INTRODUCING PEER-ASSISTED LEARNING IN FIRST YEAR ACCOUNTING IN AUSTRALIA

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ABSTRACT
Australian universities are giving increasing attention to peer-assisted learning (or supplemental instruction) as a means of meeting some of the demanding challenges that have arisen over the last fifteen years. At Macquarie University, Sydney, a two year (2003-04) trial has been conducted of this form of supplemental instruction in selected Accounting courses. This paper discusses the first stage of the trial in terms of its design, outcomes, benefits and costs, and lessons learned. Consistent with earlier studies, it is found that peer-assisted learning is best approached as a flexible system capable of adaptation to the specificities of local teaching and learning environments.

JEL Classification: A20, A22

Keywords: peer-assisted learning; supplemental instruction; at-risk students
INTRODUCING PEER-ASSISTED LEARNING IN FIRST YEAR ACCOUNTING IN AUSTRALIA

In gradually increasing numbers, Australian universities are turning to peer-assisted learning (or supplemental instruction) as a means of coping with the dramatically increased pressures on undergraduate teaching that have occurred in the last fifteen years. These pressures stem from reduced government funding, higher enrolments, more international students, higher student-staff ratios, and the declining skill levels of many students. Several universities (about 26% of the total) now have established peer-assisted programs, a few have exploratory pilot programs (about 8%), while the remainder (66%) are inactive.

Macquarie University, a mid-sized Sydney institution, falls into the second category. It is presently undertaking a two year (2003-04) trial of peer-assisted learning in order to assess its suitability for dealing with these challenges. The trial is primarily being undertaken in first and second year Accounting subjects which embrace many of the current problematic teaching and learning situations. The object of this paper is to discuss the first stage of the trial in relation to its main features, outcomes and lessons. Attention will also be drawn to features of the local educational environment which differentiate Australian contexts from those of North America and the UK.

The Importance of Context

The effectiveness of any peer-assisted learning program is sensitive to the context in which it is implemented. Merely importing a model created for a different time, place and environment is unlikely to be the optimal solution. Modification and adaptation of the model to suit local requirements will (almost always) be necessary, with the main changes being discovered by a process of experimentation over time.

Along with other Australian universities, Macquarie has experienced major upheavals and changes over the last two decades. Federal government policies have reduced public funding and have forced universities to seek additional sources of income. The chief source has been international fee-paying students, mostly from Asia (S.E. Asia and China), some from Europe, India and Sri Lanka, and a sprinkling from North America. Competition between Australian (and other) universities is intense, and certain aspects of the tussle sometimes make those with a sense of propriety uncomfortable. Immigration has also led to higher numbers of Australian residents with non-English speaking backgrounds. As is well known, students from these backgrounds can present a range of pedagogic and cultural challenges.

While educational exports have boosted enrolments, financial constraints have prevented proportionate increases in staff, with the result that student-staff ratios have grown

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1 I would like to thank Sharon Fraser and John Shepherd for helpful comments on the paper, and Jennifer Barr for data collection and processing.
2 Motivated by the program founded at UMKC in the mid-1970s, peer-assisted learning in Australia commenced in 1992 at the Queensland University of Technology, followed shortly afterwards by the University of Queensland in 1993.
3 A small seed grant from the Australian Universities Teaching Committee (obtained in 2001 by the author, Sharon Fraser, Kerri-Lee Krause and John Shepherd), allowed the idea of a trial to be explored. The trial itself was internally funded with grants from the Vice Chancellor’s Development Fund and the Division of Economic and Financial Studies.
4 See, for example, Watkins and Biggs (1996), especially chs 3, 7, 8, 10 and 11.
dramatically in high demand areas such as commerce. Very large classes are common in first year (1000 to 1500 students) and second year (500 to 1200 students), with student-staff ratios in these areas at Macquarie often lying between 40 and 50. Rising fee income permits some relief in the form of hiring more part-time staff, but this is offset by issues of coordination and quality control.

