the particular teaching contest she had talked in the semi-structured interview. The problem had been ‘the voice was so tiny and you could hardly hear. [Interview]’ Nevertheless, since she had not know how to adjust the voice volume of a computer or media player and help (IT staff) was not available immediately (who came at last under her request several minutes later), Qyin admitted that the negative influence of this ICT problem on the contest was evident.
Her limited competence on ICT also confined her perception about the availability of ICT resources for her teaching as revealed in the focus group discussion. Qyin had complained about the limited resources such as video or audio conference tapes available for her interpreting course. Discussion in the focus group revealed that she had never been aware that it was possible for her to apply online audio or video news files for teaching as long as she knew how to apply a certain programme for this purpose. It was also noticeable that she had not been aware until this group discussion the possibilities to share information and resources with her students via shared document folders in an intranet system. Furthermore, issues she raised in her semi-structured interviews such as no access to ICT facilities, lack of adequate ICT resources (no video and audio documents for her International Business Negotiation course) should have not been, at least not as serious as she had imagined. However, because of her own limited ICT competence, she perceived them all as serious hindrances for her applying ICT to teaching.

The limited ICT competence also hampered the possible pedagogical application of various ICT types in her teaching. According to Qyin, ICT functions in two aspects in her teaching. First, it would provide improved electronic substitute of board writing; and second, it would act as a good English speaker with standard pronunciation. Both regarded ICT as supplemental tools for teaching. Additionally, according to Qyin, neither was necessary in her instruction because the course itself required 'little board writing' and she was confident about her own spoken English. Qyin admitted that she was a 'not professional at all' ICT user. Data also suggested that she was not aware of applying ICT to teaching other than as supplementary tools. Given the huge amount of effort and time she would have to spend for the preparation and application of ICT into her teaching for such two optional functions, it was not likely for her to change her current teaching practice.

5.5.6 Community influence

Qyin felt that especially for the ESBP courses, little communication took place between her colleagues because of three reasons. First, Qyin believed that each ESBP course required different subject knowledge and teaching methods. The specialised knowledge and uniqueness of each course afford little similarities among the colleagues. Thus, what one teacher is doing is not the interest of another. She felt there was no base for a discussion with her colleagues on pedagogical issues since her 'course is different from
their and so they do not care your matter’.

Second, Qyin also believed that EBP teachers in the group were of similar ICT competence and therefore could not help each other to solve ICT problems very effectively. As Qyin claimed, she depended on herself about all ICT problems. Sometimes, such problems became a very disturbing issue in her teaching. For example, she spent ‘four hours’ one evening trying, without success, to solve a problem with superscript formatting. Noticeably, even though she had spent so much time on that single problem, Qyin did not tend to ask for help from either her colleagues or other outside resources. She later obtained the information she needed from one of her colleague in the focus group discussion and commented that she ‘should have called someone for help’ that evening. It seemed that Qyin had not realised that help might come from people even with similar competence until the focus group discussion.

Third, Qyin’s lack of a master degree in business seemed a potential hindrance to her contact with other members in the departments. She felt her knowledge about business was ‘superficial’ and she even felt that the name of her course, International Business Negotiation, did not sound a professional course in the department compared to other courses such as economics and marketing.

In the focus group, Qyin was given a lot of suggestions and advice from her colleagues. The focus group indicated that Qyin did not have much power in the community. For example, she did not have access to ICT resources and facilities. She did not know the path to access all these resources and facilities. Meanwhile, Qyin, as an ESBP course instructor, actually lowered her position in the community when she perceived her knowledge about business was not as professional as those who hold a master degree of business in the department (since the department is expected to be professional in business knowledge).

Since Qyin had limited communication with other EBP teachers in the community, and she was accepting more than offering information when members met, it seemed that Qyin could have been influenced by the community if she had more opportunities for contact with other members.
5.5.7 Institutional influence

Professional supply and professional development training

According to Fullan (1992), the consistent support from the school where teachers are working is a critical part for the successful implementation of any innovation in teaching. This implied that the successful integration of ICT to a teacher’s instruction involved not only the effort of the teacher but also that of the school. In Qyin’s case, she felt the ICT related professional support for her teaching from both the college and the university were weak.

Qyin admitted that in the period prior to 2000, she was able to obtain technical support from the university. For example, Qyin commented that being an instructor of distance educational course did not mean any change of her role in the instruction. She commented:

I was still an instructor as I used to be in the normal face-to-face classroom instruction. I taught the way the same as I had done all the time... all ICT related operations were done by technical staffs. ... Sometimes, they even turned on or off the computers and retrieved the PowerPoint presentation package from within the computer’s hard disk for me. Therefore, when I got into the instruction room, everything was ready. I just stepped in and started my instruction right away. You see, they feared that we might disturb the smooth operation of the system. So during the instruction, I simply clicked a mouse, or pushed the Page Up or Page Down buttons. [Interview]

Even as a distant educational course instructor and among the first group of teachers to apply ICT in her teaching, Qyin did not feel she had any support from the university for her ICT related professional development. For example, she reported that when she was first assigned to be a distance educational course instructor, there was no training aiming at supporting her teaching with ICT. All she had ‘was the title of the course, you have to decide the textbook, the teaching materials and everything’. There was also no other forms of ICT competence training or ICT related pedagogical training available in the university.

For sometime, it seemed popular for the policy maker to assume that teachers were able to obtain enough ICT competence through either their own effort or substantial exposure to
the application of ICT in their teaching. Such an assumption was not realistic. The practice of separating ICT operations from teaching activity in the university at the initial period of introducing period seemed to have positioned professional development on ICT competence in a dilemma. On the one hand, the university management hoped that teachers would learn from their initiative experience of teaching with ICT supported by professional IT staff and eventually master the relevant ICT skills required by the new teaching context. On the other hand, teachers regarded the support a constant and lasting resource they could rely on for their teaching with ICT and therefore lacked the interest to improve their ICT competence for independent application of ICT. Qyin’s case reflected such opinion. She did not see her teaching experience in such situation as a chance for her to learn and to improve her ICT skills. Rather, she regarded the technical support as a pure support from the university that would last for a long time. She took it for granted that technical staff was ready for any ICT related problems during her teaching, which partly led to her failed ICT application for the teaching contest. Qyin had not checked the ICT facilities the day before the teaching contest because she thought, based on her experience, that technical staff ‘would do it for me’.

When asked what kind of ICT training she had received in the past, Qyin was not able to name any. ‘For all these years, I totally depended on myself.’ she claimed. Even when she was ‘worrying to death’ about the application of ICT for the coming teaching contests, she did not seek help from the college or the university. The solution was to imitate what she ‘had seen them (technical staff) doing such things’ according to her memory. It seemed that the inconsistent technical support and the lack of professional development opportunity to support her teaching with ICT had negatively influenced both Qyin’s teaching practice and her perception of teaching with ICT. To change her perception and to improve her teaching practice, support should be added to her future teaching.

**Availability and reliability of ICT facilities**

Although Qyin believed that both her and her students benefited from such materials as online newspapers, she complained about the lack of audio and video resources for classroom interpreting practice. ‘How wonderful it could be if there was a conference press video documentary so that I could play it directly to my students! But I do not know where such tapes are available, or from whom I can obtain such videos …’

As described earlier in this chapter, Qyin was teaching in non-ICT supported classrooms.
Qyin also knew very well the university policy that ICT was applicable to large-scale class instruction. She understood that the availability of ICT facilities was limited. Thus when she ‘had applied’ for multimedia classrooms for her teaching from the University Course Scheduling Office (rather than applying it directly from the department as she had been supposed to do) ‘but they won’t let me have it’, she did not see it an unusual result. She did mention though that teaching abroad was much easier. On some occasions, when playing audio documents was a must for her instruction, she had to carry an ‘old broken recorder’ she obtained from the college and walk for about 25 minutes to the teaching building. Qyin sometimes would give up such a practice and read messages directly to the classroom because the recorder sounded ‘so badly’ that she would ‘prefer to read it by myself’ as it would be ‘clearer and much better’.

Sometimes, even if ICT was available for her on particular occasions, the reliability seemed to be a concern (see Chapter 5.5.4). Even as an occasional ICT user in her instruction, Qyin encountered many times the poor functioned ICT facilities. A typical example she talked about was her experience of using ICT for a teaching contest the year before. The ICT types she had used on that occasion included PowerPoint, Media players and a Digital Voice recorder. According to her, she applied ICT to this instruction was because ‘it was required by the contest’ and ‘ICT facilities were provided for the instruction.’ However, Qyin regarded ICT as a factor that caused her failure in winning a first class award (she was ranked first in the second-class award category). She believed that the unreliability of the equipment had caused the problem.

Qyin’s unsuccessful experiences of applying of ICT to teaching deepened her concern about the possible disturbance by ICT in her teaching. When she was not confident enough to solve all these problems by herself or even if she could solve certain problems but will have to spend much time and effort without adding evident improvement to her teaching and students’ attainment, it was reasonable for her to avoid the use of ICT in her classroom as much as possible.

**The curriculum requirement from the university**

Because there was a requirement from the university that every course should have an designated textbook, Qyin had to use a textbook which ‘was out of date’ and ‘ridiculous’...
because ‘for a course entitled interpreting, there were no cassettes or tapes, etc. attached to the textbook’. Qyin thought that such a textbook caused problems in her teaching because it ‘did not put ICT anywhere in the first place’.

According to Qyin, she would not discard the textbook because students had paid for it. However, she could not rely on it because the content was too old fashioned. She spent only one third of the instruction time using the textbook because too little content was useful. For example, for Activity 4 the interpreting of a Chinese speech in a business context described in section 2 was adopted from the textbook. The speech was authentic; however, it was made more than five years ago. Some of the phrases were no longer used in business contexts. Qyin therefore asked students to concentrate more on the sentence patterns and the skills of keeping notes rather than the content. The issue was further discussed in the focus group. She felt the requirement about textbook was not reasonable though she had no way to change it.

**5.5.8 Different Role in her teaching system**

It seemed that Qyin did not have much control over the application of ICT in her teaching. She did not have enough sources to know how to obtain ICT resources for her teaching. For example, she claimed that she did not use ICT in her instruction because ICT facilities and resources were limited. Qyin also claimed that she had applied for ICT supported classrooms but her application was declined. It seemed she had to accept the current situation. She could apply again for an ICT supported classroom, but there was no guarantee that there was one available for her. However, the discussion in the focus group revealed the possibility for her to use the Business English Labs that was fully ICT supported. During that discussion, another teacher said that since the establishment of the ICT labs in the department, teachers of ESBP courses were asked at the end of each term whether their course in the coming term would require the use of lab.

Qyin could choose the classroom teaching content for her students. ICT brought her both benefits and concerns. It was positive because ICT could bring ‘new’ materials to her teaching. However, ICT cause her concerns about students’ enlarged access to information and the challenge to her role as knowledge authority in the classroom.

To summarise, Qyin was concerned about the role of a teacher in the classroom. She held the view that a teacher should be the authority and the controller of knowledge
transmission. She also believed that the application of ICT would challenge her role in the classroom. Based on her concerns and believes as these, it seemed reasonable to conclude that Qyin would still be cautious for the application of ICT in her teaching. For example, when she heard one teacher had provided online information for her teaching directly retrieved from a website. She asked 'then why do they need you as a teacher? They can do it all by themselves!'

5.5.9 Conflicts in the system

Conflicts in Qyin’s teaching system could be identified in the following aspects

The awareness of integrating ICT to education vs. the reluctance to change current practice

Qyin realised that the integration of ICT into education was a trend that would be more widely adapted in classroom teaching. She also expressed her interest of applying ICT to her teaching. However, she admitted that she did not use much ICT for her EBP teaching. It seemed that she had various sound reasons to support her practice. These reasons could be classified into two categories. The first category included problems (reasons) such as facility problems and limited resources which she had no control. The problems she mentioned did exist in the university. However, it did not follow that she could not solve them. According to her colleagues, many of the technical problems Qyin mentioned could be solved if she had adequate ICT competence. For example, she could have used the Business English Lab for her teaching as long as her course was an ESBP one (in her case, yes). The unavailable resources she mentioned could also be obtained with some technical help that was available to her in the Business English Department.

Reasons in the second category were about the nature of the course and the perceived roles of ICT in the course. Qyin saw her course as skill development based, which needed a lot of direct interaction between teacher and students. Her view on ICT however, was primarily as a supplemental tool to support presentation or a good English speaker. Her perception about the nature of her course and the nature of ICT in the classroom caused conflicts rather than coherence in her pedagogy, which could have prevented her from opening to the application of ICT at the first place. Additionally, the perception about ICT as substitute of poor spoken English conflicted with her confidence of her own spoken English. As the perception implied that those teachers who were using videos and audios in the computers were not good at spoken English, it was reasonable for Qyin to
regard the application of ICT as her last choice in the classroom because obviously she had viewed her own spoken English was as good (if not better) as those electronic substitutes.

According to Cuban (1986 p.70-71), teachers will alter classroom behaviour selectively to the degree that certain technologies help them solve problems they define as important and avoid eroding their classroom authority. They will either resist or be indifferent in changes that they see as irrelevant to their practice, that increase their burdens without adding benefits to their students’ learning, or that weaken their control of the classroom. Fullan (1992) pointed out that change is not possible when a teacher’s personal costs are high and benefits are low. It seemed Qyin’s case reflected their findings. For example, Qyin emphasised all her needs in the classroom were voice or video documents. She then explained that the voice parts of the class activities could be solved by her direct reading to the class because she was confident with her spoken English. She said only those teachers with very poor spoken English needed to use such mechanical assistance. The video for her is more like an option rather than a necessity. It is not worth the effort to learn where to obtain the video from as ‘they are not a must to my teaching, I can survive without them at all’.

**The limited ICT competence vs. ICT diversified pedagogical feasibility in her teaching**

As described in section 5, Qyin’s ICT related professional development was limited. As a result, her ICT competence was also limited. Based on her own competence and her colleagues experiences (MOE China 2005), Qyin did not have much chance to extent her ICT related pedagogical knowledge in a way that would diversify her pedagogical decisions both within and beyond classroom instructions. It seemed that Qyin’s perception of ICT in her teaching was still only as a presentation tool. Without further support, it was not likely that Qyin would change her practice substantially.

**The perceived limited availability of ICT resources vs. the diversified ICT facilities available to her**

On several occasions, Qyin complained about the limited ICT resources for her teaching. The focus group discussion had revealed, however, that she was able to access more ICT facilities and online resources than she had realised. Evidently, there is a conflict between her perceived limited availability of ICT resources and the actual diversified facilities available for her teaching. This conflict seemed to come partly from her lack of
communication with other colleagues.

First, Qyin did not have frequent communication with her colleagues. Although the reasons were open for further discussion, the fact practically hindered her from exchanging valuable ICT related information with the community members. As have been observed in the focus group, Qyin obtained large amount of ICT related information from the event. For example, in this focus group, she came to know that the Business English Lab was readily available for her teaching. She also got suggestions from her colleagues about how to obtain support from the college for ICT technical problems, how to obtain video resources for her teaching and how to establish her own shareable information resources for her teaching in the lab. The communication opportunity in this focus group not only offered solutions to some of her classroom teaching problems but also assisted her work at home. For example, she solved a word processor technical problem which had cost her over four hours in vain. The problem in fact came initially from her work of evaluating an undergraduate dissertation. To some degree, the benefits she enjoyed from the focus group reflected her lack of communication with other community members as such that she admitted several times in the focus group that she ‘should have’ spent more time in communicating with others.

The limited negotiation power vs. the powerful institutional influence

Conflict is also identified between Qyin’s position in the teaching activity (division of labour) and the policy and practice of the university (rules). Qyin’s position in the system put her into a comparatively disadvantaged situation. First, she did not have enough power to negotiate with the management for ICT facilities in her teaching, especially when she intended to negotiated directly with the university course scheduling office, which has the potential power to decide every single teacher’s course schedule in the university. Given her position that was traditionally categorised into the one being administrated in the university management hierarchy, her negotiation power in the process was very limited. The consequence of the conflict was easily to be predicted. Qyin was always in a disadvantaged position. Thus, when her needs of applying ICT in small class was evidently against the implicit ‘ICT is for massive education’ rule set by the university, she anticipated the negative result of her negotiation with the scheduling office even before she started the process. ‘I applied ... But I knew they would not give it to me. [Interview] ’
Second, because the institution was so powerful it seemed teachers such as Qyin in the lower end of the hierarchy was seldom contacted or consulted for ICT related policy or practice decision-making. In other words, Qyin’s limited power in the hierarchy might also influence her access to information resources. This could explain why she did not know that the Business English Lab was readily available for her.

Third, even in the classroom activity, Qyin’s decisions were still hampered by her disadvantaged position. Her compromise of using the ‘ridiculous out-of-date’ textbook in her course reflected such situation. In addition, because she did not have enough information about the possibility of using ICT in her teaching, she was not able to teach in an ICT supported environment as she had planned to.

This conflict also reflected the nature of ICT related innovations in the university. That is, these innovations were political decisions, which came from the top of the hierarchy rather than from the needs and demands of teachers and students. Thus, as a normal teacher, a lower end participant of the innovation, Qyin was either denied the involvement or ignored in the process. The consequence was also evident. Qyin was not very active to embrace ICT in her teaching. She chose to apply them in situations where she had been expected to use them such as the teaching contest, distance education course. While in some other occasions, she would find good excuses for her non-ICT supported teaching activity. From this point of view, it was reasonable to explain her attempts to apply ICT supported classrooms with anticipated negative responses in her mind.

The curriculum requirement vs. the pedagogical decisions
The curriculum requirement also coursed conflict with Qyin’s pedagogical decisions. For example, she was required to have a fixed textbook for her teaching. However, because her choices were so limited, the textbook she had for the course was not the kind she expected. According to Qyin, neither the content nor the implied pedagogy of the book was suitable for teaching with ICT because it ‘does not even have an accompanied cassette’. Since the textbook was part of the required curriculum and it seemed that she could not avoid it, she had to plan her teaching based on this textbook. She reported in the semi-structured interview that she came to a compromise for her teaching, namely, she had split her teaching into three sections, with last section (30 out of 90 minutes for each instruction) focusing on the textbook. In the next two sections, she would focus on new teaching materials and more student centred activities. This arrangement meant that even
Qyn's activity system

Teaching beliefs: convenient
ICT as presentation tools
Teacher as authority
uniqueness of subject knowledge

Learning beliefs:
autonomous learning important

Attitude to ICT: aware of the benefit
ICT CPD needs

Tools: various ICT availability
perceived lack of ICT and resources

Object: Pedagogical decisions
- ICT: information tools
- teacher as knowledge authority
- textbook based and extended instruction

Outcomes:
- Classroom behaviours
  no ICT for instruction
  ICT for lesson planning
  ICT for autonomous learning

Rules
- Curriculum: text book
- University policy: big size instruction
- Limited CPD support
- Limited technical support
- College: did not mention
- Norms: Teacher as authority

Community
- unique teaching
- similar ICT competence

Division of labour
- Colleagues: no power, not influential
- Classroom: student centered, interaction
- IT staff: cheap and not qualified

Key
1 Strong conflicts within the elements identified
2 Strong conflicts between elements identified
2 No strong conflicts identified

Figure 5-3 Conflicts identified in Qyn's teaching system
if she were able to apply ICT in her teaching, she would spend at least 30 minutes on ‘traditional’ teaching. Observations of her instructions indicated that this compromised arrangement did exist in her teaching.

**The limited technical and professional support vs. the need for professional development**

The limited technical support and professional development opportunities were factors that negatively influenced Qyin’s teaching with ICT. First, Qyin’s experience on several occasions that technical support either failed or delayed could have hindered her interest to further her exploration of teaching with ICT. Second, her own limited ICT competence emphasised the negative influence. Qyin was not satisfied with the status of being ‘on my own’; In the group discussion, she expressed clearly three problems for teaching with ICT, namely, lack of technical support, lack of ICT facilities and resources and lack of professional training for teachers. She could not name any professional training courses offered by either the college or the university. Even as a teacher who applied ICT in teaching at the early stage of the university innovation project, she was not given any opportunity for ICT competence training, not to mention ICT pedagogical knowledge training. Similar situations were reported in other key universities in China (Zhou 2005).

**5.5.10 Summary**

Figure 5-3 is a summary of Qyin’s teaching activity system. Conflicts within Qyin’s belief and attitude system and tools indicated that Qyin was aware of the benefits of ICT. She also accepted ICT as very useful tools for her information searching and obtaining authentic materials. She perceived ICT only as a presentation tool for her classroom instruction. The informational-tool-plus-presentation-tool image of ICT was both positive and negative for her pedagogical decisions. She integrated ICT into her teaching planning and students’ autonomous learning tasks. However, she was not willing or ready to use ICT for her classroom instruction, fearing it might be a threat to her role as knowledge authority.

Contradictions identified between the elements indicated that Qyin’s limited professional development on ICT influenced both her perceptions of ICT in her teaching and her actual pedagogical decisions. Qyin’s perception of the EBP community hindered her from seeking support from it. Thus, she did not seek ICT facilities at a department
level (she negotiated directly with the university course scheduling office). Even when she had problems, either subject related or ICT related, she did not intend to find the solution from her colleagues.

Although Qyin did not use ICT in her normal instruction, she used them for special occasions. The special occasions she reported all indirectly required the adaptation of ICT. The institution had a strong influence on her pedagogy, such as requiring her to use an assigned textbook, and depriving of her privilege to access to ICT supported classrooms. These indicated conflicts between the object and the rules in the system.

Qyin might continuously adopt ICT for her teaching planning process because she realised ICT could enhance her teaching and might widen her students' access to information. It was, however, not likely for her to change innovatively her instruction in the classroom.
5.6 Liao --- ICT resister

5.6.1 History of teaching

Liao, professor of English teaching, taught in various colleges and universities during the past 35 years. He was the oldest teacher of the seven teachers that I interviewed and observed. According to personnel management practice in China, a male teacher retires at 60. Liao was in his 50s and due to retire in two years. He did not tutor any postgraduate from 2005 because of this reason. Liao's teaching was engaged mainly in business English. His teaching focused on Business writing and International Trade Principle. He claimed that EBP teaching was a very professional and very demanding career.

Liao had a good reputation for his authoring of EBP books for both students and business practitioners. He had published 16 books on EBP learning and teaching. Liao also had substantial experience as a translator and interpreter of business negotiation. He thought such experience was very important for his teaching career because it had brought him first hand information for his teaching.

In the university, teachers as old as Liao are not required to attend any ICT related competence certificate test. This is different from the other six teachers in my project because they were required to attend an ICT competence certificate test if they wanted to be promoted to senior positions.

According to Liao, he did not use ICT for teaching. Neither did he spend much time with a computer at home. At the time of my research, he had two courses, the International Trade Correspondence and the International Trade Principles and Practice. Both were optional courses, which were available to all students in the university. Liao suggested that I observe his teaching of the International Trade Principle and Practice. Many students came from either the Business English Department or the International Business School. Liao told the researcher before the first observation that both courses had more than 100 registered students and both his instructional classrooms were ICT supported. However, he did not use ICT in all three observed instructions.
5.6.2 Descriptions of an observed instruction

Lesson observation Date: 31/03/05

The instruction was in an ICT supported classroom. The classroom was big. The student area had more than 150 seats. For this instruction, there were about 100 students in the classroom. The theme of the instruction was to introduce the four steps of negotiation in international trade. Liao had brought a pile of printed handouts to the classroom. If a student wanted to have a copy of the handout, he/she had to pay for it (¥6.5 about 45 pence). Liao claimed the money was to cover the cost he had paid to the printing company. He would not force his students to buy the handout if they did not want to. However, he told his students that most of the course assessments would be based on the handout and his classroom instruction. Therefore, the students should either get a handout or listen to his instruction carefully and keep notes at the same time. Liao stated that he would not give any assignments for this course because there were too many students. Furthermore, he did not have enough energy to mark more than 200 (there were more than 250 students registered in his two courses) assignments at a time.

Activity 1: explain the first step-inquiry in international trade (25 minutes)

In this activity, Liao tried to explain in both English and Chinese the meaning and related concepts of Inquiry in international trade. He first asked the students whether they remembered the point they had stopped in the previous week. However, students were noisy in chatting and they did not respond to this question. Liao then asked the students to go to page three.

He started to introduce the theme of this instruction, steps of negotiation. He also wrote the words down on the left column of the blackboard. Some students complained that they could not see the words. Therefore, Liao asked them to sit closer to him to read the board writing better. Not many students moved their seats. Liao waited a while before he started to explain the meaning of the first step: Inquiry in English. He also wrote the word inquiry in English and its Chinese translation on the blackboard at the same time. After his explanation, he asked students whether they understood him or not. Some students said no. A girl student asked Liao to speak louder. Several others were saying something though they could hardly be heard. Liao said to the classroom that as an English teacher, he would like to speak in English. Some students asked him to write the words larger on the blackboard. Liao explained that ‘the blackboard is white’. The chalk is also white. Of course, it will not be clear for you to read it.’ Liao kept on explaining the main steps of Inquiry in English.

Again, some students said they did not understand. Liao began to explain the step in Chinese. He wrote on the right column of the blackboard some items related to inquiry in Chinese: 支付工具 (payment instruments).

Liao repeated again the definition of inquiry in English. He also mentioned again the relevant concepts he had told students. He emphasised that these concepts would be explained in detail in the following lectures. Students needed only to know the item now and that they would understand it in the future. Liao continued to put forward other relevant concepts related to inquiry. He explained other concepts such as the Irrevocable Letter of Credit and the Document of Shipments in Chinese. All these items were written on the middle column of the blackboard. After that, Liao summarised that there were eight important documents in the process of an international transaction and he would explain them all in the class.

At the end of the activity, Liao talked about the final exam. He told students that the exam would test students’ understanding of the definition of inquiry. It could be tested in various forms such as multiple-choice, true and false judgment etc. but students should understand that the core of this concept was ‘it is a request that is put forward from the buyer to the seller’. He pointed out that such testing formats were easy for both students and teacher.

19 The blackboard was made of glass, if the board writing was wiped out by, the board will looks white in colour.
Liao talked slowly. When he mentioned a concept, he repeated it many times, using methods such as English definition, Chinese translation, or samples given by self-questioning and responding.

He sometimes wrote down a phrase or two on the blackboard to emphasize the key points of his instruction. Because the classroom was big and the students' number was large, Liao used a microphone to amplify his voice. The microphone seemed to have limited his movement space. Several times, he tried to walk closer to his students. He was however, forced to go back to the teaching desk because students said that they could not hear him. Liao had to repeat what he had said on several occasions when students complained that they could not hear him.

Activity 2: explain the second step-offer of negotiation in international trade (10 minutes)

At the beginning of the activity, Liao asked students to read the handout for the part about offer. He said that this handout had the advantage over his book, which had recently been published because the book was too thick. The handout contained the secrets of that book. Students should read the handout carefully as it was the core of the book. It was also the base for the final examination. He claimed that he was an authority in EBP research in China and he had published more than 10 books on EBP. He asked those students who were interested in the course to read one of his books published in 2004 but 'if you just want to pass the exam, then you should stick to the handout, memorize each word and you get it'. That took altogether about 2 minutes.

Liao then continued the instruction. He gave the Chinese translation of offer. Then he gave the definition in Chinese and in English separately. Liao told his students 'if you can understand the term in Chinese then you can understand it in English'. He continued to explain two sub-terms: Counter offer and counter-counter offer. Liao wrote down the two terms on the blackboard in Chinese, saying that 'I do not write the English down because you all know the two phrases in English'.

Liao used examples of buying foods in an open market for the explanation of counter offer and counter-counter offer. He summarised that trade was processed in similar ways. Traders need to talk repeatedly for every single item in the contract. Liao asked whether students understood. Some students answered no. Liao explained the whole steps again in Chinese.

After that, Liao showed his sympathy for his students because both English and Chinese were used throughout the lectures, which might stress them. He suggested that students make good use of the handout as it 'helps you to read in English. So in my class, you should copy the Chinese meanings onto the English handout when I write them down on the blackboard.'

Activity 3: explain the third step-acceptance in international trade (10 minutes)

In this activity, Liao continued to explain the third step: acceptance. He translated the term into Chinese first. ‘What is acceptance in Chinese? The term acceptance in Chinese means ‘承克’. Liao then started to explain in Chinese the conditions for acceptance. He emphasised that acceptance meant no change to the offer. He also compared the differences between ‘counter offer’ and ‘acceptance’. His explanation was mainly in Chinese. He also introduced the term ‘bid’ at this point. He wrote down the Chinese translation on the blackboard and emphasised that this term was an invitation ‘from a buyer to the sellers that invite the sellers to make an offer to the buyer’.

At last, Liao summarised that there were four steps in the trade negotiation. He said that among the four steps of the trade, inquiry and acceptance were two important items. He warned students that although theoretically speaking, International Trade looked very simple. The practice of it was not easy at all. Liao said that he hoped that every student could memorize the definition of each concept he had explained. He said that his instruction would help them to understand the practice of international trade better.

One impression from the observation was Liao's blackboard writing was well designed. He split
5.6.3 Attitude to ICT and the influence on his pedagogy

Liao was negative towards the application of ICT in his teaching. He did not think it was appropriate to apply ICT to every course.

The influence of his negative attitude to ICT is evident. He did not use any ICT for his teaching even though he was teaching in a multimedia classroom. This meant that he had the opportunity to use computers, PowerPoint presentation, word processor, media players, pictures etc for his teaching if he wanted to. In my three observations of his instructions, the computer was turned on only in the first instruction.

Liao had a printed handout for the course. His students could buy one with a little money. I asked Liao how the handout was prepared. He told me that he read materials such as his books and other materials he kept at hand while he wrote down every word of the hand out by hand. His wife then helped him to do the typing before it was finally printed out by a printing company. He had a computer at home. However, it was only for checking his Emails and his wife’s typing tasks.

Liao’s response in the semi-structured interview also indicated that he did not use the Internet for teaching purposes. He claimed that his teaching depended primarily on his experience and his reading of printed material. The teaching content came from the books he published which could be viewed as a reflection of his experience.

5.6.4 Beliefs about ICT and the influence on his pedagogy

Liao believed that ICT was more suitable to some courses than to others. ‘I will not agree with those who say ICT is good for any course, you cannot say so. [Interview]’ he further pointed out that ICT was not suitable for professional-based bilingual courses such as EBP courses. He claimed this as the primary reason for him not applying ICT to his teaching,

I am not using multimedia teaching methods because my teaching focuses on not only language competence but also business concepts. I am teaching bilingually. That is to say, my instruction contains large amount of business knowledge [Interview].
However, Liao admitted that ‘multimedia’ might be helpful to those courses that both teacher and learners ‘were familiar with, and what the teacher needs to do is to reorganise them into orders or structures.’ It seemed that Liao was still partly supporting the use of ICT. However, when he further described the situation of teaching with ICT in the university, it revealed that he was actually not positive at all. Although he had mentioned that ICT might be applied to courses, Liao felt that the actual application was still far from satisfactory. He expressed his opinions clearly from his daughter’s experience in the university. According to him, his daughter had attended several ICT supported courses including College English, Studies on Marxism. Liao quoted his daughter’s experience to show the poor outcome of multimedia supported courses.

Take my daughter as an example: she studied in this university from undergraduate to postgraduate. She had attended quite a few multimedia supported courses, such as College English, Studies on Marxism etc. She told me some time ago. To attend such course instructions was meaningless. … Everything went on like a ‘huh’, if she did not spend more time on reading the handouts of those courses in her spare time, it was almost impossible to understand what was taught [Interview].

Liao emphasised the importance of board writing in his instruction, ‘because if you talk about certain concepts without writing them down on the blackboard, students could not memorize them, neither could they understand them thereafter.’ The rote learning has been reported as a typical Chinese teachers’ learning belief (see Chapter 3) that supported traditional language teaching in China. Influenced by this belief, teachers tend to leave a certain amount of time as a gap for students between their exposure and understanding. Students were expected to rote those new concepts during the gap. Liao’s teaching reflected this teaching approach. According to his description, the introduction of a new concept would be processed in three steps: students’ exposure to the concept, his translation of the term into Chinese and the introduction of related business knowledge linked to the concept. The critical point was the time after the translation of the term into Chinese, because the term could be a phrase that was ‘ordinary’ in EGP but with special meaning in EBP. Thus, the Chinese translation could be something beyond students’ expectation. ‘At this point, they will be attracted and are motivated to listen to me carefully. My explanation of the relevant business knowledge would help them to
understand it immediately. The board writing in this process functioned in two aspects: first, it was an index for his teaching as it listed out the important concepts he was teaching. Second, the board writing was a smoother to narrow the gap between his explanation and his students understanding. It helped students to keep up with his thoughts and to understand what he was talking.

