Australian related literature on Supplemental Instruction or Peer assisted Study Sessions [PASS]

Compiled by

Michael Chin

Adapted from: Arendale, David [2005] Postsecondary Cooperative Peer Learning Programs: Annotated Bibliography

Ahrens, R., George, B., Henderson, A., Marhinin, N., Power, D., Rae, M., Watters, J. J., & Ginns, I. S. (1996). *Students helping students: Peer Assisted Study Sessions for students enrolled in a science content subject*. Paper presented at the 2nd State Conference of HERDSA Inc., April 13-14, 1996, University of Southern Queensland, Toowoomba, Queensland, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110 USA.
The Peer Assisted Study Sessions (PASS) program, based upon the Supplemental Instruction (SI) program, was used at the Queensland University of Technology (Brisbane, Australia) in the Center for Mathematics and Science Education. Students enrolled in the Primary and Early Childhood area of a Bachelor of Education degree must take Science Foundations (MDB303) in their first year. The formal science backgrounds of many students enrolled in this class are inadequate. This study examined students enrolled in the class during 1995. The PASS group received higher final course grades (4.88 vs. 4.15, 0 to 7 scale) than the non-PASS participants. Qualitative research through student interviews and analysis of surveys suggested improvement gains for the PASS group as well.

Barrett, M., Sutcliffe, P., & Smith, B. (1994). Students as mentors: The case of management education. *Proceedings of the Conference of the Australian and New Zealand Academy of Management* Wellington, Australia: Australian and New Zealand Academy of Management.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110. This paper describes the use of Supplemental Instruction (SI) to have advanced-level students (peer mentors) help commencing students (mentees) overcome the teaching and learning problems often associated with large lecture-based introductory courses in management in several courses at Queensland University of Technology (Australia). "Management and Organization" has the primary focus for this study. Students who attended six or more sessions had significantly

higher final course grades than those who attended less than six times. It appears that motivation or self-selection was not a major variable since the students who attended six or more times had a similar academic profile to students who did not attend at the same frequency. Surveys of students suggested that the mentoring program helped them to develop new study strategies and approach the material in a more effective manor. Mentors reported that they improved their interpersonal communication skills, ability to mange group dynamics, and enhanced their personal study skills.

Beasley, C. J. (1997). Students as teachers: The benefits of peer tutoring. In *Proceedings of the 6th Annual Teaching Learning Forum* (pp. 21-30). Perth, Australia: Murdoch University.

Retrieved July 1, 2004, from http://cleo.murdoch.edu/au/asu/pubs/tif97/beasle21.html.

Supplemental Instruction (SI) has been customized for use at several institutions in Australia. Program results for SI participants include: improved understanding and performance in the subject area involved, improved confidence and study skills, as well as on-going friendships. SI leaders also report improvement in content knowledge and personal skills. This paper focuses quantitative and qualitative analysis concerning the use of SI at Murdoch University with business students in 1995. The two courses studied were Principles of Commercial Law and Introduction to Accounting. Many of the participants were international students.

Carbon, D. (1995, August 1). Universities give peer program top marks. *Courier Mail Newspaper*, Brisbane, Queensland, Australia, p. 25.

This newspaper article reports on the implementation of Supplemental Instruction (SI) at three postsecondary institutions in Australia (Queensland University of Technology, University of Queensland, and the University of Southern Queensland). Henry Loh, QUT anatomy professor, reported reducing students' failure rate from 20 to 5 percent after the introduction of the SI program. However, he implemented the program more to increase academic performance than to just reduce student failure rates. Barbara Kelly of UQ reports that SI leaders regularly provide feedback to the course professors regarding the comprehension level of the students. At UQ the SI program is being used in biochemistry, microbiology, engineering, chemistry, and law. Kelly requires SI leaders to maintain diaries to record SI session activities, student behaviors, and suggestions to improve the program. SI leaders report improvement of their confidence levels, developed better communication skills, and believed that their employment prospects were improved.

Christie, R., & Cheah, S. (1995). *Support structures for students in information technology at Queensland University of Technology*.

Unpublished manuscript, Queensland University of Technology at Brisbane, Queensland, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes the use of Supplemental Instruction (SI) at the Queensland University of Technology (Australia) in information technology courses. Based on qualitative research studies, the following results occurred: 1) SI participants: were appreciative of opportunity to share their academic problems and doubts with someone who had successfully completed the course; 2) SI leaders: improved their skills in leadership, interpersonal communication, problem solving, study and time management; and 3) course instructors: improved their teaching by receiving timely feedback from the students. There was a positive correlation between higher levels of SI attendance and receiving high marks (6 or 7) in the course.

Couchman, J. A. (1997). Supplemental Instruction: Peer mentoring and student productivity. *Researching education in new times* Brisbane, Toowoomba, Australia: Australian Association for Research in Education.

Retrieved July 1, 2004, from http://www.aare.edu/au/97pap/coucj521.htm.

