Learning to teach and teaching to learn: A small-group tutorial model enhances postgraduate tutors’ and tutees’ academic experience

Rebecca Strawbridge a, Anna Mountford-Zimdars b, Cathy Fernandes c, h, Stefania Tognin a, Katerina Koutsantoni i, Carolyn Hodgman d, Brenda P Williams e, Eugenia Kravariti a, Meera Komarraj i, Susan J Lea a, Jenny Yiend h, a

a Department of Psychiatry Studies, Institute of Psychiatry, Psychology & Neuroscience, King’s College London, De Crespigny Park, London SE5 8AF, UK
b King’s Learning Institute, King’s College London, Waterloo Road, London SE1 8WA, UK
c Social Genetic & Developmental Psychiatry Centre, Institute of Psychiatry, Psychology & Neuroscience, King’s College London, De Crespigny Park, London SE5 8AF, UK
d Technology Enhanced Learning, King’s College London, De Crespigny Park, London SE5 8AF, UK
e Basic and Clinical Neuroscience, Institute of Psychiatry, Psychology & Neuroscience, King’s College London, De Crespigny Park, London, SE5 8AF, UK
f Department of Psychology, Southern Illinois University Carbondale, IL, USA
h University of Hull, Hull HU6 7RX, UK
i MRC Centre for Neurodevelopmental Disorders, New Hunt’s House, King’s College London, London SE1 1UL, UK
j National Heart and Lung Institute, Faculty of Medicine, Imperial College London

ABSTRACT

There is a lack of feasible, standardized approaches to enhance postgraduate academic experience using active learning in current resource-constrained higher education (HE). We developed and implemented a novel peer-based small-group tutorial model derived from separate strands of pedagogical theory and evidence.

Designed to be mutually beneficial, the model was tested through delivery of 5-6 hourly sessions to tutorial groups comprising postgraduate taught student tutees (n = 101) and postgraduate research tutors (n = 24; senior peers) from a psychology faculty of a UK Russell Group university. Mixed-methods pre-post assessments included bespoke and standardized questionnaires plus thematic analysis of written feedback.

Benefits were reported by both tutors and tutees, including increased motivation and knowledge, praise of the flexible and interactive environment. Tutees experienced general and specific learning improvements, while tutors’ confidence and enjoyment in teaching increased.

Our validation of a clearly-articulated model for effective senior/junior-peer tutorial delivery progresses knowledge of small-group learning and may enhance academic experiences for our learners and future teachers.

1. Introduction

1.1. Postgraduate learning and teaching

The ethos of 21st century higher education (HE) indicates a dominance of Vygotskian social constructivism (Bruner, 1997) and Piagetian cognitivism (Kolb & Kolb, 2005). There is an expectation that high-quality education includes greater interactivity, personalisation and feedback provision, whilst engaging increasing numbers of learners. This expectation is reflected in growing demands for more personalised feedback and enhanced small-group discussions (Ramsden, 2008), providing a challenge for learner-centred teaching practice (Weimer, 2013) with increasing sizes of student cohorts. Aspects of online and blended learning have become a standard part of teaching practice in academic programmes and can address some challenges to the learning experience with increasingly large student cohorts (Bernard, Borokhovski, Schmid, Tamim & Abrami, 2014). Further, the essential nature of learning reflectively and collaboratively in HE has been widely highlighted (Baldwin, 2017). Many practices are frequently employed to engender collaborative learning, but are not always successful. Instructing students to work in groups is one such example, where students may not truly work together without additional tools. Practices that can be used to overcome potential obstacles to effective collaborative learning in group settings can include increasing awareness of the conventions prescribed by group context and having a trained facilitator present throughout to enable constructive interactions.

*Corresponding author.
E-mail address: jenny.yiend@kcl.ac.uk (J. Yiend).

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There are several benefits to a facilitator being a ‘senior peer’ to students. The benefits of various peer-learning models have been well documented, and formalising/standardising the provision of peer learning environments can ensure that all students could benefit (Boud, 2001). In an article focused on the implementation of peer learning approaches, Boud (2001) refers to ten peer learning models, of which the work described here incorporates several: it includes an element of a proctor model (senior students tutoring more junior students), but more innovatively incorporates elements of other models such as learning cells and mentoring/buddy schemes (where informal meetings can also cover non-specific academic content or personal concerns) and elements of undertaking a collaborative group project and also a peer assessment model in the format of small-group tutorial sessions. An emphasis is also placed on reciprocal learning (a further of the ten models) between tutors and tutees (Boud, 2001).

Henceforth, we refer to the nature of our tutor-tutee relationship (and intended benefits to each) as ‘senior peer’ learning. Adding face to face, small group tutorial sessions may be effective particularly with the tutors (senior peers) being postgraduate students tutors (Boud, 2001) who are forming their own teaching philosophies as they begin their first experiences of teaching. For early-career academics (e.g. Master’s or PhD level students), delivering teaching as a senior peer to more junior students is a tool for enhancing one’s own learning and for developing transferable skills that are sought after both within and outside academic career pathways (Topping, Buchs, Duran & Van Keer, 2017) Barnett (2009). suggests that educational goals for learners in HE should centre around encouragement of students’ ‘becoming’ by processes including student-peer engagement (which can include senior/junior peers in a tutorial context, as well as reciprocally between tutees), greater involvement in their own learning and contribution of individual ideas in learning situations. Achievement of these goals may be facilitated by students engaging in additional, informal academic discussions outside of the classroom. Such discussions are found to be associated with increasing students’ confidence, motivation and absorption of course material (Komarraju, Musulkin & Bhattacharya, 2010).

