

Peer-assisted learning in research methods and statistics

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Feedback from students on a Level 1 Research Methods and Statistics module, studied as a core part of a BSc Psychology programme, highlighted demand for additional tutorials to help them to understand basic concepts. Students in their final year of study commonly request work experience to enhance their employability.

All students on the Level 1 Research Methods and Statistics module were invited to sign up for PAL (Peer-Assisted Learning) sessions which offered interactive learning under the guidance of a PAL Student-Facilitator. Five students at undergraduate Level 3 and Masters level were recruited and provided with training to facilitate small group sessions. Session provision also included materials for interactive exercises. A wrap-up session considered how Facilitators could draw on this experience to enhance their employability.

Analysis of feedback from the Level 1 students showed their experience was uniformly good with sessions found to be useful in aiding understanding. Any student-learner dissatisfaction resulted from a continuing inability to feel confident with the basic concepts taught on the module, although students said their understanding had improved overall. Facilitators found the sessions to be rewarding and felt they had developed their interpersonal skills, their leadership skills, and their understanding of the subject matter, and enhanced their employability, particularly in terms of skills transference. Attendance from student-learners was poor compared to the number who signed up, but the small size of many groups enabled individual support which was expressly appreciated.

The greatest student-learner demand was for sessions on topics directly related to coursework. Future PAL sessions will be directly related to these topics and arranged for the middle section of the semester, that is, when the Level 1 students have had time to identify their difficulties and the session can still be of maximum benefit for general learning and assessment completion. Considerations for student development and employability are also discussed.

Keywords: Peer-assisted; learning; research methods; skill development; employability.

Introduction and background

RECENT YEARS have seen an increase in the number of universities and other educational providers incorporating additional group-based learning elements within entry-level programmes for Science, Technology, Engineering & Maths (STEM) disciplines (Dreyfus, 2002). Benefits have included improvements in student retention, academic performance and assessment outcome (Hurley, McKay, Scott & James, 2003). While there continues to be debate regarding the efficacy of small-group learning provision (Colvin & Ashman, 2010) there is also consensus as to its potential, dependent upon a number of factors, as

outlined by Cohen (1994). The peer tutors or facilitators are closer to the peer learners in terms of their learning experience and so can 'speak the same language' and understand the challenges faced by student learners. Further, their demonstrated success in negotiating the aspect of the course concerned can provide a model of efficacious experience (Bandura, 2007). This, together with greater familiarity in posture, language and tone of delivery, may foster a more positive student-learner experience (see Witt, Wheelless & Allen, 2004). Evidence suggests that learning may be enhanced when peer tutor/facilitators receive training on effective group func-

tioning. For peer tutor/facilitators the process can facilitate both personal development (Maheady 1998) and foster transferable skills (Topping, 2005).

Here, the students at Level 1 of the BSc Psychology programme delivered module feedback which indicated a disparity between the demands of degree-level study and that at UK Secondary level, reflected in their expectations and performance. Research Methods is, in addition, an unfamiliar subject for many students prior to attending university. This highlighted the need for additional Research Methods learning support among Level 1 students. Peer-assisted learning (PAL) offered the opportunity to meet this need and to enable Level 3 and M-level students to develop their employability and their transferable skills. A PAL programme was developed to reflect the content and requirements of Research Methods material at Level 1, with peer-assistance provided by Level 3 and M-level students who themselves had previously studied Research Methods at Level 1.

Methodology and process

Participants, recruitment and training

The learners were Level 1 students taking the Research Methods module as part of their BSc Psychology programme. Of 350 students registered on the module, 120 self-selected to participate in PAL sessions by signing up during RM classes in the first three weeks of the semester. Students were allocated to their preferred topics as far as possible depending upon the constraints of capacity and of session timetabling.

Five student facilitators (PAL-facilitators) were recruited by making announcements in lectures and posting advertisements on information screens and online student notice boards. Applicants were asked to complete an application form, with attendant role description and person specification, before being selected to attend a standardised two-person interview panel. The important factors in selecting applicants were communication skills, both at group

and individual level, and response to scenarios concerning candidates own Research Methods experience and student queries. All aspects of the application and interview process were developed and conducted in accordance with university practice and following consultation with Human Resources department. Two other recruited facilitators were unable to take up the role post-selection interview, citing availability and personal difficulties.

A one-day training event for PAL-facilitators addressed the role of the facilitator, running sessions, managing boundaries, and responding to queries. The day included group exercises and discussions and was supplemented by a dedicated *Facilitator Handbook*.