The Supplemental Instruction (SI) program was implemented in a first year accounting subject (51002: Introduction to Accounting) in the Faculty of Commerce at the University of Southern Queensland (Australia). The results, in both quantitative and qualitative terms supported the utility of SI regarding student achievement and higher institutional revenue. While the failure rate did not change between the control and treatment groups, the rate of final course grades of high distinction tripled. SI Leaders reported increases in both their communication and leadership skills.

Couchman, J. A. (1999). Distance PALS in real and virtual classes. In *Proceedings of the First National Conference on Supplemental Instruction and Video-based Supplemental Instruction* (pp. 32-46). Kansas City, MO: Center for Supplemental Instruction, University of Missouri-Kansas City.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, Kansas City, MO 64110.

As a major provider of distance education programs in Australia, the University of Southern Queensland has a unique interest in the development of flexibly delivered and supported distance education study programs. In 1996, to enhance the success and retention of its distance education students, the Distance PALS (Peer Assisted Learning Sessions) program was developed on the basis of the Supplemental Instruction program. During semester one, 1997 and 1998, it was implemented and evaluated in a first year foundation economics course in

selected off-campus study centers. The quantitative and qualitative data collected confirm the success of the PALS program and indicate modification to further enhance its success. Attendees received a difference of 0.96 on a seven point scale higher score and were twice as likely to pass the course.

Couchman, J. A. (2001). Peer-assisted teaching and learning in distance education. In J. E. Miller, J. E. Groccia, & M. S. Miller (Eds.), *Student-assisted teaching: A guide to faculty-student teamwork* (pp. 110-115). Bolton, MA: Anker Publishing Company.

(ERIC Document Reproduction Service No. ED449713).

As a major provider of distance education programs in Australia, the University of Southern Queensland has a unique interest in the development of flexibly delivered and supported distance education study programs. In 1996, to enhance the success and retention of its distance education students, the Distance PALS (Peer Assisted Leaning Sessions) program was developed on the basis of the Supplemental Instruction program. During semester one, 1997 and 1998, it was implemented and evaluated in a first year foundation economics course in selected off-campus study centers. The qualitative data collected confirm the success of the PALS program and indicate modification to further enhance its success. Attendees received a difference of 0.96 on a seven point scale higher score and were twice as likely to pass the course. The program was cost effective based on the higher persistence rate of students.

Couchman, J. A. (1997). *Report on the pilot study of the Supplemental Instruction program: 51002 Introduction to Accounting*. Unpublished manuscript, University of Southern Queensland, Toowoomba, Queensland, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

A 1997 research study at the University of Southern Queensland (Toowoomba, Queensland, Australia) involved all enrolled students in Introduction to Accounting (51002). By use of the external student cohort as a control group, it was claimed by the researchers that Supplemental Instruction resulted in a positive impact on the overall pass rate for the unit, raising it from 39% in 1996 to 55% in 1997. SI participants averaged 1.15 of a grade point higher on a 7 GPA scale than non-participants. SI participants were: only one-third as likely to fail; nearly four times more likely to gain an HD, approximately equally likely to gain an A grade; over twice as likely to gain a B grade; and three-quarters as likely to gain a C grade than non-participants. When examining a subpopulation of international students, they had a 78% pass rate compared with 48% for those international students who did not participate.

Couchman, J. A., & Pigozzo, R. (1997). *Report on the Supplemental Instruction program: 51008 Economics*. Toowoomba, Queensland, Australia: Unpublished manuscript, University of Southern Queensland.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This 1997 Supplemental Instruction (SI) study was conducted at the University of Southern Queensland (Toowoomba, Queensland, Australia) in the 51008 Economics course. SI participants averaged 0.83 of a grade point higher on a 7 GPA scale than non-participants. The results suggested that only one-fifth of SI participants were likely to fail; one-third more likely to gain an HD, two and a half times more likely to gain an A grade; twice as likely to gain a B grade; and over one and a half times as likely to gain a C grade than non-participants. International students who attended SI sessions regularly had a 93% pass rate compared with 63% for those international students who chose not to attend regularly.

Gardiner, R. (1997). *Comparison of costs and financial benefits of a Supplemental Instruction program*. Unpublished manuscript, Queensland University of Technology, Brisbane, Queensland, Australia.

Available from the author: Emeritus Professor R B Gardiner, Ph.D., SI/PASS Program Coordinator, Queensland University of Technology, GPO Box 2434 , Brisbane 4001, Australia, Tel: +61 (0)7 3864 2927, E-mail: rb.gardiner@qut.edu.au.

This paper describes the benefits of the Supplemental Instruction (SI) program in terms of educational outcomes and financial benefits. The costs and benefits are based on implementation at higher educational institutions in Australia. Based on higher reenrollment rates of SI participants, the SI program increases revenue through savings from lost student fees and tuition. Preliminary data from Queensland University of Technology in Civil Engineering suggest an increase in 15 percentage points for reenrollment of SI participants. However, the financial equation model described in this paper is very conservative and only estimates a difference of 5 percentage points.

