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***Supplemental Instruction and Statistics for Marketers:  
a match made in heaven?***

**by**

**Dr Val Clulow  
Department of Marketing  
Faculty of Business and Economics  
Monash University**

**Abstract**

Supplemental Instruction (S.I.) is a peer tutoring approach in which the development of students' study skills takes place through weekly peer tutoring sessions, and is built on particular subject curriculum, not separate from it. In this study the first-year subject selected was Statistics for Marketers. The approach is designed to assist students to succeed in 'high risk subjects' through voluntary attendance at the S.I. sessions. The central question for this study was how students' perceptions of their learning experience, while participating in an S.I. group, could inform our teaching practice in universities, at a time when we are facing an incredibly-challenging, competitive environment. Research to date had not investigated to any depth how the approach worked nor gained any detailed student accounts of their learning experiences in an S.I. programme.

## **Introduction**

Many of the conditions and standards in the Australian educational environment, have only quite recently begun to have been scrutinised (McInnis, 1995). It has become obvious to those involved in the sector, that at least some elements of the Government's funding to universities could be based on the results of regular quality audits, including performance in first-year transition management.

Programmes to improve student transition from school to university, first-year mentoring programmes and peer tutoring approaches are examples of how universities are addressing the needs of Australian university students in the 1990s (McInnis and James, 1995). Supplemental Instruction (S.I.) is an example of a peer tutoring approach which could offer teaching and learning enhancement in the Australian higher education sector, at a time when there are serious pressures on the sector to maximise performance.

Peer relationships have been shown to have the potential to provide strong, interactive communication in relation to some of the mentoring functions. Peers have been more readily available than particular bosses or mentors and the greater opportunity for communication has made mutual support and collaboration easier to achieve (Kram and Isabella, 1985; Clulow, 1995; Clulow and Brennan, 1997).

### **S.I. and academic performance**

Many studies have purported to link academic outcomes to participation in S.I. (Martin, Blanc and DeBuhr 1983; Sandman and Kelly 1979; Wolfe 1987; Kenney 1988; Pryor 1989; Visor, Johnson and Cole 1992; Wallace 1993). Studies had varied in style and the more rigorous in design were carefully selected as points of reference in the current study. The study by Blanc, DeBuhr and Martin (1983) found that undergraduates who participated in S.I. earned significantly-higher final grade scores, and had withdrawn from the course significantly less than non-participants. Anecdotal evidence from the same study included that the following factors *influenced* the positive results: the S.I. service was pro-active rather than reactive, offered at the commencement of semester; the programme was attached to subject content not conducted in isolation; S.I. was viewed as an enhancement programme for students of mixed capabilities, not primarily for remediation; and that S.I. offered a high level of student interaction and mutual support by peers.

### **S.I. and student persistence**

Linked with studies on S.I. and student performance, were studies on S.I. and student persistence. Many of the studies in the area of S.I. and performance included 'rate of withdrawal' as a measure of comparison, between S.I. and non-S.I. groups of students.

In some studies the issue of persistence was emphasised, often in relation to particular student groups. In a study by Wolfe (1988) where 108 students used the S.I. programme, 24 per cent of the S.I. group rated D, F (fail) or W (withdrew), compared with 44 per cent for non-S.I. students. Wolfe described the effect of S.I. on "...special populations, such as developmental students and minority students..." (Wolfe 1988:20) where those students participating in S.I. received significantly-higher course grades than those that did not participate, and significantly lower rates of D and F grades and withdrawals.

Brazelton, Schmidlein and Baugher (1981) studied S.I. in a first-year economics course at the University of Missouri-Kansas City. Of the S.I. participants, 14.8% comprised the D/F/W 'group' and of the non-S.I. group 21.1% were in this category. The tendency to group the findings of students with D, F (fail) or W (withdrawal) results in comparative groups (S.I. and non-S.I.) could well be less illuminating, than breaking these figures down, and looking further into reasons for withdrawal.