Liao did not think such a critical point could be achieved if his presentation was ICT supported.

ICT displayed every word on the board in a second and disappeared in the next second. Students had just enough time to read them. They think `I know every word' because those words were learnt in general English. However, they do not understand those words are now in a particular register of Business English and have different meanings in the new register. But since every word comes and goes so quickly, they will think it is too simple and their attentions are thus distracted to other things or they fall asleep in the classroom [Interview].

Evidently, Liao had attributed the fast speed of ICT supported presentation to the spoiled teaching effect. He also criticized that the application of ICT in his teaching might hinder students’ understanding because it narrowed the gap between students’ exposure to the concept and the internal consolidation in students’ minds. Furthermore, Liao believed that `the application of ICT would not be as efficient as my board writing.' In other words, the inefficiency of ICT facilities in presentation and the nature of the courses that he was teaching consolidated Liao’s beliefs that ICT supported instructions were not as efficient as his traditional way of teaching through translation and board writing.

However, Liao was thinking about the possibility of his applying ICT to his teaching though the reason for such thinking was based on his personal health conditions rather than his teaching or his students’ learning. According to Liao, he suffered from some disease, which made board writing a difficult task for him. He thus thought it might be worth trying a multimedia presentation of his handout. However, ‘I would make the presentation display slowly’.

It was interesting to take a close look at Liao’s perceptions about ICT in teaching. To Liao, ICT to him meant only one thing, the multimedia presentation. For example, he criticized the inappropriate application of ICT in EBP courses because the presentation was ‘too
fast'. Here, he referred to the use of PowerPoint, a typical presentation tool and the most frequently used ICT type in Chinese higher educational instructions (MOE China 2005). He thought that ICT was suitable for such courses that required teachers to reorganise the sequence and structure of the knowledge system. This again referred to the application of PowerPoint as presentation tool. As for his course, he emphasised the importance of the slow pace (compared to his comment of 'too fast' in ICT supported teaching) of board writing. Here, he in fact viewed the two presentation methods, namely traditional board writing and PowerPoint presentation as opponents.

Liao still believed that reading hard print books was the only and most appropriate way for students to learn. For example, his own teaching materials were based on his 'reading books and making notes'. He also emphasised to his students in one instruction (see Activity 2 of the observed instruction) that they should read books and his handout to understand the concepts completely. He told students that it was important for them to keep notes and to read the handout or the book he mentioned for the course they attended (see Activity 2 and Activity 3). From his point of view, the computers and the Internet were more a concern than a help for teaching or learning because they distracted students' attention to learning and decreased their motivation to learn. As a result, students might 'fall asleep' in a multimedia supported instruction.

In addition, Liao was also concerned about the cost of applying ICT to teaching especially the cost of software and access to resources. 'You see, the facilities are not expensive, but, on the Business English Conference last year, some teachers mentioned that the purchase of courseware was very expensive ... it might be useful if the price was lowered '. Liao's concern about the price of software and resources reflected the current situation in China: the lack of substantial financial support for the design and purchase of ICT supported teaching resources (MOE China 2005). Schools or colleges were willing to pay for the hard ware and facilities for initiatives. However, they were not able to spend the necessary money on training teachers how to use those facilities or to pay for the maintenance of the hardware required for teaching contexts (Chen, 2001 cited in Zhou, 2005). It might also reflect Liao's belief that book reading is more cost effective than the application of a piece of software to teaching.

The influence of Liao's beliefs on his pedagogy could also be identified in the semi-structured interview and observations. For example, he preferred the application of
traditional teaching materials for his instruction. He printed out the handout, rather than using word processor or PowerPoint to display them on a screen. He quoted the examples from his books or from his experience but not keen on using materials online. Even though ICT facilities were available for him, he ignored their existence and stuck to his non-ICT related teaching methods. Because he believed that ICT could not function effectively in EBP teaching, he insisted on using board writing as much as possible. One impression of his classroom observation (see Chapter 5.6.2) was that his board writing was well designed. The writing on the black board was divided into three columns. He put the topics, core concepts of the instruction in the left hand column. He then added specific concepts related to one topic in the middle column. Issues raised in the instruction with less importance would go to the right hand column. Thus, by the end of his instruction, he could review and summarise all the core concepts by using the phrases listed in the left column while referring to the phrases in the middle or right column.

Liao admitted that the huge amount of board writing was a burden to him, especially after so many years of teaching. He described his teacher-talk-and-board-writing dominant teaching as a life of a monk. When he was asked after the instruction why he would not put the board writing into multimedia presentations, he responded, ‘... the words disappeared from the screen so quickly. How can I present to my students as clear as I did like this [point to the blackboard]’. His words might have indicated that he did not believe the electronic handouts were capable of presenting materials as effectively as traditional board writing. It could also be affected by his limited ICT competence that prevented him from fully understanding the potential of ICT in his teaching and will be discussed in the following section.

5.6.5 Professional development and the influence on his pedagogy

Neither the college nor the university placed any pressure on Liao’s professional development in ICT competence. As explained in the first section, Liao was not officially required by the university to develop his ICT competence. He did not have to sit for the ICT competence test that was required for teachers’ promotion to senior positions. He was beyond the age (only under 40s were required) of attending the annual teaching contest. In other words, a teacher at the age of Liao would not be asked to improve their ICT competence for teaching purposes in the university. If Liao wanted to improve his ICT competence, he would need to be self-motivated.
In the semi-structured interview, Liao admitted that he did not attend any ICT training courses in his 35 years' of teaching. Even after coming to the current university, which had a good reputation for its pioneering practice of applying ICT in higher education, Liao still did not have any experience of ICT competence training. Liao’s opportunity to improve his ICT skills seemed to come from within the family when his ‘wife sometimes teaches me a little bit’. Liao admitted that ‘I do some typing occasionally’ [Interview]. He substantially relied on his wife (a graduate of computer technology in the 1970s) and his children (both were computer science graduates) for typing and other computer operations. Thus, if he was willing to apply ICT to his teaching, ‘at least, I should have enough acquaintance with how to turn on or off the computer and how to retrieve the electronic handout for instruction’. His colleagues commented on his competence level as inadequate.

I am afraid that he is not competent even for typing... every time when we need to do some minor typing in the office he always find excuses and says he will submit the day after. He must have had his wife to do the typing when he returned home [Focus group Pin and Qyin].

His ICT competence may have negative influence on his pedagogy. For example, ICT was not included in any step of his teaching. He preferred to use printed material for the preparation of his teaching. Even in his instructions, his suggestions to his students about their autonomous learning were still to read books and printed materials (see Activity 2 of the observed instruction).

In addition, the perceived limited and inadequate functions of ICT for education might also be influenced by his competence. For example, he perceived that ICT functioned only as a presentation tool. In other words, ICT presentation was only a modern substitute for traditional board writing. Why had he such a perception? Could it be the result of his limited competence? Could it be that he was never aware of the feasibility that ICT could be involved in more innovative tasks such as enlarging referencing, improving authenticity and affording a virtual learning context for teaching and learning?

Furthermore, one of his strong beliefs about ICT was that ICT presented information so fast that students did not have time to memorize and understand the contents. He emphasised that it was important to slow the speed of presentation of teaching materials if
he is decided to use ICT. Was it because he perceived the control of speed a very difficult task? Liao mentioned in the semi-structured interview that he relied on his wife and his children for the use of computer. He emphasised that he could rely on them because they were all computer science graduates. Could the fact that all three were computer science graduates deepen his anxiety about the application of ICT? Liao himself was a graduate of art, who was viewed normally as one of the ‘non-IT oriented’ (Kennewell 1992; James, Gibson et al. 1996; Selwyn 1997), and computer was likely to invoke strong negative reactions such as fear, suspicion, resentment and even downright hostility. According to Selwyn (1997), computer anxiety confused an individual’s perception of the computer as somehow being ‘not for them’ and thus ‘obviously can have a serious effect on their performance when using IT, or indeed whether they choose to come into contact with computers at all’ (p. 396). Researchers (Koohang 1989; Fisher 1991; Russell and Bradley 1997) also pointed out that the initial contact with computers influenced ‘computer shy’ users’ following application of ICT in their lives and work as well as their eventual acceptance. There is also evidence, though inconsistent, suggesting that computer anxiety among adults increases with age (Russell and Bradley 1997; Elder et al, 1987 as cited in Selwyn 1997). Could this fact combined with his current competence cause ‘computer anxiety’ that hindered him from developing an interest to extend application of ICT in his teaching?

5.6.6 Influence of the community

Liao separated the concept of EBP teaching from that of the EBP teaching with ICT. First, he labelled the teaching of EBP and the teaching of EGP into two different categories. For example, he was strongly against the claim that EBP teaching is no more special than EGP.

Some people think our EBP teaching is very easy and that a learner of English for general English could automatically be good at Business English. It is nonsense. They do not know that the professional knowledge of business behind it is of vital importance. [Interview]

He also claimed that for an EBP course, a teacher should be familiar with all the fundamental knowledge of this course and ‘above all, the predominant part is the business knowledge’. Even for the English knowledge part, EBP had its own particular emphasis, which was different from EGP. Because of his strong beliefs, Liao labelled EBP teaching
and EGP teaching into two different groups. He used the notion ‘we’ for EBP teaching but ‘they’ for EGP teaching reflected his beliefs (can been seen in the quotes above). He also emphasized that ‘Our Business English includes much knowledge of English that they have never heard before’. Turner and Onorato (1999) argued that the favourable application of the notion ‘we’ symbolized the categorization of one’s group membership and sought for positive self-esteem and heightened interchangeable perceptions between oneself and like-minded others.

However, Liao did not view himself as a member of the ICT teaching community. In the semi-structured interview, when he was asked about the application of ICT in teaching, Liao referred to those teachers who were using ICT as ‘they’ and the courses that had ICT elements involved as ‘those courses’. He also told the researcher, who was one of the courseware designers in the department that ‘your (plural form) courseware are too expensive, I suggest that you (plural form) lower your price.’ Furthermore, when he was giving the suggestion, he selected polite and formal phrases. This was a different style of expression compared to his talking about differences between EGP and EBP teaching. The selection of different phrases seemed to reflect how he categorised himself in the Department of Business English. That is, he did not include himself in the ICT teaching community. He automatically separated himself from those who practiced ICT supported teaching. In addition, Liao also admitted that his contact with other teachers in the department were rare after he came to the Foreign Language College in 2000. ‘After we came here (the foreign languages college), all teachers in the department mind only their own businesses. This is not the same as we were in the International Business School. I used to observe young teachers’ and new comers’ instructions and gave them suggestions. No such things happen here’.

In fact, 2000 was the starting year of the several ICT-for-teaching projects in the Department (see Chapter 1.3.2). Though many other teachers in the department were team members of the project, Liao did not participate in any of these projects. One consequence was that Liao frequently found issues the other teachers were talking about on Tuesday afternoon meetings were irrelevant to him. This fact could have influenced his view on the EBP teaching community. Wenger (1998 p.76) identifies three crucial dimensions of a community of practice: mutual engagement, a joint negotiated enterprise and a shared repertoire of negotiable resources accumulated over time. For Liao, his
teaching after 2000 had gradually isolated from the other teachers in the department, which might have led to his being less involved in the community. He had no information about the team’s working process, and he had no basis for any conversation with the team members, he also did not have the accumulated resources to base his conversation over time. The result of such lack of involvement could have attributed to his separation from the community and enhanced his hostile attitude to the use of ICT in his teaching. His deeply rooted belief in traditional teaching methods was reflected in his explicitly negative attitude towards ICT in the community (Turner and Onorato 1999).

5.6.7 Institutional influence
The institutional influence on Liao could be described in two aspects: on his teaching and on his professional development.

First, the institutional ICT related policy provided Liao with the ICT facilities. As has been described in the other three cases, one important ICT related policy in the university is ‘ICT for massive education’, which means that multimedia classrooms were assigned automatically to those teachers who had a group of students over 60. The policy guaranteed that Liao had multimedia classrooms for both his courses. While other teachers like Qyin, Juan and Pin were fighting for better ICT facilities for their teaching, Liao had them without any difficulty. However, Liao did not use any ICT types in either course. This seemed to reflect the nature of ICT related reform in China: it was a top-down political reform rather than a bottom up innovation rooted in students’ and teachers’ needs (Cai 2003).

The other influenced of ICT policies on Liao’s pedagogy came from the changed curriculum. One assumption of the new curriculum was ICT should be added to teaching and therefore massive information could be passed to students within decreased teaching hours. The direct consequence of this assumption was that instruction hours for both his courses were halved. For a course that needed 64 hours, only 32 hours were available to him. Liao stated that it was ‘almost impossible for me to cover the issues as planned’. He thus had to ask his students to spend more time on reading related materials and handouts after his instruction. Another solution for him was to simplify the assessment (see Chapter 5.6.9 for details discussion). He told his students that only those concepts he talked in his instruction would be tested.
Second, Liao’s professional development on ICT might also be influenced by the current practice in the university. According to the requirements of the university, teachers in the university ‘should know how to use computers in their teaching and academic research’. The statement was however, quite vague because it did not have enough explanation for teacher to act accordingly. There was no specific item to define, for example, what knowledge and skills are required or to what extent a teacher’s ICT skill is competent. Additionally, not every teacher was required to prove his or her competence. For example, the online notice dated 7 November 2005 on the issue of ICT competence test of the year clearly stated that those staff that were born before 31 December 1954 were not required to sit for the test. Similar policies could be found in other universities in mainland China (e.g. Huazhong Agriculture University in Wuhan, Fudan University in Shanghai). In some provinces, staffs over 45 are not required to have ICT competence test when applying for promotion.

The policy may discourage teachers who were over-50s to be involved in ICT related teaching or research. It also hindered teachers in this group to improve ICT competence (if they wanted to) because their needs and wants were more likely to be ignored. Teachers at this age would have to depend on themselves to improve their ICT competence, even if they have any intention to do so. While many teachers in this age range probably were senior (like Liao, a professor) and were expected to be academic or teaching leaders, the policy positioned a dilemma for those teachers on the issue of ICT competence improvement. On the one hand, as a senior academic or teaching leader, they were expected to keep up with the latest developments in both the academic and teaching practice. Hence, they needed to improve both their ICT competence and ICT supported teaching practice since ICT had become a widely accepted practice in education. It was thus safe to conclude that they needed as much (if not more) support in ICT professional development as their younger colleagues. On the other hand, because of their seniority in age, they were not included in the group that could be either supported or required by the university or college for their ICT professional competence. Hence, they could choose to either ignore the challenge but sacrifice their leadership in the community or find a solution through their own effort to keep their beliefs and behaviours in accordance with those of the community. In Liao’s case, it seemed he chose not to face the challenge. He

---

20 http://math.hnu.cn/announcementdetail.aspx?ID=34
21 http://rsc.syiae.edu.cn/appraise/appraise.html
thus felt isolated from his colleagues. The dilemma might be the predominant reason for his reluctant to apply ICT to his teaching.

5.6.8 Liao’s voice in his teaching system
Liao’s pedagogy resisted to the introduction of ICT. His teacher-centred pedagogy made him the dominant role in his teaching process. Teacher talk was the prominent feature in the classroom. Liao expected his students to be passive listeners. He urged them to keep notes of his talk. When ICT could have a chance to be integrated into his teaching, he chose to ignore their existence and stick to his existing pedagogy.

However, Liao’s resistance to ICT pedagogy negatively influenced his power in the community. First, Liao was isolated from the ICT related teaching in the Department. The fact that he did not regard himself a member of the teaching with ICT group might have reflected his weakened power. Second, as a professor, Liao was expected to be academic leader in the department; however, his leadership was diminished because he was not able to cooperate with the introduction of ICT to EBP teaching in the department. Third, Liao had also been discarded from the ICT related innovation in the university because the existing ICT related policy discouraged him from actively participating in any ICT related reforms as senior member in the teaching staff.

5.6.9 Conflicts in the system
As shown in Figure 5.4, the conflicts in this system could be identified in the following aspects.

The negative attitude vs. the policy that ICT should be integrated into teaching
Liao was negative about the application of ICT in EBP teaching. He insisted that EBP teaching was different from general English teaching and his traditional teaching method was the best at transmitting both business knowledge and language knowledge to students. However, the practice of the university contradicted Liao’s beliefs and encouraged the application of ICT throughout all courses across the university. The application of ICT was also one of the determinant factors of success in teaching contests.

Liao had no intention to change his negative attitude towards teaching with ICT. While his colleagues were more or less accepting of the ‘teaching with ICT’ concept in their careers, it seemed what he could do seemed to be very limited. He kept himself away from the issues and application of ICT to teaching with the excuse that he was going to
The ICT supported teaching circumstance and traditional teaching beliefs

Although Liao did not welcome the use of ICT in his teaching, his teaching circumstances were ICT supported. It seemed that his teaching was expected at least to be partly ICT supported. Liao might also have realised the conflict between his ICT resisting teaching approach and his teaching in a multimedia classroom. In one observation, when students complained about his illegible board writing, he explained to his students why he continued to use board writing instead of ICT, saying the fast speed of ICT presentations would prevent students from catching up with his instruction. He also criticized fast-speed presentation as distracting student attention and having a negative influence on their learning outcome. He concluded that only traditional teaching methods would benefit students' learning. Hence, he would insist on students' listening to him and copying the content of his notes on the board.

Even though Liao had realised the conflict between his positive beliefs about traditional pedagogy and possible application of ICT to his teaching in ICT-supported environment, it was unlikely that he would automatically change his pedagogy. As Fullan (1991) and Cuban (2001) pointed out, the change of beliefs was central to the ultimate success of any innovation. Teachers would refuse to change their current behaviours and practice if they could not see the positive outcome from such change. In Liao's case, his negative attitudes to ICT and positive attitude to traditional pedagogy could prevent his change of pedagogy.

The assumed ICT supported curriculum and the traditional non-ICT pedagogy

Under the new curriculum, Liao was expected to finish his instructions for one course in 32 hours with the help of various ICT types. According to Liao, 'it is almost impossible to make it. .... I feel the time schedule is really tight' because he did not use ICT at all. 'Besides, what is the point if they go through everything without understanding them at all?' Liao could not avoid this conflict as long as he was still the instructor. His solution to his conflict is to cut the teaching contents.

... I gave them only the abstract of my teaching ... ask them to read a certain unit of my book after class. I also told them that if I did not mention a concept in my instruction, then it would not be in their final exam. .... Sometimes, I simply tell them that this and that will be dealt with by [name of another
Thus, it seemed at least in Liao’s case, ICT had negatively influenced not only his teaching but also students’ learning. Although Liao had solved his problems brought by the halved instruction time, a close examination to the solution showed that it was not acceptable from the students’ perspective. According to Liao, the problem solved at the sacrifice of students’ adequate understanding of the teaching content of the course. It is still not difficult to predict the impact of this solution on his students’ future careers. However, Liao’s case highlighted an issue: what should be done to guarantee old teachers like Liao and his students to fulfil the requirement of the ICT supported curriculum in a traditional teaching practice? In addition, this issue could be related to the professional development practice in many universities in China (see Chapter 5.6.7, institutional practice for detail). Even though the professional development of Liao could be ignored politically or personally, the impact of teachers’ lack of ICT competence on his students’ learning should be considered seriously. As Liao had admitted, the teaching content omitted from his course was not likely to be covered by other course in students’ learning in the university. The researcher argued that similar practice that discarded teachers like Liao from improving their ICT competence needs to be reviewed and changes need to be made. This is significant for the university, students and teachers where teachers are over 45 years old and still have 15 years to go before retirement. As could be seen from Liao’s experience, teachers who are not required to undertake ICT training are likely to be people like him, who have no enthusiasm for ICT and therefore no motivation to change their existing teaching methods and embrace the university’s ICT culture.

The negative attitude and the community’s increasing acceptance of ICT

The conflict between Liao and the community was evident. As could be seen in section 6, Liao divided the EBP teaching group into two different communities. One was the EBP teaching and the other was about teaching with ICT. He did not see himself as a member of the EBP teaching with ICT community. The relationship between him and the community could be viewed as a reflection of his negative attitude toward ICT itself and the increasing acceptance of ICT of the whole community. These expressions indicated that the application of ICT had been increasingly accepted in EBP teaching in Chinese higher education. In the focus groups for teachers and student focus groups, teachers
Liao’s activity system

Teaching beliefs:
- ICT is an inefficient presentation tool
- Importance of board writing
- ICT only fits certain courses
- Subject knowledge important

Learning beliefs:
- Memory leads to understanding
- Learn from teacher

Attitude to ICT:
- Inappropriate to apply ICT to any courses

Tools: teaching in ICT supported environment with various ICT available

Object: Pedagogical decisions
- Board writing and solo talk
- Handout and book reading
- Handout based instruction

Outcomes:
- Classroom behaviours
  - No ICT for teaching
  - Beyond classroom
  - Reading books and handout

Community:
- Recognize of EBP group
- Not self-regulated as members of ICT teaching group

Division of labour:
- Colleagues: isolated
- Classroom: teacher centered

Key:
1. Strong conflicts within the elements identified
2. Strong conflicts between elements identified
   - No strong conflicts identified

Figure 5-4 Conflicts identified in Liao’s teaching system
and students expressed similar opinions separately: compared to other students in the Foreign Languages College, students of business English 'were happy' because most of their teachers were applying ICT to some degree. Students expressed that those non-business English students in the department who were mainly under traditional teaching methods envied them because ICT provided them the opportunities to learn more flexibly. They also admitted that some of the courses were quite innovative and had put pressure on them because they had more responsibilities for their learning than in traditional classrooms.

However, Liao was not among 'the most teachers'. Instead, he gradually separated from his colleagues, which, in turn, might have deepened his conflict with the community. Will Liao improve his relation with the community in the coming two years? It is still hard to predict. One thing was certain, he was thinking of the possibility of using ICT in his future teaching though he was still concerned about the effect. 'It might also have some benefit, I do not know yet. I did not try it before. But I think I might try it sometime later'.

5.6.10 Summary

As summarised in Figure 5-4, Liao was a teacher who was negative to the application of ICT in EBP teaching but had to teach in an ICT supported circumstances applying traditional non-ICT pedagogy. Conflicts identified in his system were predominantly conflicts between him (subjects) and tools, rules and community as well as the conflict between rules and objects.

Liao was against the application of ICT in EBP teaching and he was not an ICT practitioner. However, he had to accept the fact that ICT was becoming more dominant in teaching. As long as he wanted to continue his teaching, even it was after his retirement, he would have to learn to incorporate ICT in his teaching. The conflict between Liao and the contexts he was working indicated the powerful influence of the social 'trend' to individual teachers.

Liao's case also highlighted the policy influence upon the professional development for elder teachers. That fact that Liao was excluded from the ICT competence training and test might have influenced his motivation to improve his ICT competence. This fact might in turn have influenced Liao's perception of ICT for teaching and eventually influenced his practice in the classroom.
5.7 Conclusion

This chapter presented the findings of single case analysis. Four out of the seven single cases has been reported and analysed in this chapter. The four reported cases varied in their ICT beliefs and attitudes, their ICT pedagogical decisions and classroom behaviours. Contextual factors such as policy, curriculum requirements, ICT facility availability in each case were also examined and analysed. The findings of these single cases showed that teachers’ ICT pedagogies were influenced by both personal factors and contextual factors. The analysis also suggested that although teachers were working in similar working conditions, their perceptions about the conditions were different. This implied that comparisons of similarities and differences of those cases could lead to a deeper understanding about the factors that could have influenced teachers’ ICT pedagogies. The next chapter presents the findings of such comparisons across all the seven cases.
Chapter 6 Cross Case Analysis

6.1 Introduction
The object of this study is to find out 1) The relationship between teachers’ attitudes and beliefs to ICT and their ICT related pedagogy, and 2) The relationship between contextual factors and EBP teachers’ pedagogy.

What did the seven EBP teachers’ experiences tell us about the relationship between their personal belief systems and their ICT pedagogy? This chapter provides answer to these questions based on a cross case analysis, drawing data from both the four teachers presented in Chapter 5 and data from the other three teachers as supplementary evidence. Answers are presented from the following five aspects.

1. Teachers’ attitudes and beliefs towards ICT in teaching
2. Links between attitudes, beliefs towards ICT and the related pedagogy
3. Other factors that influenced these teachers’ ICT pedagogy
4. The role of teachers’ professional development in ICT in their teaching career and pedagogy formation
5. Learning from these seven teachers about ICT pedagogy in EBP education

6.2 Teachers’ attitudes and beliefs towards ICT in teaching
There are two separate sections for this aspect. First, what were the attitudes of those teachers toward the integration of ICT into their teaching and second, what were the beliefs towards the use of ICT in their teaching.

What were the attitudes towards ICT, the answer is ‘it depends’. As shown in Figure 6.1, teachers’ attitudes towards ICT in their teaching varied from negative, cautious to positive. Their beliefs, however, were mixed. Such varied attitudes and mixed beliefs in this study might have reflected the current situation of EBP teaching in Chinese higher educational institutions.

6.2.1 Varied attitudes towards ICT in teaching
The seven teachers in this study differed in their attitudes as well as their implementation of ICT pedagogy. Thus, it was difficult to have a simple conclusion. The seven teachers’ attitudes could be displayed as a spectrum as shown in Figure 6.1.
While Liao’s negative attitude was on the one end of the spectrum, Juan, together with Lu and Ting could be placed on the other end of the spectrum because of their positive attitude. In Liao’s case, he ignored the existence of ICT even though he was teaching in an ICT supported environment (see Chapter 5.6.2). He simply did not bother to use any of them. He also avoided discussing any topic related to ICT with his colleagues (see Chapter 5.6.6 for detail). In contrast to Liao, Juan embraced ICT willingly in her teaching, even though she had encountered many problems in the process (see Chapter 5.3.8 for detail). Juan’s teaching with TMT, the simulating business practice environment, changed her role as a teacher and her students’ role as passive learner. Juan felt such changes were valuable for both her and her students. Her comments like this further verified her positive attitudes towards the implementation of student centred ICT pedagogy in her teaching. In the middle were Qyin, Sheng and Pin who applied ICT to their teaching, though they were still practicing their teacher-centred pedagogy. Among these three teachers, Sheng claimed that it was impossible for him to conduct a lecture without the application of PowerPoint. Pin was willing to use ICT when she felt ICT facilities might bring her convenience. Qyin was not against the application of ICT, either. However, she was cautious about the negative impacts of ICT on students’ learning outcome. Nevertheless, all three teachers admitted the existence of ICT in their teaching and ICT would be more widely applied into their teaching. Therefore, they were obliged to accept its existence and adapt their pedagogy to enable the application of ICT to their teaching.

The different attitudes of the seven teachers indicated that teachers’ acceptance of the innovation varied. All seven teachers’ had been exposed to ICT at the same time, but they did not accept ICT to their pedagogy at the same speed. Both innovators and laggards
### Table 6-1 Summary of ICT related beliefs

<table>
<thead>
<tr>
<th>Beliefs</th>
<th>Juan</th>
<th>Pin</th>
<th>Qyin</th>
<th>Liao</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived value of ICT</td>
<td>Positive about the value of ICT</td>
<td>convenient access to ICT</td>
<td>quite cautious</td>
<td>negative</td>
</tr>
<tr>
<td>Teaching</td>
<td>improved authenticity</td>
<td>improved presentation efficiency</td>
<td>provided abundant information</td>
<td>ICT was over emphasised</td>
</tr>
<tr>
<td></td>
<td>enhanced production</td>
<td>enhanced her teaching referencing</td>
<td>provided authentic information</td>
<td>was suitable only for fundamental knowledge</td>
</tr>
<tr>
<td></td>
<td>diversified materials</td>
<td>improved the authenticity of her teaching</td>
<td>was unreliable for classroom teaching</td>
<td>transmit based courses</td>
</tr>
<tr>
<td></td>
<td>diversified teaching methods</td>
<td>storage and share of information</td>
<td>could cover up a teacher’s incompatibility</td>
<td>might assist presentation</td>
</tr>
<tr>
<td></td>
<td>changed teacher centred pedagogy to student centred pedagogy</td>
<td>improved communication efficiency in her work</td>
<td>(spoken English)</td>
<td>convenient for information storage</td>
</tr>
<tr>
<td></td>
<td>limited application in teaching</td>
<td>theoretically required student centred teaching</td>
<td>could improve board writing speed (save time)</td>
<td>was not suitable for his course</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Challenged teaching arrangement</td>
<td>was not as efficient in presenting as traditional board writing (did)</td>
</tr>
<tr>
<td>Learning</td>
<td>motivated student learning</td>
<td>raised the issue of effective control of students’ activities in ICT rich environment challenged students’ learning ability and self-control</td>
<td>might be good</td>
<td>might be meaningless</td>
</tr>
<tr>
<td></td>
<td>changed students’ learning from passive to positive</td>
<td>only suitable for self esteem students</td>
<td></td>
<td>distract students’ attention</td>
</tr>
<tr>
<td></td>
<td>diversified students’ learning activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>enables students’ independent learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICT as</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>JUAN</td>
<td>PIN</td>
<td>QYIN</td>
<td>LIAO</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------</td>
<td>------------------------------------------</td>
<td>-------------------------------------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td><strong>How students learn</strong></td>
<td>• Constructivism</td>
<td>• Learning from teacher,</td>
<td>• Learning from teacher</td>
<td>• Instructionism (teacher dominant in classroom)</td>
</tr>
<tr>
<td></td>
<td>• Learning through hands on experience</td>
<td>• Behaviourism (importance of review, repetitive learning)</td>
<td>• Behaviourism (students needs a lot practice before they master a skill)</td>
<td>another name of ICT was e-board writing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Instructionism (learn from teacher instruction)</td>
</tr>
<tr>
<td><strong>ICT ...</strong></td>
<td>• Challenged up to date subject knowledge</td>
<td>• Theoretically required the change of a teacher's role</td>
<td>• Diminished teacher authority</td>
<td>• impressed him to think of the possibility of its application after retirement</td>
</tr>
<tr>
<td></td>
<td>• Required improved ICT competence</td>
<td>• Required improved ICT competence</td>
<td>• Challenged teachers' knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Changed teachers role from authority to facilitator and assistant</td>
<td></td>
<td>• Required improved ICT competence</td>
<td></td>
</tr>
</tbody>
</table>

Chapter 6 Cross case analysis
among these seven teachers has been identified, based on the criteria of Rogers’ theory of the diffusion of innovations (1995).

6.2.2 Beliefs of ICT in teaching practice
For the question about EBP teachers’ beliefs towards the use of ICT in teaching, data analysis suggested the existence of mixed beliefs among those teachers. Table 6-1 was a summary of the beliefs identified among those teachers. Those teachers were explicit in expressing their beliefs in semi-structured interviews, classroom observations and focus group discussion when the study was conducted. Such beliefs were consequences of teachers’ personal and social experience accumulated in their careers. According to the results of open coding, teachers’ beliefs could be classified into four groups, namely their perceived value of ICT in education, the perceived pedagogical functions of ICT in teaching, their beliefs about students’ learning in general and the influence of ICT on the teacher.

6.2.2.1 Perceived value of ICT in education
The perceived value of ICT is defined in this thesis as beliefs those EBP teachers hold for the positive or negative impact of ICT on their teaching practices. Particularly, it addressed two aspects of such value: the value of ICT to teaching activities such as lesson plans, classroom activity organisation etc. and the value of ICT to student learning, which include interests of learning, learning activities and attainments. According to Cox et al (1999), the positive beliefs about the value of ICT in education were important to support teachers’ application of ICT in classroom teaching.

6.2.2.1.1 Perceived value of ICT on teaching
When it came to beliefs about ICT in teaching practice, all teachers agreed that the application of ICT could benefit their teaching, though the degrees of such perceived benefit were different (as shown in Table 6-2). Juan, Lu and Ting were the group of teachers who were inspired by the possible improved of their teaching efficiency and were willing to integrate ICT to their teaching, though they were not satisfied about they existing ICT related policy and practices. Overall, all seven teachers agreed that ICT could improve teaching such as presentation in the classroom. They claimed that the adoption of ICT types such as PowerPoint could save board-writing time and avoid repetitive work for the same teaching content to different groups of students.