1.2. Small group tutorials

As set out in a seminal paper by Vygotsky (1978), learning processes are inherently relational, situated and interactive, occurring in salient situations, collaboratively and through social interactions. Small-group tutorials (SGTs) are well placed to provide these aspects of learning through their inherently collaborative approach (Brookfield & Preskill, 2012) involving flexible, reflexive, interactive engagement from participants alongside the provision of constructive and positive feedback (Black & William, 1998). Constructive feedback is clearly important as a teaching tool, but positivity is emphasised for collaborative purposes because it encourages students’ confidence to interact and engage in the group context (Boud, 2001). For the present study, we defined a ‘small-group tutorial’ as the same 3–5 students meeting regularly with a single tutor. SGTs have been shown to increase student enjoyment and motivation but also personalisation and depth of learning (Crosby, 1996; Griffiths, Houston, Lazenbatt & Baume, 1995; Mills & Alexander, 2013; Rudduck, 1978). Moreover, tutorials can enhance both subject-specific learning and acquisition of academic skills (Dennick & Exley, 2004) Brown and Atkins (1988), emphasise that the creation of a safe environment is key to effective tutorials. There is a long-standing tradition at reputable universities of using SGTs to support large group teaching, with particularly high staff-student ratios (typically between 1:1 and 1:3) as an aspect of the Oxford and Cambridge models (Ashwin, 2005). In this sense SGTs are by no means a new phenomenon.

In contrast, empirical research evaluating SGTs is relatively sparse. Some work has suggested that SGTs provide academic enhancements for both students and teachers; specifically peer-led learning has become popular in higher educational contexts (Boud, 2001) as mutually advantageous for both student and teacher. Whilst ‘learning by teaching’ has been a practice used for centuries in the form of the Madras system of education (Bell, 1797), current practice in HE now encourages this more than ever, as part of continuing professional development (King, 2004). By undergoing training, teachers can enhance their own learning and increase self-efficacy (Postareff, Lindblom-Ylänne & Nevgi, 2007), enjoyment of teaching and motivation (Komarraju, 2008). ‘Research-led’ teaching provides further wide-ranging benefits for students in particular (Jenkins & Healey, 2009) and Hay et al. (Hay, Williams, Stahl & Wingate, 2013) demonstrated that teaching from research active academics improved the quality of student learning. In parallel, there is growing evidence supporting the use of blended and flexible learning paradigms, which provide both pedagogical and logistical advantages (Collis & Moonen, 2002; Graham, 2006).

In short, modern practice in HE now encourages, more than ever, teachers to also be learners and learners to also be teachers.

1.3. The current study

As mentioned above environments which are collaborative, flexible, personalised and/or research-led, that incorporate blended learning, are all attributes of teaching delivery that are known to enhance pedagogical or personal outcomes for students with additional benefits for teachers and curriculum developers. Many of these can be used in isolation or combined to enhance existing teaching programs, but there have been few attempts to intentionally amalgamate them into a single model that can be specifically evaluated, and which focuses on the potential advantages for both teacher and student. The small-group tutorial structure is an ideal vehicle for implementing such a model Fig. 1. illustrates our concept of how these elements could work together within a senior peer-led small-group tutorial delivery context and serves as a theoretical basis for the work reported here. We observed that small-group tutorials are currently the exception rather than the rule within the HE sector. We postulated that one reason for this is their relative resource intensiveness; the high staff/student ratios required is highly time-inefficient, which prohibits their use in many institutions. However, we anticipated that the use of blended learning and the deployment of senior student peers as tutors would facilitate efficient delivery. Specifically, it should allow student tutees more face-to-face contact time and richer academic feedback (Boud, 2001). Student tutors (senior peers) would develop their teaching skills, including academic confidence and fluency through explaining common scientific principles to their junior peers, and experience their own research activity within the wider context of teaching and learning in their discipline. All participants could potentially benefit from intellectually stimulating conversation around topics of common interest and expertise. Using a blended learning training element would permit implementation with relatively few resources, suitable for the real budgetary and time constraints that many academic institutions now experience. Our model avoids placing any additional financial burden on the institution because for senior peer student tutors the scheme is a professional development opportunity, with an associated training component, while for student tutees it provides an additional structured learning opportunity at no additional cost to themselves or the institution. In the present investigation, SGTs were evaluated as an optional extra for all participants, however they were designed with the option to incorporate into routine practice, should the results of this evaluation support doing so.

1.4. Aims & objectives

In response to the literature and needs outlined above, we developed a flexible SGT programme, predicated on a bidirectional approach to education shown in Fig. 1. The investigation we present here adds to the literature by a) providing an empirical focus, including quantitative data and standardised measures; b) evaluating both tutor (teacher) as well as tutee (student) perspectives and c) evaluating SGTs delivered
within a senior peer-led learning setting, which, although currently rare across the HE sector, has potentially wide application.

Our mixed methods study aimed to examine the feasibility and outcomes of the programme among postgraduate students in the field of mental health. Although our SGT model could apply at any level of student qualification, the current implementation focused on Postgraduate Research (e.g. PhD) students (PGR) who undertook the role of tutors, and Postgraduate Taught (e.g. MSc) students (PGT) as the tutees. In evaluating the SGT intervention, we specifically aimed to assess:

1. Whether the SGT programme enhanced the student experience overall (i.e. collapsing across tutors and tutees);
2. Whether SGTs improved subjectively-rated academic skills of tutors (including teaching skills) and tutees;
3. Whether SGTs altered the personal characteristics of self-efficacy or academic self-efficacy;
4. The strengths and weaknesses of the scheme as perceived by participants (assessed using qualitative analysis).