Visor, Johnson and Cole (1992) tested for difference in the affective characteristics, *locus of control*, *self-efficacy*, and *self-esteem*, between S.I. and non-S.I. groups. Change associated with S.I. was not substantiated for any of the measured variables. However, not surprisingly, descriptive findings indicated that students who elected to participate in S.I. sessions were more internal in their locus of control, had stronger feelings of self-efficacy and had higher self-esteem. Although S.I. asserted to target 'high risk courses' not 'high risk students', the findings in the study suggested that the students at highest risk of withdrawing from study were *not* choosing to participate in S.I.

The S.I. approach links peer tutoring and study skills development to particular curriculum and how it operates from the students' perspective is in need of much closer investigation. Building on earlier work which indicated success measured by retention rates and improved grade-point averages amongst disadvantaged student cohorts, how the teaching and learning transactions are perceived by students needs detailed examination.

## **Methodology**

The subject Statistics for Marketers was selected for this study, as it fitted the S.I. criteria of being a 'high-risk' subject, with high 'fail' rates and poor exam performance. It was anticipated that in observing the S.I. programme, and from students' detailed accounts of their first-year learning experience, greater insight into the 'high risk subject' might emerge as well as greater understanding of the students' whole experience during the subject.

## **Sample**

### ***S.I. leaders***

The researcher invited all immediate past-semester students with a D (distinction) or HD (high distinction) grade in the subject, to apply for a position as a S.I. leader. Seven students were interviewed and 4 selected. A request for funds to cover the salaries of S.I. leaders was approved. Timetabling staff were consulted regarding anticipated room requirements.

The researcher conducted training for the four S.I. leaders over two days, following the recommended programme provided by the University of Missouri-Kansas City during the S.I. supervisor training programme, which she had previously attended. Two males and two females were selected to take up the S.I. leaders roles. They were all full-time undergraduate students. Their ages were 20 years (2), 24 years and 21 years. They were selected on the basis of a written application which explained why they were interested in the position and their personal interview, which explored their suitability further.

### ***S.I. participants***

All students enrolled in the subject Statistics for Marketers were offered the opportunity to participate voluntarily in the S.I. sessions. Of the sixty students who had attended, those who had attended five or more sessions were invited to be interviewed and the twenty-one who agreed formed the sample. As views on the S.I. approach itself were central to this study interviewing those students who had had most experience with it was considered preferable. Interviews for the S.I. participants in the sample were scheduled before the examinations commenced.

## **Data collection and analysis**

### ***Depth interviews***

A semi-structured interview design was used to collect data (Cassell and Symon, 1994; Malhotra, Hall, Shaw and Crisp, 1996; Yin, 1994) and included students' perceptions of their learning experience in an S.I. programme. The interviewer's style of questioning was designed to elicit students' reflections of their learning experiences which typically might not otherwise be consciously articulated.

All interviews were tape recorded with the agreement of each participant and as they progressed and the researcher gained understanding from the experience of the students, the questions became more focused.

### ***Interviewer***

Depth interviews rely heavily on the role of the interviewer and their skills, experience and personal profile (Malhotra, Hall, Shaw and Crisp, 1996). The aim was to obtain honest information from the respondents, with the researcher-interviewer able to establish rapport and trust with the interviewees (Sekaran, 1992:194).

### ***Data analysis***

The process of generating meaning from the interview data was characterised by action at different levels of detail, beginning with broad groupings then identifying finer aspects of the data and sorting that into more specific categories. The first level of data processing by the researcher involved *clustering* or *coding* each student's comments into broad themes. (Miles and Huberman, 1984).