I feel it is very convenient. You do not need to do board writing... it is also
efficient. You are putting more stuff to your teaching. A page contains a lot of information. If I write them on the blackboard, I will be quite slow. Time is saved. It is good. [Interview / Qyin]

It is very convenient for me and for my students. Students can see visualized images. You can put many pictures, graphs in it. It saves a lot time. Why 32 hours is not very tight-budgeted for the course? I think the use of ICT saved a lot of time. You got it with a click. It is still difficult if I have to draw all these images, graphs in the classroom, it saves a lot time. [Interview / Pin]

Liao, who was negative about ICT in his teaching, had admitted that ICT could have benefited him in classroom teaching because

... In addition, I do not need to do board writing, and this would save my energy. [Interview/Liao]

The second widely accepted value of ICT to their teaching was that ICT provided quality-enhanced and quantity-abundant information for teaching. For the enhanced quality of information, teachers further detailed that ICT was able to provide professional, up-to-date and authentic information for referencing and instruction. Additionally, Pin thought the widened access to abundant information for her teaching was a ‘great convenience’ [Interview/Pin]. Pin introduced this as a ‘very important’ tip for successful teaching to her colleagues in the focus group. Similarly, Qyin was able to apply teaching material such as the latest news and featured business report she downloaded from the Internet to her students’ interpreting practice in the classroom. Such authenticity was regarded by Qyin as both benefit and challenge to her teaching (see Chapter 5.5.4 for detail). Juan thought that TMT enabled her students to experience ‘exactly what it will be when they work for an international trade company’ in their future careers.

ICT also improved the capability of storing information and sharing information between students and teacher. Liao claimed in the semi-structured interview about his plan of applying ICT in the coming one or two years after retirement that ‘the use of flash disk to store my handouts and other teaching materials will relieve me from carrying books all the time’. Similarly, Pin felt it a high valued feature that ICT enabled her to share information with her students through shared folders on the intranet and the shared Email box on the Internet.
Qyin was not able to share information with her students due to a number of reasons (See Chapter 5.5.4). However, she still perceived that ICT could afford such function to her teaching. Juan’s teaching in the TMT drew information such as exchange rate, the possible purchasing costs for commodities, freight and charges that could be shared by all students through the Intranet for reference. The information provided by the TMT system formed new affordances to students’ learning because students were able to explore their role as business practitioner in the stimulated environment.

Both students and teachers recognised the benefits of shared information. For example, in the focus group discussion, students mentioned that the shared materials benefited their autonomous learning.

S5: Ms Pin had a complete courseware that we could use for review after class. We copy them to our flash disk or MP3 players and install them to our computers. It was convenient for us to review or to go over the problematic points. [Focus group]

Nevertheless, there were some beliefs particularly held by individual teachers that distinguished them from their colleagues. These beliefs partly became the index for the teachers’ level of acceptance of ICT to their teaching practices from negative to innovative as shown in Figure 6-2.

The perceived values of ICT for teaching in this study indicated that some teachers have realised the necessity for substantial changes in their current teaching approaches to fulfil the potential benefits of ICT. This belief was particularly strong in Juan’s case as she
claimed that ICT had formed new affordances rather than simply acted as additional tools. For example, Juan believed that the new TMT course required a complete change from a teacher centred teaching approach to a student centred teaching approach (see Chapter 5.3.4). Lu realised that the application of multimedia resources asked teachers to be supportive to students’ autonomous learning and a teacher needs to ‘motivate students’ rather than ‘transmit knowledge only’ to them. Both Juan and Lu believed that ICT could be used diversely in classroom teaching. Meanwhile, Pin also claimed that the application of ICT implied a student centred teaching approach. However, she emphasised such a requirement as a theoretical requirement, which according to her, was not necessarily present in her existing teaching practice. The differences in their beliefs distinguished Juan, Lu from their colleagues like Pin, Qyin and Sheng.

Negative Case: Liao
- was not suitable for his course
- was not as efficient in presenting as traditional board writing did

Cautious Case: Qyin
- was unreliable for classroom teaching
- could cover up a teacher’s incompetence of (spoken English)

Adaptable Case: Pin
- limited application in teaching
- theoretically required student centred teaching

Positive Case: Juan
- Diversified teaching methods
- changed teacher centred pedagogy to student centred pedagogy

Figure 6-2 Unique beliefs held by teachers with different attitudes

Pin realised that ICT could have more potential in classroom teaching, which might be the reason that she thought application of ICT in her teaching was still ‘limited’. However, compared to Juan, Pin considered more of the benefit of ICT in her teaching than the benefit of it to her students’ learning. Such a difference might have reflected the different attitudes among those teachers: teachers like Juan were more active in changing her current practice while teachers like Pin only adapted ICT to certain applications that fitted their existing pedagogy and therefore felt ICT was convenient.
In contrast, teachers who were cautious or negative towards ICT in teaching had negative beliefs about ICT in their teaching practice. For example, Qyin perceived that ICT was efficient for information searching and obtaining, but they were not reliable for classroom teaching. Furthermore, Qyin also believed that certain application of ICT implied incompetence (such as oral English) of a teacher (see Chapter 5.5.4). This belief might have negatively influenced her actual uptake of ICT in teaching. Liao also negatively perceived the efficiency of ICT in classroom teaching. He insisted that ICT was not applicable to his course because his course was ‘bilingual and professional knowledge based’ while ICT only suited those courses that were dealing with either language or knowledge. He also claimed that ICT-supported presentation, even if used, was not as effective as traditional board writing in his instructions (see Chapter 5.6.4 for details). Liao expressed his opinion not only in the semi-structured interview but also explicitly to his students in one of the observed instruction, saying that he would not use ICT in his instructions because ICT ‘won’t help their (students) learning’ [Classroom observation note] (Chapter 5.6.2).

6.2.2.1.2 Perceived value of ICT on students’ learning

Teachers’ beliefs about the value of ICT to students’ learning differed substantially. When a teacher has perceived students’ enhanced attainment in an ICT supported teaching context, this teacher’s attitude to ICT was more likely to be favourable. Among the seven teachers, Juan, Lu and Ting had firm beliefs that ICT changed students’ learning and motivated their learning (as shown in Table 6.1). For example, Juan believed that students ‘could have learnt a lot’ through learning actions supported by various ICT facilities and resources. Juan particularly mentioned the change of students’ learning in the TMT systems. She claimed that the change from traditional passive learning to the active involvement of every ‘step of the trade by themselves’ was a reliable proof of the benefit of ICT in students’ learning. She also claimed that students were highly motivated to ‘ask me actively the content of my next section, so that they can preview the lesson and be ready for the next section [Interview/Juan].’ Both Juan and Lu were motivated by their students, even though they encountered many conflicts in the process (see Chapter 5.3.9). Lu commented the benefits of ICT to her students’ learning as follows:

I think no matter what it is, Multimedia, Microphone or VCD, they are all for learning purposes. They are to stimulate your five organs of sense, to stimulate your mouth, your hands, your ears, and your brains. They cooperate to
guarantee the best learning efficiency. If you do not have various ICT types, your eyes and ears lack stimulations. You have to depend on your hand, your brain and your mouth. I cannot say that you cannot study well with only these three organs. However, you missed something. Just like boating, you move faster with five pedals than with only three. [Interview / Lu]

Juan and Lu even claimed that the use of ICT in their teaching was partly a consequence of pressure from their students because ‘students are all using them (varied ICT types)’ and ‘if you stick to traditional teaching, students will lose interests learning from you’.

In contrast to Juan and Lu, Pin, Qyin and Liao had more concerns about the negative influence of ICT to students’ learning, though they had noticed some positive changes. For example, Pin noticed students’ motivated learning interest and their active pursuing of learning opportunities in the Business English Lab.

Sometimes, when I am here, when they see the lights are on, they will come in immediately. Students are really highly motivated, they are here to do assignments or search for some materials [Focus group /Pin].

Similarly, Qyin also noticed the improved learning attainment when ICT such as the Internet and web became part of their learning activities, though she did not adapt ICT for classroom activities.

When they have read a lot beyond the classroom, their performance in the classroom changed accordingly. [Focus group /Qyin]

However, beliefs summarised in Table 6.1 indicated that these three teachers were concerned about the negative influence of ICT on students’ learning. For example, both Pin and Juan noticed that ICT challenged students’ learning ability in the ICT supported learning environment, though the two teachers had different understanding about the challenge. Juan believed it a result of her complete change of teaching method, which made it impossible for students to ‘idle away their time as they did before’ [Interview]. Therefore, it was natural for students to be ‘very concerned’ and ‘when they did not understand even a minor part of the content, they would be worried’ [Interview]. Such challenge accelerated students’ change in their learning. It also motivated students’ autonomous learning. Pin looked at the issue differently. She was concerned about the
challenge and thought ICT raised the issue of ‘how to control and monitor’ student learning. Pin insisted that ICT was suitable only for those students with high self-esteem and able to control themselves very well so as not to be distracted from learning.

Accompanying Qyin’s cautious attitude towards ICT in her teaching was her doubt about the benefit of ICT in students’ learning. In the focus group discussion, she expressed her concern that students’ widened access to information might spoil their learning, especially when they found out what teacher was talking about in the classroom was not ‘new’ to them at all. Such concern revealed that Qyin was not convinced about the benefits of ICT as claimed by academic researchers. It also revealed the substantial influence of traditional pedagogy on her current practice, which would be discussed further in this chapter later on (Chapter 6.4.2).

Liao’s belief about ICT for students’ learning was the most negative out of the seven teachers. Liao believed that ICT distracted students’ attention rather than helped them to be more concentrating on their learning. He assumed that if ICT had been adapted to his instructions, students would not learn anything from him. He did not believe that ICT could help much in demonstrating the connotations of English words in the register of business English which was different from general English. He insisted that terms in business English sometimes were ‘common words in general English. But they had different meanings in the register of business English’. He believed that many courses that adopted ICT in classroom teaching in the university were meaningless and had negatively affected students’ learning outcome.

As has been discussed in Chapter 3, EBP teaching in China is still substantially influenced by its traditional pedagogy and is teacher dominant. The negative beliefs about ICT to student learning discussed in this section reflected such teacher centred pedagogy. That is, students were regarded primarily as passive learners and it was a teacher’s duty to guarantee students’ learning according to pre-scheduled teaching plans (Cortazzi and Jin 1996; Cai 2003; Niu and Wolff 2005). Although ICT has afforded more flexibility and autonomy for students’ learning, such flexibility and autonomy could be viewed as disturbance because student learning might not follow pre-designed steps and might not reach a pre-decided target, against the assumptions of a traditional teacher-dominated pedagogy.
6.2.2.2 Perceived functions of ICT in teaching and learning

The seven teachers in this study shared some beliefs about pedagogical functions of ICT in their teaching. That is ICT has been perceived as tools for presentation, information searching and document storage. For example, all seven teachers agreed that ICT could be adopted as presentation tools in classroom teaching. However, they had different opinions on its efficiency and productivity as presentation tools. Pin was the teacher who thought ICT was most valuable in its being presentation tools. Pin also claimed that the adopting of PowerPoint for presentation was one of the two ‘great conveniences’ ICT brought to her teaching. PowerPoint as a presentation tool was the preliminary reason for Qyin’s affirmative beliefs about ICT in her teaching because ‘you do not need to repeat board writing all the time’ and it saved teacher’s time and energy in classroom teaching. Liao perceived presentation tool as the only classroom teaching function of ICT in teaching.

ICT was also viewed by all teachers as information searching tools. This function became the second ‘convenience’ ICT brought to Pin’s teaching preparation and classroom presentation. The abundance of information she could obtain from the Internet for referencing became a dominant reason for her continuing application of ICT to teaching. Similarly, Qyin downloaded information and materials from the Internet for her teaching preparation. Actually, downloading information from the Internet became the only applied ICT function in Qyin’s case during the data-collecting period. Qyin believed it a guarantee of the quality of her teaching content.

Additionally, teachers also highlighted ICT as an efficient tool to store and share materials and documents among teacher and students. Liao assumed the convenience of using a flash disk while Pin reported her students downloading information from a shared teaching material folder she had set up in the Business English Lab.

However, these functions of ICT described by those teachers indicated that they perceived ICT only as tools to assist teaching. They did not intend to change their pedagogy. Papert (1990) defined such teaching practice as instructionism, which is the entrenched methodology of a central person or curriculum transmitting pre-established pieces of information to an essentially passive, captive audience. He also pointed out that:

Instruction is not bad but overrated as the locus for significant change in
education. Better learning will not come from finding better ways for the teacher to instruct but from giving the learner better opportunities to construct. (Papert 1990 p.3)

In this study, although teachers believed that ICT helped them to teach more efficiently, though their actual application of ICT varied, six teachers stated, either explicitly or implicitly, that ICT was 'tools' to assist teaching and to improve presentation efficiency to students so that they would be able to follow teachers' instruction better.

In contrast to her colleagues, Juan believed ICT could be more than just supplemental tools for teaching. She claimed that ICT was not only supplemental tools but also a context or new affordances, which enabled her students to learn and to experience. Furthermore, students' learning and hands on experience in the ICT supported environment enabled them to construct knowledge rather than simply exercise drills repetitively. Juan understood the differences between her and her colleagues. She commented that her practice of teaching with ICT was 'totally different' from her colleagues' and 'no one else is doing' what she was doing. Juan's belief that students learnt through hands on experience gradually was coincident with the core of a constructivist teaching approach. That is, knowledge of learners should be viewed as 'constructed' on their previous knowledge and teaching with this approach looks for what students can analyse, investigate, collaborate, share, build and generate based on what they already know, rather than rote learn facts, skills, and processes like parrots. To do this effectively, a teacher needs to be a learner and researcher, to strive for greater awareness of the environments and the participants in a given teaching situation to facilitate student learning.

### 6.2.2.3 Beliefs of students' learning in general

In addition to teachers' beliefs about the impacts of ICT on students' learning, this study revealed that teachers' beliefs about how students learn in general were related to teachers' beliefs about the use of ICT in their teaching and had influenced their implementation of ICT pedagogy. For example, Qyin and Liao did not use ICT in classroom teaching. Both teachers believed that it was more important for students to follow teacher's instruction in the classroom because following teacher was the 'most effective way to learn'. Liao even claimed that it was 'of crucial importance' for a teacher to control the instruction pace so that students could have time to 'follow my thinking'
and ‘understand the concept I am explaining’ [Interview]. Additionally, Liao emphasised that the ‘lack of sufficient space for students’ thinking [Interview]’ in an ICT supported instruction was the most serious hindrance that prevented him from adopting ICT in classroom teaching.

As summarised in Table 6.1, three teachers Pin, Qyin and Liao in the study believed that students learn from the external knowledge resources provided by their teachers. Both Pin and Qyin believed that students needed repetitive learning to guarantee their learning attainment. Thus, Pin emphasised the importance for students to review the content of previous instruction each time (see Chapter 5.4.4 for detailed discussion). Pin claimed in the semi-structured interview that a 30-60 minutes review of her instruction in previous week was ‘her uniqueness of teaching’. She also believed that this unique way of teaching was a guarantee for her success in EBP teaching because it encouraged her students to do some work after class. In accompanying Pin, Qyin emphasised the Chinese saying ‘practice makes perfect’. She also urged her students to practice as much as possible for the number translation skills in their spare time (Chapter 5.5.2). Her observed instruction indicated a behaviourist teaching approach where emphasis was put on repetitive practice of certain skills. Liao could be described according to Papert (1990) as a typical instructionism practitioner. His practice was also based on his beliefs about student learning: students should listen to teachers and learn.

Teachers like Juan and Lu had different beliefs about student learning. Juan’s view of student learning followed the principles of constructivism; students learn through hands on experience and by applying their previous success into new concept learning. Thus, Juan believed the application of TMT was the most effective way to motivate student learning. Lu believed that teachers should motivate than force students learning. Different beliefs between teachers like Liao, Qyin and Pin and teachers like Juan and Lu was positively related to their beliefs about benefits of ICT in teaching (Table 6.1) and the level of applying ICT into teaching (as shown in Table 6.4 and discussed in Chapter 6.3). The findings in this study echoed that of Hennessy et al (2005), who found that teachers’ with constructivist approaches were more likely to integrate innovatively ICT into their teaching practice.

6.2.2.4 Influence of ICT on teachers
All seven teachers admitted that ICT influenced them as teachers in higher educational
institutions in the following three aspects: their ICT competence, their subject knowledge and their role in teaching. First, all seven teachers admitted that ICT challenged their ICT competence in the process of adopting ICT. For example, Juan admitted in the semi-structured interview that ICT challenged her competence particularly at the initial stage of her TMT course teaching in 2003 and 2004.

I thought it was a challenge to me at that time, it was my first time, you know. It became very difficult, especially when problems that I had never expected happened ... some students would change the system configuration or what, but I did not know immediately what had been changed, such could be headaches. Sometimes, the operation systems collapsed, some students did not know how to attach their assignment to me, there were even virus problems, and all these had to be solved through my exploration. Once, I could not log in to the system and was not able to give instruction on time. It was very demanding for a teacher’s computer skills. I felt these were challenges indeed [Interview/Juan].

She also felt the difficulty in designing PowerPoint presentation for her instruction. Similarly, Pin and Qyin expressed that they were ‘not professional at all’ in operating computers and designing PowerPoint presentations. Both claimed that they were looking forward to opportunities to improve ICT competence. All three teachers in the focus group admitted that their ICT competence was very limited and ‘not professional’. However, not every teacher admitted that she/he was not competent enough to teaching with ICT. For example, Sheng claimed that he did not have any difficulty in using PowerPoint or related ICT facilities for teaching in the interview. However, two of his observed instructions revealed technical problems and had caused severe delay in one instruction. Problems on both occasions were about how to operate ICT facilities. The problems he encountered revealed that he was still not competent enough to operate the ICT facilities in the classroom.

Second, Juan and Qyin also felt the necessity to improve their subject knowledge because students ‘would come to you for any questions they come across in the online reading, even though those questions might be irrelevant to the course you are teaching’. Juan thought the needs for subject knowledge improvement privileged to that of ICT competence (see Chapter 5.3.5 for detail) even though she had just obtained her business
related master degree. Her opinion was echoed by Qyin in the focus group who said ICT did not mean ‘comfortable’ in teaching because teaching with ICT required substantial improvement in the teacher’s subject knowledge.

To use ICT in teaching does not mean you become more comfortable. If your knowledge is not improved, how can you find suitable teaching materials? If you could not understand what you are going to teach and simply ask you students to do the job totally by themselves, I am afraid this will not work. You have to understand the teaching materials well before teaching or instruction. If students are about to work on one article, you need to work on tens or even hundreds in advance. Otherwise, you will not be able to answer their questions. Therefore, I think, for a teacher, the requirement for your mastery of subject knowledge is absolutely increased. Did you notice that their knowledge is much diversified and their requirements for you are definitely different now? [Focus group/QY]

While younger teachers like Juan and Qyin expressed their needs for subject knowledge promotion, older teachers like Liao and Pin did not mention such needs in their teaching. In fact, Liao claimed he was an expert in the EBP teaching, and Pin expressed clearly in the focus group that ‘we are very professional in the subject knowledge’. The perceived professionalism on subject knowledge of these two teachers might explain their less concern with their knowledge but more on their ICT competence.

Third, teachers also believed that teacher’s role in ICT supported teaching was changing and they should ‘adapt to the change as a teacher [Interview/Pin]’. For example, Juan admitted that most of her time in the TMT course was to support her students to learn in groups or individually rather than transmitting knowledge to them. Lu claimed in the interview that teachers could not stick to the traditional position as knowledge transmitter.

After the integrating of ICT in teaching, I think, my role of teacher as a knowledge transmitter might have been decreased. … I become a teaching atmosphere designers, question replier and student learning motivator. … If you stick to your original position, stick to the traditional teaching methods, students will feel what you taught is only the repetition of what they get from the computer. … [Focus group/ Lu]
However, teachers expressed concern about the negative influence of such change on them. Traditionally (see Chapter 3), teachers were viewed as knowledge authority and were highly respected by students. Teachers in this study normally held such beliefs for their role as teachers. Even Juan, the teacher who was practicing more innovatively ICT in her teaching was still influenced by such norms. In the semi-structure interview, Juan expressed at the beginning that her fundamental task was to enable ‘my students to learn from me what they did not know’ [interview/Juan], which hinted the influence of teacher-authority image in her belief system. Similarly, Pin was aware that she should theoretically change her role as a teacher of traditional meaning (see Chapter 3). However, she was not active to make this change (Chapter 5.4.4). The unchanged role was also observed in her classroom teaching (Chapter 5.4.2) and mentioned by her students in the student focus group (see Chapter 5.4.4).

Qyin also thought her obligation was to make ‘students to know something that they did not know before’ [Interview/Qyin]. Her belief that a teacher should be a knowledge authority, someone who knew more than her students did, caused concern on her own subject knowledge and worries on instruction design. She even questioned those teachers who were applying real time online information for teaching. It could partly be the fear of losing authority position in front of her students that led to her cautious application of ICT in classroom teaching. As Qyin stated in the focus group discussion, teacher’s role was critical to the success of students’ learning and teachers must decide the content for teaching.

It still depends on teacher. You must depend on teachers to conduct the teaching. ... Designing of classroom teaching is the key point. What teaching material you are going to use, what content you are delivering in the classroom... All these depend on teacher. [Focus group/Qyin]

As one teacher summarised, ‘No matter how advanced it is, ICT itself is not enough, human must be in the centre. ... and the role of teacher can never be substituted.’ [Interview/Lu]

6.3 The links between attitudes, beliefs towards ICT and related pedagogy
Table 6.1 indicates that teachers’ beliefs of ICT in their teaching directly linked to their attitudes. Those teachers who favoured the application of ICT in teaching had positive
beliefs about the influence of ICT on teaching and learning. They were also more likely to accept the challenges of ICT and to adjust their practices accordingly. Juan was a good example for that. Those teachers who suspected or were against the application of ICT in teaching had more negative or cautious beliefs about the potentials of ICT. They were less likely to change their current practices. Liao could be an example of such teachers. Additionally, a teacher who practiced student centred teaching approach had more favourable attitudes and relevant beliefs on students’ learning attainment.

<table>
<thead>
<tr>
<th>Case</th>
<th>Juan</th>
<th>Pin</th>
<th>Qyin</th>
<th>Liao</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude</strong></td>
<td>• positive</td>
<td>• convenient</td>
<td>• cautious</td>
<td>• negative</td>
</tr>
<tr>
<td><strong>Teaching activities with ICT</strong></td>
<td>ICT was used for</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juan</td>
<td>• presentation</td>
<td>• information searching</td>
<td>• information searching</td>
<td>• no use at all</td>
</tr>
<tr>
<td></td>
<td>• affordance (teaching and learning context)</td>
<td>• lesson preparation</td>
<td>• lesson preparation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• presentation</td>
<td>• presentation (teaching contest)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• share materials</td>
<td>• oral English assessment (distance education course)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• students’ information searching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qyin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liao</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pedagogy:

<table>
<thead>
<tr>
<th>Case</th>
<th>Juan</th>
<th>Pin</th>
<th>Qyin</th>
<th>Liao</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pedagogy</strong></td>
<td>• student centred</td>
<td>• teacher centred</td>
<td>• behaviourism + student centred (non-ICT)</td>
<td>• teacher centred (non-ICT)</td>
</tr>
<tr>
<td></td>
<td>• constructivist</td>
<td></td>
<td></td>
<td>• grammar translation (non-ICT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICT application description</td>
<td>• Innovative integration</td>
<td>• Convenient adaptation</td>
<td>• Occasional application</td>
<td>• Complete avoidance</td>
</tr>
</tbody>
</table>

How the attitude and beliefs linked to teachers’ pedagogies? The answer was that teachers’ attitudes were consistent with their actual application of ICT. However, teachers’ beliefs were more complicated and they were either coherent or incoherent to their ICT pedagogy. This section specifies the relationships between teachers’ attitudes, beliefs and ICT pedagogy.
Table 6-3 summarised teachers’ attitudes and their use of ICT in teaching activities. The summary showed that the more favourable attitude a teacher had towards ICT in his/her teaching, the more likely he/she would use ICT in the classroom and the more likely ICT would be used innovatively in teaching and vice versa.

Among the four cases discussed in the previous chapter, Juan had the most favourable attitude towards ICT, she was also the teacher who not only applied but also integrated ICT in her teaching. Juan was also the only teacher among the four who was shifting to constructivist, student-centred pedagogy. ICT not only was a tool for teaching but also provided new affordances for learning in her pedagogy. Lu and Ting had similar attitude and beliefs as Juan’s.

Pin and Qyin both accepted the use of ICT in teaching to certain levels; however, because Qyin was cautious about the value of ICT to student learning, she did not apply them to actual classroom activities. Pin accepted the existence of ICT facilities and adapted them to her teaching at her convenience. Thus, even though she doubted about the students ability to control themselves in an ICT rich environment, she still taught under such circumstances as it was convenient for her as the instructor. Furthermore, Pin and Qyin’s differences of applying ICT in classroom teaching reflected the differences of their beliefs about students’ learning, which will be discussed later this section. As the teacher with the most negative attitudes, Liao did not apply any ICT facilities in his teaching, even though he was supplied with adequate ICT facilities for presentation, video and audio material broadcasting and online information retrieval etc.

To summarise, this study shows that a teacher who had favourable attitude to ICT in teaching would have positive beliefs about ICT in teaching. All teachers except Liao applied ICT for lesson preparations. Five teachers, Pin, Sheng, Ting, Lu and Juan, adopted ICT to classroom teaching. Three teachers, Juan, Lu and Ting changed her teaching process substantially.

Although teachers’ attitudes towards ICT were consistent with their implementation of ICT pedagogy, relationship between teachers’ beliefs about ICT and actual application of ICT varied. Table 6-4 presents the relationships between teachers’ beliefs and the actual application of ICT in their teaching processes.

One the one hand, consistence between beliefs and ICT pedagogy was identified in two
Table 6-4 Beliefs and teaching application

<table>
<thead>
<tr>
<th>ICT used for ...</th>
<th>Case</th>
<th>Teaching practice</th>
<th>Consistence between beliefs and pedagogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved presentation</td>
<td>Liao</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Pin, Juan</td>
<td>Presentation</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Qyin</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>Provided referencing information with improved quality and quantity</td>
<td>Pin</td>
<td>Reference</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lesson plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Student learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Juan</td>
<td>Lesson plan</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Qyin</td>
<td>Reference</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lesson plan</td>
<td></td>
</tr>
<tr>
<td>Share/storage of materials</td>
<td>Liao, Qyin</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Pin</td>
<td>Share folder</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Online communication</td>
<td></td>
</tr>
<tr>
<td>Not suitable for his course</td>
<td>Liao</td>
<td>None</td>
<td>Yes</td>
</tr>
<tr>
<td>Not as efficient as traditional board writing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was unreliable for classroom teaching</td>
<td>Qyin</td>
<td>No use in classroom</td>
<td>Yes</td>
</tr>
<tr>
<td>Could cover up a teacher’s incompetence of (spoken English)</td>
<td></td>
<td>Not active in applying media materials</td>
<td>Yes</td>
</tr>
<tr>
<td>Limited application in teaching</td>
<td>Pin</td>
<td>Information searching</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lesson preparation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Share materials</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students’ information searching</td>
<td></td>
</tr>
<tr>
<td>Theoretically required student centred teaching</td>
<td>Pin</td>
<td>Teacher centred instruction</td>
<td>No</td>
</tr>
<tr>
<td>Diversified teaching methods Changed teacher centred pedagogy to student centred pedagogy</td>
<td>Juan</td>
<td>presentation Affordance</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increased student autonomy</td>
<td>Yes</td>
</tr>
<tr>
<td>Improving students’ learning</td>
<td>Juan</td>
<td>Limited autonomous learning time</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Qyin</td>
<td>No classroom use</td>
<td>No</td>
</tr>
<tr>
<td>Student control</td>
<td>Pin</td>
<td>No control</td>
<td>No</td>
</tr>
</tbody>
</table>

aspects. First, positive beliefs about ICT were consistent with teachers’ implementation of ICT pedagogy. The study found that teachers with positive beliefs about certain pedagogical functions of ICT tended to be more active in applying ICT in practice for the named functions. For example, ICT was used by these teachers for information searching and downloading (Qyin, Pin), for presentation referencing (Pin) and for presentation design (Pin and Juan). This was because all these teachers believed that ICT was able to provide abundant, up to date, authentic and comparable information for teaching. Pin and Juan were using ICT in instructions because both teachers believed ICT were efficient for
presentation, it saved time and avoided their repetitive work in the classroom. There was also consistence in Juan’s belief about student-centred teaching approach and her pedagogy.

Second, negative beliefs were found closely related to no use of ICT in some teacher’s case. For example, Liao and Qyin did not use ICT in classroom teaching in the data-collecting period; both teachers similarly believed that ICT was not suitable for their courses (see Chapter 5.5 and Chapter 5.6). Liao claimed ICT was not efficient and was not suitable for his course in particular, while Qyin insisted that ICT was not reliable for classroom teaching.

On the other hand, Table 6.4 also indicated that teachers’ beliefs sometimes conflicted with their application of ICT. For example, although Liao believed ICT could be helpful for presentation. He did not apply it to his teaching. Pin realised that she should practice a student-centred teaching approach in ICT supported instruction. Her teaching, however, was not changing accordingly. What is more, though teachers have varied beliefs about the value of ICT to student learning, no teacher was able to take measures to either improve or control students’ learning. For example, Lu had tried to produce a report to trace students’ autonomous leaning in the English lab. The practice did not run as smooth as she expected. Instead of producing a report every week, she was only able to have it every four or five weeks.

Data suggested several reasons for such inconsistence. First, the inconsistence reflected the conflicts between teachers’ intention to use ICT and the constraints of contextual situation such as policy, ICT facilities available to them and/or teachers’ ICT competence. Second, other factors rather than attitudes and beliefs might have influenced teachers’ use of ICT and thus caused the inconsistence and will be discussed in the next section. A third reason might have come from the disadvantage of interview as a research method (Patton 2002) (see chapter 4.4.1). Interviewees tended to express things in favour of their position (Denzin 1989). However, since this study used data collected from multi methods, such influence could have been minimized.

To summarise this section, positive relationship between the seven teachers’ attitudes to the benefit of ICT in teaching and their ICT pedagogies were identified. Positive attitudes were related to more active implementation of ICT pedagogy and shift from
teacher-centred to student-centred teaching approach. Teachers' beliefs about ICT in teaching were found to be consistent with their attitudes though sometimes conflicted with their ICT pedagogy. The reasons behind these conflicts will be examined in the following sections.

6.4 Other factors related to ICT pedagogies

It was difficult to identify factors that had influenced teachers' application of ICT in teaching. As discussed in the previous section, teachers' attitude positively related to teachers' implementation of ICT pedagogy, while the relationship between beliefs and the implementation of ICT pedagogy varied. Thus, it was necessary to find out what factors other than teachers' beliefs and attitudes were related to teachers' application of ICT to teaching. The factors could be classified into two categories: personal factors and contextual factors. This section presents the two separate sets of factors.

6.4.1 Personal factors

Table 6-5 shows a summary of all personal factors that were linked to the seven teachers' ICT pedagogy. There are three factors identified in the case studies, namely 1) age, 2) their previous experience with ICT, and 3) current ICT competence.

6.4.1.1 Age

The application of ICT in teaching by the seven teachers in this study indicated that the younger the teacher, the more positive the attitude was and the more innovative the application of ICT in teaching was. The older the teacher, the more cautious or negative the attitude about ICT in teaching was and the less innovative the actual application in teaching was identified. For example, Juan was the youngest teacher among the four cases discussed in the previous chapter. She was also the most positive ICT adapter in the group. Though she encountered problems such as limited ICT competence and needs for improvement in subject knowledge, constraints of ICT facilities and limited professional support, she was still positive about her continuing practice and looking forward to a wider integration of ICT in her future teaching.