2. Materials and methods

2.1. Design, setting and ethical approval

In order to address the study aims comprehensively, this investigation utilised a naturalistic design with a mixed-methods approach to conduct and evaluate the programme. The context was a large UK university health and psychological sciences Faculty. Further details of names, dates and population numbers from which the sample was drawn have been removed to preserve participants’ anonymity. The study was delivered and evaluated as part of ongoing curriculum development within the Faculty. We therefore used verbal explanation and consent with students who responded to an open invitation issued to relevant courses and email networks. Prior to manuscript preparation we checked with our University’s institutional ethics board, who advised us to proceed to publication after having made our dataset fully anonymised, which has been completed following the guidelines of Hrynaszkiewicz and colleagues (Hrynaszkiewicz, Norton & Vickers, 2010).

2.2. Participants

Students at the aforementioned institution were invited to participate in the following contexts.

2.2.1. Tutors (senior peers)

Postgraduate Research Students (PhD, or recent PhD graduates) were invited to apply for engagement in teaching opportunities. Of approximately 100 potential tutors approached, 36 applied and 24 were selected to participate (12 could not commit or had only recently completed MSc study). Tutors were assigned to one of two tutorial strands according to time availability or topic preference (strand 1 n = 15, strand 2 n = 9).
2.2.2. Tutees, strand 1
Students were enrolled in a Master’s course, undertaking a mandatory foundation module in mental health. The supporting small-group tutorials were offered by the Programme as an optional commitment. Of a total of 89 students enrolled in the module, 63 (71%) students participated in the SGT programme (held across the second and third semesters).

2.2.3. Tutees, strand 2
The module was a research methods foundation e-learning course provided to students across multiple postgraduate courses. Supporting small-group tutorials were offered by central Faculty, as an opt—in supplement, to any student interested in taking the module (blended learning). Students were approached via a Faculty-wide email invitation for students seeking extra support with introductory level research methods. 45 students responded to the invitation; all were offered a place and 38 committed to take part.

2.3. Procedure

2.3.1. Training
Tutors and tutees undertook training, administered by the SGT development team, prior to taking part in SGTs. This comprised separate briefing sessions for tutors and tutees. These covered the principles behind the SGT model (Fig. 1), ground rules (i.e. setting boundaries and expectations for attendance, communication, preparation, facilitation, problem solving etc.), practical details (frequency, duration, location etc.) and content guidance. While tutorials were intended to be reflexive and responsive to group needs, a wide range of possible content was provided, including general academic skills (e.g. critical appraisal, using feedback, applying marking criteria, essay writing) and course specific material (core lecture content). A debriefing session after tutorials also took place, to encourage reflection and sharing of experiences, ideas and resources; post-tutorial data were provided at this time point. For all participants, training was intended to maximise the potential benefits (particularly considering content of sessions (Byl et al., 2016)) and minimise the resource burden. Tutors additionally participated in a 2-day course already offered by the institution, which aimed to support and develop critically reflective and confident practitioners; develop research-informed, practical approaches to learning and teaching and provide a forum for engagement around relevant education strategies at the institution. The full training package was subsequently developed into a custom e-training module, with tutor facing and tutor facing interfaces, as an online resource bank of generic documentation to aid delivery and organization. A centralised Faculty database of students interested in teaching was also developed as part of this study and made available to participants involved in future Faculty SGTs.

2.3.2. Tutorial sessions
Sessions were arranged by tutorial groups themselves (coordinated by the tutor) as part of an active learning approach, with support available from the SGT project team if required. Tutorial groups comprised 3–5 tutees per tutor (average tutor-tutee ratio, 1:4); and groups arranged 5 or 6 tutorials (strands 2 and 1, respectively) over the course of two terms. Tutors and tutees were expected to commit to all tutorials in the series. Data completeness was unrelated to session attendance, as post-tutorial data was collected at a debriefing session. Non-attendance at tutorial sessions was not systematically measured, but was captured in the bespoke questionnaire as rated by participants themselves.

2.4. Quantitative measures

Table 1 outlines the design and administration of the quantitative measures used to evaluate SGTs. The specific measures are described below. These were selected in line with the project’s aims and objectives; we prioritised established assessments of our outcomes with close relevance to measures routinely used (e.g., PTES/PRES is used nationally to assess student experience), to other theoretical and applied research (e.g., RSES) and with strong psychometric constructs (e.g., TSES, ASEI, EoT). Where validated assessments were not available bespoke questions were developed.

Bespoke tutorial feedback questions: These were created specifically to measure the domains that we anticipated would be most affected by participation (7 questions for tutors, 8 for tutees). Items were rated on a 5-point Likert scale (1 = definitely agree to 5 = definitely disagree); see Appendix for content of this measure.

Adapted Postgraduate Taught Experience Survey (PTES; Higher Education Academy): The PTES is a national survey administered annually to the postgraduate taught student community in the UK by the Higher Education Academy. Minor adaptions (so as to be relevant specifically to the tutorials programme) of 5 specific PTES items were used to solicit feedback from tutees (only), using identical 5-point Likert scales as above (see Appendix).

Adapted Postgraduate Research Experience Survey (PRES; Higher Education Academy): This measure is similar to the PTES questionnaire, but focuses on Postgraduate Research degree students. 10 specific items, adapted to refer specifically to the tutorials programme (see Appendix), were used to solicit feedback from tutors (only) after tutorials, using 5-point Likert scales as above.

Teaching Self-Efficacy Scale (TSES) (Gibson & Dembo, 1984). This measure contains 17 items describing elements pertaining to confidence and belief in teaching ability, using a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree); total score range 17–102. The internal consistency Cronbach’s alpha coefficient established for this scale is 0.79 (Gibson & Dembo, 1984).