### **Major themes**

Each individual interview was tape recorded, transcribed and catalogued, initially using N.U.D.I.S.T. (Richards, 1997) software to organise the data and label the data for later retrieval. Approximately twenty-one hours of interview data were collected. Sorting the labelled data for each student was completed by the researcher, rather than electronically using the software, to enable both familiarisation with the data and to facilitate the interpretation process (Burgess, 1985; Miles and Huberman, 1984; Crabtree and Miller, 1992). Following the identification of major themes within each individual interview, the examples of students' comments relevant to each major theme were *collated* to enable differentiation between individual's comments and this enabled exposure of similarities and differences within each major theme (Miles and Huberman, 1984; Yin, 1994). Working firstly within each individual interview, then across the 21 interviews, the data for each individual were sorted into four major themes which emerged as over-arching categories. These themes included the S.I. approach. Sub-sets of like data within each theme were then identified, and data sorted into sub-sets (Miles and Huberman, 1984).

In this paper, the theme of students' perceptions of the influence of the S.I. approach on their learning, is the focus. Quotations from interviews are used extensively to illustrate students' views.

### **Students' perceptions of the influence of the Supplemental Instruction approach on learning**

The students' comments about their experience of the S.I. approach were collated, matched and grouped into four predominant sub-sets: the influence of peer-tutoring; the influence of symmetry in the teaching/learning relationship; the influence of small, collaborative groups and the influence on study skills and learning awareness. Each will be discussed in turn with illustrative examples.

#### **Influence of peer tutoring**

##### ***S.I. leader's role***

In S.I. sessions, students had the opportunity to engage in dialogue with the session leader and other students as a means of 'acting on' the information gained in lectures and the sessions. Students were asked to comment on their experience of that engagement with the subject content and with each other. Students' views on their participation in the S.I. collaborative learning groups were collected through interviews and analysed.

The S.I. leaders seemed to provide a peer mentoring influence beyond the subject content, including, coaching, acceptance and confirmation, role modelling and friendship for students. Students valued the S.I. leaders' participation in regular lectures and considered their support during the semester empowering, through enjoining to work on the subject with them rather than having to battle in isolation. The value of the S.I. leader as a role model was articulated in that students identified with them and felt encouraged that 'if they could do it I can too' and, in participating in classes by doing exercises on the board, there was an empowering sense that 'not only can I do it, I can teach it...'

They valued having a non-threatening colleague who did not with-hold any information that might be helpful, as this student explained:

*“Because Kim has actually done the course, she knows what is on the exam; the sorts of things they are going to ask, and she explains it to us in terms that ... some questions are ambiguous, they can go either way but she explains exactly what the marker will be looking for when you are answering that question, and that helps a lot.” (B.L. 58-64)*

Having a peer-tutor had helped this student to build confidence by learning from the tutor’s experience. She referred to the benefit she felt from working through how to approach exam questions from the marker’s perspective. Students expressed their sense of reassurance when a range of questions was asked from students of different abilities. The fact that questions from all students were answered and that the S.I. session leader would explain it, checking for understanding as she went through the solution, reinforced the learning.

Peer-tutoring was an empowering experience for the students, who felt encouraged and comforted by working alongside another student. The learning relationship with the peer-tutor that some students described, went beyond the subject content. It included a peer-mentor influence, where the S.I. leader was providing psychological functions of emotional support, personal support, friendship and confirmation, in addition to mutuality and information sharing. Examples included this case:

*“Sort of a friend, like we were all going through it together. And he would often say “who wants to do this up on the board?”. So we are all participating. Sort of just like...I mean he was really encouraging and everything, but he was just like a friend to us all. I thought that was great.” (P.C. 287-292)*

The peer-tutor was regarded as a subject champion. The fact that he attended the lecture as preparation for the S.I. session was inspirational to the students. The motivational impact of the S.I. leader’s investment of time to attend the students’ lecture was clearly a distinguished feature of the S.I. approach, as illustrated later:

*“And seeing that, every time I think ‘I can’t make it’, I go, because he’s helping me. I hope I don’t let him down in the exam but what ever happens he’s helped me. He’s done his best and I’ve done my best too.” (S.M.C.329-332)*

The peer-tutor provided the student with a role model and the student tried to emulate the tutor’s commitment. Linked to the importance of the S.I. leader’s role in the way the peer-tutoring sessions worked was the role of the students. This was clearly a different role to traditional tutorials and a key feature that defined the role of students was that their attendance was on a voluntary basis.