Chasing funds has also led to downward pressures on entry standards and hence the abilities of significant numbers of students. Some universities, including Macquarie, have formed partnerships with private sector education providers, whereby the private provider accepts students, mainly from overseas, who cannot meet the normal entry requirements. The provider teaches first year subjects, with the students then transferring to Macquarie for the remainder of their degree. On average, the performance of these students has been dismal after their transfer to Macquarie. A different form of partnership is being created with secondary schools. When a certain number of students choose the partner university ahead of other universities, the entry requirements for these students are lowered by a specified amount. The federal government has also joined in by allowing students with insufficient entry scores to enrol on condition that they pay full fees instead of the usual reduced fees. These developments all weaken a purely merit-based entry system. In the background, the curriculum in secondary schools has changed considerably over time, leading to students with weaker generic skills in areas such as reasoning, writing and quantitative ability.

The best students are still excellent, but higher student-staff ratios, very large classes and the erosion of ability have all led to upward pressure on failure rates in courses; that is, in courses that have not succumbed to grade inflation or lower academic standards. Failure rates in large first and second year courses range from 20% to 35%, and can be as high as 70% for sub-groups such as those transferring from private education providers.

Macquarie thus has significant cohorts of students who are at risk of frustration and failure for various reasons. Its present strategy for addressing these problems is a combination of three programs – a first year experience program, a first year mentoring program, and a peer-assisted learning trial. While the first two were central initiatives, the third was initiated by a small group of concerned staff prepared to accept additional workloads.

Four other contextual factors are relevant. Firstly, the Division of Economic and Financial Studies at Macquarie, with about 30% of undergraduates, is by far the largest division in the university. Secondly, all majors within the Division, but especially Accounting, are popular among students with Asian backgrounds. Thirdly, many students work part-time for a significant number of hours each week (10 to 25 hours). And finally, Macquarie did not have a university-wide online enrolment system during the trial. These factors would probably distinguish Macquarie from most North American and UK campuses.5

Design and Mechanics of the Trial

The first stage of the peer-assisted learning trial (under the name PAL) took place in first semester 2003. Its design was influenced by a combination of factors – a literature survey, the experience of the PASS program at the University of Queensland, the uncertainties associated with introducing a new program, and the Macquarie environment.

5 In the US, for example, supplemental instruction (SI) mostly occurs in courses in the natural sciences (46%) and the social sciences (20%), with quite low usage in ‘business’ courses (4%) (UMKC 2003). If adopted at Macquarie, its main base, at least for some years, will be in ‘business’ (or commerce-related) courses.
1. Course
The course selected for the PAL trial was ACCG100, a foundation accounting course which has relatively high enrolments (550 to 800), high failure rates (30 to 35%), and interested teaching staff. In terms of language ability, an important feature of current commerce enrolments is that it is no longer composed of two primary groups (domestic and international), but of three primary groups – domestic native speakers, domestic non-native speakers (recent immigrants), and international non-native speakers, with the last two groups deriving predominantly from Asia.

2. PAL Leaders
(i) Selection
The PAL program was advertised and explained in visits to first and second year lectures at the end of semester 2, 2002. Applicants submitted brief statements and were interviewed in pairs. A culled list was prepared for training, the main selection criteria used in this instance being academic achievement in the subject (around 70% or higher), communication skills, language ability, personality and motivation.
(ii) Training
Shortly before the start of semester, leaders undertook a compulsory, one day training session conducted by Macquarie staff and outside consultants from the University of Queensland. Training was highly interactive, including role plays, videos and mock sessions, and stressed the role of the leader as a facilitator of learning rather than a teacher or instructor. All leaders received a training certificate, but not all were guaranteed employment as this depended on timetables and subsequent student participation.
(iii) Responsibilities and Payment
Each PAL session was led by two co-leaders. Leaders also had to share attendance at lectures in the subject (usually on alternating weeks), and to attend feedback meetings. In return, leaders were paid around A$20 hour for both their PAL sessions and lecture attendance. This level of payment, similar to that used at Queensland and elsewhere in Australia, was competitive with part-time work when preparation and meeting time were included.

3. Student Sign-Up
During the first and second weeks of S1, 2003, the PAL program was advertised verbally to students in ACCG100 lectures using the usual enticements (improved understanding, higher grades, new friends, ‘study buddies’, and zero financial cost). Participation was voluntary, with students signing up at a central location for one session out of a wide range of alternatives. Each session was limited to a maximum of 25 students. In the second week, students had to check the lists again to ensure their class would proceed; students whose classes had been cancelled due to low numbers (usually less than 10) were asked to transfer to a session that would take place.