Liao's case, on the other hand, indicated the example of negative attitude towards ICT and the resistance to ICT in his teaching practice. As could be seen in Liao's case analysis, he did not believe the value of ICT in teaching and was strongly against the 'use of ICT for any course listed on the teaching schedule'.
Table 6-5 Factors linked to teaching with ICT

<table>
<thead>
<tr>
<th>Case</th>
<th>Juan, Lu, Ting</th>
<th>Pin, Sheng</th>
<th>Qyin</th>
<th>Liao</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude</strong></td>
<td>Positive about</td>
<td>adoptable</td>
<td>quite cautious</td>
<td>negative</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>Female</td>
<td>Female</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>30-35</td>
<td>35-40</td>
<td>35-40</td>
<td>50-55</td>
</tr>
<tr>
<td><strong>Previous experience</strong></td>
<td>Constant use from 1998</td>
<td>Constant use from 1998</td>
<td>Inconstant use from 1998</td>
<td>No use in teaching and seldom personal use</td>
</tr>
<tr>
<td></td>
<td>Frequent use in teaching and personal life</td>
<td>Appointed to teach for distance education</td>
<td>Appointed to teach for distance education</td>
<td>Information search</td>
</tr>
<tr>
<td><strong>ICT competence</strong></td>
<td>Confident</td>
<td>Can manage the use in teaching</td>
<td>Not professional at all</td>
<td>Typing</td>
</tr>
<tr>
<td></td>
<td>Requirement is not high</td>
<td>Not as competent as primary student</td>
<td>Unable to manage classroom use</td>
<td>Need to know how to turn on and off computer</td>
</tr>
<tr>
<td><strong>Pedagogy</strong></td>
<td>student centred</td>
<td>teacher centred</td>
<td>behaviourism + student centred (non-ICT)</td>
<td>teacher centred (non-ICT)</td>
</tr>
<tr>
<td></td>
<td>constructivist</td>
<td></td>
<td>(non-ICT)</td>
<td>grammar translation (non-ICT)</td>
</tr>
<tr>
<td><strong>ICT application description</strong></td>
<td>Innovative integration</td>
<td>Convenient adaptation</td>
<td>Occasional application</td>
<td>Complete avoidance</td>
</tr>
</tbody>
</table>

Pin and Sheng were also willing to integrate ICT to their pedagogy. However, their integration was based on the belief that ICT brought convenience to their teaching. ‘Convenience to teaching’ implied the possible practice of teacher centred and teaching oriented pedagogy. The observed instructions of the two teachers indicated that they were still applying the teacher centred pedagogy. Both teachers emphasised the difficulty in controlling students’ autonomous learning. Sheng claimed in the semi-structured interview that his ICT based presentation was ‘just like a book’ but with more ‘vivid images and pictures’. Such claim further indicated possible practice of traditional pedagogy in his teaching. Qyin could be described as opportunists in the group. Qyin’s
adaptation of ICT in teaching was directly motivated by external symbolic reasons than her own willingness. She emphasised the situation of 'you have to' and the 'requirements from the university' for teachers to adopt ICT for teaching. Thus, Qyin did not change her teaching approach and her beliefs about how students learn and how students should be controlled for their learning (Chapter 5.4.5 and Chapter 5.5.5). The teaching history of Pin, Sheng and Qyin suggested similar teaching experiences and age group of the three teachers (Chapter 5.2). The three cases seemed to have reflected the relationship between age and the application of ICT: that they applied ICT to teaching because of teaching or because of external requirements.

The younger teachers group, which included Lu, Juan and Ting expressed different versions of their teaching with ICT. For them, the application of ICT should consider more about students’ learning outcome and their own career success. They were enthusiastic and anxious in integrating ICT in their teaching. They tried to explore as diversified pedagogical functions of ICT even though this meant overload work, confusing instruction schedules and frustrated technical support.

In addition, five of the seven teachers in semi-structured interviews and three teachers in the focus group discussion expressed similar opinions that ‘when more and more young teachers come into the university, the application of ICT would be more widely accepted’ because those younger teachers are ‘accustomed to’ ICT in their previous experience. The different use of ICT in accordance with the age may reflect the cultural influence upon these teachers, as discussed later in this section.

6.4.1.2 Previous experience with ICT

Another factor was teachers’ previous ICT related experience. As could be seen in Table 6-1, favourable attitude is related to constant and frequent use of ICT in one’s previous experience while negative attitude is related to none or inconstant use of ICT in one’s previous experience. Five of the seven teachers, Ting, Lu, Sheng, Juan and Pin, reported constant and frequent use of ICT from 1998, all teachers were favourable towards the application of ICT in the classroom. In contrast, though Qyin started her application of ICT in teaching from 1998, her uptake of ICT discontinued after 2000. After that, she applied ICT to her classroom teaching only when she was required. Qyin claimed that in most cases, ICT facilities such as computers adopted into her classroom teaching were not reliable for teaching. The unreliability of ICT further discouraged her from applying
ICT to her teaching (see Chapter 5.5.8).

Snoeyink and Ertmer (2001) pointed out that negative experiences with ICT in the past could be blocks for teachers’ motivation of integration of ICT into their teaching. Among the seven teachers, Liao’s use of ICT was the most limited (see Chapter 5.6.5). Until now, no empirical studies in China were available about the link between teachers’ previous experience of ICT and their attitudes. However, studies in the UK (Becta 2001; Snoeyink and Ertmer 2001; Littlejohn 2002) indicated that teachers’ previous experience of ICT could influence their willingness to adopt ICT in classroom teaching. Some initiative projects in UK such as National Grid for Learning (NGfL), Computers for Teacher (CfT) were designed to guarantee teachers’ substantial exposure to ICT and to motivate their application of ICT facilities to classroom teaching (Preston, Cox et al. 2000; Becta 2001). Result of these projects indicated positive results of teachers’ incorporating their experiences into teaching (Preston 2004; Hennessy, Ruthven et al. 2005). Additionally, a US study (Anderson and Petch-hogan 2001) found that pre-service teachers, who were supported with laptops during their college life, were more likely to increase their awareness of educational software, integrate ICT in their teaching, and share their experiences with colleagues. In this study, influence of these teachers’ different experiences of ICT use on their ICT pedagogy was reflected in the relationship between their attitudes and their current behaviours. The four cases as discussed in Chapter 5 (Chapter 5.3-5.6) indicated that those teachers (Pin and Juan) who experienced ICT application constantly and substantially in the past were more willing to accept the concept of teaching with ICT and to adapt ICT in their classroom teaching. However, the teachers (Qyin and Liao) who did not have substantial exposure to ICT facilities were cautious or negative about ICT in their teaching practices.

6.4.1.3 The perceived ICT competence

Table 6-5 indicated that teachers’ perceived ICT competences were coherent with their attitudes. Teachers with advanced perceived ICT competence applied ICT more frequently and innovatively in teaching and vice versa. For example, Juan felt very confident about her own classroom teaching with ICT. In the semi-structured interview, she claimed that ‘there was not much in ICT for a classroom teaching’. She further explained that the operation of various ICT facilities was not problematic in most cases for her because she had a long experience of using them.
Pin and Qyin felt less confident than Juan did. They both felt non-professional for their ICT competence. Therefore, Pin adopted ICT for pedagogical functions that were convenient for her to control and to practice, while Qyin avoided using ICT in classroom teaching because of her perceived difficulty in operating ICT smoothly. Liao perceived his own competence as 'able to do some typing'. He also thought it necessary to know 'how to turn on and off' computers. He avoided computers as much as he could. He claimed that he depended on his wife for computer operations. According to his colleagues, Liao would leave typing tasks to his wife even though 'there were only a few words and it would take only a few minutes to do so' [Focus group/Pin].

Furthermore, family members' ICT related activity could have partly influence a teacher's perception about his/her ICT competence. The study showed that a teacher was more likely to adopt ICT facilities for either personal or teaching purposes if his/her family members did not exert pressure on their use of ICT. For example, Lu perceived herself as 'very competent' in ICT skills and was proud of her ability of applying them to teaching. According to Lu, she felt her confidence about teaching with ICT because even her husband, an IT professional, had to ask her to help 'in designing PowerPoint presentation' since he did 'not know as much as I do' [Interview/Lu]. In contrast, Pin was less confident compared to Lu. In the Interview, she compared her ICT competence with that of her daughter, a primary school pupil, saying that her daughter had higher ICT competence than she did. A very special case in this study was the case of Liao. His experience was a good example to show how family could have negatively influenced a person's ICT competence. As has been discussed in his single case analysis, Liao was the only person in his family who had not had a computer science educational background. He relied on his family to complete all ICT related tasks. Such situation could be a reason that led Liao to perceive the operation of computers and the application of PowerPoint difficult tasks. Researchers argued that computer anxieties (Koohang 1989; Russell and Bradley 1997; Selwyn 1997) could be linked to fear of failure or embarrassment when using computers. Liao could have been experiencing such feelings when this study was conducted. Liao's roles in both his family (husband and father) and the Business English Department (senior staff with high social position) could have prevented him from admitting his incompetence in ICT. Thus, compared to his colleagues, Liao's concern about ICT competence could be more likely to go into computer phobia/anxiety, which was a key factor that limited teachers' use of technology (Koohang 1989; Fisher 1991;
Russell and Bradley 1997).

Preston, Cox et al. (2000) found one of the most significant factors that correlated positively with the energetic use of ICT was confidence and perceptions of individual’s ability to use ICT. The result of this study was consistent with those researchers’ findings. Teachers like Juan who were more knowledgeable about the potential use of ICT become more confident and more flexible in adopting change. Further more, Davis et al.’s (1989) research show that teachers who are confident in their use of ICT tend to have a higher level of computer skills and are more likely to use computer at home for work than those with a negative attitude would do. Therefore, to improve teachers’ ICT confidence through the improvement of their ICT competence could help teachers overcome their computer anxiety and encourage them to uptake ICT in future teaching.

6.4.2 Contextual factors

In addition to the personal factors that were related to these teachers’ pedagogical application of ICT, teachers in this study had different perceptions about the context of teaching with ICT though they were all teaching in the same department of the university. The contextual factors that were identified in the seven teachers’ teaching practices are summarised in Table 6-6. These factors are 1) the ICT policy and practice, 2) current curriculum, 3) the teaching community and 4) cultural influence.

Teachers’ experience in this study indicated that a teacher who was in a perceived favourable context showed favourable attitudes to the use of ICT in his/her teaching, and a teacher who perceived the context unfavourable showed negative attitudes to teaching with ICT. For example, in the semi-structured interview, Juan emphasised the positive outcome of her initial use of ICT (see Chapter 5.3.7 and Chapter 5.3.6 for detail) motivated her current practice. Juan had also claimed that she was motivated by the policy and practice of the university from 1998 to 2000, because she had been rewarded with the first class prize in the annual teaching contest in 1998 and was able to participating in a number of ICT related projects thereafter (see Chapter 5.3.1). One of her ICT related projects had been rewarded a first class national reward in the 2003 National Educational Program Exhibition in Beijing. Juan commented her experience of being able to teach TMT and other ICT related innovative project as ‘lucky’.
Table 6-6 Contextual factors for teaching with ICT

<table>
<thead>
<tr>
<th>Category</th>
<th>Summary</th>
<th>Specific nodes</th>
</tr>
</thead>
</table>
| the ICT policy and practice | • The fundamental role of ICT in the university  
• The policy and practice to support teaching  
• The policy and practice to support learning | • ICT for massive education  
• Supplement tools  
• ICT application encouraged in teaching before 2000  
• No support after 2000  
• Facilities available for teaching and learning |
| current curriculum      | • Educational philosophy: teacher centred and instructivism             | • Shortened instruction hours  
• Textbook based teaching |
| teaching community      | • Contacts with members  
• Perceived value of ICT in the community  
• Shared ICT competence | • Few contacts between colleagues  
• Similar ICT competence |
| Cultural influence      | • Traditional teaching approach: behaviourism and instructionism  
• Teacher as authority and students modest self in classroom  
• Computer as part of ‘culture of youth’ | • Younger teachers tend to be more active in using ICT |

Context was perceived to be an external force that had forced teachers’ acceptance of ICT in their teaching. Pin and Qyin’s case reflected such situation. Pin used ICT when it was convenient to her because she applied ICT as a symbol of leadership in the department. Qyin was cautious about the use of ICT in her teaching. She used ICT equipment in her teaching on particular occasions according to context situation such as curriculum or judgement criteria for a contest (see Chapter 5.5 for detail). Both Qyin and Pin accepted ICT but neither was active in changing their current teaching practice.

As an older teacher, Liao was initially expelled from the application of ICT. The policy prevented or even discarded him from applying ICT to his teaching. When he had missed the initial chances of applying ICT, further application seemed even more difficult because the weakened technical support from the university after 2000.

Lack of support might have further hindered his attempt to use ICT as all teachers who had applied ICT in their teaching claimed that they had to depend substantially on
themselves for their teaching with ICT when the ICT policy changed in 2000. To Liao, such could be an impossible task in his teaching. According to Fullan (1991), teachers need a favourable context to motivate their uptake and application of ICT in their teaching. Ramsden (1998) sums up the key theme as:

There is evidence that the environment of academic departments … influences the quality of teaching and learning in universities… , the key factor in the equation is the staff member’s perception of the context of academic work. (p. 63)

6.4.2.1 ICT policy and practice,
The ICT policy and practice in the university provided the context for teachers’ implementation of ICT pedagogy. According to teachers experience in this study, three major aspects particularly influenced their ICT pedagogy. These aspects were:

1) The role of ICT in the university;
2) The policy and practice to support teaching; and
3) The policy and practice to support learning

All seven teachers were aware of the role of ICT in the university. ICT was applied as supplemental tools to support massive education. The initial practice in the university was to apply ICT for as many as 1000 students located in over 30 classrooms for the same lecture synchronically. Such massive education did not seem to be successful and the practice stopped in 2000, only two years after the initiatives. However, the assumption that ICT is for massive education did not change. In this university, ICT supported multimedia classrooms (see Chapter 5.1) were big. When this study was conducted, only instructions for those courses with more than 60 students would be allocated to multimedia classrooms. In the Business English Department, however, courses were traditionally small (with only 30 or fewer students for an instruction). Multimedia classrooms were not available from the university in most cases. The solution to this problem in the department was to establish two Business English Labs. Consequently, most courses for Year 3 and Year 4 students could be conducted in the lab. In this study, both Pin and Juan were teaching in the labs. Liao was not teaching in the lab because he had more than 100 students, which went beyond the capacity of the lab. Qyin was not able to use the lab either because she was not aware that she could apply for a multimedia classroom from the department rather than the university course scheduling office.
Many researchers pointed out the importance of organisational support to teachers’ use of ICT for teaching (see Fullan, 1991; Cox et al, 1999). In this study, however, the support to teachers was inconsistent. The year 2000 seemed to be critical division of the support available to teachers from the university. Four teachers, Pin, Juan, Lu and Qyin obtained technical support before 2000. All four teachers used ICT in the period 1998-2000. During that period, they had professional support for PowerPoint presentation design, and classroom technical support. After 2000, however, the university stopped technical support and teachers from then on had to depend on themselves for the application of ICT in teaching. Pin and Juan managed to obtain support from the college. Lu became a confident self-dependant. However, Qyin was not able to solve her problem in the same way. She was not confident enough to be completely self-directed (see Chapter 5.5.6). Therefore, she applied less frequent ICT to teaching. She encountered problematic support in her occasional application. In year 2005 when data for this study were collected, the university had only five official employed professionals to support the ICT use in a university with over 1750 teachers and 26,000 in campus students. Such a ratio of the number of IT support staff against the number of teachers and students implied inefficient technical support in the university.

In addition to the limited support to teaching, there were also problems in the university to support students’ learning. Pin and Juan claimed in the semi-structured interviews that ICT facilities offered to students’ learning were restricted. They admitted that it was ‘difficult to encourage students to learn with ICT’ under the current situation for two reasons. First, the facilities were limited and second, students had to pay an hourly fee for their access to very limited computers on the campus. In the student focus group discussion, students complained about the limited facilities for their autonomous learning, the conflict in ICT access between instruction and autonomous learning, and the limited access to resources for their learning.

S5: I feel the university should widen the access to resources throughout the application of them in the whole campus intranet. For example, we have broadband in our dormitory, but we have no access to such good programs as TMT from our dormitory. The learning with ICT is very limited in this university. [Focus group]

S1: when we were in our second year, we had the chance to use a lab for a
multimedia-based listening comprehension course one evening a week. We went there only twice. Two weeks later, the teacher in the lab told us that the room was no longer available to us because it was used for instruction. The kind of training courses opened to public aimed to earn extra money. I felt it was so unfair. [Focus group]

S7: multimedia supported learning is still a luxury or us, ... Not every university can apply multimedia teaching, things like computers, are not available in every room. The shared resources, the software or program are good but without computers, we could do nothing. [Focus group]

S8: take the computers in our university library for example, I had not been there for quite a long time because, whenever you go there, there will be a notice saying ‘these seats are reserved for such and such course/training today, we apologize for the inconvenience’. ... I feel if the computers are purchased to support our students to search referencing materials. Why should they by used for instruction? However, the instructor simply told me that ‘do not ask me why, go and ask the administrator’. I felt there were problems in such arrangements. [Focus group]

S8: When we first came here, they told us that online resources, online reading materials etc. are shared within three major universities in this city. Well, you see, it is not possible even within our own university, not to mention three universities. [Focus group]

Additionally, Juan and Pin also complained that students’ limited access to ICT facilities in the university made some teaching activities difficult or impossible to be organised (see Chapter 5.4.8 and Chapter 5.5.8 for details). Students in the focus group complained the difficulty in finishing assignment that required the access of varied ICT facilities.

S8: Yes, but it was very troublesome without a computer. If I need to download materials, say for tomorrow, I will find a net café this afternoon to store the materials to my online virtual disk, then I have to try very hard for a printing company\(^\text{22}\) that is able to download the materials and print it out. I need to pay quite a few bucks again to get the information downloaded. [Focus group]

\(^\text{22}\) Many small print companies do not print materials for students from floppy disks or flash disk for fear of virus attack.
Data collected in this study suggested that the ICT related policy and practice were not effective and efficient in supporting both teaching with ICT and learning through ICT.

6.4.2.2 Current curriculum
Teachers expressed their views on the negative influence of the current curriculum on their implementation of ICT pedagogy. The influence came from two aspects, namely the shortened teaching hours and the required textbook-based teaching.

6.4.2.2.1 The shortened teaching hours
After the introduction of ICT into the university in 1998, the Curriculum Design Sector in the university was asked to consider the role of ICT in teaching. An evident change of the curriculum was that the instruction time of many courses had been cut down by one third or even been halved. Such change was based on the assumption that ICT had improved the capacity of delivering large amounts of information within an instruction. It was therefore possible for teachers to cover their teaching contents in a shorter period. Lecturers therefore needed less time to complete the instruction for a course. Consequently, the instruction time for many courses should be cut down.

Such an assumption was true to a certain extent because all teachers in this study had admitted that ICT supported presentation saved teachers’ board writing time. However, since the new curriculum considered only the teaching in the whole process, the time that students needed to absorb the intensive information had been largely ignored. This caused the imbalance between the information-enhanced instructions and squeezed autonomous learning time. As could be seen in this study, if a teacher could feel it a ‘headache’ to absorb the concepts presented in ‘50-60’ pages of a textbook for one instruction (see Chapter 5.3.4), it could be expected an even more serious ‘headache’ to her students. Therefore, simply cutting down the time for a course was not enough to support the application of teaching with ICT in long term.

Additionally, the new curriculum assumed that every teacher who instructed the course would automatically adopt ICT for teaching and therefore be able to cover their teaching contents within shortened instruction time. The assumption was not realistic in the first place. In this study, for Liao and Qyin who were reluctant to introduce ICT into their classroom and did not adopt ICT into instructions, the shortened time only bought problems to them. Liao felt it was almost impossible for him to cover all the topics
required by the curriculum, which could actually have negatively affected students’ attainment because their learning was not complete as required by the curriculum at the end of the course (see Chapter 5.6.7 for detail). Similarly, Qyin felt she did not have sufficient time preparing all these new materials required by the ICT pedagogy. She also expressed her concerns about classroom organisation because she felt it was difficult to guarantee her students’ learning achievements in the shortened period.

6.4.2.2.2 The required textbook-based teaching
Teachers were also concerned about the textbook-based teaching required by the curriculum. Pin, Qyin and Liao all talked about this problem either implicitly or explicitly. Textbook-based teaching has long been a tradition in Chinese teaching (see Chapter 3.2.1 for detail). In the site university, every course must have an assigned textbook, which the course teacher is expected to base his/her teaching on. Nevertheless, since the publication of a textbook required a long time span between editing and final publication, it was ‘out of date when it reached students’ hands’ [Interview/Qyin]. Furthermore, the design of some textbooks did not support teaching with ICT. It could thus cause conflicts between teachers’ intention to adopt ICT in teaching and the possible implementation of ICT pedagogy based on the given textbook. Qyin’s case was a good example. Qyin claimed that her textbook was completely out of date. She believed such a textbook rendered ICT pedagogy almost impossible. However, it was still assumed that she should adopt ICT to her instructions and therefore could cover all teaching content listed on the so-called ‘ICT supported curriculum’ within 32 hours (see Chapter 5.5.7 for detail). In contrast, Liao did not feel the tension between the traditional non-ICT supported textbook in his course and the assumed ‘ICT-supported’ teaching because he did not apply any ICT facilities to his teaching. His teaching was constrained substantially by the shortened teaching hours as it had prevented him from covering topics included in the ICT supported curriculum. Liao was forced to solve the problems through simplifying instruction or skipping some topics (see Chapter 5.6.9 for detail).

These issues raised in these two teachers’ cases indicated that pedagogy underpinning the curriculum design in the university was still teacher-centred. The shortened teaching hour meant that curriculum design emphasised only the improved capacity of delivering teaching materials. The assumed application, however ignored the increased time and demands for students’ autonomous learning. The textbook-based teaching again
emphasised the role of textbook as the exclusive, fixed knowledge resource for student learning, and the role of teacher as the knowledge transmitter in the instructions. As has been discussed early in this chapter, the nature of ICT in education required the application of constructivist teaching rather than instructionist teaching. Additionally, the change of individual teacher’s ICT pedagogy required a change of policy and management to support the new student centred learning oriented pedagogy within the whole organisation. If the university did not shift its ICT policy and practice to a constructivist based system, it was not likely to expect substantial changes in teachers’ practice in the near future.

6.4.2.3 Teaching community

Fullan (1991) argued the importance of involving all the teachers in deciding to adopt ICT in an organisation and of promoting teachers’ willingness to learn from their colleagues who had new knowledge and skills. Only when teachers were completely involved in the process and their willingness to learn from each other in a community was enhanced would it be possible for the community to adopt ICT in their teaching. Furthermore, Wenger (1998; 2000; 2000) argued that a community of practice might form the norm of either willing to learn or resisting any change. In this study, although individual teachers expressed their desires or needs to improve ICT competence, teachers’ experiences about their ICT related learning within a community of practice was underdeveloped. All seven teachers expressed explicitly that they were learning through their own effort and collaborative learning within the Business English Department was rare.

Data suggested several reasons for the underdeveloped community of practice within the department. First, teachers in the community lacked adequate communication. Juan and Pin both used the Business English Lab for instruction; however, the two had never exchanged their experience about teaching with ICT. Both teachers similarly expressed that they did not know how other teachers in the community organised their classroom teaching in ICT supported environment. They seemed to lack the interest to peer observe their colleagues’ instruction even though they were asked to do so. Three teachers, Pin, Qyin and Juan claimed that they were too busy to notice what others were doing. Qyin further expressed that she was not interested in observe her colleagues because teachers were teaching different courses, which according to her, required specified professional
knowledge and would rendered peer observation difficult in processing. Both Pin and Juan perceived teaching as private business of individual teachers and therefore peer observation was not a favourable method for them to share teaching experiences. In contrast, Liao was the person who though peer observation was effective. However, because Liao isolated himself from his colleagues particularly after year 2000 (Chapter 5.5.6), which might partly result from his resistance to ICT in EBP teaching, he lost the interest to observe his practice as he used to.

Second, there was no commonly agreed value of ICT in the community. Teachers in this study had different views about the value of ICT in teaching. While a shared value was the core norm for community members to accept each other and identify themselves from other communities of practice, data analysis indicated that teachers in this study were still initialising an agreed norm about the value of ICT in their teaching, though six of the teachers had experiences of applying ICT to teaching. This could be verified by two cases, namely the case of Liao and the case of Juan. Liao’s case was outstanding in this study because he was hostile to the implementation of ICT pedagogy in EBP teaching. He deliberately separated himself from the community as could be seen in his semi-structured interview (see Chapter 5.5.6 for detail). In contrast, Juan’s attitudes to ICT in EBP teaching were favourable. She felt it difficult to exchange her experience with the others partly because she perceived that her colleagues were years behind her practice and would not be able to appreciate her teaching completely. Thus, since neither teachers who were resisting ICT nor teachers who were embracing ICT had the commitment to be engaged in ICT related activities within the community of practice, it was not likely for the community to establish a shared norm for their implementation of ICT pedagogy.

Third, teachers’ perceived lack of competence in the community hampered their communication with colleagues for ICT related issues. Qyin’s case was a good example (see Chapter 5.5.6 for details). Though Qyin had struggled for hours on an ICT problem and ended up failure, it had never occurred to her that she should seek help from her colleagues. The reason, according to her, was ‘I do not think they know more than I do’ [Interview/Qyin]. Similarly, Lu preferred help from external personnel because she could not see ‘what do they (her colleagues) know?’ [Interview/Lu]

Nevertheless, the study indicated that the establishment of community of practice for EBP teachers’ implementation of ICT pedagogy was possible if adequate support and
organisation would be provided to them. The focus group discussion in this study presented a good example. Triggered by the questions proposed for the focus group discussion, participant teachers were active in talking about their experience of teaching with ICT. A large amount of information was exchanged between these participant teachers. Issues covered access to ICT facilities, ICT resources, sharing information with students and other pedagogical uses of ICT. Participation in this focus group raised the awareness of teachers like Qyin about the importance of information exchange and that even at the same level of ICT competence, there was still space to share and to exchange experience. The focus group revealed that encouraging teachers to discuss their implementation of ICT pedagogy could accelerate the speed of establishing a learning community within the EBP teachers as participant teachers could be encouraged and inspired to express their opinions. At the end of the discussion, participant teachers expressed similarly that the focus group stimulated their motivation to exchange their ICT related teaching experiences in future.

6.4.2.4 Cultural influence
As has been discussed in Chapter 3, EBP teachers were influenced by Chinese traditional educational thinking and the pedagogy imported from the former USSR, the UK and the USA. In this study, cultural influence was substantial to the seven teachers. To be more specific, the cultural influence was identified in three aspects, namely the influence of traditional teaching approach, the traditional role of teacher and student and the concept of computer being youth culture.

6.4.2.4.1 Traditional teaching approach: behaviourism and instructionism
All seven teachers were influenced by the traditional teaching approach that had been practiced in China for over two thousand years, although the degree of influence varied from one teacher to another. The cultural influence discouraged teachers’ from changing their beliefs about the nature of teaching and learning, which resulted as a hindrance to teachers intentional and actual change in their teaching approach. For example, Juan was the most innovative teacher whose teaching approach had been substantially changed to a constructivist one. However, her activities in the classroom still reflected the influence of behaviourist teaching when she requested her students to recite the formula repeatedly (see Chapter 5.3.2 and 5.3.4 for detail). Liao insisted that only traditional teaching could best transmit knowledge to his students. This belief was based on his instructionist
teaching approach where students had to follow the instruction of teacher to obtain knowledge. Pin’s instructions indicated that her instruction followed traditional teacher centred pedagogy with ICT a mechanical addition to it. Qyin’s instruction required a large amount of students’ involvement. However, the activities were drill practice aimed to perfect certain language skills. Those activities were based on behaviourist learning theory. As Qyin claimed, ‘I believe that any teacher in this department who becomes the instructor of this course will teach the same way as I do’ [Interview/Qyin].

As a result, the influence of the traditional teacher centred teaching approach caused teachers’ like Qyin and Liao concern about students’ learning achievement and the diminished roles of teachers as knowledge authority. Those concerns then prevented them from changing their teacher centred teaching approach.

6.4.2.4.2 The traditional role teacher as authority and students modest self in classroom
Along with the entrenched teaching approach were the deep-rooted traditional norms about the roles of teachers and students in some teachers’ beliefs systems (Chapter 3.2). For example, Pin, Qyin and Liao firmly believed that teachers’ should be the knowledge authority. Qyin was explicitly expressed her concern about losing her authority in front of her students when ICT became part of their learning (see Chapter 5.5.3). Both Pin and Lu expressed similar concern when she said that students were asking questions that were irrelevant to their course but still felt the necessity for them to be capable of providing appropriate reply. Lu talked about a question for which she could not answer on spot. Therefore, she avoided it by making an excuse that she would talk to the students another time rather them admitting directly that she did not know the answer as some teachers in the USA or the UK would do. In Liao’s case, he verified his authority in EBP teaching to his student by telling them he was the author of specific business English books. This could have been a strategy for him to establish his image and to give his students confidence in him. Such a role as authority of knowledge could also prevent teachers like Liao from asking for help from students or younger colleagues, as this might cause him to lose professional status through a downgrading of traditional pedagogical skills (Fabry and Higgs 1997).

The belief about the ‘teacher-authority and student-modest self’ role led to a lack of confidence in autonomous learning for both students and teachers and could be part of the
reason that Liao thought teaching with ICT was meaningless. Because the ICT supported teaching and learning was based on constructivist learning theory, which often required a student to spend much time doing autonomous learning with diversified learning outcomes. While students’ knowledge and experiences were diversified, their learning outcomes could vary. This was, however, against the traditional understanding of students’ learning outcome that all students should achieve the same attainment from their learning.

Teachers also believed that students should follow their teacher’s pace of thinking and ensure that they have obtained ‘new’ knowledge transmitted from their teachers (Chapter 3.2). Liao was specially emphasised the importance for students to follow his pace of teaching. Juan also expressed similar opinions when she was asked to talk about the negative influence of ICT to her teaching. In Qyin’s class, she emphasised that students must practice their skills in accordance with her teaching pace and activities were designed with the same pattern and resulted in the same outcomes (Chapter 5.5.4). Teachers in this study still believed their classroom teaching was to transmit knowledge to their students. All teachers in this study were concerned about how much new knowledge they could transmit to their students. It is therefore, natural for teachers to occupy most of the time to transmit knowledge. In this study, teacher talk dominated most of the observed instructions. Little interactions between teacher and students were observed in Liao’ and Sheng’s instructions (see Chapter 5.6.2). Pin’s monologue activity lasted 45 minutes without any intention to interact with her students (see Chapter 5.4.2).

Students in this study were also influenced by traditional pedagogy. In the student focus group, students claimed that they were not ready yet to depend on themselves completely for their learning. When there was no clear clue about their teachers’ expectation, they easily got lost. Lu talked about her students ‘psychological needs’ for a teacher’s presence (Anderson, L. Rourke et al. 2001) even in their autonomous learning because ‘they do not feel that they are studying’ without teachers’ presence. According to Shuell and Farber (2001), the benefits of using technology in teaching substantially depended on the characteristics of the students, the type of technology used and the manner in which it was employed. Thus, students’ attitudes towards the benefit of ICT in their learning and their beliefs about their role as students in the process should also be considered carefully by these teachers. In this study, teachers repeatedly talked about their concerns about
students’ ability of doing autonomous learning. They emphasised that the control of student learning was an important part of their task. Pin even talked to her students directly in the classroom that she would take certain measures to constrain students’ use of the Internet because she reckoned that their use of Internet was irrelevant to learning. Without confidence in students’ autonomous learning, it was not possible for both teachers and students to change their roles and to establish a constructivist learning environment.

6.4.2.4.3 ICT as part of ‘culture of youth’

Teachers in this study had different attitudes and applications of ICT in accordance with their different age. The situation reflected the claim that ICT is part of a ‘culture for youth’ (Fornas and Bolin 1995; DfEE 2000).

Not only individual teachers viewed ICT as a symbol of youth culture. The current policy and practice in the site university as well as in other parts of China reflected similar views about ICT. For example, in contrast to the requirements of younger teachers who must pass the exam to be qualified for promotion applications, older teachers were exempted from sitting for the ICT competence test for their promotions (Chapter 5.6.7). Neither was he required to participate in any ICT related training programmes in the university. Such policy and practice in the university might further strengthen Liao’s negative attitude and his resistance to ICT in his teaching. The exemption of elder teachers from ICT seemed to be common in Chinese higher education. Similar policies were enacted in many other universities as well (Chapter 5.6.7). In other developing Asian countries concern about age difference and the use of ICT among teachers have also been reported. For example, a study in Thailand found that ‘employing older teachers requires their constant updating concerning new teaching methods usually those involving ICT, which causes an additional financial burden (Ruth and Donitsa-Schmidt 2004).

According to Schneider, Brief, and Guzzo (1996), cultural influences are often the most enduring aspects in an organisation that are difficult to change. The underlying norms, values, beliefs, attitudes, and cognitive mind-sets that its members hold over time (Reichers and Schneider 1990; Trice and Beyer 1993; Deal and Kennedy 2000) are not talked about explicitly (Trice and Beyer 1993) and sometimes become unconscious. The change of the cultural elements is time consuming and slow in process. In this study, although ICT has been introduced into the teaching system of the whole university, the
cultural aspects in the university which could have supported the innovative application of ICT was not established along with the introduction of ICT facilities. Teachers’ pedagogies were largely influenced by the current cultural systems. Thus, the conflict between the two cultural systems, the one that was required to support ICT rich teaching and the existing one that hindered the application was still strong. Changes are needed to fulfil the potential of ICT for teaching and learning.