Enjoyment of Teaching Scale (EoT) (Komarraju, 2008). The EoT comprises 14 items relating to enjoyment and enthusiasm for teaching. It uses a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree); total score range 14–84. The internal consistency Cronbach’s coefficient alpha value established for this scale is 0.91 (Komarraju, 2008).

Academic Self-Efficacy Inventory (ASEI) (Chemers, Hu & Garcia, 2001). The ASEI contains 8 items pertaining to an individual’s belief in their own academic abilities, with scores ranging from 1 (very untrue) to 7 (very true); total score range 8–56. The internal consistency Cronbach’s alpha coefficient established for this scale is 0.812.

Rosenberg’s Self-Esteem Scale (RSES) (Rosenberg, 1979). This measure comprises 10 statements relating to an individual’s beliefs about their own abilities, rated on a 4-point scale ranging from 0 (Strongly Agree) to 3 (Strongly Disagree); a maximum score of 30 signifies very low self-esteem (and 0 high self-esteem). The internal consistency Cronbach’s alpha coefficient established for this scale is 0.7723.

2.5. Data analyses

2.5.1. Quantitative data
Non-standardised quantitative scales (bespoke questions, PTES and PRES measures) were summarised by calculating the median and range of Likert scale responses, as well as the percentage of responses agreeing (Agree or Strongly Agree) versus disagreeing (Disagree or Strongly Disagree). Scores at the midpoint (neutral: neither agree nor disagree) were only included in the denominator (total number of responses) not the numerator (number of responses in the agree or disagree category) for percentage calculations. The results section reports descriptive statistics (median ratings; percentage agreeing; narrative summary of descriptive) with full distributions of each item displayed in figures. For standardised questionnaires (TSES, EoT, ASEI, RSES), total scores were calculated and described using the mean (M), standard deviation (SD) and range. Measures that were repeated at the two time points (TSES, EoT, ASEI, RSES) were compared using repeated-measures ANOVA analyses, and interaction with tutorial strand was also examined. For all statistical comparisons, the level of significance was specified as $p < 0.05$. 

Table 1
Inventory of SGT evaluation measures and completion.

<table>
<thead>
<tr>
<th></th>
<th>Pre-tutorials</th>
<th>Post-tutorials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bespoke tutorial feedback questions</td>
<td>Tutors (n = 21) Tutees (n = 66)</td>
<td>Tutors (n = 21) Tutees (n = 21)</td>
</tr>
<tr>
<td>Adapted PTES questions</td>
<td>Tutors (n = 62)</td>
<td>Tutors (n = 20)</td>
</tr>
<tr>
<td>Adapted PREQ questions</td>
<td>Tutors (n = 20)</td>
<td>Tutors (n = 21)</td>
</tr>
<tr>
<td>Teaching Self-Efficacy scale (TSES)</td>
<td>Tutors (n = 21)</td>
<td>Tutors (n = 21)</td>
</tr>
<tr>
<td>Enjoyment of Teaching scale (EoT)</td>
<td>Tutors (n = 21)</td>
<td>Tutors (n = 21)</td>
</tr>
<tr>
<td>Academic self-efficacy questionnaire (ASEI)</td>
<td>Tutors (n = 21) Tutees (n = 63)</td>
<td>Tutors (n = 21) Tutees (n = 66)</td>
</tr>
<tr>
<td>Rosenberg Self-Esteem Scale (RSES)</td>
<td>Tutors (n = 21) Tutees (n = 63)</td>
<td>Tutors (n = 21) Tutees (n = 64)</td>
</tr>
<tr>
<td>Qualitative questions</td>
<td>Tutors (n = 21) Tutees (n = 64)</td>
<td>Tutees (n = 63) Tutees (n = 63)</td>
</tr>
<tr>
<td>Missing data</td>
<td>Tutors (n = 3) Tutees (n = 3)</td>
<td>Tutees (n = 3) Tutees (n = 35)</td>
</tr>
</tbody>
</table>

2.5.2. Qualitative assessment
To obtain a deeper understanding of the tutors’ and tutees’ experience, a qualitative analysis was also undertaken. This involved asking participants to write down their responses to a set of open-ended questions relating to advantages, disadvantages, and suggestions, asked before and after tutorials (see Appendix).

Responses were analysed using thematic analysis and the principles framework analysis (Charmaz, 2006; Ritchie & Spencer, 2002; Srivastava & Thomson, 2009). A framework method was employed due to its recommendation for research examining specific questions defined a priori, within a limited time frame and population of individuals, both systematically and flexibly generating themes (Srivastava & Thomson, 2009). The written responses were systematically coded to classify and quantify the information received into emergent themes. From the raw written text by students, an inductive approach to coding was undertaken through categorising text into sections that expressed a single idea and then coding and assigning these to relevant themes. After initial codes were identified by two independent authors (RS and JY), they met to compare ratings and agree on the set of codes to apply (working analytically framework development). Subsequent independent coding of all text was undertaken to define discrete themes, iterating the analytical framework until no new codes emerged. Finalised themes were agreed by consensus discussion, with the analytical framework applied by assigning numbers for each code. The data was then summarised via charting and interpretation of emergent themes. Quantitative and qualitative measures were completed together in combined evaluation packs and response rates were comparable for both.

3. Results
3.1. Participants
A total of 125 postgraduate students participated in tutorials (24 tutors, 101 tutees), of which 100 (23 tutors, 77 tutees) completed the feedback evaluation forms. The number of participants completing each measure varied slightly, as outlined in Table 1. The sample are predominantly female, particularly for tutees (63 female, 10 male, 1 other, 3 missing data), but also tutors (16 female, 7 male). This was reflective of a similar gender imbalance across Faculty students in general, which in turn reflects the popularity of these subjects of study within the discipline generally. Gender distribution was comparable between the two tutorial strands 1 (tutors: 9 female, 6 male; tutees: 47 female, 5 male, 2 missing) and 2 (tutors: 7 female, 2 male; tutees: 16 female, 5 male, 1 other, 1 missing).