4. PAL Sessions
Sessions started in week 3 and ran for 11 weeks until the end of semester. Leaders were encouraged to stimulate interaction, to employ groupwork, to devise problem-solving activities and to create a fun atmosphere using learning games/competitions with small rewards; assessment preparation and technique were also featured at appropriate times. Leaders were monitored by supervisory staff attending sessions on a drop-in basis, and through leader meetings during the semester.

5. The Budget
The budget covered three main items – employment of a PAL coordinator (3 days/week), payments to PAL Leaders, and consultancy services (including training). To avoid
underfunding and to create a cohort of future leaders, our assumptions and practice erred on the high side. An optimistic participation rate of 40% of the total enrolment was initially assumed and, in spending the allotted funds, we allowed well-functioning sessions to proceed even though attendance was slightly below our threshold.

Outcomes

The outcomes of the PAL trial were assessed both quantitatively (using participation rates and grade comparisons) and qualitatively (using questionnaires and feedback surveys).

1. Student Participation Rates
PAL sessions commenced with good attendance. Initially, the program had 16 sessions running with a total of 295 students signed up, of whom 235, or about 34% of the total enrolment, attended the first session. However, the participation rate then declined steadily through the first half of the semester before plateauing roughly at 125 students for the remainder of the semester. The weekly participation numbers are shown in Figure 1. The fall off in the last week was largely due to a public holiday which removed several popular sessions. Excluding the last week, the long term participation rate of ‘regulars’ was thus about 18%, or just over half the first session attendance rate.

![Figure 1: Weekly PAL Attendance](image)

An initial fall in attendance is to be expected because some students will try out the sessions, and others may experience timetable problems due to work or study. However, we were disappointed that regular participation was not higher.

2. Participation Survey
In week 10 of semester, a survey was conducted to understand patterns of participation in PAL, in particular, why early attenders dropped out and the characteristics of ‘regulars’. From the large sample (330) that responded, the results were as follows:
(a) Around 17% had attended PAL but had left the program, largely due to time pressures or dissatisfaction with PAL, the main sources of dissatisfaction being a lack of structure in sessions or a lack of rapport with leaders.
(b) About one third of the sample were regular attenders. Of these, females were more highly represented than males, and non-native speakers were more highly represented than native speakers.

3. Attender Survey
In the last two weeks of the semester, attenders’ attitudes to the program, its sessions and its leaders were surveyed. A sample of 108 students (about 16% of total enrolment) responded. Overall, a high level of satisfaction was expressed, both with the program (over 80% of students gave it a 4-5 score on a 1-5 Likert scale), and with Leaders (almost 90% gave a 4-5 score on the 1-5 scale). Greatest satisfaction came from being able to ask questions, discuss problems with peers and Leaders, revise and clarify concepts, and receive useful tips relating to exam procedures and strategies. On the other hand, attenders made it clear that they
wanted more content, more structure, more handouts, and longer sessions.

4. Leader Survey
Leaders were surveyed in the final week with 17 of 22 leaders responding. Overall, leaders were extremely positive about the program, particularly regarding the development of their leadership skills, communication skills and self-confidence. However, they also provided suggestions for improving training (more practice, and more focus on the first session), and for greater resource support (including access to photocopying, and a bank of resource materials created from the experiences of other leaders).

5. Student Grades
To assess the impact of PAL attendance on student grades, two avenues were explored. The first was to compare the academic performance of attenders and non-attenders in 2003, while the second was to compare the grade distributions of the PAL year (2003) with those of the two previous years (2001, 2002).

For the first comparison, attendance was plotted against final grades, with final grades being based on total marks (coursework, tutorials and the final exam). Both variables were measured using intervals. For grades, the Macquarie grading intervals were used; that is, 0-44% (Fail), 45-49% (Conceded Pass), 50-64% (Pass), 65-74% (Credit), 75-84% (Distinction), 85-100% (High Distinction). In measuring attendance, definition becomes important. Rather than a problematic two category split between attenders and non-attenders, we used four categories of attendance as follows, with the approximate percentages of students falling into each category being shown in brackets (as percentages of total enrolment).

- Non-attenders: 0 sessions (62%)
- Infrequent attenders: 1-3 sessions (10%)
- Moderate attenders: 4-7 sessions (10%)
- Regular attenders: 8-11 sessions (18%)

Figure 2 sets out the relationship between PAL attendance and final grades. The percentages indicate the grade distribution within each attendance category, the total percentage for each category being 100%; for example, the percentage of students in the non-attending group who obtained a P grade is 37%. Table 1 provides the same data in numerical form.