6.4.3 Conflicts in the case study
The previous two sections answered the first three questions about teachers’ beliefs about ICT and attitudes towards ICT in their teaching. This section presents conflicts that were identified in the seven EBP teachers’ cases. The conflicts further revealed how teachers’ working was influenced by both their personal factors and contextual factors (Ramsden 1998).

Figure 6-3 was a summary of conflicts that the seven EBP teachers encountered in their implementation of ICT pedagogy. The diagram indicates that teachers encountered four conflicts, which are listed as follows:

- Teachers’ intention to use ICT vs. ICT facilities and ICT competence
- Teachers current pedagogy vs. pedagogy underpinning the application of ICT
- Teachers changing practice vs. ICT policy and culture in the university
- Individual teacher’s varied practice vs. practice of the whole teaching community

As has been shown in Figure 6-3, ICT caused tension between teachers’ attitudes and beliefs about ICT in their teaching and the tools (ICT skills and ICT facilities) as well as tension between teachers’ ICT pedagogy and the traditional teacher centred pedagogy. The first part of this section will present the four conflicts in details.

6.4.3.1 Teachers’ intention to use ICT vs. limited ICT facilities and ICT competence
The integration of ICT in teaching and learning required substantial investment in ICT facilities and the maintenance to guarantee its reliability in operation. This, however,
Figure 6-3 Conflicts identified in teachers' activity system
turned out to be the most serious problem reported by teachers and students in this study. All seven teachers in the study encountered problems with availability and reliability of ICT facilities in their teaching practices.

First, even teachers intended to apply ICT to their teaching, the limited facilities available prohibited them from implementing ICT supported teaching plans. For example, Qyin was not able to teach in an ICT supported classroom though she had attempted to apply from the University Course Scheduling Office. Lu was not able to have any multimedia classroom for her instructions at the beginning of the study. The situation was improved only when she was selected to participate in the university teaching contest and eventually obtained four out of the six multimedia classrooms she needed. Even teachers like Juan and Pin who were able to use ICT for instructions also reported lack of facilities for their students’ autonomous learning, which had prevented them from furthering their adoption of ICT in student learning (see Chapter 5.3.8 and 5.4.8 for details). Pin claimed that she was forced to deliver two separate tasks to her students if application of the Internet was required. The reason was that only half of the computers in the lab could be connected to the Internet simultaneously, which meant half students in the class had to spend their time doing alternative offline tasks when their classmates were surfing the Internet. Both Pin and Juan complained about students’ limited access to ICT facilities beyond instruction time and the negative influence of it on their teaching and students’ learning (See Chapter 5.3.6).

Teachers also felt constraints of ICT resources available to them for teaching. For example, in Qyin’s case, the lack of multimedia resources for her teaching was regarded as a major problem that hindered her adoption of ICT for teaching (see Chapter 5.3.3 for detailed). Juan and her students’ access to the TMT package had been constrained in the lab, which hindered students’ autonomous learning after class. Lu spent more than a month in order to apply for multimedia classrooms to her instruction. Students also expressed their dissatisfaction about their limited access to online resources. For example, students in the focus group complained about the limited facilities available to them and the limited access to useful ICT resources.

S5: I think the university should ...extend the access of online resources. For example ... although we have such useful programs as TMT, we have no access to it at all after class, the access was too limited. [Focus group]
Second, the reliability of ICT facilities caused negative impacts on teachers’ implementation of ICT pedagogy. Qyin’s unsuccessful experience (see Chapter 5.5.6) in the past caused her concerns about whether she should apply ICT or not in her future teaching. Severe delays were observed in two of Sheng’s observed instructions caused by technology problems. Reliability of computers and other ICT facilities were also part of Juan’s first experience in teaching TMT.

Additionally, teachers’ intention to adopt ICT in their teaching was also hindered by their limited ICT competence. Although all seven teachers in my study reported their willingness to use ICT and six of the seven teachers were using ICT to a certain extent, four teachers claimed that their use of ICT was limited by their ICT competence. For example, both Pin and Qyin admitted that they were not professional at all in ICT use. The use of ICT for classroom instructions was also limited as claimed by those teachers because of their limited competences. Pin admitted in her interview that ICT was used predominantly as presentation tools in her teaching. Qyin used ICT for classroom teaching regularly before 2000 when professional technical support was available to her. Her use of ICT became irregular after that because she was not confident enough to control ICT facilities in the classroom after several unsuccessful attempts (see Chapter 5.5.5 for details). In contrast to them, Liao, the only teacher who had not used any ICT facilities when the study was conducted claimed that if he would bring ICT to his teaching, he would need to learn how to turn on or off computers and how to retrieve the presentation for his instruction. This also implied that even if Liao intended to use ICT at the time of this study, his limited competence could not guarantee fundamental operations for ICT types such as word processor, PowerPoint, not to mention adopting these ICT types for pedagogical use in his instruction. Because the seven teachers did not sit for an ICT competence test, their competences were primarily based on their perceptions. Such perception could have negatively influenced their confidence about using ICT, which, in turn negatively influenced teachers’ intention to adopt ICT in their teaching process (Cox, Preston et al. 1999).

6.4.3.2 Teachers current pedagogy vs. pedagogy underpinning the application of ICT

The introduction of ICT into classrooms required teachers’ change of their attitudes towards the application of new technology into teaching as well as their beliefs about the nature of teaching and students’ learning in ICT supported contexts. Papert (1990) had
argued that the application of ICT in teaching could achieve better attainments for students’ learning when based on a constructivist learning approach. This meant a change of both teacher and students’ roles in the classroom. A teacher should be a facilitator and collaborator of his/her students’ learning while students should change from passive audience to their teacher to active learner in the classroom.

The result of this study showed that the change in teachers’ attitude and beliefs varied and many of them were still following their old teaching practice that was well established. Among the seven teachers, four were still continuing teacher centred pedagogy based on behaviourist learning theory that focused on the importance of teacher talk and repetitive learning. For example, Liao firmly persisted on his teacher centred grammar translation teaching approach that had lasted for 35 years in his teaching career. He insisted that this was the most suitable teaching method and learning approach for his students. Pin had adopted varied ICT facilities in her teaching but the observation of her instruction revealed that her classroom was still teacher controlled and teacher talk dominated (see Chapter 5.4.2 and 5.4.4 for details). Her students complained that she should have changed teaching in the new context.

Another example is Sheng who also adopted ICT in planning and presenting instructions. The observation of his instructions indicated that his instruction was solely teacher talk instructions without any interaction between teacher and students. Sheng admitted that there was almost no student activity in his instruction, even though he understood the possible benefits of students’ participation.

Even teachers like Juan, Lu and Ting who were active and keen on changing their current teaching practice were still influenced or constrained by their experiences in the past years (see for example, Juan’s instruction Activity 3 in Chapter 5.3.2). The conflict between unchanged beliefs and attitudes and changed classrooms which required teachers to be more student centred may result from their lack of professional development in pedagogical knowledge and awareness of the latest development of learning theories, which will be further discussed later this chapter as deeper conflicts in these teachers’ teaching with ICT practices.

6.4.3.3 Teachers changing practice vs. ICT policy and culture in the university
With teachers’ gradual acceptance and adoption of ICT in their teaching practice, the
unchanged ICT related policy and practice in the university since the 1990s began to prevent rather than support teachers’ further integration of ICT. To be more specific, this conflict was evident in three aspects, namely the outdated ‘ICT for large group instruction’ policy vs. teachers’ intention to use ICT for small group instruction, the university’s limited support vs. teachers’ needs of substantial support and the norm of ICT for young vs. ICT for all teachers.

6.4.3.3.1 Outdated ICT policy vs. teachers’ changed teaching practice
All seven teachers in this study were aware of the existing ICT policy in the university. That was ‘you need to have at least two classes of students in one instruction in order to have a multimedia classroom’. This policy was enacted in 1990s when ICT was first introduced into the university and was regarded as valuable supplements to the existing teaching facilities. The policy had not been updated to fit individual teacher’s changing practice thereafter. As this study has revealed, this policy and practice was criticized mostly by teachers and was indicated as a very serious factor that had hindered teachers’ intention to adopt ICT. For example, six teachers in the study claimed that they would adopt ICT in teaching when conditions permitted. However, according to the ICT policy in the university, Qyin, Juan, Pin and Lu did not qualify to instruct in ICT supported classrooms because they had only about 30 students for each instruction. Thus, the four teachers had to find alternative solutions. Pin, a leader of the Business English Department who was aware of the policy, tried very hard to establish the Business English Lab. As a result, she and Juan solved the problem by teaching in the lab within the business English department, avoiding direct negotiating with the university management for ICT facilities. Nevertheless, she admitted that it was a tough task for her to achieve the goal. She could not ‘remember how many times she had submitted the proposal’ and how much effort she had devoted to ‘get the funds for the project’ [Interview/Pin]. In contrast, Qyin and Lu applied directly to the University Course Scheduling Office. Neither had satisfactory solutions (see Chapter 5.5.8 for details). In her interview, Lu expressed that the policy was ‘a big headache’ for her teaching. She even concluded that ‘if teachers are not using ICT enough in their teaching, it is not teachers to be blamed’.

I say, in universities if teachers are not using ICT enough in their teaching, it is not the teachers to be blamed. It is a complete problem of the availability of ICT facilities. Why should not our teachers use ICT when there are plenty of
them available to us! There were not enough of them in the university. And worst of all, when you talk to the Course Scheduling Office, they say they won’t give you a multimedia classroom if you do not have two classes of students as required [Interview/Lu].

6.4.3.3.2 Limited support vs. Needs for constant and substantial support

The second aspect of the conflict was that the university’s limited support for teachers’ adoption of ICT and teachers’ needs of constant and substantial support in this aspect. The study has revealed that teachers had limited ICT competence and they required both technical support and support to their ICT related professional development. However, neither had been fully fulfilled by the university.

First, although six of the seven teachers had expressed their desire for constant and substantial technical support to their teaching, evidence indicated that technical support in the university was limited and inconsistent. For example, the policy change in the year of 2000 (as have discussed in Chapter 5.4 and 5.5) influenced teachers’ perception about their working contexts, which then influenced their lesson preparation and classroom teaching. At least three teachers, Pin, Juan, and Qyin claimed negative influence of ICT practice in the university before and after the year on them (see Chapter 5.3.8, 5.4.8 and 5.5.8 for details). The impact was more evident in Qyin’s case when she stopped adopting ICT in her teaching after 2000 (see Chapter 5.5.1 for details). Sheng encountered ICT problems in two of his three observed instructions. Each had seriously delayed his teaching procedure because IT support was not available to him. In the second observation, his instruction had been delayed for almost 40 minutes. The conflict between these teachers’ needs for support and the limited support available to them had increased teachers’ concern about applying ICT in classroom teaching and diminished their positive expectation for ICT in teaching (see for example, Qyin’s case Chapter 5.5).

Second, according to the seven teachers’ report and the practice of the current ICT related policy in the university as reported by these seven teachers, there was no systematic professional development schemes to improve teachers ICT competence and ICT pedagogical knowledge. This situation had been complained about many times. For example, four teachers expressed clearly their willingness to improve their ICT competence (see Chapter 5.3.5, 5.4.5 and 5.5.5 for details). They complained about the unsatisfactory professional development opportunities provided to teachers in the
university. For example, Lu stated in the focus group that she was keen on looking for an opportunity to improve her ICT skills. Evidently, teachers had realised the importance of continuing professional development for their teaching because ‘a teacher is by no means a perfect person’ [Focus group/Qyin]. However, teachers’ needs were not fulfilled because the university did not offer them time and opportunity (see Chapter 6.5 for further discussion).

6.4.3.3.3 ICT as part of youth culture vs. ICT for all teachers

The third aspect of the conflict identified was between the concept of ICT as part of youth culture and the requirement for all teachers to use ICT in their teaching. According to the teaching staff inspection criteria of the university, all teachers should ‘know and could skilfully adopt ICT in their teaching’\(^\text{23}\). This seemed to imply that every teacher in the university had the competence to operate ICT in his/her teaching. This could partly explain why every teacher including Liao, who was not using ICT at that moment, admitted that ICT was there and ‘will become part of our teaching’ [Interview/Qyin] in the near future. On the other hand, the promotional policy in the university did not require teachers over 50 to improve their ICT competence. They were not required to attend any ICT competence training programs in the university. Neither were they required to sit for an ICT competence test as their colleagues might do for promotion. The practice reflected the norm of ‘ICT being part of youth culture’, which was similarly shared by other Chinese universities and colleges (Chapter 5.6.9). The conflicting policies in the university influenced teachers’ beliefs and attitudes towards ICT in their teaching (see Chapter 6.4.2.4 for detail) and the adoption of ICT in their teaching (for example Liao as discussed in Chapter 5.6.7).

As could be seen in this study, teachers like Liao were resistant to the application of ICT even though they were assumed capable of applying ICT to teaching and they were teaching under an ‘ICT enhanced’ curriculum. The case of Liao indicated that no teacher should be exempted from ICT technical support or ICT competence training programmes because the introduction of ICT was not for particular individual teachers or particular group of teachers. Rather, ICT was introduced to every teacher and his/her students in the university. Therefore, the exemption of certain group of stakeholders in ICT related teaching would cause a dilemma in the teaching practices in the university as the

\(^{23}\) adopted from the inspect guidance of teaching staff,
exempted group was actually impossible to be exempted from the ICT related teaching activity system in the university.

6.4.3.4 Individual teacher’s varied practice vs. practice of the whole teaching community

Recent research in the UK and the USA identified the importance of the community for organisational learning (Thomas, Wineburg et al. 1998; Dawes 1999; Gong 1999; Carlson 2002; Dexter, Seashore et al. 2002; Coulton 2005; Edwards 2005; Hung, Chee et al. 2005; Krumsvik 2005; Makinster, Barab et al. 2006). Learning that naturally occurs between colleagues in working contexts could be either supported or hindered, depending on the degree of acceptance of a new concept (norm) in the community. It is a process for workers to learn through sharing ideas as part of their daily routine. In this study, teaching with ICT was a new concept for the EBP teachers’ community and the acceptance of it influenced the practices of all members. That is, the more deeply the norm of teaching with ICT has been accepted in the community, the more willing the teachers are to learn and the more innovative the application of ICT can be adopted into teaching practices. However, data analysis of this study indicated that ICT was still in its initial awareness stage in the community (see Chapter 6.4.2.3 for further discussion). For example, teachers admitted that application of ICT was driven initially by the ‘trend’ or the policy of the country and the university (Chapter 5.4.3 and 5.5.3). Although some teachers were adopting ICT in their teaching, the ‘teaching with ICT’ norm was not commonly accepted in the college. For example, Ting who was also substantially applying ICT in her teaching commented that ‘only a few colleagues’ were teaching in ICT supported classrooms.

ICT is not popular with our colleagues. You see, whenever I walk along this teaching building, those who are using multimedia classrooms are teachers of engineering or architecture or civil engineering. Only a few colleagues in our department are teaching in these classrooms. [Interview/Ting]

She even compared her experience in the university with her experience in a secondary school where teachers met regularly to discuss their design of presentation, classroom activities organisation and the possible solutions to problems in ICT supported environments. Ting claimed that such discussion had never happened in her teaching in the university. She felt that teachers were isolated and were ‘teaching on their own’. Similarly, the fact that Qyin did not seek help from her colleagues on ICT problems also
reflected her perception that teaching with ICT was not a shared norm in the community.

Under this circumstance, those teachers like Juan and Lu who wished to integrate ICT in their teaching and to fulfil the potential of ICT for both teaching and learning encountered resistance from within the community. Both Juan and Lu expressed similar opinions that they did not have much chance to exchange experience or to discuss technical problems with their colleagues.

Furthermore, while teachers like Juan, Lu and Ting were implementing pedagogy in their classroom teaching that was more student-centred, the commonly accepted teaching approach in the community was still teacher centred. For example, three teachers’ instructions (Pin, Sheng, and Liao) were observed to be teacher talk dominated. Juan was criticized in a regular meeting by a leader in the department for giving too much instruction time to student autonomous learning activities. Even those teachers like Juan and Lu who were changing their teaching practice were also observed in their instructions the influence of teacher-centred pedagogy. For example, Activity 3 of Juan’s observed instruction (Chapter 5.3.2) indicated a teacher talk dominated activity where students were a passive audience. As Gong (1999) described,

> Many teachers still find it comfortable to conduct classes in the traditional way. That is to say, it is a teacher-centred teaching environment in which teachers do all or most of the talking and lecturing, leaving no opportunities for students to think or even ask questions (p.109).

Additionally, the introduction of ICT into the community also caused new power relationship between its members. Traditionally, Chinese culture valued experience. Teachers with long teaching experience were highly respected by their younger fellows. However, ICT had been introduced to this community for only 8 to 10 years, which meant almost all the seven teachers had similar experience in the last 8-10 years. While younger teachers such as Juan, Lu and Ting in this study seemed more active in their learning and teaching with ICT, the older teachers like Liao were less active and reluctant to accept ICT in their teaching and seemed to have revered esteem to some extent in the community. This further isolated teachers and prevented them from discussing about and supporting each other for their teaching with ICT. The isolation could have hindered the integration of ICT in the community because shared norms in a community depended on the process
of sharing experiences and knowledge. As revealed in this study, the more a teacher embraced ICT into his/her teaching, the more serious tension he/she could feel in the process. However, those teachers who stuck firmly to the traditional teaching practice and resisted any change in their teaching also felt it difficult for them to survive in the community. This reflected the fact that ICT had become technically accepted in the university (ICT exists in teaching) but it had not culturally changed the practice (the pedagogy, the curriculum design etc.) in the university (Tichy 1982).

The sections above have presented four conflicts teachers encountered in the system for their teaching with ICT. In addition to those conflicts, three more conflicts were identified as significant in the system between teachers and context. These conflicts were:

- The student centred pedagogy in ICT rich environment vs. traditional teacher centred curriculum
- The ICT for teaching policy vs. ICT for learning requirements
- Limited ICT competence vs. demand of ICT pedagogy

6.4.3.5 Student centred pedagogy in ICT rich environment vs. traditional teacher centred curriculum

Teachers had realised the necessity to adopt student centred pedagogy to fulfil the potential of ICT for students’ learning. For example, both Juan and Lu realised the new pedagogy ‘were completely different compared to past teaching’ because students became central in both classroom activities and the learning process. Juan emphasised that the new pedagogy provided more opportunities for students’ hands on experience while Lu highlighted the ‘customized learning’ her students could enjoy in the new learning context. Both teachers felt it was necessary for them to change teachers’ roles in the classroom to better facilitate students’ learning (Chapter 5.3.4). Pin was aware that student centred pedagogy should be adopted in her teaching (Chapter 5.4.4). Sheng, a teacher who followed a teacher centred teaching approach in this study admitted that when students were given opportunities, the result ‘was brilliant’.

Yes, I asked them to design the PowerPoint presentation. For example, Xia (a student) and his group did a good job. Their presentation was beautifully designed. Students showed great interest. They also presented their work to the whole class, all by themselves. It was a brilliant presentation, motivated their learning even after that…. However, my class is too big. How wonderful would
it be if they each could do a presentation to all! [Interview/Sheng]

However, teachers claimed that ICT pedagogy was not fully supported by the current curriculum that was based on the traditional teacher centred pedagogy. This did not mean ICT had not been considered in the curriculum design. For example, Ye and Chen (1999) pointed out that teaching hours could be cut from 458 hours to 304 for a Year 1 and Year 2 student’s English Intensive Reading course and could still ‘guarantee or even improve the teaching quality’ (p.58) when ICT facilities, ‘particularly the use of CD-Rom multimedia materials and online resources become popular’ (p.58). Teachers in this study experienced similar curriculum change in the past 10 years. One typical change was the reduction in teaching hours for many courses the seven teachers had taught. The change in curriculum design indicated that the so-called ‘ICT-enhanced curriculum’ was teacher centred and teaching oriented, which could easily lead to teacher-talk dominated pedagogy. Such a curriculum caused difficulty for teachers to organise student centred classroom activities. In this study, Juan, Pin and Liao all complained about the shortened teaching hours after ICT had been introduced to the syllabus of their courses. Juan was struggling to provide more time for her students’ autonomous learning in the lab after her instruction time. Pin admitted that because of the shortened teaching hours, it was impossible for her to provide her students enough time to learn autonomously. Liao suffered from the shortened teaching hours because he did not adopt ICT in his teaching but had to deliver teaching content under the ‘ICT-enhanced’ curriculum, which resulted in his ‘impossible to complete the teaching schedule’. His solution to the problem was to cut teaching contents and to simplify the final examination for the course (See Chapter 5.6.9 for details). This was not desirable because such an expedient solution could have detrimental effects on his students’ learning though he seemed to have apparently fulfilled the course schedule. Moreover, to take a strategy like that risked Liao’s career because his solution might be spotted by the inspectors from the university or from the national inspecting authority. In this study, Liao was willing to reveal his strategy because he was guaranteed anonymity and the fact that he was reaching his retiring age.

It seemed that in this university ICT in the new curriculum was a tool, which helped save teachers’ board writing time. The saved time for boarding writing therefore, naturally led to the reduced teaching hours for each related course. However, teachers in this study felt that ICT should not only be regarded as an efficient substitute of board writing in
traditional pedagogy because it changed the traditional teaching context and required more time for students' autonomous learning. Teaching was constrained because of the conflicts between the new student-centred pedagogy and the teacher centred curriculum. The conflict indicated that in the EBP curriculum design, more elements than teacher-talk-time should be considered when students become more central and more active in learning in an ICT rich learning environment.

6.4.3.6 The ICT for teaching policy vs. ICT for learning requirements

To enable teachers' new ICT pedagogy, access to ICT facilities and resources are essential. However, this study revealed that ICT facilities and resources were factors that had seriously prevented teachers from implementing their ICT pedagogical decisions throughout their teaching. This was a result of the conflict between the policy that ICT facilities were provided for teaching purposes in the university and the actual demand that ICT facilities should support both teaching and learning in the classrooms. According to the current ICT policy, whether a teacher could apply ICT supported classroom to teaching relied on the scale of his/her class. Priority was given to instruction with large classes rather than the actual needs to adopt ICT to teaching and learning. The policy underpinned the baseline about applying ICT to teaching in the university: ICT was regarded exclusively as teaching assistance rather than provisions of new affordances for learning.

The conflict between the baseline and the demands by teaching and learning also caused unfulfilled pedagogical plan in a number of EBP courses. For example, both Juan and Lu expressed that students should have full access to online learning resources or their teaching contents installed in the labs. Juan sacrificed her spare time for students' improved access to TMT. Lu emphasised that all six of her students' sense organs would be stimulated for English learning with full ICT support. This was not feasible for her teaching because she was not in a privileged situation to obtain multimedia classrooms. She felt frustrated when she was forced to change all her original teaching plans because students had less access to the resources as she had expected. Similarly, Pin was forced to deliver different tasks for students learning activities due to insufficient ICT facilities available to students' autonomous learning. The result of this alternative implied Pin's sacrifice of her spare time to her students' autonomous learning. Therefore, both Pin and Juan would have to work overtime in order to provide to their students with 'extra time' to
access ICT resources for learning.

It was no clear how long both teachers would be willing to sacrifice their time for students' learning task. However, both cases that current ICT policy, which prioritised large-scale teaching, was not suitable for the changing practice. Therefore, changes need to be considered to fit the student-centred learning and teaching in the university.

6.4.3.7 Limited ICT competence vs. demand of ICT pedagogy

The new pedagogy required teachers to have adequate ICT competence and understanding of how ICT functioned in the new pedagogy. However, teachers' limited perceived ICT competence prevented teachers from teaching efficiently with ICT. Observed instructions of the seven teachers revealed that a number of problems they encountered during the classroom teaching were preliminarily related their ICT competence. Qyin's experience was a case in point. One problem she had encountered was merely a minor adjustment of sound volume to an audio player programme in the teaching computer. Two technical problems were observed in Sheng's instruction. The first problem could have been easily solved by simply restarting the computer and the second problem was solved by the technical staff by pushing a button to convert from laptop screen display to projector screen display. Such problems could have been avoided if teachers had opportunities to improve their ICT competence. While researchers in the UK and the USA are now calling for more pedagogically related ICT training for teachers (Yocam, Wilmore et al. 1994; Yocum 1996; Dawes 1999; Higgins and Moseley 2001; Sandholtz 2001; Smylie, Allensworth et al. 2001; Littlejohn 2002; Burton 2003; Li 2003; Loveless 2006; Mullock 2006), it seemed that at least teachers in this study needed time and opportunities to improve their basic ICT skill.

Meanwhile, the needs for pedagogical related ICT training were also observed in these teachers' instructions. As discussed earlier in this chapter, teachers' applications of ICT in teaching varied from resistance to innovative adoption. However, interviews with the seven teachers revealed that teachers, especially those who were applying ICT innovatively in their teaching practices did not have a clear understanding of the nature of the change in their pedagogy. When talked with them about the possible change of pedagogy after their application of ICT to their teaching, teachers admitted that they had never regarded their new 'teaching methods' as change of their pedagogy. For example, Ting said in her interview that the use of ICT had changed her way of 'thinking about my
teaching, but this was still not a change of pedagogy' [Interview/Ting]. Two teachers, Lu and Juan expressed similarly that they did not perceive the changed teaching as a change of pedagogy, even though change in pedagogy was identified from interviews with them and was observed in their classroom instructions. For example, Juan noticed that her students were extremely positive about participating in her instruction. Lu claimed that students supported by ICT for learning were able to use different words and expressions to express diversified ideas in their writing compared to students who were taught without the assistance of ICT facilities and resources. Lu even claimed that ICT has changed her role of teacher from the traditional meaning. She still did not see it a change of pedagogy. The three teachers only admitted such change as changes of teaching methods rather than a change of pedagogy.

Why teachers did not want to admit their change of pedagogy? Why did not they want to make their change explicitly expressed or described? The reasons for this phenomenon might lie in the fact that teachers in the university did not have consistent professional development opportunities to improve their subject knowledge, ICT skills and pedagogical knowledge. Many teachers in higher education in China do not have a strong background of teacher education (Zhang 2002). They were firstly regarded as professional academics in their fields they were teaching. Although there were short training programs about educational psychology when teachers first come into a university, such programs were mostly one-off and last only for a short period, which were against the life long learning strategy proposed by the Chinese Ministry of Education (Zhou 2005).

As shown in Figure 6-3, there were conflicts between teachers' attitudes and beliefs and other elements in their teaching activity system (see sections 6.4.4.1 to 6.4.4.4). There were also conflicts between the elements within the teaching activity systems (see sections 6.4.4.5 to 6.4.4.7). A closer examination of these conflicts indicated that these conflicts referred further to the in-depth conflict of the two different interpretations of ICT supported pedagogies between the university management and individual teachers. It was ultimately the conflict between two different cultural values, which were embedded in the current education system. At one end was the traditional pedagogy, which was practiced over two thousand years and was still influential. At the other end was the ICT pedagogy, which was based on constructivist learning theory. The pedagogy
also required substantial change in national and local educational policy, in curriculum design and in individual teachers’ implementing of ICT pedagogy. Thus, two interpretations about the integration of ICT to pedagogy that stemmed from these two different cultural values could be identified. There was the traditional way of interpreting ICT as supplementary tools to the existing pedagogy by the university management who controlled the curriculum design, ICT investment in the university and the allocation of ICT facilities to teaching and learning. There was also the interpretation of ICT as new affordances to support and facilitate students’ learning and therefore, pedagogy should be learning oriented and student centred. Such pedagogy could be implemented in some teachers’ practice even though they might not consciously recognise it. As Fullan (1991) and Dewey (1938) argued, teachers might change their beliefs before they pursued change, they might also change their practice before they changed their beliefs.

The conflicts between the two groups of pedagogies could be verified from the following aspects. First, there was the influence of historical traditional pedagogy that hampered the incorporation of student centred pedagogy into curriculum design, hence the conflict between the existing pedagogy and the required pedagogy. The literature (see Chapter 3) indicated that pedagogy in Chinese higher education was influenced substantially by its history and tradition. Teacher centred pedagogy was still dominant in higher education. The pedagogy was described as ‘teacher talk dominated’ and ‘spoon-feeding’ (Song, 1999). Students’ learning was a consequence of rote learning many classroom notes that were delivered by their teachers in the classroom (see Chapter 3 for details). According to the curriculum design materials collected from a number of universities for the Chinese Business English Teaching Conference (Lin 1999; He and Xiao 2004; Wang and Yan 2006), EBP courses had been classified into language competence and skill practice courses. The classification followed the traditional way of dividing foreign language teaching into ‘knowledge and skills’ categories.

Constrained by curriculum which underpinned teacher-centred teaching-oriented pedagogy, teachers were obliged to spend a large amount of time in an instruction in explaining grammar, sentence patterns, the register of using particular words, the semantic meaning of those ‘language knowledge’ as well as background business knowledge and business concepts. It was not likely for them to provide time for students’ autonomous learning activities (He 2004; Liu and Hu 2004). When ICT was introduced
into the curriculum, it was assumed as a tool to improve teachers' presentation capacity. Therefore, the instruction time of a course could be dramatically reduced (see Chapter 6.4.2) and would be described as a benefit of ICT in EBP teaching in that university (Ye and Chen 1999).

Second, the deep-rooted traditional pedagogy in individual teachers' beliefs system conflicted with the expected student centred pedagogy and therefore, hindered teachers implementing of student centred pedagogy into ICT supported teaching. The influence of the concept of ICT being supplementary tools for teaching was so deep rooted that four of the seven teachers in this study, Liao, Qyin, Pin and Sheng agreed and emphasised the subsidiary role of ICT in their teachings. Qyin claimed that her International Negotiation course was just 'vocabulary + sentence patterns'. Qyin assumed ICT in her course as tools that could assist her in presenting teaching materials. As a result, the pedagogical meaning of ICT to her was E-substitute of board writing or an advanced recorder. Pin emphasised ICT as convenient substitutes tools for her board writing and transmitting knowledge to students rather than facilitating students' constructing of knowledge. Her beliefs of 'students obtaining knowledge from teachers' determined her decision of spending two thirds of her instruction time in explaining the important concepts in an instruction. Pin adopted ICT whenever she felt the application would bring convenience to her. Her case was special in another aspect because she was one of the management members in the university. As the only person who had certain involvement in the ICT policy decision, she was also the one among the seven teachers who understood best the current policy and practice. Her adoption of ICT, which was somewhat like a bricoleur (Hatton 1989), reflected the baseline of the ICT pedagogy in the university (see Chapter 6.3 for more discussion). That is, to adopt ICT to the degree as much as the current system could accept. In other words, the baseline of the ICT pedagogy suggested that the implementation of teacher-centred and teaching oriented ICT pedagogy was expected in the university.

The baseline however became constraints when teachers who were attempting to adopt student centred ICT pedagogy, as could be seen in Juan's case. Juan attempted student-centred teaching approach in the TMT. Such change required students' flexible access to online resources for references and access to the TMT package for autonomous learning. Both learning oriented activities outpaced the baseline in the university. To
some teachers, the fact that Juan provided her students much time for autonomous
learning was not acceptable (see section 6.4.4.4.) because instruction time was expected
to be teacher’s time. Similarly, the baseline also explained why multimedia classrooms
were provided to large classes because it was easy for teachers to control small classes
without ICT in teaching oriented classroom organisation. The baseline deprived teacher
like Lu’s rights of teaching in multimedia classrooms because of their small-numbered
class even though the application might ‘extensively improve learning efficiency’
[Interview/Lu].

Third, the conflicts between the two pedagogies hindered students’ autonomous learning.
Autonomous learning was regarded as a significant feature of ICT supported learning as it
enabled individualised learning based on constructivist learning theory. However, guided
by the baseline in the university, autonomous learning was not included in a course
syllabus. Hence, students’ access to ICT facilities and resources was drastically ignored.
The consequence was students’ access to ICT facilities and resources for autonomous
learning became a ‘luxury’ in their lives.