### **Voluntary attendance**

Voluntary attendance at S.I. sessions ensured that students were not segregated on academic ability criteria and that 'academic performance' was viewed as something which could be enhanced for every student attending, rather than as a remedial programme. Students were impressed that the voluntary attendance had a positive influence on how the group worked together, as described by this student:

*“It’s okay. It’s very good. It’s a more casual sort of thing...I don’t think it’s because he’s a student or whatever. It’s the way we are as a group. First of all, as you know, it’s not compulsory. It’s not like legal; not like formal, you know what I mean..” (B.R.89-92)*

The student used the term 'casual' to describe the atmosphere in the S.I. group. He distinguished the meaning of his comment to avoid any misinterpretation about the S.I. leader’s role. He described the 'way we are as a group' as being casual and informal. Voluntary attendance was an empowering feature of the S.I. sessions as students clearly considered carefully their decision to attend and had, therefore, self-selected for the purpose of more effective learning. That is, they expected to benefit from their attendance.

### **Influence of symmetry in the teaching/learning relationship**

Linked to the value placed on the peer tutor for good communicability, the students explained the notion of the symmetry in their relationship with the S.I. leader. Their view was that the reciprocity of the dialogue between themselves and the S.I. leader was more conducive to learning than the asymmetrical relationship they described as typical of a subject expert. The S.I. leader discussed why they had chosen to revise a particular task, and talked to the students about how they had found it a bit confusing themselves in the lecture, or that the particular problem had a step involved which people often forgot or miscalculated. This collegiate style of explanation in a friendly, conversational manner appealed to the students and was, of course, always on first name terms. In terms of the 'quality' of communication students used descriptors which identified their high regard for the mutuality of discussion, rather than just 'being told' the answer. The symmetry in the relationship between the student and the S.I. leader was at the heart of the ease in the communication as was clear as discussed here:

*“I think it’s good because we can approach them more easily. We don’t feel as though they are talking down to you; they are on the same level as you.” (B.L. 79-80)*

The ease with which the student approached the S.I. leader was, in her view, a major benefit. The student did not feel intimidated by talking with the S.I. leader on equal terms. The session leaders attended the lectures, providing first-hand material as the basis for their discussions with students. Rapport with the peer-tutor was a critical factor for students who wanted assistance with their learning. The dynamic in the communication was clearly between peers and the power in the relationships was based on mutual respect and reciprocal positive regard. Students discussed the de-mystification of the curriculum through the way the S.I. leader shared with the students, his reasons for the selection of work to cover in each session and the learning points of particular note. In the conduct of the S.I. sessions the S.I. leaders did not separate themselves from the group intellectually or socially.

### **Content**

The symmetry in the teaching/learning relationship in the S.I. sessions was very evident in the way the content of each session emerged. Students played a big part in deciding the content of the S.I. sessions. They raised questions about material covered in the lecture that they had not understood. The S.I. leaders attended the lecture too and would prepare notes on the parts of the lecture they thought were likely to be difficult to follow. However, there was no set agenda and the content was really an interplay between what the students needed and how the S.I. leader interacted. This supportive style was regarded as exceptional by students as described here:

*“He is there just like anyone else who is there and he is just explaining...and he just explains what he thought would be good for us. Like, he’s coming back from class, he said, ‘Today, I thought it would be good for me to teach you this, this and that...’ Or we can just raise a part of a lecture that we didn’t understand.” (B.R. 94-102)*

In a sense the S.I. leader was described by this student as just sharing his opinion of what he thought were some of the more difficult aspects of the lecture and explaining that. The students would also raise some of the problems they had found through the week. Some students raised the issue that the tutorials in other classes normally had a set agenda planned by the tutor and that individual students’ questions were difficult to accommodate in the time allowed. They understood that tutorials were generally quite structured in response to these pressures but valued, by comparison, the assurance that their particular questions would be covered in the S.I. session and that the S.I. leader would only initiate discussion on topics that they all valued.