Gardiner, R. (1996). Supplemental Instruction: A cost-effective, student-centered collaborative learning program. *Proceedings of the Second International Open Learning Conference* (pp. 214-219). Brisbane, Queensland, Australia: International Open Learning Conference.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper presented by Emeritus Professor Ron Gardiner of Queensland University of Technology describes the use of Supplemental Instruction (SI) in

Australia. After an extensive description of the SI model, program benefits for the SI Leaders and the course instructors are described. Benefits to the SI Leaders include: deeper understanding of the course content; development of leadership and group facilitation skills; increased self-confidence; improved job marketability and admission to advanced graduate work due to service as SI Leader; development of professional relationship with course professor; membership in an effective peer support network; and modest financial reward. Benefits for the course professors that have SI attached to their lectures: timely feedback concerning the comprehension level of the students regarding course material; opportunity to repeat previous lecture material in a modified fashion to increase comprehension; an option to modify future teaching strategies based on feedback from students; a basis for accessing additional funds through grants (e.g., teaching and learning development grants); increased rapport with students and SI Leaders; membership in local, national and international SI network; increased recognition from their colleagues; and increased satisfaction with their teaching role. The institution benefits in several ways: deployment of a cost-effective, studentcentered learning enhancement program; membership in national and international SI networks; and effective means of managing the collective learning power of its students.

Gentner, N. (1997, April 22). Queensland University of Technology to push Supplemental Instruction in local units. *Inside QUT (Queensland University of Technology Newspaper)*, Brisbane, Queensland, Australia, p. 11.

This newspaper article contains an interview with Kathy Phillips, Supplemental Instruction campus coordinator from The University of Missouri-Kansas City who was spending an academic term at the Queensland University of Technology (Australia). The SI program was started at QUT by Professor Ron Gardiner, then Associate Pro- Vice-Chancellor (Academic) in 1992. At present SI is offered to 1,000 students in 12 course units in four faculties.

Ginns, I. S., & Watters, J. J. (1995). *Final Report of Peer Assisted Study Sessions in Science Foundations MDB303*. Unpublished manuscript, Queensland University of Technology, Brisbane, Queensland, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This report describes the use of Peer Assisted Study Sessions (PASS) with students at Queensland University of Technology (Brisbane, Queensland, Australia). PASS is the term used at the institution for Supplemental Instruction (SI). Students enrolled in the Primary and Early Childhood strands of the preservice Bachelor of Education program are required to undertake basic studies of science in their first year. This core unit (Science Foundations - MDB303) was the course proposed for PASS. The performance of the students

were examined on a 1 to 7 scale (1 to 3=fail, 4=pass, 5=credit, 6=distinction, 7=high distinction). The PASS group earned a statistically significant ($p < .01$) higher mean final course grade of 4.88 as compared with 4.15 for the nonparticipants. No PASS participants earned a failing grade while 8 of the non-participants did so. The PASS group earned grades of distinction or high distinction 66 percent of the time compared with 28 percent for the non-participants. Interviews with PASS participants identified the following changes: more thorough understanding of scientific concepts; identified ways of engaging the course content; study methods improved; established more consistent study times; attitudes towards science improved; and overall confidence increased. PASS leaders mentioned the following changes for themselves: increased confidence in teaching skills; enjoyed working in groups.

Hamilton, S., Blakeley, R., Critchley, C., Playford, J., Kelly, B. A., McNamara, E., & Robertson, R. (1994). *Supplemental Instruction at the University of Queensland: A pilot program*. Brisbane, Queensland, Australia: University of Queensland.

The project at the University of Queensland (Australia) investigated the effectiveness of incorporating Supplemental Instruction (SI) with two large first-level biological science subjects (Introductory Biochemistry and Plant Biology). Research studies suggest that the SI program contributed to higher final course grades for SI participants (63.2 percentile vs. 52.7 percentile). The following factors were cited as important for program success: financial commitment by the academic department; availability of an experienced SI coordinator; selection and training of appropriate SI leaders; and full support of the program and the leaders by academic staff associated with the subject.

Johnston, C. (1995). Peer tutoring in Economics at the University of Melbourne. In *Australian Economic Education Symposium Proceedings* (pp. 48-71). Adelaide, Australia: University of Adelaide.

This paper describes an adaptation of the Supplemental Instruction (SI) model used at the University of Melbourne (Australia) in 1993. The model integrates Diploma of Education students in an undergraduate economics group learning program (Macroeconomic theory and Macroeconomic Policy). Several adaptations of the SI program: the group facilitator was a volunteer postgraduate Diploma of Education student; two wine and cheese evenings were scheduled to provide the facilitator and students to interact socially and exchange experiences with one another. It found that small groups operate more effectively in terms of group cohesion, longevity and perception of improved performance when supported by postgraduate students. Postgraduates developed an enhanced range of skills in relation to group management, cooperative learning and communication.