*Prima facie*, the figure suggest the following conclusions.

(i) Comparing the two extreme categories (non-attenders and regular attenders), regular attendance is associated with markedly better performances in all grades except the P grade where relative performances are roughly equal. Regular attenders had higher percentages of the better grades (HD, D, Cr) and lower percentages of the poorer grades (F, PC). For example, at the top end, 11.4% and 15.2% of regular attenders obtained HD and D respectively, while only 4.1% and 8.0% of non-attenders did so. At the bottom end, only 9.5% and 1.9% of regular attenders obtained F and PC respectively, whereas 29.6% and 4.6% of non-attenders did so.

(ii) Comparing performance across all categories, by joining the tops of relevant bars, we find
   (a) a strongly downward sloping line for F grades,
   (b) a roughly downward sloping line for PC grades,
   (c) a concave line for P grades,
   (d) a roughly upward sloping line for Cr grades,
   (e) a roughly upward sloping line for D grades, and
   (f) a reasonably strongly upward sloping line for HD grades.

(iii) Moderate PAL attendance thus appears, for a majority of grades, to lead to improved performance when compared to infrequent or non-attendance, though the impact of PAL is
not as strong as that for regular attendees.

(iv) The grade distributions for infrequent attendees and non-attenders are broadly similar, which is not surprising since PAL is unlikely to have an impact at low attendance levels.

![Final Grade Distributions for PAL Non-attenders and PAL Attenders](image)

Figure 2: Final Grade Distributions for PAL Non-attenders and PAL Attenders

<table>
<thead>
<tr>
<th>Attendance Category</th>
<th>F</th>
<th>PC</th>
<th>P</th>
<th>Cr</th>
<th>D</th>
<th>HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>29.6</td>
<td>4.6</td>
<td>38.5</td>
<td>15.1</td>
<td>8.0</td>
<td>4.1</td>
</tr>
<tr>
<td>1-3 sessions</td>
<td>27.0</td>
<td>2.4</td>
<td>44.7</td>
<td>12.9</td>
<td>10.6</td>
<td>2.4</td>
</tr>
<tr>
<td>4-7 sessions</td>
<td>17.9</td>
<td>3.0</td>
<td>46.3</td>
<td>14.9</td>
<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td>8-11 sessions</td>
<td>9.5</td>
<td>1.9</td>
<td>38.1</td>
<td>23.8</td>
<td>15.2</td>
<td>11.4</td>
</tr>
</tbody>
</table>

Table 1: Grade Distributions (percentages) for Each Attendance Category

Overall, regular PAL attendance appears to have had a strong positive impact on student grades. There is, however, the usual fly in the ointment of possible sample bias due to self-selection. Students voluntarily choose (or self-select) to attend PAL as distinct from being randomly chosen. As a result, PAL attenders are likely to be a non-random sample of the population in terms of variables such as academic ability or motivation. High ability students concerned with grade maximisation may choose to attend PAL in higher proportions, in which case any positive effects of PAL could be over-estimated because the superior grades of PAL attenders could be largely due to their higher ability rather than PAL. Or low ability students concerned with ensuring a passing grade may be over-represented among PAL attenders, in which case the superior grade distribution may be entirely attributable to PAL and the effectiveness of PAL could be under-estimated. Or medium ability students who are reasonably confident of passing may be under-represented among PAL attenders, in which case relatively little information is being obtained concerning the impact of PAL on students who do not see PAL as relevant. At this stage, we have not
undertaken statistical investigations of our data for self-selection bias.⁶

The second avenue was to compare grade distributions for pre-PAL years against those for the PAL year. The results are given in Table 2; 2001 and 2002 are the pre-PAL years and 2003 the PAL year, while FW means failed due to withdrawal and FA means failed due to absence from the final exam.