### **Empathy**

Students reflected on the value they placed in the S.I. leader’s empathy with their learning challenge, their pre-knowledge of the curriculum and the subject assessment requirements. This understanding gave many students confidence to reach out for assistance, uninhibited, as described by this student:

*“...she (the S.I. leader) had done it really recently and she had to learn it the same as I do. She just taught it and she knew what we were going through and she would say, ‘I found this really hard as well’, and, you can talk to her more easily, I think, as well...” (C.J. 66-72)*

She had found the empathy of the S.I. leader with her learning situation reassuring and empowering. She clearly perceived that being able to identify with her 'teacher' and vice versa was a learning issue and that in this subject that level of rapport was crucial as was similarity of perspective.

Intellectual closeness was clearly a major contributor to overcoming maths anxiety. Students described the shrinking of the intellectual distance between themselves and their peer tutor to be empowering by contrast with a teacher-centred approach. Furthermore students found perceived barriers to communication with teachers stressful, because they were unable to find common ground on which to gain understanding. This student was very frustrated with feeling on another 'wave-length' to her maths teachers.

*“That’s one of the biggest problems I’ve had. Like it’s a ‘maths anxiety’ that I really have. It’s hard to feel that the people who are teaching me maths are on any similar wave-length to me and that’s why I stress all the time.” (L.S. 60-63)*

The student described what she saw as ‘her’ problem. She felt alienated from maths teachers and found the frustration stressful. Building an empathetic relationship was regarded by students as a major benefit to overcoming blocks in their learning. In addition to the factors discussed about the symmetry in the teaching-learning relationship, another very influential factor was language.

Explanations by teachers appeared to assume a level of prior knowledge that students did not have. The language used between young friends even when discussing study was quite different to the language used by academic staff when teaching. What students found advantageous was the use of more casual language, ‘your language’, which more easily enabled them to understand the work. This was a major communication issue for students. Student emphasis on the issue of the importance of language suggested that it was a factor in effective teaching and learning that had been incredibly underestimated. Most teaching staff would be well aware of the dramatic differences in generational values, mores and language in their own life-relationships. This issue appeared to be considered critical for the students. Their articulation of the teaching artistry of using the right communication style and appealing to the right level of understanding was unmistakable as described here:

*“Because they are still up high and sometimes they talk to you babyish or other times they are way over your head. Whereas Alex goes straight to you. He knows exactly where you are. He’s only a year older and it’s like he hits you right where you want it...” (S.M.C. 40-47)*

In attempting to simplify their language, what the students perceived was that the (teaching staff) message was pitched either too low or too high, both being ineffective. What the student noticed was the S.I. leader’s ability to get to the heart of the question in a way that the students could understand. Having the teaching capability to enlist student engagement with the curriculum through effective communication was clearly a major issue for students. Students viewed peer tutoring as more conducive to interaction. By comparison with normal tutorials they found the collaborative learning opportunities were enhanced through common language and communication styles, which also reduced the sense of distance between teacher and student.

### **Influence of small collaborative groups**

Several students commented on the benefits they considered they had gained from being in small groups for their S.I. session. The greater likelihood of preparation for the discussion, greater involvement, meeting new people and sharing the challenge rather than feeling isolated were benefits expressed. The open, less formal style of the session was praised by most students, although there were some that commented on a preference for greater structure and showed greater dependence on ‘set’ work to provide incentive to work towards goals. Students said they had ‘enjoyed’ the sessions and that they were more like meetings of ‘friends’ for discussion of a common challenge and involvement in learning as in this case:

*“Recently, he’s being getting us up and we’ve been doing exercises on the board, which is really good because if you get up and do it then it makes you...because it’s all very well to sit there but unless you go and do it then, especially, I feel with maths, it really doesn’t sink in until you start practising, you can understand it more...” (L.S. 213-221)*

Student participation by working through examples on the board for the group, was regarded as really beneficial by this student. The value of practising in this way was a great way to learn and for the student to 'understand it more'. The time required for student participation of this kind would be prohibitive in larger groups, however the learning gained through the learning-by-teaching approach in a positive, trusting situation was a very powerful approach.