Kelly, B. A. (1992). *And it came to PASS: Peer Assisted Study Sessions*. Unpublished manuscript, Queensland University of Technology, Brisbane, Queensland, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper discusses the development of the Peer Assisted Study Sessions (PASS) program at Queensland University of Technology (Brisbane, Australia). PASS is based upon the Supplemental Instruction (SI) model. The program was piloted in two classes in Anatomy for Nursing and Statistics for Information Technology. Research results indicated a lower rate of withdrawal and higher final course grades for participants.

Kelly, B. A. (1995). Peer-Assisted Study Sessions: An instrument for quality assurance in high risk subjects. *Higher Education Research and Development Society of Australia Conference Proceedings*

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes the use of Peer Assisted Study Sessions (PASS), a local name for the Supplemental Instruction program as it is used at the Queensland University of Technology in Australia. The PASS program is being used as part of the institution's quality assurance (QA) system to regularly examine the needs of its customers (i.e., students enrolled in the courses that had PASS attached to them, faculty members who taught the courses, and the general community who employed the students). There was special concern for courses in which the faculty members were instructing students from other college majors. The PASS leaders served as a conduit for weekly communications with the faculty members regarding the comprehension level of the students and can make decisions regarding modifying their classroom delivery. This "just-in-time" feedback system provides immediate benefit to the students and lectures as weekly incremental improvements can be made.

Kelly, B. A. (1991). *Selection of leaders to facilitate Peer Assisted Study Sessions (PASS)*. Unpublished manuscript, University of Queensland, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This article describes the selection procedures for Peer Assisted Study Sessions (PASS) leaders. PASS is a locally used name at Queensland Institute of Technology and the University of Queensland in Australia for the Supplemental Instruction (SI) program. Several suggestions include distributing leaflets and

encouraging former PASS participants to apply as leaders. Group interviews are used to same time and to make students feel more at ease during the interview process. To meet the need for the program to fit the institutions use of Total Quality Management (TQM), PASS leaders were asked to complete a questionnaire at the end of their PASS sessions and to maintain a diary of session activities. This information was used to improved the PASS program and provide helpful feedback to the course instructors.

Kelly, B. A., & Gardiner, R. (1994). ***Student peer mentoring: An effective strategy to promote student learning*****. Paper presented at the HERDSA Annual Conference, July 6- 10, 1994.**

The Peer Assisted Study Sessions (PASS) program is based upon the Supplemental Instruction (SI) program developed in the U.S. PASS was used at the Queensland University of Technology (Brisbane, Australia). A pilot program was carried out in 1992. Since then, the SI program has spread to seven disciplines in five faculties, and has attracted four 1994 CAUT grants.

Loh, H. (1997). ***Multidisciplinary peer collaborative study programs for first year Aboriginal and Torres Strait Islander students*****. Unpublished manuscript, Queensland University of Technology at Brisbane, Queensland, Australia**.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.
This report describes the use in 1995 of Supplemental Instruction (SI) at Queensland University of Technology (Australia) with first year Aboriginal and Torres Strait Islander (A&TSI) students. Many of these students began postsecondary education with high anxiety (79% student response), low to medium confidence in passing their courses, limited knowledge of study skills, and high to moderate difficulty levels within their respective subjects. A&TSI students had an attrition rate nearly double other students at QUT (32.7% vs. 18.4%). About half the A&TSI students participated in the SI program.
Using a four point scale (greatly, moderately, slightly, not at all), data obtained from end of academic term student surveys of SI participants suggests that SI: was helpful for increased learning (70% of students selected "greatly"), lowered anxiety levels (45% greatly and 45% moderately), increased confidence levels (50% greatly, 50% moderately), improved enthusiasm and motivation to perform better (45% greatly, 45% moderately), and helped to create a favorable environment supporting learning (100% greatly). SI participant grades were evaluated on a seven point scale: fail, one to three; pass, 4; credit, 5; distinction, 6; high distinction, 7. When analyzing the grade distribution for all A&TSI students, 22.9% of SI participants earned grades of 6 or 7 as compared with 0% for the non-SI. When examining the failing grades (1, 2 or 3) the SI group had a dramatically lower rate (22.8%) when compared with the non-SI group (78.3%). SI leaders reported that their participation in the program led to

the following outcomes: developed facilitation and group organizational skills; improved confidence and self esteem; and developed their own learning skills.

Loh, H. (1992). *Peer Assisted Study Sessions for LSB181, Anatomy for the Nursing Students, 1992*. Unpublished manuscript, Queensland University of Technology, Brisbane, Queensland, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This report discusses the use of Supplemental Instruction (SI), which is called Peer Assisted Study Sessions (PASS) at the local institution with nursing students enrolled in a anatomy course. Approximately half the students attended the SI sessions during the academic term. The program reduced the failure rate of students (7.8% vs. 19.1%), increased the percent of students receiving high marks (5, 6 or 7 on a scale of 0-7), and improved the mode and mean final course grade.