<table>
<thead>
<tr>
<th></th>
<th>Total students</th>
<th>HD</th>
<th>D</th>
<th>CR</th>
<th>P</th>
<th>PC</th>
<th>F</th>
<th>FW</th>
<th>FA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>543</td>
<td>4%</td>
<td>8%</td>
<td>14%</td>
<td>27%</td>
<td>5%</td>
<td>34%</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>2002</td>
<td>760</td>
<td>5%</td>
<td>8%</td>
<td>17%</td>
<td>31%</td>
<td>4%</td>
<td>30%</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>2003</td>
<td>691</td>
<td>5.3%</td>
<td>9.2%</td>
<td>16.4%</td>
<td>38.4%</td>
<td>3.6%</td>
<td>24.1%</td>
<td>3.1%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Table 2: Grade Distributions in ACCG100, 2001 to 2003

The 2003 grade distribution shows a marked improvement in nearly all grades compared to previous years. There is a significant increase in the overall pass rate (75.9% in 2003, compared to 70% on 2002 and 66% in 2001), and a significant decrease in the failure rate for those students who sat the final exam (24.1% in 2003, as against 30% in 2002 and 34% in 2001). And, for the upper grades, there are more high distinctions and distinctions in 2003 than in the previous years.

However, the improvement in grades is not necessarily solely attributable to the introduction of PAL. The fly in the ointment this time is an improvement in the entry scores in 2003 compared to 2002 and 2001 for that group of students entering ACCG100 from secondary school. This group nowadays comprises about 50% of the enrolment (49.6% in 2003). For such students, Macquarie measures the distribution of entry scores by dividing the total range into five bands (PC1 being the lowest and PC5 the highest), and recording the percentages of students falling into each band. The ‘PC distributions’ for the three years under consideration are shown in Table 3.

<table>
<thead>
<tr>
<th></th>
<th>PC1</th>
<th>PC2</th>
<th>PC3</th>
<th>PC4</th>
<th>PC5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>0%</td>
<td>1%</td>
<td>50%</td>
<td>16%</td>
<td>32%</td>
</tr>
<tr>
<td>2002</td>
<td>0%</td>
<td>1%</td>
<td>43%</td>
<td>22%</td>
<td>34%</td>
</tr>
<tr>
<td>2003</td>
<td>0%</td>
<td>0%</td>
<td>25%</td>
<td>37%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Table 3: PC Distributions in ACCG100, 2001 to 2003

A definite improvement in the PC distributions in 2003 compared to previous years is evident. In particular, the top two bands (PC4 + PC5) accounted for 75% of enrolments from secondary school in 2003 compared to 58% in 2002 and 48% in 2001. This factor on its own would be expected to generate an improvement in the grade distribution. That it was not the only factor, however, is suggested by the qualitative feedback from students and also by the relatively high participation levels of international students. A large number of PAL attenders reported that PAL clarified lecture and tutorial material and motivated them to study, which suggests that PAL attendance had a positive impact on their performance. The safest conclusion to draw at this stage appears to be that both factors contributed to the improvement in grades.

⁶ Statistical analyses of the self-selection problem in SI have presented widely varying results. For example, in a US economics course, Lovisek and Cloutier (1997) found a bias which significantly understated the impact of SI on grades while, in an Australian statistics course, Lewis et al (2004), using the same technique, reported a bias that greatly overstated the impact on grades.
notable improvement in the grade distribution, although more work is required to assess relative causal influences.

**Benefits and Costs**

University administrations are likely to fund PAL programs provided (i) the benefits substantially outweigh the costs, and (ii) there are no alternative ways of expending the same resources to yield higher benefits. Because many of the diverse benefits and costs are not reducible to numbers, assessing and comparing benefit-cost ratios is necessarily a matter of qualitative judgement and cardinal ranking rather than one of arithmetic calculation. It is important that a comprehensive view be taken in which all benefits and costs are captured, and that decisions are not made merely on the basis of benefits and costs that can be numerically quantified or given dollar values. Benefits and costs can also be dependent on context, such as national education policy and whether the university is public or private.7

At Macquarie, an Australian public institution, the main benefits and costs may be briefly outlined as follows.

**Benefits**

Benefits accrue to all stakeholders in a successful program.

(i) Students
  (a) Lower failure rates and improved grades for regular attenders.
  (b) Development of a range of transferable learning skills.
  (c) Less frustration, better understanding and more involvement with courses.
  (d) Greater self-confidence in the subject and university life generally.
  (e) Formation of friends and social integration.
  (f) Greater sense of being cared for by the university.

(ii) Leaders
  (a) Development of key skills (leadership, communication, group management etc).
  (b) Deeper understanding of course content.
  (c) Valuable enhancement to employability.
  (d) Financial payment.