Being part of a small collaborative learning group, motivated students to undertake preparation so that they could participate fully. There was a sense of taking responsibility for being able to contribute something. The small, collaborative group was for many students a far more conducive learning environment in which to ask questions. Students clearly illustrated their perception of the effectiveness of participation in small, collaborative groups. They discussed greater participation for the sessions, greater involvement in contributing to the discussion, less self-consciousness about interjecting and no sense of intimidation about seeking clarification.

### **Influence on study skills and learning awareness**

Many students commented on the value they considered they had gained from working through past exam questions during the semester, with the S.I. leaders. Although all students had access to past papers, what they valued was the S.I. leaders' coaching on unpicking exam questions from a marker's perspective and their discussion about what the marker might expect and how to approach the problem. There was a sense of students gaining confidence from having a colleague demystify, to some extent, what they regarded as the intimidating task of passing the written exam. This is a critical issue for first-year students who sometimes have access to past exam papers, but may not benefit from papers unless they are coached on how to approach the questions and how an examiner might grade a paper. This student provides an interesting view on this issue.

*“I think that because we’ve gone through a lot of questions that are typical ones they did on the exams, so I think that will really help me with my written exam. Really. I think if I hadn’t gone there I would have no clue how a written exam is going to be structured other than having a copy of a past exam.” (C.A.J. 297-299)*

By working through how to approach exam questions the student realised that there was a difference between just having a past exam paper and working through past exam questions, learning how to see their answers from the marker's point of view. The student regarded the exam preparation work she had done in the S.I. sessions as a critical part of her exam preparation.

*“So in that sense I think it's been good because the student's gone through and showed us what the exam questions are going to be like and how to approach them. So in that sense it has been really good. Looking back, I think it is going to really help me pass the written exam.” (C.A.J. 299-305)*

The student clearly identified that having a past exam paper in itself was not a constructive learning option. That the real learning value came from working through the different styles of questions and the discussion about how to approach each type, with the peer tutor. Several students discussed their view that statistics required a cumulative-learning approach. For this reason they had started using the Tuteman software at the beginning of the semester and, thereafter, on a weekly basis. The S.I. sessions provided an additional opportunity to study the subject content consistently throughout the semester, and the approach provided a weekly revision and consolidation opportunity.

The S.I. session was considered a great advantage over personal home-study. Students were aware of the risks of 'cramming' for a statistics exam, although they had used that study strategy successfully in other subjects. Student awareness of the value to their learning of linking statistical methods to real marketing applications was clearly evident. They valued working on examples that gave the statistics meaning and made the learning relevant to the students' futures in employment in the marketing field. This critical learning issue and benefit of the S.I. session was described in this illustrative example:

*“But with Alex, what we've been doing is going through actual problems, as in questions, which means we can apply the formulas properly for the practical applications, um.....It's just been good because I go and I'm reading my notes as I listen to (the lecturer) . But it just doesn't go in at all...” (M.A. 42-49)*

The relevance of the statistical tests was much clearer for this student when the S.I. leader worked through related marketing problems where the tests could be applied. Some students reported that the dynamics of working in a motivated group was a powerful learning agent. It would seem clear that the mix of students, session leader and teaching methodology would influence each different group but, in essence, the impact of working in a motivated group was a critical issue and one for all teachers to consider when looking to engage with students in a learning experience. The issue of 'distraction' in classes was raised by the students in a number of contexts. These included distraction by chatting students in the large lecture hall, distraction by noise of passing students in unsuitably located tutorial-rooms and distraction due to poor concentration when students tried to work alone on difficult material.