S7: To use computers for learning is still a luxury for us, just like what you
have said, things like the online resources, the shared programs or software.
What could we do if we had no access to computers at all? [Student focus
group]

All seven teachers had claimed problems of obtaining ICT facilities and resources.
Though ostensible reasons were different, the insight of these problems reflected the
conflicts between the two pedagogies. In Juan’s case, she did not have the problem of
obtaining ICT facilities for teaching. The problems were a consequence of either limited
facilities provided for students’ autonomous learning (Pin and Juan’s case) or
teaching-oriented ICT allocation policy (Lu’s and Qyin’s case). As Tichy (1982) pointed
out, the change of an organisation relied on the change of all the three levels: technical,
political and cultural. The case study of these seven EBP teachers indicated that when the
change of the three elements in an organisation was not equal in pace, conflicts arose and
the activities of members in the organisation could be substantially constrained and
hampered.
6.5 The role of teachers' professional development in ICT

To keep up with all the new developments in an ever-changing world of educational ICT was demanding for any teacher. In only 8 years (from 1998) after the initial introduction of ICT, the seven teachers experienced the application of a single computer for instruction to the wide use of intranet and the Internet in their teaching. However, most teachers did not have the time to discover the use of ICT on their own: they need support. Thus, time should be allocated for them to take on ICT training and study, as reflected in the studies of Sheingold and Hadley (1990). Teachers needed sufficient time and collaborative working to learn new skills and explore their integration in the curriculum (Pianfetti, 2001). Furthermore, researchers around the world have pointed out the importance of staff training in the use and management of ICT (Sandholtz 2001; Dexter, Seashore et al. 2002; Granger, Morbey et al. 2002) and influence of professional development to teachers' application of ICT in teaching (Marsick 1988; Dawes 1999; Yamagata-Lynch 2001; Littlejohn 2002). Reinen and Plomp (1993) argued that 'there is a significant relation between the knowledge and skills base of teachers and training received (p.164).

In this study, however, professional development was constantly complained about by teachers and was identified as a strong hindrance in the system to teachers’ ICT pedagogy (see 6.4.4.7). The study also showed that teachers needed opportunities to improve both their ICT competence and ICT pedagogy knowledge. Although teachers had expressed implicitly or explicitly their desire for their ICT competence improvement, three of them had no ICT training at all throughout their experience of applying ICT. There were two reasons for their lack of professional development opportunities provided by college or the university: teachers overworked and no programme was available for them. As one teacher commented in the focus groups discussion:

I want to take part in some kinds of training. They do not have any. I want to learn it through my own effort; they will not give me time [Focus group/Lu].

First, teachers did not have time for ICT training because of their heavy workload. Similar report on this issue could be found in studies in Poland (see for example, Fisser and Van Geloven 2001) and the UK (see for example Williams, Coles et al. 2000; Osborne and Hennessy 2003). In this study, three teachers claimed their overburdened workloads prevented them from participating in any other activities. Juan had almost 300
students registered for her course TMT. She also instructed a course called Writing English for Academic Purposes. Qyin had over 60 students for a course in Year 1 and another 120 for the International Business Negotiation in Year 3. Liao had also two courses, one had 120 students, and the other 180 students registered. As a teacher commented, ‘what else do you expect me to do when I have to mark over 200 students’ writing every two weeks?’ Teachers expressed their opinion as follows:

Time and energy are limited. One cannot do all things at one time. We need time to be trained, time to do self-directed learning or to learn from each other to improve our computer skills. Anyway, it is impossible for us to do all these work, teaching, researching, learning computers and pursuing degrees at the same time [Focus group/Qyin].

Second, the university did not offer training opportunities to these teachers. According to the current policy in the university, Liao was not included in any possible ICT training programs because of his age (Chapter 5.6.5). The other six teachers were eligible for ICT training. However, only Juan had a one off chance to be trained in another university during a summer vacation. She had that chance because it was included in the purchase of the TMT package for the Business English lab. Ting claimed in her interview that the support from the university was rare after she had come to the university.

The only help I got was some sample presentation materials of other teachers in the college provided by the department when I first came here. Those could only be a reference and I had to depend on myself thereafter. [Interview/Ting]

Qyin claimed she had no idea about any available training course for her as a teacher. She had not been offered any opportunity even when she was appointed as a distance educational course instructor, where the application of ICT was compulsory in her teaching. Pin admitted there were some training opportunities in the university, but she was neither satisfied with the content nor the timing of the training. According to her, the training was focused on basic ICT skills and was non-pedagogy related. This reflected findings of other research, for example, Preston et al (2000) argued that the assumption that ICT training for teachers only required them to learn how to use technology and the rest would follow automatically was not true. The focus should be on pedagogical skills in a subject context (Selinger, Littleton et al. 1998; Preston, Cox et al. 2000).
Though teachers in this study did not have opportunities to participate in formal training programs, they managed to improve their ICT competence through their own effort. Pin seemed more active to improve her ICT competence than her colleagues did. She claimed to have talked with her colleagues and the technical staff in the college about ICT problems. In the focus group discussion, Pin was willing to share her ‘expertise’ with her colleagues and offered them tips about using ICT for lesson planning, designing PowerPoint presentations and sharing information with students. Some of these tips were ‘discovered only in this term’. Furthermore, observation indicated that the tips that Pin had talked about in the focus group were adopted in her teaching practice. For example, she used downloaded PowerPoint presentations for her presentation. She shared materials online with her students in both the intranet system and the Internet (see Chapter 5.4.2 for details). Both Ting and Sheng were proud of their skills of doing online searching via search engine like Google etc. for images and pictures. Sheng claimed, ‘there is nothing I could not obtain from the Internet.’ Ting said that she was among the ‘earliest that had used the Internet’ and what she was concerned about was ‘not too little information available but to make adequate choices among the too abundant information’ presented to her.

In contrast to their colleagues, neither Qyin nor Liao was active on discussing ICT problems with their colleagues. For example, Qyin preferred to solve ICT problems through her own effort even though it meant frustration after a large amount of time and energy. This might partly explained why Qyin encountered much difficulty and became unconfident about her ICT competence. Liao had even fewer contacts with ICT. He depended on her family for computer based tasks at home and was very isolated (see Chapter 5.6.5) from his colleagues for any ICT related discussion. As a result, neither of them was active in adopting ICT for teaching. Both viewed ICT an optional insufficient substitute to particular actions such as board writing in teaching, which was not necessarily followed by students’ improved learning outcome.

However, though professional development in the seven teachers’ teaching experiences was limited, the significance could still be identified. Juan’s case indicated that the training she obtained, though short and not satisfactory from her point of view, influenced her pedagogical decision such as teaching preparation and classroom activity (Chapter 5.3.5). This indicated that professional development projects could be an influential
factor for teachers’ further use of ICT in their teaching.

Lu’s teaching in the multimedia classroom was observed in her third and forth instruction. In both instructions, multi ICT facilities were applied to her teaching. The ICT facilities assisted the review of previous instruction, presentation of new teaching material and served as a tool to stimulate her students’ activeness in the student group learning activity. Lu admitted that she was active to ask for help from IT professionals around her. She was also very proud of her skills of ‘designing beautiful slides in PowerPoint’. The tips came from an online resource acquired from an IT person. In Sheng and Ting’s instructions, information and images downloaded from the Internet were integrated to their teaching materials and were presented to their students through the application of PowerPoint presentation. With less confidence in their ICT competence, Qyin and Liao were less willing to apply ICT to their teaching. Qyin was applying ICT occasionally, she claimed, however that she was obliged to apply them. Liao had never come to the stage of actually applying ICT to his teaching.

The seven teachers’ experience indicated that the professional development on ICT competence, even though limited could still help to establish teachers’ confidence and improved their pedagogical decisions of ICT in teaching. Teachers such as Lu, Ting, Sheng and Pin who were engaged in self-directed study of ICT skills were able to select varied ICT facilities to support their teaching in the classroom. Furthermore, this study shows that teachers with higher confidence of ICT competence tended to use more ICT in their classroom teaching. This seemed to imply that to promote teachers’ basic ICT competence was essential to their adoption of ICT in teaching. As Fisser and Van Geloven (2000) argued:

“This support can be very basic, such as a short course on how to make a webpage, or it can be more extensive, such as learning how to use shared workspaces or how to make interactive assignments (p.116).”

Juan’s case in the study also indicated that formal ICT trainings based on specific teaching contexts could help teachers to understand the role of ICT in pedagogy and to integrate ICT in a more innovative pedagogy.

These teachers professional development also reflected the weak influence of the community upon them. As discussed earlier in this chapter (see Chapter 6.4.3.4 and
Chapter 6.4.2.3), there was no established norm about teaching with ICT in the EBP teaching community. Although no teacher in the community could ignore the existence of ICT in the university, the use of ICT was not a topic in these teachers’ conversation. Teachers in this study depended on their own effort for professional development in ICT competence and ICT pedagogical knowledge. Among the seven teachers, only Pin, the leader of the Business English Department admitted that discussion with colleagues was one resource to solve ICT problem. Other teachers such as Juan, Ting and Lu did not considering their colleagues as their help when problems emerged. One example was Qyin who had spent hours unsuccessfully on a problem she could not solve but still did not ask anybody for help. She admitted that it was because she thought other teachers were no more competent than she was. A well-established community was important for teachers’ professional development because it was part of their working context and provided teachers the opportunity to share their experience and collaborate their learning informally and comfortably. The community also provided up-to-date information and just on time assistance to members.

6.6 Learning from the cases: A model of ICT pedagogy for EBP teaching

Cross cases analysis indicated that the seven teachers’ implementation of ICT pedagogy, though different from one other, showed shared patterns, which could be applied to general situations. Table 6-7 summarises the findings of cross cases analysis, which were discussed earlier in this chapter. The table has become a summary of the summaries of the study. The table demonstrates four key elements that lead to teachers’ different ICT pedagogical orientations (listed on the first column of Table 6-7). The first is personal factors, which include attitudes to ICT, beliefs about ICT, and their ICT related professional development. The second is contextual factors, which include ICT policy, support obtained from the university, and cultural influence. The third is teachers’ general pedagogy, which demonstrates their thinking of how teaching should be processed and how learning becomes possible. The fourth is the observable pedagogical functions of ICT in teaching.
<table>
<thead>
<tr>
<th>ICT pedagogy</th>
<th>Personal Factors</th>
<th>Contextual factors</th>
<th>Pedagogy</th>
<th>Observed functions in teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomous ICT pedagogy</td>
<td>Positive&lt;br&gt;- ICT diversified teaching methods&lt;br&gt;- ICT provide new affordances for students’ learning&lt;br&gt;- Student became positive in learning&lt;br&gt;- Improving students’ learning outcomes&lt;br&gt;- Teacher should provide sufficient time for ICT based autonomous learning&lt;br&gt;- To integrate ICT is the trend</td>
<td>Constant and frequent ICT use&lt;br&gt;- Confident in using ICT for varied pedagogical functions&lt;br&gt;- Demands for CPD in ICT is not as high as that for professional knowledge</td>
<td>- Student centred&lt;br&gt;- Constructivist learning theories&lt;br&gt;- ICT as new affordances</td>
<td>- Referencing&lt;br&gt;- Lesson preparation&lt;br&gt;- Presentation&lt;br&gt;- Autonomous learning&lt;br&gt;- Provide new teaching and learning environments</td>
</tr>
<tr>
<td>Bricolage ICT pedagogy</td>
<td>Adoptable&lt;br&gt;- ICT provides information for teaching with improved quality and quantity&lt;br&gt;- ICT brings convenience to teaching&lt;br&gt;- ICT provides convenience in information share/storage&lt;br&gt;- ICT theoretically requires student centred teaching&lt;br&gt;- Teacher should monitor students’ learning</td>
<td>Constant ICT use&lt;br&gt;- Able to apply ICT for limited pedagogical functions&lt;br&gt;- Not confident in ICT competence&lt;br&gt;- High demands for CPD in ICT</td>
<td>- Been required to use ICT&lt;br&gt;- May have opportunities for ICT training&lt;br&gt;- Limited support&lt;br&gt;- Required by the ‘trend’ (society pressure)</td>
<td>- Teacher centred pedagogy&lt;br&gt;- Transformative teaching&lt;br&gt;- Traditional learning theories&lt;br&gt;- ICT as supplementary tools</td>
</tr>
<tr>
<td>Symbolic ICT pedagogy</td>
<td>Cautious&lt;br&gt;- ICT provided more than enough information&lt;br&gt;- ICT could be applied to classroom</td>
<td>Inconstant use for teaching&lt;br&gt;- ICT is used occasionally for very limited pedagogical</td>
<td>- Obliged for ICT use&lt;br&gt;- ICT use is required by curriculum or by</td>
<td>- Teachers controlled group activity&lt;br&gt;- Student repetitive</td>
</tr>
<tr>
<td>ICT pedagogy</td>
<td>Personal Factors</td>
<td>Contextual factors</td>
<td>Pedagogy</td>
<td>Observed ICT functions in teaching</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>----------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>Resisting pedagogy</td>
<td>• Negative teaching but unreliable • ICT could cover up a teacher’s incompetent skills (e.g. spoken English) • Students’ learning • ICT may improve students’ learning at certain circumstances</td>
<td>• Not confident in using ICT for classroom teaching • Demands for CPD in ICT is high</td>
<td>• Excluded from obligation • Excluded from CPD training</td>
<td>• Teacher centred (non-ICT) • Grammar translation (non-ICT)</td>
</tr>
</tbody>
</table>

- • Oral English assessment (distance education course)
In this study, the seven teachers were different in their attitudes towards and beliefs about ICT, their ICT professional development, perceptions of contexts, pedagogy and application of ICT for pedagogical purposes. All these differences provided the opportunities to classify the seven teachers’ ICT pedagogy into four orientations, namely, autonomous ICT pedagogy, bricolage ICT pedagogy, symbolic pedagogy and resisting pedagogy as shown in Table 6-7. The four types of pedagogies reflected the varied attitudes and the practice of each type of EBP teaching with ICT in Chinese higher education. The table demonstrates that each type of ICT pedagogy identified in this study corresponded with certain personal and contextual factors that are bulleted in it. The bulleted points assisted the researcher to draw conclusions from those teachers’ practices. They may also help to locate individuals in terms of particular pedagogic orientation in future studies, though due to the different contexts for each research project, particular points may differ in each study.

The word ‘autonomous’ comes from the root ‘auto-’ which means self and the root ‘nem-, noms-’ which means quick at learning or seizing. The whole word refers to the situation that a person is self-driven and quick in learning new concepts. Therefore, in this study, autonomous ICT pedagogy refers to the uptake and application of ICT in the whole teaching and learning process based on a student centred approach, motivated by their own enthusiasm. Teachers are learning and applying ICT to their pedagogical decisions to fulfil their potentials. Their changes can be distinguished not only by the amount or types of ICT used in their teaching but also by how and why it is used. During the teaching and learning process, ICT provides new affordances that are not available in traditional non-ICT supported teaching environments. Teachers are aware of their changed roles in the new environments and are active in pursuing such change to improve their teaching and students’ learning outcomes even though the contextual factors such as policy, curriculum and professional opportunities cannot fully support their change. Teachers rethink and re-organise their subject knowledge, pedagogical knowledge with deep understanding of the nature of ICT and are able to apply ICT for varied pedagogical purposes. Teachers are confident about the ICT competence for their application to teaching. They are looking for more opportunities to improve their subject knowledge than ICT skills.

The bricolage ICT pedagogy can also be labelled as convenient adaptation. According to
Hatton (1989), there are four distinctive characteristics of bricolage. First, they use any materials available to them for a task. Second, they have limited means or tools. Therefore, they will use whatever tools available instead of the best tool to them. Third, the available materials and means are limited to their experience in the past, and fourth, their response to a task is limited to an ad hoc rearrangement of the existing environment (Hatton 1989). In this study, the bricolage ICT pedagogy refers to the uptake and application of whatever ICT is available for the teaching activity with and within a teacher’s previous expertise and knowledge of ICT competence, subject knowledge and pedagogical knowledge. There might be minor adjustment in the process. Nevertheless, such adjustments are not substantial and are still be within easy control of the teacher.

Symbolic ICT pedagogy refers to the pedagogical uptake and application of ICT for teaching in accordance of the requirements to the change of contextual factors. For example, teachers are required to apply ICT to their teaching resulting from a certain ICT related policy, curriculum design, promotional requirement, special events of the university, etc. The purpose for the application of ICT to teaching is to achieve symbolic outcomes other than to improve the quality of teaching and learning. ICT might be adopted for a specific task or in a particular period. However, such application does not tend to improve the teaching or learning. ICT is viewed more as a symbolic tool than learning or teaching assistance. Teachers’ pedagogical decisions for ICT types being used in one task might focus on how to polish their teaching or to impress the external inspectors rather than on how to improve students’ learning and achievements. Teachers may form suspicious attitudes towards ICT in their teaching, as they cannot see the actual benefit of ICT to students’ learning. Because application of ICT is driven substantially by contextual/social factors, teachers lack enough motivation to improve substantially their pedagogical knowledge and subject knowledge. They also lack enough motivation to improve their ICT competence for pedagogical application based on constructivism learning theory.

Resisting ICT pedagogy refers to no obvious application of ICT into pedagogy. Teachers are suspicious of the value of ICT in teaching. They believe that ICT will bring none or little actual benefit to either learning or teaching. Teachers avoid as much as possible applying any ICT in teaching. In some situations, they deliberately ignore the existence of ICT facilities around their teaching environments, claiming that their existing teaching
practices are more suitable. Moreover, teachers also tend to perceive negatively their ICT related working contexts because either they are excluded from ICT related events or they are not motivated to participate in ICT related teaching or learning activities. Teachers in this category are teaching under the teacher centred grammar translation pedagogy, which mainly stems from the traditional Chinese pedagogy (Chapter 3.2) and the traditional foreign language learning theory that has been practiced in China over 100 years (Chapter 3.4). They are reluctant to change their subject knowledge, to improve their ICT competence and to enhance their pedagogical knowledge. However, Hargreaves and Fullan (1998) argued that the resister teachers might have good reasons for their action. In some cases, resistance may be a source of learning because ‘they may have ‘good sense’ in seeing through the change as faddish, misdirected, and unworkable’ (Giltin and Margonis, 1995, cited in Fullan, p99). It is therefore worth investigating the resisting pedagogy in future research.

As discussed in Chapter 2, there are a number of theoretical frameworks related to ICT and pedagogy in the literature (Chapter 2.3.2). Compared to the models identified in the literature, the four types ICT pedagogies model emerged from this study distinguishes from other models on the following four aspects.

First, the model presents a spectrum for the current EBP teaching in Chinese higher education, which enables teachers, teacher developers and researchers in Chinese higher education to reflect the current EBP teaching. It also sheds light on issues that should be considered into future EBP teaching in ICT rich environment. Although EBP teaching in China has boomed in the last two decades (Lin 2001) and the application of ICT to EBP teaching has been reported in a number of academic publications (Zhu 1999; Liu and Hu 2004; Zhu 2004; Zhu 2004), no study on ICT pedagogy and EBP teaching in China from the teachers’ perspectives has been reported. The four type pedagogy model presents in this thesis provides a general picture about EBP teachers and EBP teaching with ICT. It can therefore enable EBP teachers, teacher developers and researchers to understand the current situation of teaching with ICT and possible development in the future. Moreover, the model also helps researchers who are interested in EBP teaching in China to understand teachers’ perception about ICT in EBP teaching and the diversified ICT pedagogy implemented by teachers.

Second, the model differentiates teachers’ ICT pedagogies, including not only those
pioneer teachers who are eager to embrace ICT in their teaching but also those teachers who are suspicious of or hostile to the introduction of ICT to education. Models for general pedagogy has identified ideas, beliefs (Alexander, Rose et al. 1992; Fang 1996; Moseley and Higgins 1999) and knowledge base (Shulman 1987) for teaching activities. In the field of ICT pedagogy, most frameworks related to ICT and pedagogy were focused on either impact of ICT on students’ learning, about the level of ICT use or the pedagogies of teachers who were willing to use ICT in their teaching (Chapter 2.3.2). However, all those models started from the assumption that teachers were ready for ICT pedagogy, and they were applying ICT in their teaching. This model is different from those identified in the literature because it started from the point of exploring the teaching with ICT in China. The methodology design for the study has considered the diversity of participant teachers and the possible differences among them. The study investigated EBP teachers, from ICT resister to ICT innovator and their implementation of ICT related pedagogies. Therefore, the model emerged from the study discloses such diversity in Chinese EBP teaching. The model indicates that even teachers who are working in similar contextual situations such as curriculum, ICT policies may still have different attitudes and beliefs about ICT in their teaching and eventually result in different ICT pedagogies.

Third, this model reveals that EBP teachers in Chinese higher education are influenced by factors from two aspects: they are influenced by their personal attitudes and beliefs about ICT and their pedagogical applications of ICT are constrained by the contextual factors such as policy, curriculum and traditional pedagogical concepts in China. The model indicates that personal factors such as beliefs and attitudes are consistent with teachers’ pedagogical decisions in most conditions, while contextual factors may either support or hinder teachers’ ICT pedagogical decisions. These factors are sometimes interwoven. For example, the contextual factors may influence not only the availability of ICT facilities in the classroom; it may also influence the perceived availability of ICT for teaching. The influence of contextual factors for ICT pedagogy has been identified in some of the models (for example, the ICT framework by Webb and Cox, see Chapter 2.3.2). However, contextual factors in those models are limited to those factors that would directly influence classroom teaching. The model in this thesis, however, enlarged the landscape of contextual factors to ICT related policy and even the cultural influence.

At last, the model provides future research opportunities. The model implied that when
teachers and researchers can understand their own situation, it might be possible for them to find suitable approaches to improve their teaching with ICT. It might also help the policy makers to look into the factors that influence teachers’ practice and modify certain aspects to improve or encourage teachers to change their current practice and ICT pedagogy.

6.7 Conclusion

This chapter presented the findings of cross case analysis. Findings in the cross case analysis provided opportunities for the researcher to examine the adoption of ICT in EBP teaching from a more generalized context, drawing data from seven teachers as a group. The cross case analysis identified the following aspects in relation to the three questions of the research.

First, teachers’ ICT pedagogies were influenced substantially by their attitudes to and beliefs about ICT in education. The seven teachers’ cases indicated a positive relation between the two. That is to say, the more positive a teacher was in his/her attitude and beliefs, the more likely it was for ICT to be embraced in his/her pedagogy and vice versa.

Second, the influence from the policy-maker and university management was identified as powerful factors on teachers compared to their attitudes and beliefs. In this study, the policy and practice in the university influenced teachers’ ICT pedagogy through curriculum design, ICT facilities allocation, and ICT related professional development policies. Additionally, the study revealed that ICT pedagogy was influenced by teachers’ age, and their perceived ICT competence, which had been indirectly influenced by ICT policies and practices in the university.

As Reimann and Goodyear (2003) argued that ‘pedagogy – the theory and practice of supporting other people’s learning – exists in teachers’ knowledge, beliefs and action, but that it also exists in the systems around them’ (p. 12). The cross case analysis also highlighted the importance of environmental support for teachers’ ICT pedagogies from the university and college. Teachers needed ICT professional development and professional technical support to promote their changes in beliefs, knowledge and behaviours when they were still at an early stage of teaching with ICT. In this study, teachers were not supported fully in either aspect. Furthermore, all seven teachers claimed that their ICT competence obtained mainly from their informal learning
experiences which include self-directed learning, talking with IT professional, family members. On rare occasions would they talk with their colleagues about experiences of teaching with ICT. Indeed, all seven teachers claimed that information exchange on teaching with ICT was not common among colleagues. This indicated that an ICT learning community was not established among these teachers. The literature (Goldenberg and Gallimore 1991; Richardson 1992; Thomas, Wineburg et al. 1998; Blumenfeld, Fishman et al. 2000; Smylie, Allensworth et al. 2001) suggested that a strong community of practice could play an integral role in the professional development of a district’s teaching workforce. The finding of this study suggested that support from the university was urgently needed for the establishment of a strong learning community where teachers could share and explore their ICT related teaching experience.

A significant result emerging from the cross data analysis was the differentiated ICT pedagogy model that could be applied to evaluate teachers’ pedagogical application of ICT in their teaching practice and to guide the possible programs or schemes that could assist teachers’ adoption of ICT for suitable pedagogical application. The model differentiated both personal and contextual factors into different levels so that ICT related training programs that aimed to promote teachers’ ICT pedagogy could be specifically located for teachers with different ICT pedagogy types. Such a specification was desirable from the seven teachers’ experience because it would concentrate on scaffolding teachers’ learning and avoid providing teachers with ‘what we know already’ [Focus Group/Pin].

The single case and cross case studies discussed in these two chapters provided answers to the research questions proposed at the beginning of the study by exploring how teachers implementing ICT pedagogy in Chinese higher educational EBP teaching. It also provides numerous opportunities for future research. The next chapter will present the answers to each research question and the research opportunities emerged.
Chapter 7 Conclusion

7.1 Introduction
This chapter is a conclusion to the exploratory study of ICT pedagogy for EBP teaching in Chinese higher educational institution. The past several years witnessed further development of EBP teaching in China. EBP teaching staff in a number of Chinese universities exceeded 100 (information from the Seventh National Business English Teaching Conference). More universities are participating in EBP teaching. By the end of 2006, EBP has become an independent subject in Chinese higher education. This implies the faster development of EBP in the near future and the increasing need to support EBP teachers with their implementation of ICT pedagogy. It also suggests the necessity to investigate on ICT and pedagogy from the teachers’ perspectives. As discussed at the beginning of this thesis, three research questions were proposed to investigate ICT pedagogy and the factors that had influenced teachers’ ICT pedagogy.

1. What were teachers’ attitudes and beliefs towards ICT in teaching?
2. What were the links between attitudes and beliefs towards ICT and the related pedagogy?
3. What were the other factors that influenced these teachers’ pedagogy?

As a conclusion of the thesis, this chapter presents the answers to the three research questions and their significance. Therefore, the following three sections, Section 2, 3 and 4 of this chapter are about the answers to the three questions and their contribution separately. Section 5 and Section 6 of the chapter will discuss the contribution of this thesis to literature and the methodology design that had enabled the researcher to achieve the goal of the study. Section 7 moves on to the limitations of the study while Section 8 presents the numerous future research opportunities that emerged from the study.

7.2 ICT pedagogy and the influential facts -- the ICT pedagogy model
The answer to the first research question was provided via a four-type ICT pedagogy model for EBP teaching that had emerged from the study. The model classified EBP teachers’ ICT pedagogies into four types, namely autonomous ICT pedagogy, bricolage ICT pedagogy, symbolic pedagogy and resisting pedagogy. The four types of pedagogies reflected the varied attitudes and the actual implementation of pedagogy after ICT were introduced to the university (see Chapter 6.6). Provision of the model was significant
because the model had not only presented a typology of ICT in EBP teaching in Chinese higher education but also identified both personal and contextual factors that had either support or hindered teachers’ implementation of ICT pedagogy. Literature on teacher behaviours suggested that teachers’ attitudes and beliefs were two influential factors for ICT pedagogy. The questionnaire survey in China at the beginning of this study also indicated that beliefs and attitudes were influencing teachers’ uptake of ICT in teaching. Findings of the main study further proved that the two influential factors, i.e. teachers’ beliefs and attitudes to ICT, for ICT pedagogy in Chinese EBP education were consistent with those identified in the literature. Teachers in this study showed varied beliefs and attitudes towards ICT that had linked to their ICT pedagogy. The emerged four-type ICT pedagogies model was a summary of how ICT pedagogy was implemented among the seven EBP teachers and how the implementation was influenced by their beliefs and attitudes. As could be seen in the model, teachers’ ICT pedagogy was related to their varied attitudes and complicated belief systems. The actual implementation of ICT pedagogy was directly linked to their attitudes and all the identified beliefs that had been accumulated throughout their teaching experiences. Unlike studies (Cox 1997; Cox, Preston et al. 1999; Legris, Ingham et al. 2003) that focused on teachers’ beliefs and perceptions about ICT, this study identified complicated belief systems among the seven teachers for their implementing ICT pedagogy. Such systems included not only their beliefs about ICT in teaching but also their beliefs about the nature of EBP teaching and learning, their beliefs about students’ learning and their beliefs about their changing roles that had been brought by ICT.

The model was a significant contribution of this study to understanding of the uptake and use of ICT the EBP teaching. First, the model provides a spectrum-like typology about the diversified ICT pedagogy in EBP teaching in Chinese higher education. The typology described how ICT was applied to EBP pedagogy in Chinese higher education, which would enable teachers, teacher developers and researchers to gain an insight into the relationships between EBP teaching and the implementation of ICT pedagogy.

Second, the model has identified factors that were influencing teachers’ implementation of ICT pedagogy. In addition to teachers’ beliefs and attitudes to ICT, other personal factors as well as contextual factors that had influenced teachers’ implementation of ICT pedagogy were also identified. The factors identified in this model were
multidimensional. It showed that teachers' uptake and implementation of ICT pedagogy could be either supported or hindered by the interaction of all these factors. The implication from the model was that change in both teachers' working environment and their beliefs and attitudes was required to promote the acceptance and implementation of ICT pedagogy. Researchers (Fullan 1991; Fullan and Hargreaves 1992; Ellsworth 1998; Preston, Cox et al. 2000) argued that policies and measurements to support the integration of ICT to education should consider the complicity of teachers' beliefs system and the influence of contextual factors. The findings of this study provided evidence related to teachers' change in their adopting ICT to pedagogy. From this point of view, the model could be applied as an index to support teachers' improvement of their ICT related pedagogy.

Additionally, CPD for in-service teachers has recently been a highlighted issue in both government policy and academic research as a part of the life long learning strategy in Chinese higher education. However, CPD is still in its early stage (Zhou, 2005) and little literature was available for teachers' ICT related professional developments. This study investigated ICT and pedagogy from the teachers' perspective. It can therefore, be adopted as guidance for the essential elements that should be included in programs that aim to improve teachers' ICT pedagogy.

7.3 Driving forces for the implementation of ICT pedagogy -- conflicts in the system

The answer to the second questions required the researcher to look into the reasons behind teachers' active implementation of ICT pedagogy or resistance to ICT pedagogy, which led to the identification of seven major conflicts within the EBP teaching in China. One assumption of the study was that teachers' implementation of ICT pedagogy were the result of the interaction between teachers and the contexts in which they were working. According to Engeström (1987), tensions or conflicts within an activity system were the driving forces for the innovation of the system. In other words, the reasons that either hinder or supported teachers' implementation of ICT pedagogy were hidden behind the tensions that teachers were experiencing in their attempts to implement ICT pedagogy. Therefore, in this study, if ICT had become an essential element of teachers' activity systems, teachers would not feel much tension for their implementation of ICT pedagogy. If ICT was an alienating force that was intruding to the system, teachers could feel strong
hindrance in the process. From this point of view, the AT model provided a powerful tool for the analysis of the tensions.

Seven major conflicts were identified in the seven teachers' EBP teaching activity system (see Table 7-1). Further analysis revealed that it was the conflict between the student centred pedagogy embedded in ICT supported teaching and the traditional teacher centred pedagogy that underpinned in the ICT policy, curriculum design and the facility allocation in the university that counted for teachers' implementation of or resistance to ICT pedagogy. The tensions shown in Table 7-1 also indicated that the concept of applying ICT to teaching was aware within EBP teaching but the implementation of ICT pedagogy was still 'alien' to many EBP teachers in Chinese higher education. That is to say, ICT was still an intruding force to the existing EBP teaching. Substantial awareness programs and professional support were required to promote the stabilisation of ICT in EBP teaching. This finding was echoed to the findings of the 2004 survey (MOE China 2005), which reported that the adoption of ICT in higher education in China was still at its 'initial stage'.

Table 7-1 Conflicts identified in the study

| Conflict 1: | Teachers' intention to use ICT for varied pedagogical functions vs. the limited access to ICT facilities and limited ICT competence |
| Conflict 2: | The teacher centred pedagogy vs. student centred pedagogy required in an ICT rich environment |
| Conflict 3: | Teachers’ changing ICT pedagogical decisions vs. unchanged ICT policy and culture around them |
| Conflict 4: | Individual teacher’s varied ICT pedagogies vs. the necessity to form a norm acceptable to the whole teaching community |
| Conflict 5: | The student centred pedagogy required in ICT rich environment vs. the traditional teacher centred curriculum in the university |
| Conflict 6: | The ICT for teaching policy vs. ICT for teaching and learning requirements |
| Conflict 7: | Teachers’ intention to improve ICT competence vs. the limited ICT competence development opportunities |

The significance of identifying the seven conflicts was that it uncovered the deep-rooted driving forces to promote changes within the seven teachers' activity systems, i.e. the conflicts between the two different groups of pedagogy in EBP teaching. On the one hand was the long history of teacher-centred pedagogy, which was still dominant not only in
EBP teaching but also the complete higher educational system in China (see Chapter 3) that needed substantial change in the near future to fulfil the potential of ICT for teaching and learning. On the other hand was the student-centred pedagogy, which was accompanied by the introduction and implementation of ICT pedagogy that was still alien to both teachers and students in the educational system. While teachers and students were complaining about their lack of access to ICT resources and facilities or expressing their suspicion about the benefit of ICT to teaching and learning, the deep rooted reasons for their unpleasant experiences were the conflicts between the two groups of pedagogy. If teachers, teacher developers and policy maker realised that the integration of ICT to education was constrained by these deep-rooted conflicts, it would enable them to concentrate on such issues as how to alter or even change the teacher-centred pedagogy to support both teaching and learning for improved learning achievements.