Materials

Previous student feedback on the module included repeated requests for additional support regarding key subject topics. These were the topics chosen for the PAL sessions: data management and the use of statistical software (SPSSFW), concepts of statistical significance and experimental validity, specific inferential analyses (correlation and Chi-square), and how to write-up a research study (Lab Report). A maximum of two topic-specific sessions were offered to each Level 1 RM student during academic semester A and a total of 22 topic-specific sessions were provided via the scheme. Session groups were limited to 12 students, in order to enable effective facilitation and maximise learner benefit.

Sessions were designed around interactive exercises tailored to small groups with a summary of the relevant topic offered for revision if required. Within these, scope was also provided for a degree of both topical discussion and facilitator intervention. The materials were developed by module teaching staff.

The PAL Scheme process

The scheme overall was developed and administered by the module leader and 2

other members of the module teaching staff. The major tasks included the designation of topics for PAL sessions, the development of materials for the PAL sessions, the recruitment of PAL facilitators, the development and implementation of Facilitator training and support, and the evaluation of the scheme by both PAL-learners and PAL-facilitators.

The initial plan was to run sessions for two hours, to incorporate general RM discussion and topic-related learning, but this had to be reduced to one hour combining the two elements. This change was necessitated by the relative excess of learner demand over facilitator availability. In fact, some sessions were facilitated by module teaching staff in order to meet Level 1 student demand.

Level 1 students were allocated to sessions on their preferred topics and then contacted by email by the scheme administrators, as well as posting session listings online. Attendance was monitored by registers taken at session outset. While the PAL sessions were running a designated member of the PAL support team was available on site for additional support and student referral if required.

Evaluation of PAL-learner experience was obtained via an anonymous session feedback form with questions about the usefulness of the session, its impact on learning, subject understanding and confidence levels, as well as whether students would attend further sessions or recommend them to others.

Responses were measured using a five-point Likert scale, with options ranging from 'not at all' to 'very much'. This also included scope for individual comments and suggestions. Informed consent for the collection and use of participant feedback was obtained prior to data collection.

Facilitators were asked to complete anonymous evaluation forms and also a short reflective report after each session to encourage them to reflect on their experience and on the skills they were developing. A wrap-up lunch explored ways in which their role could be applied in further academic and employment settings.

Findings and outcome

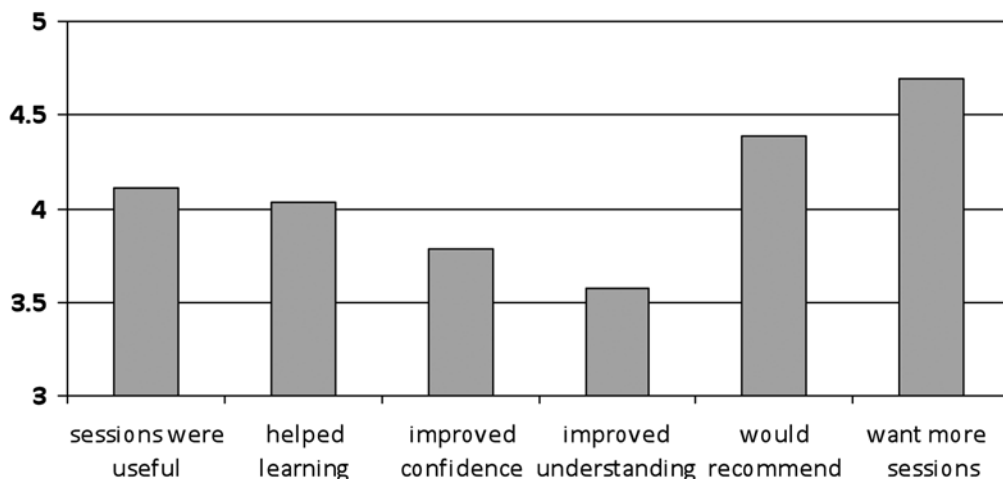
Examination of session registers showed relatively low levels of attendance ($N=42$), just 35 per cent of that indicated by initial sign-up response. Of those students attending, 85 per cent provided feedback, and of these, 20 students gave additional responses to the questionnaire. All responses were included for analysis.

The data presented in Table 1 and Figure 1 show the PAL sessions to have been perceived overwhelmingly as beneficial. Over 80 per cent of respondents found the sessions had helped their understanding of Research Methods, with 60 per cent stating sessions had done so a lot. Equally, over 85 per cent of respondents stated they would recommend the sessions to others, with more than 55 per cent stating they would do

Table 1: The results of the learner evaluations.