(iii) Academic Staff
  (a) Greater satisfaction relating to course delivery, outcomes and evaluations.
  (b) Fewer complaints and abuses of procedure (cheating, medical certificates, grade appeals).
  (c) Improved feedback channels from students to lecturers via PAL leaders.

(iv) University
  (a) Lower failure rates, higher retention and fewer repeating students.
  (b) Assisting with transition to university life (both domestic and international)
  (c) Enhancement to reputation; the institution is viewed not merely as focused on fees but also as caring about students’ education.

(v) Taxpayers
  (a) Effective allocation of public monies.

**Costs**

For students, leaders and academic staff, the cost is the time spent on PAL that could have been devoted to alternative activities. These include extra study by students and leaders, and extra research or community service by staff. For the university and the public, the cost is the

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7 McCarthy and Smuts (1997) emphasise the important point that assessments of the effectiveness of SI programs should be based on broad perspectives, these including sound statistical analyses of grades but going beyond these to encompass the wider (and largely qualitative) range of outcomes that SI programs provide.
financial outlay and any loss of benefits arising from the foregone research or service by staff (such as government funding tied to research outcomes, or service to public bodies).

Obviously, peer assisted learning programs need to focus on enhancing efficiency in the sense of increasing total benefits and/or lowering total costs.

Lessons Learned

From the above outcomes, a number of conclusions were drawn regarding the ways in which the Macquarie PAL program could be made more efficient.

1. Raising the Participation Rate
While a participation rate of 18% of the enrolment for regular attenders is respectable, it is neither highly pleasing nor sufficiently comfortable. Three main lessons were taken here.

(i) Adjusting the focus of sessions
The main goal of PAL participants was to pass the course or to improve grades, an unsurprising finding in a context of steadily rising university fees and part-time work. Students thus wanted more content, structure, drills and specific problem-solving. Satisfying such demands is obviously important to improving participation rates. However, PAL programs also focus on developing a set of transferable capacities which then assist in improving grades in the targeted course and elsewhere. These competencies include independent learning, deeper learning, general problem solving, researching information, critical thinking and other generic skills.

The trick is to find a suitable balance between these sets of goals. Our decision was to give greater recognition to what students were requesting without losing sight of the larger competencies which underpin general academic success. For the next stage of the trial, we aimed to provide more content and structure to each session (without reducing them to tutorials or cram sessions) and, within this modified framework, to continue with activities which facilitated the development of learning skills and capacities.

Our strategy here appears to be broadly consistent with previous literature. While Martin has emphasised the over-arching point that supplemental instruction is based on providing help to students regarding ‘what to learn and how to learn it’,\(^8\) the appropriate balance between content and skills may vary in specific applications. Factors such as the nature of the course and student abilities come to mind. In fact, in a remark embracing accounting courses, Arendale (1994:14) has noted that ‘the SI model needs to be slightly modified in courses that are problem-based and involve practice for mastery’. Our revised strategy reflects this but, for the moment, we have not taken up his accompanying suggestion that in these cases ‘SI sessions need to be more frequent and sometimes longer’, although we may do so in the future if necessary.

(ii) Emphasising the early sessions
The early sessions, especially the first, are critical in creating a positive impression and in persuading interested but undecided students to keep attending. These early sessions need to be interesting, dynamic and instructive, and will become a focal point in leader training.

(iii) Changing the information technology
This is discussed under (2) below.

\(^8\) In Burmeister (1996).
2. Advertising, Sign-Up and Administrative Technology
The methods used for these activities – face-to-face presentations in lectures and paper-based systems – were relatively ‘low tech’ and inefficient. They were required in the absence of a university-wide online enrolment system. A far more efficient system relies almost entirely on IT – online enrolment, email, and web-sites. With IT-based systems, prospective leaders can be solicited by emails; all students can be informed of the existence of PAL during, or prior to, enrolment; students deemed to be at risk can be targeted with specific emails encouraging attendance at PAL; and previous participants can be surveyed post-exam at the start of the next semester.

More importantly, students can enrol online in PAL sessions at the same time as they enrol in their courses and organise their overall study and work timetables. That participation rates are sensitive to enrolment procedures is indicated by an episode at the University of Wollongong. Lewis et al (2004) report a very large drop in attendance from the high levels attained in 2002, when concurrent online enrolment was available, to much lower levels in 2003 when online enrolment in PASS groups was delayed for two weeks, thus requiring students to go back to the system after they had organised their timetables around their other needs.