7.4 Other than beliefs and attitudes -- multidimensional change

Teachers need substantial support to relocate their pedagogy to student centred (Fullan, 1991). As summarised in Table 7-2, the thesis identified two groups of influential factors for the implementation of ICT pedagogy. The first group was teachers’ attitudes towards ICT in teaching, their beliefs about ICT in teaching, beliefs about ICT for students’ learning, beliefs about students’ learning in general and beliefs about the teacher role in ICT supported environments, their personal teaching experience and their age. The second group was the contextual factors they were working with, which included ICT policy, availability of ICT facilities and resources, the availability of technical support, and professional development opportunities. The factors identified in this study were consistent with the findings in both the UK (Preston, Cox et al. 2000; Cox, Webb et al. 2004) and the USA (Fullan 1991).

Professional development was identified as an influential factor to teachers’ ICT pedagogy in this study, though formal professional development and technical support were rarely reported by the seven teachers. The lack of professional development opportunities to improve ICT pedagogy was also reported in other studies (Zou 2000; Zhou 2002; Zhou 2005), and teachers were ‘placed in front of the computer screen without any preparation for teaching with ICT’ in three other key Chinese higher educational institutions in South West China (Zhou 2005). Although teachers in this study did not have enough opportunities to obtain CPD training provided by the university or
college, they managed to improve their ICT competence through their own effort, especially those younger teachers like Juan, Ting and Lu. Teachers described their learning experience as ‘learning from doing’, ‘learning from error’ and/or ‘learning from communicating with colleagues’ which were typical of incidental learning, a major form of informal learning taking place in an organisation (Marsick and Watkins 2001) (see Chapter 2.5.2).

Table 7-2 Themes emerged from data analysis

<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>THEMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal factors</td>
<td>• Attitudes towards ICT in teaching</td>
</tr>
<tr>
<td></td>
<td>• Beliefs about ICT in teaching</td>
</tr>
<tr>
<td></td>
<td>• Beliefs about ICT for students’ learning</td>
</tr>
<tr>
<td></td>
<td>• Beliefs about students’ learning in general</td>
</tr>
<tr>
<td></td>
<td>• Beliefs about teacher role in ICT supported environment</td>
</tr>
<tr>
<td></td>
<td>• Teaching experience</td>
</tr>
<tr>
<td></td>
<td>• Age</td>
</tr>
<tr>
<td>Contextual factors</td>
<td>• ICT policy</td>
</tr>
<tr>
<td></td>
<td>• Availability of ICT facilities and resources</td>
</tr>
<tr>
<td></td>
<td>• Support for teaching with ICT (technical support and professional development)</td>
</tr>
<tr>
<td></td>
<td>• Traditional pedagogy</td>
</tr>
</tbody>
</table>

Another issue raised in this study was the substantial influence of the over 2000 yearlong traditional pedagogy in China. It prevented both teachers and students from changing their roles to a more student-centred pedagogy (see Chapter 5.3.2 and Chapter 5.4.2). The traditional teacher-centred pedagogy influenced not only individual teachers but also the existing ICT policy and practice in the university such as the curriculum design and the allocation of ICT facilities for teachers and students in the university.

The implication for the factors identified in this study was that teachers’ change was multi-dimensional (Fullan 1991; Fullan and Hargreaves 1992) and the mechanical approaches to promote teachers’ acceptance of ICT related innovation was not applicable (Preston, Cox et al. 2000) for EBP teachers in China. While attitudes and beliefs were two predominant influential factors, the findings of this study suggested that other factors, especially contextual factors should not be ignored.

Data analysis showed that the functions of contextual forces were dual. First, teachers’
personal factors such as attitudes and beliefs were influenced by contextual factors such as ICT policy, curriculum, traditional pedagogy and support from the university. Second, the contextual factors also influenced teachers’ actual pedagogical decisions and application of ICT for teaching because they provided the curriculum, ICT facilities and resources for the implementation of teachers’ pedagogical decisions.

Data suggested that influence of contextual factors sometimes surpassed that of personal factors. This study showed that teachers in this study had little control on their application of ICT to teaching. In some cases, even though teachers had formed positive attitudes and beliefs about the application of ICT, they were not able to implement ICT pedagogy due to the contextual constraints such as ICT related policy, curriculum and their limited ICT competence. The situation was partly due to the management’s lack of considerations for factors that could have influenced teachers’ implementation of ICT pedagogy. The researcher argues that only when these multi-dimensional factors have been fully considered will the implementation of student centred ICT pedagogy for EBP teaching be feasible. It is therefore significant for this study to have identified these factors and discussed their influence on ICT pedagogy for EBP teaching.

7.5 ICT pedagogy for EBP in China -- contribution to educational literature

This study contributed to the literature in two aspects. First, it contributed to the literature by concentrating on ICT pedagogy in Chinese higher education. Chinese higher education has the largest number of registered students numbers since 2003 (UNISECO 2003) and the application of ICT to higher education has been put into priority status. However, limited literature on ICT related EBP teaching was available. It therefore highlights the significance of this study, which investigated ICT pedagogy in such a context.

Second, it contributed to the EBP teaching by concentrating on ICT pedagogy from the teachers’ perspective. EBP teaching was reported as a fast developed subject (Lin 1999; He and Xiao 2004; Wang and Yan 2006) in Chinese higher education. Over 600 universities and colleges in China (Wang and Yan 2006) provide EBP courses. However, the literature review identified few studies on EBP teaching from the teachers’ perspective. Even less research has been done on the implementation of ICT pedagogy from the teachers’ perspective. Therefore, this study provided an opportunity for teachers and researchers to have an in-depth understanding of ICT and pedagogy for EBP teaching.
in China through a different lens. Teachers’ voices were heard in this study. Their needs and wants in relation to ICT pedagogies were investigated. The study has enriched the literature on EBP teaching and ICT pedagogy in China.

7.6 Approaches to study -- methodology design and its contribution

In addition to the significant contribution of this thesis to EBP teaching in Chinese higher education through the exploration of the seven teachers’ experience, the methodology design for the thesis was proved an effective approach to investigate the research questions and could be adopted for similar research projects in the future.

First, this study was a multi-case study, which enabled the presentation of diversified ICT pedagogies in EBP teaching. The study explored a total of seven teachers’ experiences, ranging from those who autonomously integrated ICT to student centred teaching to those who ‘lag behind’ and were suspicious or even negative about ICT and refused to use ICT in their teaching. The multi-case study enabled the investigation of those seven participant EBP teachers’ attitudes, beliefs, and their perceptions about the working context individually though all seven teachers were working in the same department and their teaching was supported or constrained by similar contextual factors for their ICT pedagogical decisions. Comparisons of the similarities and differences of those teachers’ experiences enabled the researcher to identify major issues that were either a support or hindrance to the implementation of their ICT pedagogies.

Second, the AT model was applied as an analytical tool to interpret teachers’ ICT pedagogy after the open coding of all the relevant data. The AT model has been adopted in numerous ICT related studies as a conceptual tool (Kuutti 1996; Nardi 1996; Lim 2001; Lim and Hang 2003). However, as Engeström (2001) suggested, the AT model could also be adopted as an effective analytical tool to identify conflicts and tensions in the dynamic activity system to gain insight into the reasons for changes in the system. The AT model was adopted in this study for this reason. The combination of open coding and the AT model guaranteed the data analysis to be true to the data as well as to explore the meaning behind the ‘voices of the data’ (Strauss and Corbin 1998). Consequently, the AT model not only enabled the researcher to identify the in-depth conflicts within the seven teachers’ activity systems but also revealed how ICT pedagogies were positioned in these systems.
When the researcher started the methodology design in 2003, a number of theories, which included the TRA and TBP by Ajzen (Ajzen 1988; Ajzen 1991) and the TAM by Davis et al (Davis, Bagozzi et al. 1989), about relationships between attitudes, beliefs and behaviours were available for the study. These theories were not applicable for this study for two reasons at that time: the special context with deficient literature and the small numbered EBP teachers available for the study (see Chapter 4.7 for more details). Because of these two reasons, research needed to be conducted to identify factors through preliminary qualitative study. As a result, the qualitative multi-case study was designed for this study. The process of this study has proved that the decision was correct and the qualitative case study with the combined application of open coding and the AT model was well suited for the study. The methodology designed for this study could be applied to other investigations where key factors are not well understood and the initial understanding of the situation being investigated can be established through preliminary qualitative study.

7.7 Limitation of the thesis
The design of any academic study always brings limitations as well as opportunities. One limitation in this study was the process of recruiting teachers for the case study. The reasons were two fold. On the one hand, to negotiate with the deans for permission and then contact individual teachers for confirmation were difficult due to the limited time and the tight budget from the researcher’s side. It had originally been planned to include teachers in two or three universities for the study. However, three universities contacted in the study declined the request because there was concern that it would disturb normal teaching schedules. On the other hand, even after the permission was given by the dean, some teachers lacked the interest to participate in the study. Heavy workload for some teachers prevented them from attending the focus group discussion. Seven teachers were expected for the teacher focus group but only three of them turned up. Some teachers called at the last minute to cancel due to unexpected work or a changed instruction schedule on the day. Although there were limitations as discussed in this section, the study has provided opportunities for future research in EBP teaching. The following section moves to such opportunities that emerged.

7.8 Future research opportunities
The current study had explored the ICT pedagogies in Chinese EBP teaching and
identified several key factors that influenced the ICT pedagogies. The data analysis suggested numerous issues for EBP teaching and ICT pedagogy and hence, provided opportunities for future research. Along with the needs to develop and test the differentiated ICT pedagogy model, opportunities are presented in three dimensions, namely the balance between ICT pedagogy and traditional pedagogy, the ICT policy and teacher involvement, professional development and community influence.

7.8.1 Development of the ICT pedagogy model

The differential ICT pedagogy model emerged from the data analysis in this study has classified ICT pedagogies into four different types. It also identified the related personal factors and contextual factors for teachers' implementation of ICT pedagogies. Future research can be done to validate the pedagogy model through more empirical studies in the context of EBP teaching and other contexts such as EAP and EGP teaching. Research on different contexts will make it possible to generalize the application of this model for English related teaching in Chinese higher education.

Additionally, one significant implication of the model is that it can be adopted as guidance for teacher developers and policy makers to consider the influential factors that might support teachers' implementation of ICT pedagogy when ICT related projects are designed. This raised the issue about the evaluation of the relative importance of all these influential factors that had been identified in this study. That is because resources could be limited and therefore it is important to locate the limited resources according to their relative importance in the teaching activity system. The current study was a qualitative study based on a small group of EBP teachers. It was not able to evaluate the relative significance of each factor for teachers' ICT pedagogy. Therefore, quantitative studies are needed to investigate the relative significance of these influential factors that had been identified in this study. Quantitative studies can be carried out for two reasons. First, both personal factors and contextual factors that had influenced EBP teacher have been identified in this study. Second, a number of universities now have over 100 staff members due to the development of EBP teaching in recent years, which makes quantitative study a possible approach in ICT and EBP teaching.

While the application of the TPB was not applicable for this study due to the deficient literature and small sample available for the study in 2003, the researcher believes that it is now possible to adapt the TPB for quantitative studies to measure the relative
importance of the personal and contextual factors for the implementation of ICT pedagogy in China. Specific questionnaire instruments can be developed to test these factors for Chinese context. Consequently, detailed guidance that can support and promote the implementation of ICT pedagogy for English teaching in Chinese higher education can be provided to the teacher developers and policy makers.

7.8.2 The ICT policy and ICT pedagogy

This study has identified that ICT policy substantially influenced teachers’ ICT pedagogy. These include curriculum design, the allocation of ICT facilities and resources for teaching and learning, the technical support and professional development opportunities, which reflected the leading learning theory and the pedagogy hidden behind EBP education in China. In this study, conflicts were identified as evident between ICT pedagogy and the policy elements within the activity system (as described in Chapter 6.4.3). The reasons behind the conflicts were the two different groups of learning theories, namely the behaviourism and constructivism groups of learning theories, which led to the different groups of ICT pedagogy. The integration of ICT to the existing EBP pedagogy required a shift to the student centred, learning oriented pedagogy. Such pedagogy required the management to consider the allocation of ICT facilities as learning based and student centred (Bennett and Lockyer 2004). However, data suggested that pedagogy in the university was still teacher centred and teaching oriented. ICT facilities were allocated to improve teaching efficiency rather than learning outcome. The conflicts between the two types of pedagogy were reported by students and teachers as their lack of access to ICT facilities and lack of flexibility of access to ICT facilities (Chapter 6.4.2).

Though the focus of this study was not about the relationship between ICT policy and the ICT pedagogy, the findings of this study inspired thinking about further research on this issue. With lower-priced ICT facilities for learning become available (see for example, the launch of sub-$100 laptop in the USA), the researcher believes that it will be highly possible to provide students with more access to ICT resources and facilities and to enact learning oriented ICT policies. However, a change in policy requires more than just the availability of ICT resources and facilities, the change can only be processed when the pedagogy underpinning the ICT policies and management in the university have been shifted to student-centred and learning oriented. The following questions are thus proposed here to explore further the possibility of enacting student-centred, learning
oriented ICT policy in the university. What factors could promote the change in higher education to incorporate learning centred pedagogy to current curriculum and ICT facilities allocation. How the voices of every member in the system (policy maker, management, support staff, teachers and students) could be heard and considered into curriculum design and ICT facilities allocation. Whether the change of the involvement of members (leaders, teachers, students, administrators and IT professionals) for ICT policy decision-making could affect ICT pedagogy as argued by researchers in other countries (see Fullan, 1991 for example).

### 7.8.3 Relationship between ICT pedagogy and traditional pedagogy
Conflict was identified between ICT and the traditional pedagogy in this study. The ICT pedagogy implied the adoption of constructivist learning theories (Papert 1990), which required change in both teachers’ and learners’ roles to learn collaboratively in an ICT rich environment. Researchers (Webb and Cox 2004; Webb 2005) argued the importance for teachers to scaffold students’ learning to fulfil the new affordances of ICT. All these implied strongly a change of the existing teacher centred pedagogy and a change of the traditional perceptions about the teacher and the student roles.

However, data analysis suggested that it was difficult for those EBP teachers in the study to change their authority position in front of their students. It was also difficult for teachers to change their perceptions about how students learn and how students should be taught (Chapter 6.2.2). This could be verified from teachers who were strongly against wide use of ICT in EBP teaching and were concerned about the loss of authority due to the appearance of ICT in their teaching (Chapter 5.4.4 and chapter 5.5.4). The concerns about the difficulty in changing ICT pedagogy in this study had also been reported in some studies (Zhang 2002; He 2004; Wu 2004; Zhou 2005) conducted in China (see Chapter 3.4 and 3.5 for more details). Research on educational change has already confirmed that change is time consuming and staged. Without proper support at different stages of change (Fullan 1991; Fullan and Hargreaves 1992; Hargreaves and Fullan 1998; Fullan 2000), reform could end up in failure (Cuban 1986; Hargreaves and Fullan 1998; Fullan 2000; Cuban 2001). Research (He 1999; He and Xiao 2004; He 2004) in Chinese context has identified substantial influence of traditional pedagogy on EFL pedagogy and the application of ICT to English teaching. As this study shows, resistance to the student centred ICT pedagogy came from the fear of losing the traditional highly respected role of
the teacher (see Chapter 3.5 and Chapter 6.4.2). Researchers therefore suggested that there should be ICT pedagogy suitable for the context of China where students should be the learning centre (Zhiti) while teacher could still maintain their role (Zhudao) as suggested by the traditional pedagogy (see Chapter 3.4 for details).

As discussed in chapter 3, He, the major contributor to this model, had noticed the different classroom cultures between Chinese and American schools. He understood the massive influence of Chinese culture upon both students and teachers. The Zhiti-Zhudao teaching model as suggested by its name emphasises the important roles of both teachers and students in the classroom. Compared with the constructivist learner-centred learning approach in the USA, the Zhuti-Zhudao model is more a transitional approach, which can help teachers to ease their shock when they are required to shift to a student-centred teaching approach, where they are facilitators and supporters. The model seems applicable to the Chinese context where teachers have been regarded as the core of teaching in the long history and are now encouraged to push their students into the centre of learning (see Chapter 3 for more details). It is also hoped that the model will guide teachers to the constructivist learner-centred teaching approach in the near future.

However, without empirical study based on the application of the Zhudao-Zhuti model from the literature, it is still not clear how effective the model could be as a transitional approach for the eventual implementation of student centred, learning oriented ICT pedagogy. Nevertheless, He’s research and the findings of this study together raised the issue about how to promote the implementation of student-centred and learning-oriented ICT pedagogy without raising strong resistance from the influential traditional teacher-centred and teaching-oriented pedagogy. Theories about change implied staged teaching models in the process of introducing ICT to education would help teachers come to terms with the cultural change. Therefore, it is worth further investigation on the relationship between traditional pedagogy and ICT pedagogy. Is it possible to find a solution to the conflicts between the two types of pedagogy identified in this study? How efficient can the solution be for EBP teaching and learning? To what degree should the roles of teacher and student be changed? What relationship between learning and teaching should be promoted in ICT supported environments?

### 7.8.4 Informal learning as a major professional development approach

The experience of the seven teachers in the study indicated that professional development
training should be included as a vital part of the establishment and practice of ICT pedagogies in ICT rich teaching environments.

Findings of this study indicated that formal learning had never been regarded as a major form for the EBP teachers to improve their ICT competence and ICT pedagogical knowledge. Their learning, on the contrary was predominantly self-directed and incidental informal learning, which was 'intentional but not highly structured' (Marsick and Watkins 2001) through peer-observation and informal discussion on ICT related topics. Therefore, to investigate the influence of informal learning on teachers' ICT pedagogy should be extended in the future research projects. This brings the first issue: the evaluation of teachers' informal learning. The following questions are worth investigating. How informal learning among teachers is structured? How teachers' learning enhanced their knowledge base? How such leaning is applied to their teaching? Is there any evidence to prove that their learning can improve students' learning and how?

Findings of this study also indicated that efficiency of teachers' incidental learning varied. This raised the second issue about the efficiency of teachers' informal learning and the reasons for individual differences. How EBP teachers' informal learning is structured? What should be done to help them to identify conditions that help them learn more effectively or that stand in the way of their learning? What measures should be taken to promote teachers' change and support their change once such conditions are identified?

Additionally, Marsick and Watkins (2001) argued that informal learning 'can be deliberately encouraged by an organisation or it can take place despite an environment not highly conducive to learning' (Marsick and Watkins, 1990, p. 12 cited in Marsick and Watkins 2001). Findings of this study suggested that the seven teachers’ informal learning was not organized in a conductive environment. They did not gain much support from the university or the college. The third issue was about the role of the college or the university in teachers' informal professional learning. It is worth further research on this issue because findings can be used to design policies, practices, and a culture that supports ongoing learning that is integrated with daily work routines within the university (2001).

Recent research on learning in working contexts (Marsick 1988; Brown and Duguid 1991; Trice and Beyer 1993; Schneider, Brief et al. 1996; Marsick and Watkins 1999; Watkins and Marsick 1999; Wenger and Snyder 2000; Dirkx, Swanson et al. 2002) suggested that
an enhanced learning community of practice could support the acceptance of innovative norms within the community. As this study has shown, the community of practice within EBP teachers was not established yet (Chapter 6.4.3). However, teachers’ behaviour in the focus group discussion indicated that they were willing to share their ICT related experiences with other EBP teachers in an adequate environment. Data collected from the focus group showed that abundant information related to the implementation of ICT pedagogy had been exchanged in the focus group discussion. This implied that it was possible for teachers to improve the efficiency of informal learning in the community and to construct new knowledge through their collaborative actions within the community. However, the focus group discussion was only a one-off event in this study. Neither did it aim to support teachers’ community of practice in the university. Nevertheless, the findings of this study inspired the researcher to consider the possible future research on the role of the university to support teachers’ community of practice. Researchers (Marsick 1988; Watkins 1996; Stake and Cohernour 1999; Wenger and Snyder 2000; Lesser and Storck 2001; Yamagata-Lynch 2001; Hung, Chee et al. 2005; Krumsvik 2005) on organisational learning argued that if a community of practice with strong norms can be involved in innovation, it is more likely to learn new knowledge for their practices. Then what can the university management do to introduce the innovative norm to the community and enhance it? What should the university do to support the related informal learning among its staff once the norm has been accepted? What kind of environment can the university create to ‘deliberately encourage’ the implementation of ICT pedagogy? Is there a special model that can be identified from and support EBP teachers’ incidental learning in Chinese educational system?

7.9 Final comment
This study explored the ICT pedagogy in EBP teaching with the focus of the impact of teachers’ attitudes towards and beliefs about ICT in teaching and their ICT pedagogy. The study had been located in a context that had a long tradition of teacher centred pedagogy and special cultural influence on teaching and learning. The integration of ICT in EBP teaching in China is regarded as irrevocable. Therefore, it was of significant importance to understand the intentions of teachers’ integration of ICT pedagogically and factors that influenced their actual teaching in the classrooms. As one teacher in her interview acknowledged, ‘the use of ICT, no matter where you be, is
coming eventually'. Hence, 'what I am thinking now is not whether I should use ICT or not in my teaching, but how to use it sufficiently and more effectively.'
References


Anderson, T., S. Varnhagen, et al. (1998). "Faculty adoption of teaching and learning technologies:


References


References


Brown, M. and D. Edelson (2003). *Teaching as design: Can we better understand the ways in which teachers use materials so we can better design materials to support their change in practice?* Evanston, IL, Center for Learning Technologies in Urban Schools.


Burns, A., H. Joyce, et al. (1996). "I See What You Mean": Using Spoken Discourse in the Classroom: A Handbook for Teachers, National Centre for English Language Teaching and Research, Macquarie University, Sydney, New South Wales, Australia


Chen, N. L. (2002). "A review on Teacher/Student Relationship in Distance Education" *Open education research* **3**: 28-30.


References


Fisser, P. and M. Van Geloven (2001). Re-engineering University Service to Manage ICT in Education Holland, University of Twente.

References


Hall, G. E., R. C. Wallace, et al. (1973). A developmental conceptualization of the adoption process within educational institutions Austin, TX, Research and Development Center for Teacher Education, The University of Texas.


Harmon, S. and M. Jones (2000). "The five levels of web use in education: Factors to consider in


References

of Blending Learning (I and II)." *E-Education Research* **04.3 (I), 04.4 (II): 1-6 (I),22-26 (II).*


References


References


References

Aggarwal, Idea Group Publishing: 415-439


References


World Conference on Educational Multimedia, Hypermedia and Telecommunications Norfolk, VA: AACE.


Santallusia, F. (2002). The Impact of the use of new information technologies and the Internet on the teaching of foreign languages and on the role of teachers of a foreign language, Contribution by
References

CRLE, Catalonia, Spain.


online teaching among 913 college faculty " International Review of Research in Open and Distance Learning 16(2): http://www.irrodl.org/content/v6.2/shea.html.


References


References


**Business Review** 78(1): 139-145.
References


Zhao, G. and X. Zhu (2002). "On-line and Distance Higher Education in China, Current Situation and Future Directions." Distance Education in China 5.


Appendix 1: EBP teacher questionnaire
The uptake of Information and Communication Technology (ICT) by Business English teacher in China higher education institutions (pilot)

Part 1

### 1. Personal Information

1.1. Name: 
1.2. Name of the institution: 
1.3. Gender: Male [ ] Female [ ]
1.4. Age 
1.5. Contact address: 
1.6. E-mail address: 
1.7. Please indicate the main courses you are teaching and the length of time per week for the course(s), the course name might be slightly different, please read the brief description and choose one close to your course.

<table>
<thead>
<tr>
<th>Course Name ---Courses Feature</th>
<th>hour per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensive Reading English in Business ---Business articles reading with specific explanation and reading skills training</td>
<td></td>
</tr>
<tr>
<td>Extensive Reading English in Business ---Business articles reading concentrates on vocabulary building and reading speed.</td>
<td></td>
</tr>
<tr>
<td>Listening Comprehension ---Listening ability training for general purposes</td>
<td></td>
</tr>
<tr>
<td>Oral English--Speaking ability skill training, with daily and general communication as core</td>
<td></td>
</tr>
<tr>
<td>Business Writing, Correspondence for Import and Export-- Writing letters, messages, memos etc for general business purposes</td>
<td></td>
</tr>
<tr>
<td>Interpretation--Special training for simultaneous oral translation in various business context</td>
<td></td>
</tr>
<tr>
<td>Translation--Special training for business translation in writing form</td>
<td></td>
</tr>
<tr>
<td>Business Negotiation in English--Special training for oral competence, communicative skills in specific business context</td>
<td></td>
</tr>
<tr>
<td>International Trade, practice in international trade-- Theoretical explanation and operational process guide for international trade.</td>
<td></td>
</tr>
<tr>
<td>Settlement and Payment, accounting--Instruction on international business settlement and payment as well as corporation accounting</td>
<td></td>
</tr>
<tr>
<td>Economics, Western Economics--Theoretical instruction of the micro- and macro-economics in general context or from the aspect of business aspect.</td>
<td></td>
</tr>
<tr>
<td>Marketing, advertising--Theoretical explanation of marketing and practical guide to commercial activities in markets, domestically or globally</td>
<td></td>
</tr>
<tr>
<td>Cross-cultural Management and Communication</td>
<td></td>
</tr>
<tr>
<td>International Commercial Law-- Introductions of commercial laws in international commercial activities plus case analysis</td>
<td></td>
</tr>
<tr>
<td>Transportation and Insurance--An introduction concerned both the legal process and financing of international commodity transportation and insurance issue.</td>
<td></td>
</tr>
<tr>
<td>Financing--English specifically for the purpose of financing activities</td>
<td></td>
</tr>
<tr>
<td>Others (please specify)</td>
<td></td>
</tr>
</tbody>
</table>

1.8. Please indicate your academic title.

- Teaching assistant [ ]
- Lecturer [ ]
- Associate professor [ ]
- Professor [ ]

1.9. Years of teaching experience:
1.10. Do you use ICT in your teaching practice?  
Yes [ ] No [ ]

1.11. What are the reasons for your using ICT in your teaching practice?  
Curriculum requirement [ ]  school policy [ ]  my own will [ ]
Other (Please specify)

2. Confidence and competence in ICT

2.1 Have you ever attended any ICT competency certificate test?  
Yes [ ] No [ ]

2.2 If Yes, what certificate do you have at present? What ICT uses were covered in the test (e.g. basic windows operation, word processing, etc.)?

2.3 Please rate your current levels of confidence in your using ICT for personal purposes, professional development and classroom practice. Please tick the description closely matches to your experience.

<table>
<thead>
<tr>
<th>Confidence</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal purposes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office purposes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom practice</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.4 Please rate your current levels of competence in your using ICT for personal purposes, professional development and classroom practice. Please tick the description closely matches to your experience.

<table>
<thead>
<tr>
<th>Competence</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal purposes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office purposes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom practice</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Using ICT in different context

3.1 - 3.15 Please indicate how long you have used various ICT by 31 March 2004, how often do you use the following ICT forms in the last six months dated from 1 October 2003 to 31 March 2004. Please answer each of the following questions by ticking the appropriate response.

- **L** = length of use (e.g. 3 years and 2 months)
- **N** = never
- **M** = about an hour per month
Appendix 1 Questionnaire

Wr = one hour per week
WF = several hours a week
D = daily

<table>
<thead>
<tr>
<th>NO</th>
<th>ITEM</th>
<th>For Personal Purposes</th>
<th>For Office Purposes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L  N  M  Wr  WF  D</td>
<td>L  N  M  Wr  WF  D</td>
</tr>
<tr>
<td>3.1</td>
<td>Word processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>Spreadsheets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>Databases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td>Presentation software</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>Art/graphics software</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>Games</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td>Digital camera</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>Printing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.9</td>
<td>Fax</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.10</td>
<td>Scanner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.11</td>
<td>E-mail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.12</td>
<td>Real time communicative system (msn, ICQ)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.13</td>
<td>World Wide Web</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.14</td>
<td>Video Conference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.15</td>
<td>Other (please specify):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.16 Where do you generally use ICT resources for personal purposes? (Please tick all that apply)

My own office [ ] home [ ] Computer room esp. for teachers [ ]
Public computer rooms for both teachers and students [ ]
Other (please specify): ________________________________

3.17 Where do you generally use ICT resources for professional development? (Please tick all that apply)

My own office [ ] home [ ] Computer room esp. for teachers [ ]
Public computer rooms for both teachers and students [ ]
Other (please specify): ________________________________

3.18 Please indicate up to 5 frequently uses of ICT in each context by writing the appropriate letter in the space given below. If M is written in any box, Please use the additional line to specify.

A. Download information                B. Load software
C. File management                    D. Connect to external devices
E. Online games                       F. Real time communication
G. Communicate with others via e-mail  H. Communicate with students via e-mail
I. Publish my students' work in WWW.  J. Find out information and resources
K. Discuss teaching ideas with fellow teachers and other professionals via discussion group.
L. Publish my own teaching materials through WWW.
M. Other (please specify)

**Personal purposes**

1. [ ] 2. [ ] 3. [ ] 4. [ ] 5. [ ]

Specify:

**Office purposes**

1. [ ] 2. [ ] 3. [ ] 4. [ ] 5. [ ]

Specify:

3.19 Please indicate the website(s) you have accessed most frequently for personal purposes:
3.20 Please indicate the website(s) you have accessed most frequently for office purposes:

4. Barriers to Use of ICT in different contexts

If you do not use a specific ICT resource for office purpose or personal use, please indicate why (please tick the appropriate boxes).

<table>
<thead>
<tr>
<th>Personal purposes</th>
<th>Office purposes</th>
</tr>
</thead>
<tbody>
<tr>
<td>not available at all</td>
<td>not available at all</td>
</tr>
<tr>
<td>not accessible when needed</td>
<td>not accessible when needed</td>
</tr>
<tr>
<td>not familiar with</td>
<td>not familiar with</td>
</tr>
<tr>
<td>lack of skills</td>
<td>lack of skills</td>
</tr>
<tr>
<td>not appropriate</td>
<td>not appropriate</td>
</tr>
<tr>
<td>cost of buying/using</td>
<td>cost of buying/using</td>
</tr>
<tr>
<td>lack of technical support</td>
<td>lack of technical support</td>
</tr>
<tr>
<td>lack of time</td>
<td>lack of time</td>
</tr>
<tr>
<td>not available at all</td>
<td>not available at all</td>
</tr>
<tr>
<td>not accessible when needed</td>
<td>not accessible when needed</td>
</tr>
<tr>
<td>not familiar with</td>
<td>not familiar with</td>
</tr>
<tr>
<td>lack of skills</td>
<td>lack of skills</td>
</tr>
<tr>
<td>not appropriate</td>
<td>not appropriate</td>
</tr>
<tr>
<td>cost of buying/using</td>
<td>cost of buying/using</td>
</tr>
<tr>
<td>lack of technical support</td>
<td>lack of technical support</td>
</tr>
<tr>
<td>lack of time</td>
<td>lack of time</td>
</tr>
</tbody>
</table>

5. Use of ICT in classroom practice

5.1 Do you use ICT for your classroom or synchronic online instructions?  Yes ☐ No ☐

If No, please give your reason below and then move to section 7
5.2 - 5.17 Please give the course name in the bracket at the top of the first column, indicate the frequency in the last 6 months of use by ticking the appropriate response and describe briefly the future of use (e.g. Presentation, interaction, imitating operation, etc.) If you are teaching more than one course please use the additional leaflet to complete your questionnaire.