Loh, H. (1993). Peer Assisted Study Sessions in anatomy for nursing students. *Peer tutoring: Learning by teaching* (pp. 193-201). Auckland, New Zealand: The University of Auckland.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This article describes the use of Peer Assisted Study Sessions (PASS), the local institutional name for their adaptation of the Supplemental Instruction (SI) model at Queensland University of Technology (Brisbane, Queensland, Australia). Following an institutional commitment to Total Quality Management (TQM), some TQM principles were found consistent with the SI model of academic achievement. An anatomy course with first year nursing students was selected as a pilot for the SI program. Program outcomes include the following for SI participants: reported an increase in their confidence with the course after participating in SI sessions (87%); reduced percent of students failing the course (7.8% vs. 19.3%); agreed that the SI leaders motivated them to work harder (80%); increased their learning skills (90%); increased their understanding of the content material (87%); and increased their ability to apply the knowledge gained from class lectures (82%). SI leaders reported the following benefits to them: developed leadership and character, improved their own learning and facilitating techniques, acquired skills in group management, developed presentation skills, and increased their own confidence and self esteem.

Loh, H. (1994). Strategies to overcome the first year high failure rate in anatomy for nursing students. *Proceedings of the 7th International Conference on the First-Year Experience, Dublin, Ireland* (pp. 79-80).

Columbia, SC: The National Resource Center for the Freshman Year Experience and Students in Transition.

This paper describes the use of Supplemental Instruction (SI) since 1992 with nursing students at the Queensland University of Technology (Australia) in an anatomy course (LSB 181). At QUT, SI is known as PASS (Peer Assisted Study Sessions). Data from 1992 through 1995 suggest substantial benefits of the SI program to students, SI leaders and the course instructor. The performance of the students were examined on a 3 to 7 scale (3=fail, 4=pass, 5=credit, 6=distinction, 7=high distinction). SI participant interviews and 1995 survey data suggested agreement with the following statements regarding the impact of SI: increased confidence levels (87.0%), lowered anxiety levels (61.5%), higher motivation to achieve grades of distinction (84.6%), and developed new study skills (70.3%). Based on data from 1992 in the anatomy course, the SI participants achieved significantly ($p < .01$) higher levels of academic achievement. In comparison with non-SI participants, there were more grades of level 6 or 7 (39% vs. 27%) and less grades of level 3 (10% vs. 25%). When comparing failure rates, the results favored the SI participants. SI participants in 1995 failed the class at a rate of 2.7% while the non-SI group failed the class at a higher rate of 13.3%. To investigate the possible impact of student motivation, the failure rate of students who desired to participate in SI but were unable to attend due to time conflicts failed at nearly the same rate (12.7%) as the entire non-SI group (13.3%). This appears to support the conclusion that student motivation was not the major variable impacting student academic performance. The overall class average (including all SI and non-SI participants) for grades of level 3 (failure) were reduced from 22.8% before the introduction of SI down to 7.1% after the fourth year of SI. SI leaders reported the following positive results: developed leadership skills; improved their facilitation skills; improved their study skills; acquired group management skills; and increased their own confidence and self esteem. Instructors who had SI attached to their course reported the following positive results: rapid dissemination of information and instructions to the SI participants; provided benefits of small group instruction within the large lecture sections (n = 400); instructors received feedback from students which allowed them to "fine-tune" teaching and improve teaching performance; involvement with the SI program provided new avenues for grants; enhancement of curriculum vitae; and improved positive attitude and sense of achievement since students improved academic performance.

Loh, H. (1993). Strategies to overcome the high failure rate in a subject. *Proceedings of the 6th International Conference on the First Year Experience, July 10-13, 1993, Boston, MA* (p. 39). Columbia, SC: The National Center for the Study of the Freshman Year Experience and Students in Transition.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

The Queensland University of Technology (Brisbane, Australia) has investigated the applicability of Total Quality Management (TQM) for improving student academic success. An anatomy course for nursing students saw its failure rate drop from 22.8% to 13.6% after the introduction of several interventions, including Supplemental Instruction (SI). The local institutional name used is Peer Assisted Study Sessions (PASS). Course lecturers listed the following benefits of the program: rapid dissemination of information and instruction to students via the SI leaders; rapid feedback from students concerning course content; provided small group benefits in large lecture classes; improved and increased the amount of communications between students and the lecturer; and the lecturer was able to give students increased responsibility for the learning process. SI leaders mentioned the following benefits to themselves: developed leadership and character, improved their own learning and facilitating techniques, acquired skills in group management, developed presentation skills, and built their own confidence and esteem.