Overall the sample size was smaller for tutors than tutees and in both cases lacked sufficient statistical power to comprehensively examine the effects of the tutorial model, so the results reported here should be taken as indicative rather than definitive.

3.2. Bespoke tutorial feedback questions
3.2.1. Tutors
Tutors (n = 21) unanimously rated their students as polite and respectful, agreed that delivering tutorials was a useful experience, which was rewarding and engaging, and that their confidence in teaching had improved as a result of tutorial participation (all 100% either agree or definitely agree; median definitely agree). For the remaining four items the median score was agree: tutors felt that they had access to any materials needed (90%), that timing and location of sessions was suitable (85.7%), and that they had been adequately briefed before giving tutorials (85%). See Fig. 2a for an illustration of tutors’ responses.

3.2.2. Tutees
Fig. 2b displays these findings. Students receiving tutorials (n = 66) agreed that the timing and location were convenient (84.6%; median strongly agree), that they attended all sessions (78.1%; median strongly agree), that the content of tutorials was appropriate (76.9%; median agree), that tutorials were motivating and encouraging (74.2%; median agree) and that they were a useful supplement to lectures (74.2%; median strongly agree).

3.3. Postgraduate experience survey questions
3.3.1. Tutors
Tutors’ responses to the PRES questions supported the application of teaching to their own work (Fig. 3a). Strong benefits were seen across a range of items such as increased responsibility, improved communications, confidence to be creative, opportunity to discuss one’s own research and enhanced understanding of the expected standards for one’s own work. Areas which showed noticeably less benefit included critical analysis and evaluative skills, subject knowledge and research methodology skills.

3.3.2. Tutees
Tutees’ responses to the adapted PTES questions showed some benefits, but many items elicited neutral responses (see Fig. 3b). Over half of tutors agreed that tutorial feedback clarified information they were unsure about (66%) and that tutorials helped better understand marking criteria used in advance (55%). Few felt that tutorials improved the timeliness (36%) or usefulness (42%) of feedback.

3.4. Teaching efficacy and enjoyment (tutors only)
Before tutorials, the mean score on the TSES was 60.95 (SD = 7.11, range 49–79); after tutorials the mean was 62.29 (SD = 3.7, range 55–71). This change did not reach statistical significance. Similarly, improvements in enjoyment of teaching (EoT scale) scores were found to be statistically non-significant and therefore not supportive of our hypothesis (change from a mean of 71.67 (SD = 6.64, range 60–83) to 72.81 (SD = 6.53, range 63–83)).
3.5. Academic self-efficacy and self-esteem (all participants)

At baseline, students (tutors and tutees collapsed; N = 84) demonstrated high overall academic self-efficacy on the ASEI (M = 43.21, SD = 6.73). After tutorials, scores were comparable (M = 42.5, SD = 1.50, N = 84; p > 0.05). Tutors had significantly higher levels of academic self-efficacy than tutees both before (t(84) = 3.988, p < 0.001) and after (t(82) = 2.613, p = 0.011) tutorials. Students’ scores on the RSES self-esteem scale (N = 84) varied widely (range 0–21); M = 8.92, SD = 4.8. Average scores after SGTs were non-significantly improved (M = 7.95, SD = 4.75, range 0–19).

3.6. Qualitative findings

Results were initially analysed separately for each time point and participant group (i.e. pre, post, tutors, tutees); however the same themes were emerging and data were therefore collapsed (i.e. groups merged into the same thematic analysis). 21 tutors (88%) and 65 tutes (64%) provided qualitative feedback, comprising a total of 131 coded comments for tutors and 257 for tutees. Thematic analysis elicited five prominent themes: Interpersonal interactions, Logistics, Tutorial content, Emotional experience; and Tutor Development/Support. Examples of comments for each theme can be found in Table 2.
Table 2
Qualitative Themes