There was an impressive body of evidence from students of their study skills options and awareness of the effectiveness of particular learning strategies. Their experience in an S.I. programme had clearly provided an opportunity for reflection and conscious evaluation of teaching and learning issues related to their study of statistics.

### **Summary of Student Experiences**

There was no doubt that the S.I. sessions influenced the learning of all the students that attended. There was a consistent view held by students that the great advantage of having a peer tutor was that you could actually be understood when you posed questions or raised concerns and that when the peer tutor responded they in turn could be understood. The mutuality of this interaction was a particular developmental function of the peer relationship. The value placed on this aspect of the S.I. approach by the students interviewed was particular to the statistics subject but may represent a communication difficulty faced by students in a wider context, for subjects where the 'language' is not prose. In this case the language and content of the subject are numerically based and the concepts encompassed by the statistical tests and their interpretation not readily understood by reading and note taking. Several students commented on the empathetic approach of the S.I. leaders which enabled, for participants, a freer flow of questions, less inhibition to participate, greater confidence that their problems were not isolated examples and better understanding. In addition to the direct influence of the S.I. leader's role as facilitator, the students were very outspoken on the benefits they had gained from working in a small collaborative group. They had found the experience both novel and rewarding. Students made comparisons between the style of communication in the S.I. classes and the lecture and traditional tutorials. The best feature to emerge was the ability to have their questions heard, in an unhurried way, and to work through a problem until they had understood it.

### **For Further Research**

The transition to university for all students, is necessarily a move forward to personal independence through personal development and greater maturity. However, there were several indicators which suggested that students were experiencing difficulty in learning from the asymmetrical relationship with academic staff. The implications and the extent of intellectual disempowerment of first-year students, through asymmetrical learning relationships, is a high priority for further study. The impact of current teacher-centred approaches to learning in first year university subjects, may have ramifications for the development of more independent learning styles in later years.

Further study into the extent of opportunity available in different subjects, for students to have time to reflect and interact with the academic, peer-tutor or other people in small groups. Students were very keen to be involved in small groups, to sort out the theoretical concepts, the practical application and their understanding. The potential for peer-tutoring programmes or other small group sessions to provide a powerful learning strategy appropriate for the teaching and learning challenges facing universities in the future needs further, urgent investigation. Linking study skills and assessment strategies to subject content appeared to have considerable advantages for these students. Combined with sound communication capability with a peer-tutor, the potential for further application of the approach is yet to be researched. The mix of attributes in S.I. -- small volunteer groups, peer tutoring, being linked to particular curriculum and building participative and exam skills -- appeared to meet the needs of these students.

There is an opportunity for universities to study the effectiveness of student learning time, both within and outside formal class time and to review workloads across combinations of subjects, notwithstanding the need for students to learn to prioritise their workloads and allocate time appropriately. Further study of the opportunities to practise this approach more widely could lead to greater participation and gains by more students, moreso than if these learning skills are offered separately as 'remedial' classes by student services.

There are no perfect “matches made in heaven” and many approaches designed to improve learning and student transition need to be studied. While the focus stays more often on the student, studies in teaching and learning approaches will make a real contribution.

**Dr Val Clulow** has worked in the Department of Marketing, Faculty of Business and Economics at Monash University since 1990, prior to which she worked in the retail industry. After qualifying as a teacher, she later completed a Bachelor of Arts, a Master of Education and a PhD in Education at the University of Melbourne.

Contact details: Dr Val Clulow, Department of Marketing, Faculty of Business and Economics, Monash University

P.O. Box 197 Caulfield East VICTORIA AUSTRALIA 3145

Tel: 6 3 9903 2727 Fax: 6 3 9903 2929 e mail

[val.clulow@buseco.monash.edu.au](mailto:val.clulow@buseco.monash.edu.au)

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