Loh, H. (1996). Supplemental Instruction: A peer collaborative learning program applied within anatomy for first year nursing students. *Proceedings of the 2nd Pacific Rim Conference on the First Year in Higher Education* (pp. 281-290). Melbourne, Queensland, Australia: University of Melbourne.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes the use of Supplemental Instruction (SI) since 1992 with nursing students at the Queensland University of Technology (Australia) in an anatomy course (LSB 181). At QUT, SI is known as PASS (Peer Assisted Study Sessions). Data from 1992 through 1995 suggest substantial benefits of the SI program to students, SI leaders and the course instructor. The performance of the students were examined on a 3 to 7 scale (3=fail, 4=pass, 5=credit, 6=distinction, 7=high distinction). SI participant interviews and 1995 survey data suggested agreement with the following statements regarding the impact of SI: increased confidence levels (87.0%), lowered anxiety levels (61.5%), higher motivation to achieve grades of distinction (84.6%), and developed new study skills (70.3%). Based on data from 1992 in the anatomy course, the SI participants achieved significantly ($p < .01$) higher levels of academic achievement. In comparison with non-SI participants, there were more grades of level 6 or 7 (39% vs. 27%) and less grades of level 3 (10% vs. 25%). When comparing failure rates, the results favored the SI participants. SI participants in 1995 failed the class at a rate of 2.7% while the non-SI group failed the class at a higher rate of 13.3%. To investigate the possible impact of student motivation, the failure rate of students who desired to participate in SI but were unable to attend due to time conflicts failed at nearly the same rate (12.7%) as the entire non-SI group (13.3%). This appears to support the conclusion that student motivation was not the major variable impacting student academic performance.

The overall class average (including all SI and non-SI participants) for grades of level 3 (failure) were reduced from 22.8% before the introduction of SI down to 7.1% after the fourth year of SI. SI leaders reported the following positive results: developed leadership skills; improved their facilitation skills; improved their study skills; acquired group management skills; and increased their own confidence and self esteem. Instructors who had SI attached to their course reported the following positive results: rapid dissemination of information and instructions to the SI participants; provided benefits of small group instruction within the large lecture sections (n = 400); instructors received feedback from students which allowed them to "fine-tune" teaching and improve teaching performance; involvement with the SI program provided new avenues for grants; enhancement of curriculum vitae; and improved positive attitude and sense of achievement since students improved academic performance.

Loh, H., & Kelly, B. A. (1994). *Supplemental Instruction (SI) in anatomy for first year nursing students*. Unpublished manuscript, The Queensland University of Technology, Brisbane, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes the use of Supplemental Instruction (SI) since 1992 with nursing students at the Queensland University of Technology (Australia) in an anatomy course (LSB 181). At QUT, SI is known as PASS (Peer Assisted Study Sessions). The SI modeled was contextualized in several ways: two SI leaders facilitated each group, allowing for larger numbers to attend each SI session; principles of Total Quality Management were employed to use SI as a feedback loop between the students and the lecturer, thereby providing data to the instructor to allow for immediate changes in the content and delivery. Data from 1992 through 1995 suggest substantial benefits of the SI program to students, SI leaders and the course instructor. The performance of the students were examined on a 3 to 7 scale (3=fail, 4=pass, 5=credit, 6=distinction, 7=high distinction). SI participant interviews and 1995 survey data suggested agreement with the following statements regarding the impact of SI: increased confidence levels (87.0%), lowered anxiety levels (61.5%), higher motivation to achieve grades of distinction (84.6%), and developed new study skills (70.3%). Based on data from 1992 in the anatomy course, the SI participants achieved significantly ($p < .01$) higher levels of academic achievement. In comparison with non-SI participants, there were more grades of level 6 or 7 (39% vs. 27%) and less grades of level 3 (10% vs. 25%). When comparing failure rates, the results favored the SI participants. SI participants in 1995 failed the class at a rate of 2.7% while the non-SI group failed the class at a higher rate of 13.3%. To investigate the possible impact of student motivation, the failure rate of students who desired to participate in SI but were unable to attend due to time conflicts failed at nearly the same rate (12.7%) as the entire non-SI group (13.3%). This appears to support the conclusion that student motivation was not the

major variable impacting student academic performance. The overall class average (including all SI and non-SI participants) for grades of level 3 (failure) were reduced from 22.8% before the introduction of SI down to 7.1% after the fourth year of SI. SI leaders reported the following positive results: developed leadership skills; improved their facilitation skills; improved their study skills; acquired group management skills; and increased their own confidence and self esteem. Instructors who had SI attached to their course reported the following positive results: rapid dissemination of information and instructions to the SI participants; provided benefits of small group instruction within the large lecture sections (n = 400); instructors received feedback from students which allowed them to "fine-tune" teaching and improve teaching performance; involvement with the SI program provided new avenues for grants; enhancement of curriculum vitae; and improved positive attitude and sense of achievement since students improved academic performance.

McGlone, F. D. (1995). The integration of the principles of Supplemental Instruction in undergraduate law subjects. *Proceedings of the Inaugural Pacific Rim First-Year Experience Conference* Brisbane, Australia: National Center for the Study of the Freshman Year Experience and Students in Transition.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes the use of Supplemental Instruction (SI) at two classes in Australia's Queensland University of Technology Faculty of Law. SI was contextualized for use within the law curriculum as was described as a Student Peer Mentor (SPM) program. The program concentrated on improving qualitative learning outcomes for the students: promote student use of deep approaches to learning, develop generic lifelong learning skills, and increase student autonomy while encouraging them to work and learn cooperatively with their peers. Several unique features of SPM are identified: selected classes are not historically difficult, the class instructor and the SPM supervisor are the same person, and that the class has always provided a one hour staff-led small group seminar for each two hours of lecture. Other than those previously noted , many common features are shared by SI and SPM.