<table>
<thead>
<tr>
<th>Qualitative Themes</th>
<th>Tutors (n = 77)</th>
<th>Tutors (n = 23)</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal Interactions</td>
<td>n = 31 positivity of interactive discussion</td>
<td>n = 15 positivity of interaction / idea sharing</td>
<td>Tutors: ‘we had a great teacher helping to structure work and give feedback’</td>
</tr>
<tr>
<td></td>
<td>n = 16 good group dynamics</td>
<td>n = 4 passing on their knowledge</td>
<td>Tutors: ‘I feel rewarded seeing students understanding concepts I talk about’</td>
</tr>
<tr>
<td></td>
<td>n = 3 difficult group dynamics</td>
<td>n = 3 delivery of individualised learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 3 friendly group of tutes</td>
<td>n = 3</td>
<td></td>
</tr>
<tr>
<td>Logistics</td>
<td>n = 22 positive; training components</td>
<td>n = 17 difficulties scheduling sessions</td>
<td>Tutors: ‘poor attendance from other students impacted negatively on the learning experience’</td>
</tr>
<tr>
<td></td>
<td>n = 20 difficulties scheduling sessions</td>
<td>n = 7 positive comment – small group</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 2 positive aspects of scheduling</td>
<td>n = 2 prefer larger group</td>
<td></td>
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<tr>
<td></td>
<td>n = 3 lunch at training session</td>
<td>n = 7 positive re training components</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 3 low attendance by tutes</td>
<td>n = 6 negative re training components</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 11 didn’t have the time</td>
<td>n = 6 low attendance by tutes</td>
<td></td>
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<tr>
<td>Tutorial Content</td>
<td>n = 57 development in specific topics</td>
<td>n = 13 difficulties with lack of structure</td>
<td>Tutors: ‘[I liked] being able to discuss our topics and choosing the topics we covered’</td>
</tr>
<tr>
<td></td>
<td>n = 9 lack of development in specific topics</td>
<td>n = 7 difficulties preparing for tutorials</td>
<td></td>
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<tr>
<td></td>
<td>n = 30 learning abilities improved</td>
<td>n = 4 improved own knowledge</td>
<td></td>
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<tr>
<td></td>
<td>n = 24 difficulties with lack of structure</td>
<td>n = 6 new students</td>
<td></td>
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<td></td>
<td>n = 4 positive – lack of structure</td>
<td>n = 11</td>
<td></td>
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<tr>
<td></td>
<td>n = too much content repetition</td>
<td>n = did not have time</td>
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<tr>
<td></td>
<td>n = 8 knowledge improved</td>
<td>n =</td>
<td></td>
</tr>
<tr>
<td>Emotional Experience</td>
<td>n = 30 general positive feelings after SGT</td>
<td>n = 7 general positive feelings after SGT</td>
<td>Tutors: ‘everyone was supportive with one another’.</td>
</tr>
<tr>
<td></td>
<td>n = 8 increased confidence after SGT</td>
<td>n = 5 reassured by training component</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 3 lack confidence before SGT</td>
<td>n = 3 anxious before SGT</td>
<td>Tutors: ‘I thought it was great, I really enjoyed it’</td>
</tr>
<tr>
<td>Tutor Development / Support</td>
<td>n = 25 individualised teaching from tutor</td>
<td>n = 17 gaining a teaching experience</td>
<td>Tutors: ‘[tutors were] really personalised and looked at our actual work’</td>
</tr>
<tr>
<td></td>
<td>n = 4 general positive feedback about tutor</td>
<td>n = 10 general improvement in learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 5 specific development of teaching skills</td>
<td>n = 5 specific academic skills gained</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 3 specific academic skills gained</td>
<td>n = 2 lack of gain in academic skills</td>
<td></td>
</tr>
</tbody>
</table>

Themes identified in qualitative measures, itemisation of themes and selected quotes from themes, separated by tutor/tutee.

Interpersonal interactions reflected primarily positive comments about the interactive, dynamic format of the small group setting. Participants felt that this format benefited their personal learning journey and enhanced their ability to understand ideas covered elsewhere in their course. This was partly attributed to the easy, relaxed environment created by the small groups, in which relationships were forged, and trust and confidence was built. This led to students being able to question material that they did not understand and ask things that otherwise they may have felt too embarrassed to raise.

The Logistics theme referred largely to the practical aspects of tutorials, including a predominance of comments about the difficulty of scheduling mutually convenient times and locations. Thus while some aspects of the model’s flexibility were clearly beneficial, others posed significant challenges. Also included in this theme were issues about attendance and its influence on the experience, and training provided for both tutors and tutes which was largely seen as helpful. The effect of group size prompted a number of comments; the majority welcomed the small group as a useful complement to existing teaching environments. The small group size was also perceived as a necessary feature supporting other positive elements of the experience, described under other themes.

Tutor Development reflected comments about the academic or disciplinary content of tutorial sessions themselves (research methods and basic mental health). Much content within this theme reflected a positive view of the new opportunity that tutorials provided to identify specific academic topics, to focus on these with detailed and personalised discussion and, in doing so, to enhance understanding, confidence and depth of knowledge. A significant minority commented upon problems adjusting to the unstructured nature of the sessions, sometimes calling for the imposition of a stronger, more prescribed format. Thus, as noted above, while some aspects of our flexible model were clearly beneficial, others were less so.

Emotional experience included a wide range of comments about participants’ general positive attitude and experience of the SGTs. The issue of confidence was reflected in both tutor and tutee comments, with disclosures of under-confidence and anxiety prior to participation, followed by reports of increased confidence as a result of participation and also in response to the training provided.

Tutor Development and Support reflected, by tutors, their appreciation of the teaching experience and training provided by the SGTs which was seen as a positive and important contribution to their personal career development. On the part of tutors, the theme reflected the benefits of having a personalised connection with a tutor over an extended period of time that facilitated their personalised learning journey in a bespoke manner.

4. Discussion

We set out to implement and evaluate a model of senior/junior-peer collaborative, flexible, personalised and research-led learning in small groups, as conceptualised in Fig. 1. Although the sample size examined was small, our results supplement existing pedagogical evidence that such approaches provide an enhanced academic experience for those participating. But they also provide novel evidence that intentionally amalgamating these features into a single model is both feasible and effective for the academic experience of postgraduate teachers as senior peers (tutors) and students (tutes). These findings represent one potential solution to the demands of contemporary HE (e.g., high student-staff ratios, less regular contact with individual lecturers), inspired by the traditional virtues of apprenticeship-type teaching.

4.1. Participants’ experience of SGTs

Our first objective was to assess whether participating in the SGT programme enhanced the student experience for tutors or tutes; data confirmed that this was the case for both groups. In accordance with previous literature, both tutors and tutes benefited from the SGT programme in domains including general positive experience (e.g. useful, encouraging, rewarding, engaging), logistical convenience, content relevance, personalised teaching/learning and reported impacts on motivation (Komarraju et al., 2010). The tutor-tutee relationship was rated as positive; tutes noted the helpfulness of tutors, and tutors found their students respectful, with a constructive group dynamic often reported.