3. Leaders
Two lessons were taken here relating to numbers and abilities.
(i) One or two leaders
Our initial decision was to have two leaders per group, partly to develop teamwork, partly to bring complementary skills and styles to the sessions and partly to accumulate a pool of experienced leaders for the future. Some leader pairs worked very well, while others did not (sometimes because an active/passive relationship developed). Two leaders significantly increase costs, and are unviable in classes where attendance falls to around 10 or so students. Not being convinced by the first stage of the trial that two leaders were necessary, and to contain costs and improve efficiency, we decided in the next stage to try one leader per group.

(ii) Attracting a suitable mix of leaders
Somewhat to our surprise, the applicants for leaders contained a higher proportion of non-native speakers than native speakers despite the latter’s preponderance in total enrolment. We think the main reasons relate to the job market. Local native speakers tend to have existing part-time work, whereas PAL leader employment is highly attractive to non-native speakers (whether international or domestic) – it is well paid, on campus, and related to their educational objectives.

Since it is vital that leaders have good language and communication abilities, we need to attract more native speakers. We propose, after results have been released, to send an email or letter to all students who have performed well in the course, encouraging them to apply for a PAL leader position and emphasising its self-development and employability benefits, in the hope that this will generate a larger pool of native speakers.9

4. Resource Support
To provide greater support to leaders, we have (i) obtained a dedicated room for PAL sessions and leader usage, (ii) provided access to photocopying, and (iii) commenced an accumulating bank of resources containing the ideas, activities and experiences of the previous generation of leaders (available on CD).

9 That good language skills are a precondition has been succinctly put by Martin (in Burmeister 1996): ‘SI, at its base, is about communication...[and] dialogue’.
5. Academic Staff Integration
When introducing peer-assisted learning for the first time, it is important not only to have the support of the lecturing staff, but also to integrate all ancillary staff (tutors, administrators) into the program. In the first stage, we focused on the first, but not the second due to lack of time.

Lecturers can promote PAL at the start of the course, after any coursework results have been announced (encouraging attendance by those who did poorly), and prior to the final exam. Tutors, who have closer individual contact with students, can do the same thing but more effectively on a one-to-one basis. In the second stage of the trial, we therefore had an information meeting with all teaching staff (full-time and part-time) prior to the start of the semester to explain the program and the ways they could help in its promotion and effectiveness.

One other lesson we learned was to be as sure as possible that initial interest by staff was likely to translate into permanent interest throughout the semester. We had one unsatisfactory experience in delivering PAL to a non-commerce unit where the lecturers, although verbally committed, did not function effectively in the program due to disorganisation in course delivery and disharmony in their department.

Conclusion

The aim of our PAL trial was to develop and implement a PAL model suitable for the Macquarie context, an important feature of which is the existence of large cohorts of non-native English speaking students of Asian background. These students had high attendance levels in PAL sessions which strongly influenced what students wanted from the program, namely, content-focused sessions emphasising tasks, answers, summaries and examination preparation material. One of our challenges is to find a satisfactory combination of content-focused learning and skills development.

The most disappointing aspect of the first stage of the trial was the relatively low level of regular PAL attendance. It is not hard to point to causes (the novelty of the program at Macquarie, non-electronic technology used for advertising and sign-up, and the amount of paid work undertaken by students), but it means that a second of our challenges is how to improve the participation rate.

Overall, however, the PAL program at Macquarie made a solid and pleasing debut. Positive outcomes were produced for all stakeholders – students, leaders, academic staff, the university and taxpayers. Student feedback was very favourable, and leaders benefited in developing a portfolio of valuable skills. There was an apparently strong positive association between regular PAL attendance and better grade distributions and, for the PAL year compared to previous years, the percentage of pass grades was significantly higher and the percentage of fail grades was significantly lower (although further work is needed to determine whether these outcomes were assisted by a selection bias favouring better students and an improvement in entry scores for some students in 2003).

Peer-assisted learning obviously cannot solve all the challenges currently facing undergraduate teaching and learning in Australian universities but, in suitably contextualised forms and as a component in an integrated suite of programs, it certainly appears capable of making a significant and cost-effective contribution.
References