McGlone, F. D. (1996). Student peer mentors: A teaching and learning strategy designed to promote cooperative approaches to learning and the development of lifelong learning skills. *Queensland University of Technology Law Journal, 12*, 201-220.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes the use of Supplemental Instruction (SI) at two classes in

Australia's Queensland University of Technology, Faculty of Law. SI was contextualized for use within the law curriculum as was described as a Student Peer Mentor (SPM) program. The program concentrated on improving qualitative learning outcomes for the students: promote student use of deep approaches to learning, develop generic lifelong learning skills, and increase student autonomy while encouraging them to work and learn cooperatively with their peers. Several unique features of SPM are identified: selected classes are not historically difficult, the class instructor and the SPM supervisor are the same person, and that the class has always provided a one hour staff-led small group seminar for each two hours of lecture. Other than those previously noted, many common features are shared by SI and SPM.

McGlone, F. D. (1994). *A training and implementation program for first year student peer mentors*. Unpublished manuscript, Queensland University of Technology, Brisbane, Queensland, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

The Queensland University of Technology (QUT) Faculty of Law (Brisbane, Australia)Supplemental Instruction (SI) program encouraged students to: develop deep approaches to learning, develop generic learning skills, and increase student autonomy while encouraging them to work and learn cooperatively with others. The SI program operates in two classes: Torts and Contracts with class sizes exceeding 350. In addition to improving academic performance of student participants, the SI leaders reported enhanced communication and interpersonal skills which they perceived to increase their job marketability.

Miller, V., Oldfield, E., & Bulmer, M. (2004). Peer Assisted Study Sessions (PASS) in first year chemistry and statistics courses: Insights and evaluations. In *UniServe Science Scholarly Inquiry Symposium Proceedings* (pp. 30-35). Sydney, Australia: University of Sydney.

Retrieved June 2, 2005, from http//science.uniserve.edu.au/pubs/procs/wshop9/2004webproceedingsFINAL.FINAL3.pdf

Peer Assisted Study Sessions (PASS), based upon the Supplemental Instruction (SI) model, was used in first year chemistry and statistics courses at the University of Queensland in Australia. This study analyzed results from 2003 and found that PASS participants earned higher final course grades than nonparticipants. Other reported positive outcomes through qualitative research findings were higher student confidence, increased desire to continue in the academic discipline, increased in analytical and creative approach to learning, and greater sense of belonging within a community of learners.

Moore, I. (1992). *Undergraduate students as assistant demonstrators in the first year physics laboratory*. (Report No. 27). Unpublished manuscript, Queensland University of Technology, School of Physics, Brisbane, Queensland, Australia

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes the use of a modified Supplemental Instruction (SI) program in the School of Physics at Queensland University of Technology (Brisbane, Australia). The pilot project used second and third year physics major students as assistant demonstrators in the first year physics laboratory. In addition to improvement by the students in the class, the assistant demonstrators also showed improvements in their class performance. Through qualitative research, it appears that the assistant demonstrators helped students to improve their own learning process, focus on the process rather than rushing to complete the task, and think of new issues and questions.

Murray, M. H. (1996, November). Alternative to lecturer-centred teaching enhances student learning and costs no more. *Academic Staff Development Unit Update (Queensland University of Technology, Australia),* 6-7.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This article describes the use of Supplemental Instruction (SI) in the School of Civil Engineering, Queensland University of Technology (Australia). A basic engineering statics course in the first year has been transformed from a traditional lecturer-centered teaching mode into a student-centered resource-based model. Central to this transformation has been the integration of SI into the course. The SI sessions focus on interaction, discussion, and investigation rather than just simple problem solving. Before integration of SI in the course the total class (SI and non-SI students) mean final score was 46, in 1996 after the integration the score increased to 55. These results are based on the aggregated score from four quizzes during the semester, from a spaghetti bridge design/build/test project, and from a final end-of-semester exam. Based on standardized scores, the students in 1996 were less academically prepared than the ones in 1994 before SI was introduced. The SI participants received a higher mean final percentile grade in each year of the study (1995: 48 vs. 41; 1996: 56 vs. 42). There was a positive increase in final course score and higher levels of SI attendance. Students evaluated the SI session most useful of all course components (SI sessions, 53%; lecture, 22%; text book, 16%; study guide, 13%; and tutorial, 9%). SI leaders mentioned the following benefits of the program for themselves: increased skill in group management; improved public speaking; gained skills in team building; increased group facilitation skills; improved

personal time management; and increased interest from potential employers because of skills developed as a SI leader.