It was notable that no commentary emerged on the ‘peer’ aspects of the tutorial scheme, despite this being one of the envisaged benefits. It is possible that having a tutor who was ‘like me but one step on’
could have had impacts that participants were either unable or unwilling to articulate. Another possibility is that tutorial relationships were not actually perceived in this manner at all, perhaps as a result of ‘assumed authority’ when being in a learning situation with someone who has more experience that oneself. This could be explored further in future work.

Although both tutors and tutees reported some difficulties with scheduling tutorials, their flexible timing and location was viewed positively. Qualitative data provided more nuanced insights into these issues. For example, scheduling difficulties appeared to contribute to lower attendance of tutees and in turn, tutee low attendance accounted for the preference, stated by some tutors, for a larger tutee group. On the other hand, many students reported valuing the small-group setting. The flexible nature of the model also engendered a lack of standardised structure, which some students struggled with, while others enjoyed.

The training component of SGTs was regarded as adequate; tutors especially reported feeling reassured by the training sessions. Ensuring that the training component includes focus on selecting content for tutorials and assistance with scheduling sessions may enhance the benefits gained by future SGT participants.

The collaborative and interactive element of our model appears to have been especially advantageous, with qualitative analyses illustrating the students’ positive attitude to this aspect of the model and a clear enjoyment of sharing problems and resources, and facilitation of an environment where a group works together to improve mutual learning.

It is important to note that, particularly for the PTES/PRES (academic experience) outcomes, a high proportion of ‘neutral’ (as opposed to agree or disagree) ratings were recorded, although more students did indicate agreement than neutral opinion overall. Thus, we cannot conclude that the programme was universally beneficial to participants.

4.2. Broader impacts of the SGT programme

Our second objective was to assess whether SGTs improved the subjectively-rated academic skills of tutors (including teaching skills) and tutees. In addition to increases in knowledge and understanding of topics, our findings suggested that a high proportion of tutees developed specific and/or general academic skills during SGTs. In contrast, slightly under half of tutors rated their research methods or critical analysis skills as having improved. This discrepancy may be partially attributable many tutors already possessing high academic confidence, and is important for future examination. More positively, increases were observed in tutors’ enjoyment of and confidence in teaching, as well as the ability to communicate academic subjects and be innovative.

Our third objective was to evaluate whether SGTs altered the personal characteristics of teacher or academic self-efficacy or self-esteem. None of these standardised measures showed significant change over the time (and frequency) span of tutorial delivery (approximately 4–6 months). The most likely reason for this is the short-term duration of the tutorial programme combined with these measures, which are intended to assess relatively stable underlying trait characteristics, by definition resistant to change (Caprara, Vecchione, Alessandri, Gerbino & Barbaranelli C, 2011; Trzesniewski, Donnellan & Robins, 2003). Further, the timing of the post-tutorial questionnaires was when final exams were imminent, so exam stress could have masked any small changes on these measures. Self-efficacy levels were also relatively high in our sample so the absence of significant findings might be attributable to a ceiling effect. Academic self-efficacy, but not self-esteem, was higher in tutors than tutees; this might reflect a difference between groups in academic level and experience, but relative homogeneity in trait characteristics. It is plausible that these traits could be modified but only with prolonged tutorial participation and this would be an important area to investigate in future study. It is worth noting that while the quantitative data failed to indicate an increase in (academic, teaching or overall) self-efficacy scores, or enjoyment of teaching, improvements across these areas are indicated from the qualitative analyses. In this way our thematic analysis provided insights into nuanced or multi-faceted constructs which were not detected by the selected quantitative scales. The findings from our qualitative analysis could be utilised to develop more appropriate outcome measures for future studies of programmes such as this.

Our qualitative analysis gave good insight into our fourth objective, namely to assess the strengths and weaknesses of the SGT programme, as perceived by (senior and junior peer) participants. Notable among the strengths was the opportunity it provided for personalised learning, enhancing individualised feedback and increasing depth of subject-specific knowledge, all within the context of a ‘safe’ environment fostering openness and trust. While the flexibility of the model had the anticipated benefits, it also carried some disadvantages, particularly regarding practical arrangements (timing, location) for conducting sessions, which were seen as challenging by many. Despite this, there was an overwhelmingly positive response to the overall experience of SGTs and a marked impact on academic confidence for both tutors and tutees, alongside a putative career benefit in terms of either teaching skills development and/or personal educational trajectory.

4.3. Limitations

The sample size (inevitably smaller for tutors than tutees) lacked sufficient statistical power to comprehensively examine the effects of this tutorial model. The inclusion of a control group of students enrolled in the same courses but randomised not to receive tutorials was not practicable, but would have strengthened the current study and enabled a direct attribution of the benefits observed to participation in the SGT scheme. Tutorials were of relatively short duration (5–6 h contact time over 4–6 months); a higher frequency of sessions might elicit greater improvements. Attendance to sessions was not formally assessed and the current investigation was also unable to examine reliability of the non-validated questionnaires. A larger sample and control group would have permitted an additional follow-up evaluation (for example, of students’ final course grades) to assess more enduring and objective outcomes, as well as allowing an exploration of which students might gain the most from this program. Furthermore, this was a self-selecting sample (although almost three quarters of students in the strand 1 course participated), likely representing the more motivated students. We were not able to assess this programme in the context that it may be intended for future education, as a mandatory part of programmes, only as an optional supplement. In these respects, our results may have been more positive than if this was a mandatory, core part of modules. The teaching intervention we used here was presented to, and interpreted by, students as a supplement to the core parts of their programme. Whether or not attitudes would remain the same were it to be part of core teaching, only future work will be able to ascertain. Nevertheless, the previous theory and literature that our model derives from usually refers to small group teaching interventions delivered as core curricula activities and typically reports findings in line with those seen here. Some of the questionnaire items (particularly regarding improvements in the academic domain) yielded highly variable responses across the sample. We posit that the flexible nature of tutorials leads to great variability in topics covered, group dynamics and other factors between groups. While this is in line with our model’s intention to be flexible, it renders interpretation of the data challenging.