- N = never
- Wr = one hour per week
- Wf = several hours a week
- D = daily

<table>
<thead>
<tr>
<th>No</th>
<th>Course Name:</th>
<th>N</th>
<th>M</th>
<th>WR</th>
<th>WF</th>
<th>D</th>
<th>Feature Of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2</td>
<td>Word processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3</td>
<td>Spreadsheets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.4</td>
<td>Databases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td>Presentation software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.6</td>
<td>Art/graphics software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.7</td>
<td>Educational software package</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.8</td>
<td>E-mail</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.9</td>
<td>Real time communicative system</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.10</td>
<td>World Wide Web</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.11</td>
<td>Video Conference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.12</td>
<td>Classroom with one computer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.13</td>
<td>Suite with one computer for each student</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.14</td>
<td>Suite with one computer for every 2-3 students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.15</td>
<td>Face to face instruction with some ICT use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.16</td>
<td>Online instructions to students in remote distance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.17</td>
<td>Other (please specify):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Perceived ease of use ICT in teaching

6.1 - 6.15 Please indicate to what extent you agree with the following sentences by ticking the appropriate response.

<table>
<thead>
<tr>
<th>Using ICT in my teaching</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 make my lessons more interesting for me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2 make my lessons more difficult for me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3 make my lessons less fun for me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4 makes my lessons more diverse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.5 has improved the presentation of material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.6 reduces students motivation

6.7 impairs students’ learning

6.8 has allowed me greater access to a computer for my personal and professional use.

6.9 is not enjoyable

6.10 gives me more prestige

6.11 restricts the content of my lessons

6.12 makes preparing for lessons more difficult.

6.13 has often disrupted my lessons due to problems with hardware/software

6.14 has given me more confidence in using computers

6.15 is often highly expensive

6.16 What do you think are the main advantages of using ICT in your teaching?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

6.17 What do you think are the main disadvantages of using ICT in your teaching?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

7. Professional development in ICT

7.1 How often have you had the chance to attain training courses involving ICT knowledge and/or skills or ICT in education?

Once per semester [ ] one per year [ ] every other year [ ] never [ ]

If never, please move to section 9

7.2 - 7.6 Please indicate 1) the location and the time period (in hours) of each form of training in ICT education you have received and 2) Time period in the course on how to use ICT in specific teaching situation:

e.g. 20 ( 7 )

20 = Total Periods of the training course

7 = Period of integrating ICT in teaching practice

<table>
<thead>
<tr>
<th>Hours of Courses Received</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own university</td>
<td>Other university</td>
</tr>
<tr>
<td>On-line</td>
<td>Private institute</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
</tr>
<tr>
<td>Initial awareness course (e.g. Basic Windows operation)</td>
<td>( )</td>
</tr>
<tr>
<td>Short special course (e.g. using databases, PowerPoint)</td>
<td>( )</td>
</tr>
</tbody>
</table>
Appendix I Questionnaire

Advanced course (e.g. integrate ICT in teaching practice) ( ) ( ) ( ) ( ) ( )
Working conference (ICT and other professional knowledge) ( ) ( ) ( ) ( ) ( )
Longer award bearing course (e.g. specific theories and practice about ICT in Education) ( ) ( ) ( ) ( ) ( )

7.2 Please indicate anything that was useful about the training course.

________________________________________________________________________________________

________________________________________________________________________________________

7.3 Please indicate anything that was not useful about the training course.

________________________________________________________________________________________

________________________________________________________________________________________

8. Benefits of ICT professional development

8.1 Did you ever teach yourself knowledge or skills about ICT? Yes ☐ No ☐

If No. Please move on to section 8.8

8.2—8.7 Please indicate the benefit of your formal or self taught professional development in ICT by ticking the box that might be appropriate to you:

<table>
<thead>
<tr>
<th>My professional development in ICT</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.2 enhanced my ICT skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.3 enhanced my knowledge of good practice for using ICT in my teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.4 allowed me to have useful discussion with other professionals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.5 gave me greater awareness of teaching materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.6 helped me to understand the role of the world wide web</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.7 helped me to change my classroom practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.8 Given the chance, are you willing to participate in ICT training courses? Yes ☐ No ☐

8.9 Please indicate any (other) support you received for using ICT, by ticking one or more of the following:

Other member of staff ☐ IT coordinator ☐ Students ☐ Professional journals ☐

Other (please specify): ______________________________________________________

9. The expected professional development in ICT in the near future

9.1 -9. Given the chance, please indicate your value of the different forms of training projects you would like to receive by ticking the appropriate description in the five-point scale polar.

<table>
<thead>
<tr>
<th>No</th>
<th>Possible training projects</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>Basic ICT skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.2</td>
<td>Advanced ICT skills</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- 338 -
Appendix 1 Questionnaire

9.3 For using ICT in the classroom
9.4 Information on how ICT contributes to students' learning
9.5 Discussion with other professionals
9.6 International links
9.7 Developing of ICT policy
9.8 Managing ICT in the classroom
9.9 Using ICT for professional development
9.10 Other (please specify)

9.11 Please indicate where you would like the training to be held.
College □ other college □ online □ private company □
Other (please specify): ______________________________________

9.12 What would you like to have to promote your use of ICT for classroom practice, professional development or personal use by the end of 2006? Please list up to three in each context.

Classroom practice 1. 
2. 
3. 

Professional development 1. 
2. 
3. 

Personal use 1. 
2. 
3. 

Thank you for your help!

Ling Hu Hunan University King's College London
Appendix 2: Instruments for Interview

Appendix 2.1 Information to the teacher prior to the interview

The following information are to be send out to teachers one week before the interview

Dear teacher,

The purpose of this three-month study is to understand the relations between teachers’ beliefs relations between teachers’ beliefs and attitudes, their ICT related pedagogy and their professional development history of ICT. Evidence showed that people’s behaviour is influenced by their beliefs and attitudes as well as their knowledge and experience. In this study, I am particularity interested in how teachers’ behaviours in the classroom are related to their beliefs, attitudes, knowledge and experiences. All information will remain confidential.

I would like you to think about a particular lesson that have taught where you felt satisfactory with the use of ICT facilities (computer, the Internet, video, etc.). I want to understand your reasons of doing the lesson planning, teaching the lesson in your way and using particular ICT types in certain activities during that lesson, and factors lead to your decisions. To be more specific, I am interested in the following aspects:

- What were the learning objects of the lesson?
- How did you organize the lesson?
- How ICT were used in lesson?
- What was your role in the class as a teacher and as an ICT operator?
- What did your students learn from the lesson and what is the evidence?
- How your teaching of the topic is different without ICT facilities? (change)

It would be helpful if you can provide lesson plans, materials, assessment records etc. as available to help me to understand the nature of the lesson.

More generally, I would like to understand:

- What are factors that contribute to your students’ learning?
- What are the changes before and after your teaching with ICT?
- What do you believe about the value and purpose of ICT in education?
- What are the constraints of ICT in education?
- How do your colleagues and your university influence your use of ICT in education?
Appendix 2.2 Interview schedule for ICT user

The following is the questions for the interview with ICT user

1. Tell me something about your teaching experience.
2. Have you ever used any ICT facilities in your teaching?
   If yes, how do you feel about the use of these facilities?
   If no, can you tell me any reason for not using these facilities?
3. Can we now talk about the lesson I mentioned in the letter last week? Sub-questions
   1) What were the learning objects of the lesson? (Topic, nature of the topic)
   2) How did you organize the lesson (activities, use of ICT and associate resources)
   3) How ICT were used in lesson? (role and purpose of the ICT)
   4) What was your role in the class as a teacher (relations to students)
   5) What was your role as an ICT operator? (relations to ICT, the tools)
   6) What did your students learn from the lesson and what is the evidence? (outcome)
   7) How your teaching of the topic was different without ICT facilities? (change)
4. What do you think are the problems related to the use ICT? Constrains
5. How do you solve these problems?
6. How do you gain your knowledge of ICT competence and refresh the knowledge?
7. How your teaching is different /similar to that of your colleagues? How do you feel about this differences and similar?
8. Who or what are influencing you or your colleagues’ use of ICT in teaching?
9. Are there any changes before and after your using ICT in teaching?
10. What do you believe about the value and purpose of ICT in learning?
Appendix 2.3 Interview schedule for Non-ICT user

The following is the questions for the interview with non-ICT user

1. Tell me something about your teaching experience.
2. Have you ever used any ICT facilities in your teaching?
   If yes, how do you feel about the use of these facilities?
   If no, can you tell me any reason for not using ICT facilities?
3. Can we now talk about the lesson I mentioned in the letter last week?
   Sub-questions
   1. What were the learning objects of the lesson?
   2. How did you organize the lesson?
   3. What facilities were used to help the teaching?
   4. What was your role in the class as a teacher?
   5. What did your students learn from the lesson and what is the evidence?
4. What do you think are the problems related to the use ICT? Constrains
5. Do you think you are going to use any ICT in your teaching in the near future? Why or why not?
6. Have you any chance to learn your ICT and refresh the knowledge?
7. How your teaching is different/similar to that of your colleagues? How do you feel about this differences and similar?
8. Who/what are influencing you or your colleagues’ teaching?
9. How do you compare teaching with and without ICT?
Appendix 3: Instruments for classroom observation

Appendix 3.1 Lesson observation pro forma (summary sheet)

<table>
<thead>
<tr>
<th>Teacher name:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course:</td>
<td>Class:</td>
</tr>
<tr>
<td>Observer:</td>
<td></td>
</tr>
<tr>
<td>Lesson theme:</td>
<td></td>
</tr>
</tbody>
</table>

Type of ICT available in the classroom

Type of ICT used (including software details):

Overall impression of lesson:

Description or sketch of room layout:
## Documents collected

<table>
<thead>
<tr>
<th>Document ref no.</th>
<th>Document name</th>
<th>Document description</th>
<th>Teacher comments on document</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 3.2 Lesson observation pro forma (commentary sheet)

<table>
<thead>
<tr>
<th>Time</th>
<th>Commentary</th>
<th>Thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Commentary</td>
<td>thoughts</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 4: Teacher focus group schedule

Appendix 4.1 Invitation Letters to the focus group

Dear teachers:

With your support and assistance, I am approaching the end of my data collecting for the study. In order to obtain a more thorough understanding of the relationship between you, the university and your teaching, I would like to invite you for a focus group discussion. Once again, I assure you that all teachers who are in the group will be anonymous in public publications, your identity will keep confidential at any stage of the study. You may withdraw at any time before and during the discussion.

The group discussion will focus on ICT and education. You are asked to talk about you, as an EBP teacher’s experiences and the impact of ICT on you, your colleagues and the EBP teaching. The following is a list about the issues that might be talked about in the group discussion:

- How ICT can be applied to your teaching?
- How do you think about your colleagues’ application of ICT?
- Do their practices influence your teaching?
- How do you feel about the ICT related policy in the college or the university?
- Do you think ICT will change teaching, class management and instruction? How they change and why they change?

The focus group will be held on Monday 9th of May, 5:30-6:30 pm at the Business English staff office. If you would like to take part in this study, please let me know by emails (lingzihu@gmail.com, ling.hu@kcl.ac.uk) or telephone (0731-882XXXX).

Best regards!

Ling Hu
King’s College London
Appendix 4.2 Questions for the teacher focus group

The following questions were asked in the focus group:

1. Do you have the feeling that you are obliged to keep in pace with other EBP teachers in your department for the use of ICT in teaching?
2. How your colleagues use of ICT in teaching influence your teaching practice?
3. What will you do when you find that your teaching is not the same as your colleagues’ practice?
4. Are there any other factors that will influence your use of ICT?
5. Can you give some examples to show how ICT can be applied to your teaching practice?
6. Do you feel the change of your teaching? (Teaching method, classroom management, lesson planning, assignment marking and submitting, and interaction with students)
7. How can you improve the efficiency of ICT in your teaching?
8. How teachers can be supported effectively for their teaching with ICT?
9. What do you think is the idea model to apply ICT in your teaching?
10. Is ICT a panacea to higher education? Can it solve all the problems in teaching and learning?
Appendix 5: Student focus group schedule

Appendix 5.1 Invitation letter

Dear students:

You are invited for a focus group discussion. The purpose of the group discussion is to gain a thorough understanding about the application of ICT by teachers in this department. Data collected from the group discussion will be adopted for academic research. All information collected from the group discussion will be confidential. Your real names and identity will be released to anybody in any conditions. We also guarantee that what you are talking in the group discussion will not link to your achievements.

The group discussion will focus on ICT and education. You are asked to talk about your, as an EBP learner’s experience in this department and the impact of teachers’ application of ICT to teaching on your learning. The following is a list about the issues that might be talked about in the group discussion:

- How ICT is used in EBP teaching and learning?
- How do you think about your teachers’ application of ICT?
- Does your teacher’s application of ICT influence your learning?
- Do you think ICT is changing the way of teaching and your learning?
- Have you any particular stories (inspiring or frustrating) about you or your friends’ use of ICT for learning on the campus?

The focus group will be held on Monday 17\textsuperscript{th} of May, 5:30-6:30 pm at the Business English staff office. If you would like to take part in this study, please let me know by emails (lingzihu@gmail.com, ling.hu@kcl.ac.uk) or telephone (0731-882XXXX).

Best regards

Ling Hu
Appendix 5.2 Questions for the student focus group

Aim of the focus group
- To identify students' perceptions of ICT related pedagogy
- To identify students' attitude towards their teachers' use of ICT in teaching
- To identify the effect of ICT in their learning

Questions asked in the focus group
1. What is ICT? Do you think ICT should be applied to teaching and learning?
2. How many EBP courses applied ICT for teaching and learning? What ICT types were used? How efficient they were?
3. What are the differences between non-ICT and ICT supported teaching and learning? What are the advantages and disadvantages of each teaching approach?
4. What is the idea ICT supported teaching and learning model in your mind? What factors influenced ICT supported teaching and learning? What should teachers and the university do?
5. Have you noticed teachers' different application of ICT for their teaching? What are they? How they are different from each other?
6. How do you apply ICT for your learning? What ICT types you are using? How they support your learning?
7. What are the influences of ICT to your learning?
8. How can ICT best support your learning?
Appendix 6: Open coding node tree

NODE LISTING

Nodes in Set: All Tree Nodes
Create: 04/06/2005 - 12:52:47
Modified: 04/06/2005 - 12:52:47
Number of Nodes: 204

1 (1) /ICT competence
2 (1 1) /ICT competence/confidence of ICT
3 (2) /Tools
4 (2 1) /Tools/ICT tools
5 (2 1 1) /Tools/ICT tools for classroom teaching
6 (2 1 2) /Tools/ICT tools beyond classroom teaching
7 (2 1 3) /Tools/ICT tools/ICT used in the classroom
8 (2 1 6) /Tools/ICT tools/storage and share of information or
9 (2 1 7) /Tools/ICT tools/ICT use is limited in teaching
10 (2 1 10) /Tools/ICT tools/history of ICT in teaching
11 (2 2) /Tools/ICT CPD
12 (2 2 1) /Tools/ICT CPD/confidence of using ICT
13 (2 2 2) /Tools/ICT CPD/teacher needs CPD
14 (2 2 3) /Tools/ICT CPD/lack of time for CPD
15 (2 2 4) /Tools/ICT CPD/lack of ICT CPD
16 (2 2 5) /Tools/ICT CPD/learning from daily life experience
17 (2 2 6) /Tools/ICT CPD/lack of ICT support
18 (2 2 7) /Tools/ICT CPD/perception of CPD program
19 (2 2 8) /Tools/ICT CPD/needs for ICT CPD
20 (2 2 9) /Tools/ICT CPD/needs just in time support
21 (2 2 10) /Tools/ICT CPD/learning from experience
22 (2 2 12) /Tools/ICT CPD/self directed CPD
23 (3) /pedagogical decision
24 (3 1) /pedagogical decision/learning
25 (3 1 2) /pedagogical decision/learning/assist self directed learn
26 (3 1 11) /pedagogical decision/learning/ICT enables target student activi
27 (3 1 14) /pedagogical decision/learning/student interaction
28 (3 2) /pedagogical decision/management
29 (3 2 6) /pedagogical decision/management/ICT change the way of assessment
30 (3 2 17) /pedagogical decision/management/ICT trace the learning
31 (3 2 18) /pedagogical decision/management/ICT helps to produce feedback
32 (3 3) /pedagogical decision/ICT as interaction media
33 (3 4) /pedagogical decision/helps to share information
34 (3 5) /pedagogical decision/ICT provide visualized information
35 (3 6) /pedagogical decision/change the way of evaluation
36 (3 7) /pedagogical decision/ICT afford for in-depth learning
37 (3 8) /pedagogical decision/ICT provide abundant information
38 (3 9) /pedagogical decision/beyond classroom
39 (3 9 1) /pedagogical decision/beyond classroom/ICT assist lesson plan
40 (3 10) /pedagogical decision/exhibit of ST assignment
41 (3 11) /pedagogical decision/extend availability of ICT
42 (3 12) /pedagogical decision/changing role of teacher in the class
43 (3 13) /pedagogical decision/ICT assist teacher presentation
44 (3 14) /pedagogical decision/ICT assist presentation
45 (3 15) /pedagogical decision/ICT as supplementary tools
46 (3 16) /pedagogical decision/ICT provide visualized and authentic
47 (3 17) /pedagogical decision/ICT change homework

- 351 -
Appendix 6 Open coding node tree

48 (3 18) /pedagogical decision/ICT diverse teaching material
49 (3 19) /pedagogical decision/ICT help produce of feedback
50 (3 20) /pedagogical decision/ICT provide authentic teaching material
51 (3 21) /pedagogical decision/ICT trace learning
52 (3 22) /pedagogical decision/learning from real english
53 (3 23) /pedagogical decision/ST self directed learning
54 (3 24) /pedagogical decision/teachers role
55 (3 24 1) /pedagogical decision/teachers role/T as administrator
56 (3 24 2) /pedagogical decision/teachers role/T as information supplier
57 (3 24 3) /pedagogical decision/teachers role/T as monitor
58 (3 24 4) /pedagogical decision/teachers role/T as organizer
59 (4) /community
60 (4 1) /community/learn from family member
61 (4 2) /community/learning from colleague
62 (4 3) /community/subculture
63 (4 4) /community/working isolatedly in HE
64 (4 5) /community/family influence
65 (4 7) /community/lack of communication
66 (4 8) /community/exchange information on ICT technique
67 (4 9) /community/community influence on pedagogy
68 (4 10) /community/students learn differently
69 (5) /division of labor
70 (5 1) /division of labor/teacher~colleague
71 (5 2) /division of labor/administration group
72 (5 3) /division of labor/technician
73 (5 4) /division of labor/students role
74 (6) /rules
75 (6 1) /rules/curriculum
76 (6 2) /rules/availability of technical support
77 (6 3) /rules/requirements for particular reason-
78 (6 4) /rules/gender differences
79 (6 5) /rules/ICT for massive education
80 (6 6) /rules/ICT is not popular in English teaching
81 (6 7) /rules/ICT is a trend
82 (6 8) /rules/curriculum design does not fit needs
83 (6 9) /rules/poor curriculum design
84 (6 10) /rules/word study_curriculum
85 (6 11) /rules/ICT for massive education 2
86 (6 12) /rules/lack of support from Uni
87 (6 13) /rules/Not much technical support for teaching
88 (6 14) /rules/poorer ICT support than in high school
89 (6 41) /rules/ICT is required for teaching
90 (7) /Search Results
91 (7 1) /Search Results/ICT increase workload
92 (7 2) /Search Results/Single Node Lookup
93 (7 3) /Search Results/ICT provide authentic context
94 (7 4) /Search Results/ICT increase productivity
95 (7 5) /Search Results/Single Node Lookup 2
96 (7 6) /Search Results/convenience
97 (7 7) /Search Results/text convenient
98 (7 8) /Search Results/Single Node Lookup 3
99 (8) /constraints
100 (8 1) /constraints/resource access
101 (8 2) /constraints/family influence
102 (8 3) /constraints/ICT increase workload
103 (8 4) /constraints/massive education and pedagogy
104 (8 5) /constraints/ICT and pedagogical design
105 (8 6) /constraints/curriculum and ICT
106 (8 7) /constraints/curriculum and pedagogy change
107 (8 8) /constraints/students poor competence

- 352 -
Appendix 6 Open coding node tree

108 (8 9) /constraints/reliability of ICT
109 (8 10) /constraints/inappropriate management of ICT
110 (8 11) /constraints/lack of ICT competence
111 (8 12) /constraints/lack of ICT CPD
112 (8 13) /constraints/lack of ICT support
113 (8 14) /constraints/lack of resource availability
114 (8 15) /constraints/lack of support from the univ
115 (8 16) /constraints/lack of time for CPD
116 (8 17) /constraints/limited use of virtual communication
117 (8 18) /constraints/inappropriate arrangement of CPD p
118 (8 19) /constraints/ICT and learning
119 (8 20) /constraints/inappropriate arrangement of ICT
120 (8 21) /constraints/research and teaching
121 (8 22) /constraints/availability of resources
122 (8 23) /constraints/inconsistency of support
123 (8 24) /constraints/no interaction with ICT
124 (8 25) /constraints/ICT fail effects
125 (8 26) /constraints/The instability of the system in the
126 (8 42) /constraints/ICT facilities and resources are lim
127 (9) /attitude and beliefs
128 (9 1) /attitude and beliefs/the role of ICT
129 (9 1 1) /attitude and beliefs/the role of ICT/ICT is not my business in teaching
130 (9 1 2) /attitude and beliefs/the role of ICT/distance education is informal
131 (9 1 3) /attitude and beliefs/the role of ICT/ICT teaching is NEW
132 (9 1 5) /attitude and beliefs/the role of ICT/do not use ICT for ICT sake
133 (9 1 9) /attitude and beliefs/the role of ICT/get whatever i want whenever i need
134 (9 1 16) /attitude and beliefs/the role of ICT/T presence is psychological needs
135 (9 1 33) /attitude and beliefs/the role of ICT/ICT is an additional choice
136 (9 1 38) /attitude and beliefs/the role of ICT/positive of using ICT
137 (9 1 49) /attitude and beliefs/the role of ICT/security concern constraints expand
138 (9 2) /attitude and beliefs/ICT and student
139 (9 2 1) /attitude and beliefs/ICT and student/ICT provide flexible learning
140 (9 2 2) /attitude and beliefs/ICT and student/ICT distract attention
141 (9 2 3) /attitude and beliefs/ICT and student/students feedback influence teaching
142 (9 2 4) /attitude and beliefs/ICT and student/student attitude influence teaching
143 (9 2 5) /attitude and beliefs/ICT and student/doubt of students autonomy
144 (9 2 6) /attitude and beliefs/ICT and student/ICT distract attention 2
145 (9 2 7) /attitude and beliefs/ICT and student/ICT motivate student
146 (9 2 13) /attitude and beliefs/ICT and student/ICT is to fulfill sts needs
147 (9 2 14) /attitude and beliefs/ICT and student/ICT motivate students' learning
148 (9 2 22) /attitude and beliefs/ICT and student/ICT improves learning
149 (9 2 27) /attitude and beliefs/ICT and student/ICT requires change of students role
150 (9 2 45) /attitude and beliefs/ICT and student/ICT challenge student
151 (9 2 46) /attitude and beliefs/ICT and student/students lack of competence
152 (9 2 47) /attitude and beliefs/ICT and student/ICT limited students thinking space
153 (9 2 48) /attitude and beliefs/ICT and student/ICT encourages autonomy
154 (9 3) /attitude and beliefs/ICT should provide authentic context
155 (9 4) /attitude and beliefs/ICT teaching is underdeveloped
156 (9 5) /attitude and beliefs/Learning belifs
157 (9 5 1) /attitude and beliefs/Learning belifs/students memorize to gain knowledeg
158 (9 5 2) /attitude and beliefs/Learning belifs/student should keep up with teacher
159 (9 5 3) /attitude and beliefs/Learning belifs/lecturing is important for learning
160 (9 5 4) /attitude and beliefs/Learning belifs/students need to do self directed le
161 (9 5 5) /attitude and beliefs/Learning belifs/students needs new teaching materia
162 (9 5 6) /attitude and beliefs/Learning belifs/translation L1 to L2
163 (9 5 7) /attitude and beliefs/Learning belifs/thinking leads to understanding
164 (9 5 8) /attitude and beliefs/Learning belifs/learning needs monitoring
165 (9 5 9) /attitude and beliefs/Learning belifs/EBP courses for language skills
166 (9 5 10) /attitude and beliefs/Learning belifs/behaviourism teaching
167 (9 5 12) /attitude and beliefs/Learning belifs/keep up with teacher
Appendix 6 Open coding node tree

168 (9 6) /attitude and beliefs/ICT teaching should have feedback
169 (9 7) /attitude and beliefs/ICT teaching should motivate learning
170 (9 8) /attitude and beliefs/comparison of teaching
171 (9 8 1) /attitude and beliefs/comparison of teaching/traditional teaching is more communal
172 (9 8 2) /attitude and beliefs/comparison of teaching/traditional is helpful to students
173 (9 8 3) /attitude and beliefs/comparison of teaching/teach to transfer knowledge
174 (9 8 4) /attitude and beliefs/comparison of teaching/teachers do not want to be observed
175 (9 8 5) /attitude and beliefs/comparison of teaching/teach to meet students needs
176 (9 8 6) /attitude and beliefs/comparison of teaching/teacher's needs abundant subject knowledge
177 (9 8 7) /attitude and beliefs/comparison of teaching/teaching should be informative
178 (9 8 8) /attitude and beliefs/comparison of teaching/teaching is a work of monk
179 (9 8 9) /attitude and beliefs/comparison of teaching/teaching is transferring knowledge
180 (9 8 10) /attitude and beliefs/comparison of teaching/ICT enables targeted student activity
181 (9 8 39) /attitude and beliefs/comparison of teaching/pedagogical design is important for
182 (9 9) /attitude and beliefs/positive to ICT in teaching
183 (9 12) /attitude and beliefs/ICT and teaching
184 (9 12 1) /attitude and beliefs/ICT and teacher/ICT and Health problem
185 (9 12 2) /attitude and beliefs/ICT and teacher/teacher's role can not be substituted
186 (9 12 23) /attitude and beliefs/ICT and teacher/ICT changes the role of teachers
187 (9 12 25) /attitude and beliefs/ICT and teacher/ICT challenge teacher
188 (9 12 26) /attitude and beliefs/ICT and teacher/teacher role can not be substituted
189 (9 12 32) /attitude and beliefs/ICT and teacher/ICT requires extended subject knowledge
190 (9 12 34) /attitude and beliefs/ICT and teacher/older teacher is less likely to accept
191 (9 12 50) /attitude and beliefs/ICT and teacher/needs just in time support
192 (9 13) /attitude and beliefs/ICT and teaching
193 (9 13 1) /attitude and beliefs/ICT and teaching/higher education apply ICT substanti
194 (9 13 2) /attitude and beliefs/ICT and teaching/ICT enhance communication
195 (9 13 3) /attitude and beliefs/ICT and teaching/ICT enhance interaction
196 (9 13 4) /attitude and beliefs/ICT and teaching/ICT enhance reference
197 (9 13 8) /attitude and beliefs/ICT and teaching/pedagogical change is limited
198 (9 13 9) /attitude and beliefs/ICT and teaching/ICT fits for certain courses
199 (9 13 15) /attitude and beliefs/ICT and teaching/ICT provide authentic context
200 (9 13 17) /attitude and beliefs/ICT and teaching/ICT increase productivity
201 (9 13 20) /attitude and beliefs/ICT and teaching/ICT increase workload
202 (9 13 24) /attitude and beliefs/ICT and teaching/ICT changes pedagogy
203 (9 13 37) /attitude and beliefs/ICT and teaching/ICT provide visualized information
204 (9 13 43) /attitude and beliefs/ICT and teaching/ICT diversify teaching content and m
Appendix 7: Teach-Me Trade (TMT)

The Teach-Me Trade (TMT) program was developed by the Shanghai Collegiate Internship Centre for International Business (SCICIB). TMT is part of whole simulation software that seeks to acquaint participants with operational knowledge and skills necessary to carry out normal commodity Import and Export business. According to SCICIB, TMT has been transferred to more than 40 universities and schools within China and SCICIB presents a special training program for college teachers each year during the summer vacation. Because TMT is designed not only to students in school but also business green-hands as well, the system is using Chinese as its designing language although participants are required to finish their task and submit their assignments in English. Participants of the TMT programme are regularly assessed by their performance throughout the program, which covers: Business Correspondence, Price Calculation, Business Negotiation (through correspondence or through oral practice with postgraduates and overseas students plus guest business people when conditions permitted), Contract Signing, Customs Entries, Booking of Shipping Space, Insurance, Documentation etc. All the required information is prescribed - commodity, price, profit rate, payment terms, documents needed etc.

As shown in Image 1, the system is composed of four subsystems, namely the student system, the information system, the teacher system and the administrative system. Each subsystem focuses on its own particular functions.

Image 1 TMT - the home page
All participants engaged in the simulation course will be assigned to different simulated Chinese trading companies respectively to operate a complete process of import/export transaction under the instructions given by teachers through the Intranet or Internet. Image 2 shows the log in page of the student system.

Image 2 TMT - the student log in page

When students log into the system, they come into the task page (Image 3). The task page is divided into three areas, the main menu, the task page and the task index. The main menu served as a convenient navigator for students to choose the tasks they want to work with. The task page lists all the conditions and information that are needed to Image 3

TMT - the student task page
complete the task. The task index on the right tells participants clearly which step they are engaged in the stimulation system. In addition, the task page also provides hyperlinks to remind participants their identity in the system (the company’s portfolio) and the target customer (the transaction company).

Participants receive tasks and instruction information from the system. They finish these tasks assigned to them according to the given conditions. Image 4 shows a task assigned participants in the first step of the stimulation course. Participants are required to contact a German trader for an export transaction. After receiving the task, participants are expected to search for information from the commodity to shipping rates needed for the transaction in the information system. When the task is finished, they are also expected to submit writings or calculations of price etc. to the instructors via the online communication for assessment. They will also receive feedback from the instructor through the system. Each finished task then becomes part of the conditions for the next task.

Image 4 TMT- a sample task

The information system is a supporting system for participants learning activities. It contains all the information needed for an export or import transaction, such as the description of various commodities, possible purchasing price of commodities, expected profit rate of an international transaction, international payment terms, shipping documents, banking documents, insurance rates, foreign exchanges etc. Image 5 shows
the first page of the information system. Information is categorized into four groups, namely commodity information, rates information, documents (banking, shipping etc.) and the help centre, which aims to give answers to some frequently asked questions.

Image 5 TMT—information system

The teacher system (Image 6) is designed to assist an instructor for his/her teaching activity in the system. There are four major functions of the system, namely information browse, task arrangements, online communication, and activity supporting information. The information browse function enables the instructor to retrieve participants' information individually or in groups. She/he can also list all the assigned tasks and submitted tasks, students assessment attainments as well as all the conditioned

- 358 -
information such as bank notice. The task arrangements include such functions as set the
deadline of task submission, check tasks, give feedback individually or in groups, send
new tasks to participants, it also entitles the instructor the privilege to set conditions for
each tasks. The online communication functions in two aspects. One is to read questions
being asked online, and the other is for the instructor to answer the questions. The last
categorized function of the subsystem is the to support the instructor with some
professional documents adopted for an export or import transaction and answers to some
questions that are often asked by instructors. Image 7 shows the operating page of the
teacher system. The page is clearly divided into two sections. The section on the left is the
navigator, which functions in the similar way to student task page. The section on the
right is designed for specific task of the instructor. Image 6 shows information of the 10
participants supervised by an instructor Demotch. It lists each participants ID, the
assigned company, the group name and the current tasks each participant is engaged in.

Image 7 TMT-- teacher system (operating page)

The administration system is designed for the management and maintenance of the whole
TMT teaching and learning activity. The functions are classified into five categories,
namely information browse, project management (the two listed on the left), online
communication, user information maintenance and system maintenance (the three listed
on the right). Information browse enables the administrator to view basic information of
each user (either instructor or learner) such as the match of the real name to each ID in the
system, it also lists learner groups information (how many in a group, age, gender etc.)
and their attainments.

Image 8 TMT—administration system (first page)

Project management includes functions required from the start to the end a project. In other words, it includes setting up new learner IDs and instructor IDs, grouping learners, matching instructor to specific learner groups and ending a learner group when the project is finished.

Functions in the online communication category include system management notices that could be sent to all users, a particular online column that could be used to edit and to list frequently asked operating questions and answers to them, as well as a column for users to contact with the administrator directly for any other operating problems.

The user information maintenance section is designed to manage daily operations of the system such as changing password for learners and instructors, deleted unoccupied or expired IDs in the system.

The last section, the system maintenance functions as the management of the whole TMT system. The administrator could change the administrator’s password and reset the initial configuration for the system.