Response item	Mean	SD	Max
How useful did you find the sessions?	4.11	0.89	5
How much have the sessions helped your learning on this module?	4.03	0.91	5
How much have the sessions improved your confidence on this module?	3.78	0.90	5
How much do you think your understanding of research methods has improved?	3.57	0.95	5
Would you recommend these sessions to another student?	4.39	0.80	5
Would you have attended more sessions if they had been offered?	4.69	0.62	5

Figure 1: Learner evaluations (maximum=5).



so very much. All respondents stated they would like more sessions, with over 75 per cent saying they would like more sessions very much. It is also very encouraging to see the high mean response to the question about recommending the sessions to another student.

It is interesting that the highest mean response, 4.69, was given to the question of interest in further sessions, and the lowest mean response, 3.57, was given to the question regarding improved understanding. This might suggest that students felt the need for more of these sessions. Indeed 50 per cent of those who only found the sessions 'somewhat' useful would still very much attend more if these were offered.

The scheme overall, including operation processes were also subject to a reflective review by the project team, the outcome of which was considered in conjunction with student feedback.

Since the sessions were optional a comparison of module achievement between those students who did and did not attend PAL sessions would be confounded by the voluntary nature of attendance. For example, it is quite likely that those students with the weakest understanding of research methods would have been most likely to

attend. This is not of crucial concern given that the primary rationale for this intervention was student support for learners and employability for facilitators rather than specifically enhanced performance or assessment outcome. The primary intention was to enhance student experience and facilitate engagement (e.g. Congos & Schoeps, 1998).

Discussion and future directions

Student Learner experience

For those attending the sessions the emergent experience was a worthwhile one, indicating that participation positively impacted on both levels of confidence and understanding of research methods. This does confirm the observation that the lack of exposure to statistical methods prior to university study has a negative impact on performance at Level 1.

Given the positive feedback from those who did attend, and the expressed levels of interest, it is puzzling that so many students did not attend the sessions to which they were invited. One possible explanation is that students were mainly interested in session content that maps directly to aspects of assessment, and latter sessions were timetabled after the assessment submission deadline; these sessions were particularly

poorly attended. A second possible explanation is that the sessions were all optional. Students may easily express interest in an additional class but when the time comes round pressure of other work may prevent them from attending. It is interesting to note that other projects introducing peer-assisted learning to a science course have also found poor attendance from student learners (e.g. Hughes, 2011). This author suggested including the peer-assisted learning sessions in the standard course programme, advertised during registration, and we plan to do the same next year.

This will be addressed in the future by using the positive learner-evaluations to promote the scheme in future years. The sessions will be focused on topics directly relevant to assessments and will be provided in a timely fashion to assist students with their coursework and exam preparation.

Facilitator development

Looking at the Facilitator Session Reports and the direct feedback obtained at the wrap-up session, the facilitators all felt that their experience had been both positive and useful. Although the level of facilitator experience, and related confidence, varied within the group prior to their sessions, all subsequently reported instances within sessions that had been managed successfully. These ranged from attendance issues to topical queries and the need for referral elsewhere. Developmentally, facilitators reported an increase in perceived confidence, and interpersonal, communication and leadership skills. This is consistent with the large-scale study of undergraduate student peer educators in the US by Wawrzynski, LoConte and Straker (2011) in which the peer educators benefitted from developing their intraper-

sonal and interpersonal skills. Similar to the present study, 40 per cent of their students peer educators were motivated by a desire to develop employability skills.

One key aim of the concluding session for facilitators was to ensure the experience gained through PAL could be transferred to other career and development situations. During the session students were shown how this could be applied to an interview process, when making applications as well as in general experience. What was striking was the lack of awareness as to the transferable nature of the skill and knowledge students had already obtained in studying for a psychology degree, as well as those from the PAL process. Consequently, in highlighting the potential for this, the final session for facilitators, incorporating the award of Certificates, was particularly productive. Indeed, two facilitators expressed an interest in presenting the PAL scheme at conference, and in facilitating PAL in the future.

It is somewhat disappointing that the expressed desire for development opportunity among Level 3 students was not reflected in the volume of facilitator applications. This will be addressed in future by including recruitment to the PAL scheme in the Level 3 induction sessions and within employability activities. Direct presentations will be made to students rather than relying on notice boards and online announcements. The PAL facilitators were all quite unsure of their abilities to lead a learning session before the training day, and while it is good to note that they felt much more confident afterwards, it seems likely that some students might be more encouraged to apply in future if the application process were to be simplified with the emphasis on supporting PAL facilitators.

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