4.4. Implications of findings & recommendations

The SGT programme and its underlying model (Fig. 1) were designed to be sustainable, have long-term utility and potentially apply in a range of academic disciplines, levels and cultures within HE. Our model is intended to be a cost-effective, low-resource response to calls within the sector for greater personalised learning opportunities and better quality and quantity of feedback for students. To summarise, this approach is derived from theory and evidence of benefits for both tutors
and tutees through several routes. These included being reflective, interactive, collaborative (Baldwin, 2017), blended (Bernard et al., 2014), flexible (Boud, 2001), active (Barnett, 2009) learning in a small-group context (Brookfield & Preskill, 2012), led by senior-peers (Boud, 2001) thereby facilitating learning by teaching (Bell, 1797) with a focus on constructive and encouraging feedback (Boud, 2001) and set in an environment that is informal (Komarraju et al., 2010) and safe (Brookfield & Preskill, 2012). The current findings did not indicate a specific benefit of feedback according to standardised questionnaires, which may be due to the informal nature of feedback, supported by positive comments assessed qualitatively. Our findings show that adopting the model enriches the overall learning experience for both tutors and tutees in a postgraduate HE context, providing a range of specific positive outcomes. The findings also identify areas in which the model could be improved (for example, increasing support for organising tutorial timing and content). Progress in incorporating blended-learning materials (e.g. for tutorial training) is recommended in further supporting and developing this model of pedagogy (Graham, 2006). It is hoped that our model will contribute to enhanced teaching and learning, career development for students and encourage innovative and creative teaching methods across HE.

4.5. Conclusions

This study provides encouraging evidence that a senior peer-led, small-group tutorial programme, and its associated conceptual model, can significantly improve the student experience in a postgraduate learning environment. Notwithstanding the limitations discussed above, we report indications that regardless of their role in the tutorial (as tutors or tutees), students experienced benefits to personal and academic skills as well as specific subject-related knowledge. Although there is existing international evidence of small-group tutorial programmes’ benefits, this projects highlights a model that can be applied across HE settings, topics and institutions in spite of constraints to resources so often experienced in modern education. Elements likely to be important for effective SGT programs elsewhere include a strong group dynamic, and a flexible model that is optimised by a comprehensive training prerequisite. The evidence to date suggests that this educational model provides good quality, low resource learning opportunities above and beyond those commonly in existence in 21st century higher education settings.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix

Bespoke tutorial feedback questions. All items were rated on a 5-point Likert scale (1 = definitely agree to 5 = definitely disagree).

For tutors:
1 I found my students to be polite and respectful.
2 Giving tutorials was a useful teaching experience.
3 My teaching confidence has improved as a result of giving tutorials.
4 I felt adequately briefed ahead of starting tutorials.
5 I found giving the tutorials to be rewarding and engaging.
6 I could access all the materials needed for the teaching.
7 Timing and location of tutorials suited my needs.

For tutees:
1 Overall, I felt that I benefited from tutorials.
2 I found my tutor to be approachable.
3 Tutorials were a useful supplement to lectures.
4 My knowledge and understanding have improved.
5 I found the tutorials motivating/encouraging.
6 The tutorial content was appropriate.
7 I attended all the tutorials scheduled.
8 Timing and location of tutorials suited my needs.

Adapted Postgraduate Taught Experience Survey questions (PTES; Higher Education Academy). All items were rated on a 5-point Likert scale (1 = definitely agree to 5 = definitely disagree).

1 Tutorials have helped me to better understand in advance the criteria used in marking.
2 Tutorials have helped me understand how my assessment arrangements and course marking is made fair.
3 Tutorials have provided me with timely feedback.
4 Tutorials have provided me with detailed and useful feedback (written or oral) on my work.
5 Feedback received during tutorials has helped me clarify things I did not understand.

Adapted Postgraduate Research Experience Survey questions (PRES; Higher Education Academy). All items were rated on a 5-point Likert scale (1 = definitely agree to 5 = definitely disagree).

1 Taking part in the tutorial scheme has enhanced my skills and subject knowledge to support my research.
2 Taking part in the tutorial scheme has helped me to identify my own training and development needs.
3 Giving tutorials has provided the opportunity to discuss my research with other students.
4 Giving tutorials has helped me to become more aware of the wider research community, beyond my department.
5 Giving tutorials has helped me better understand the appropriate standards for my own work.
6 Taking part in the tutorial scheme has enhanced my responsibilities as a research degree student in a helpful way.
7 Teaching others as part of the tutorial scheme has enhanced my own skills in applying appropriate research methodologies, tools and techniques.
8 Teaching others as part of the tutorial scheme has enhanced my own skills in critically analysing and evaluating findings and results.
9 Taking part in the tutorial scheme increased my confidence to be creative or innovative.
10 Giving tutorials has helped me to communicate information more effectively to diverse audiences.

Qualitative questions.
Pre-tutorial questions:
1 What are you most looking forward to about receiving/delivering these tutorials?
2 What are you least looking forward to about receiving/delivering these tutorials?
3 What were the best features of the tutorial induction?
4 What were the least good features of the tutorial induction?

Post-tutorial questions were:
1 What were the best features of these tutorials?
2 What were your least favourite aspects of tutorials?
3 Do you have any other comments about the tutorial programme?
References


Bell, A. (1797). An experiment in education made at the male asylum of madras: Suggesting a system by which a school or family may teach itself under the superintendence of the master or parent. St Andrews: Madras School.