Murray, M. H. (1997, October). Better learning through curricular design at a reduced cost. *Journal of the American Society of Engineering Education,* 1-5.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes the use of Supplemental Instruction (SI) in the School of Civil Engineering, at Queensland University of Technology, Australia. After an initial discussion of the changes economic and educational trends in Australia, the report reviews the use of SI with students in a first year engineering course (Engineering Mechanics 1). It is an introduction to rigid body statics, equilibrium, moments, forces, and properties of plane areas. Using the Australian system of 7 point grading (1 = lowest, 7 = highest), the data suggests that the performance of SI participants was higher than non-SI participants (1995: 3.3 vs. 2.7; 1996: 4.4 vs. 2.8). Due to the use of SI, the course was restructured with a reduction of professor lecture time. This resulted in a lower student unit cost. Before SI's introduction, the student unit cost was more than $51 in 1994 (each week 2 hours of lecture and 1 hour of tutorials) and was reduced to less than $42 in 1997 (each week one hour of lecture, one hour of tutorial, one hour of SI, study guides, computer exercises, and E-mail).

Murray, M. H. (1995). *Report on Peer Assisted Study Sessions in Engineering Mechanics 2*. Unpublished manuscript, Queensland University of Technology, Brisbane, Queensland, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, Kansas City, MO 64110.

This report discusses the use of Peer Assisted Study Sessions (PASS), the local institutional term for the Supplemental Instruction (SI) program used at Queensland University of Technology (Brisbane, Queensland, Australia) in CEB185, Engineering Mechanics 2. PASS participants earned higher mean final course grades (3.6 vs. 2.8 on a 0 to 7 scale). The most significant change in grades was in improving the performance of students who previously were projected to earn low grades and see them now achieve final grades in the mid range. PASS participants mentioned the following reasons for attending the sessions: working on past exam and test solutions; discussion of problems; being able to ask questions freely and not look stupid; realizing there were different ways to tackle a problem; and interaction with fellow students and leaders who had recently done well in the course.

Murray, M. H. (1996). Resources for the resourceless: Maximizing student learning. *Proceedings of the 8th Conference of the Australian Association of Engineering Education* (pp. 162-166). Sydney, Australia: Australian Association of Engineering Education.

Available: Center for Supplemental Instruction, University of Missouri- Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This article (which won "Best Paper" award at the conference) describes the use of Supplemental Instruction (SI) in the School of Civil Engineering, Queensland University of Technology (Australia). A basic engineering statics course in the first year has been transformed from a traditional lecturer-centered teaching mode into a student-centered resource-based model. Central to this transformation has been the integration of SI into the course. The SI sessions focus on interaction, discussion, and investigation rather than just simple problem solving. Before integration of SI in the course the total class (SI and non-SI students) mean final score was 46, in 1996 after the integration the score increased to 55. These results are based on the aggregated score from four quizzes during the semester, from a spaghetti bridge design/build/test project, and from a final end-of-semester exam. Based on standardized scores, the students in 1996 were less academically prepared than the ones in 1994 before SI was introduced. The SI participants received a higher mean final percentile grade in each year of the study (1995: 48 vs. 41; 1996: 56 vs. 42). There was a positive increase in final course score and higher levels of SI attendance. Students evaluated the SI session most useful of all course components (SI sessions, 53%; lecture, 22%; text book, 16%; study guide, 13%; and tutorial, 9%). SI leaders mentioned the following benefits of the program for themselves: increased skill in group management; improved public speaking; gained skills in team building; increased group facilitation skills; improved personal time management; and increased interest from potential employers because of skills developed as a SI leader.

Murray, M. H. (1999). SI down under -- Australian innovations: Funding, solutions, and analysis. In *Proceedings of the First National Conference on Supplemental Instruction and Video-based Supplemental Instruction* (p. 1731). Kansas City, MO: Center for Supplemental Instruction, University of Missouri-Kansas City.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, Kansas City, MO 64110.

SI was established in Australia during the early 1990s. The author reports on the adaptations that have been made to the American SI model to meet challenges. Most SI programs do not receive funding from central administration but instead have to solicit funds from separate academic units. Responses to this challenge include restructuring of courses to increase effectiveness and integration of SI

along with the use of advanced SI leaders to serve as assistant SI supervisors since often the SI program receives no full-time administrative oversight but instead relies upon the individual course faculty members who offer SI in connection with their course. An unanticipated benefit of the SI program has been the professional development of the SI leaders.

Murray, M. H. (1997). Students, learning resources: An inseparable triad. *Australian Journal of Engineering Education, 7*(2), 129-139.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes the use of Supplemental Instruction (SI) at the School of Engineering, Queensland University of Technology (Australia) with two first year engineering courses. SI is compared with the traditional, lecture-centered model of learning. The introductory engineering courses were reorganized to integrate SI into the learning delivery system. Based on the seven point grading scale employed in Australian education (1 = low; 7 = high), the academic performance of students with SI was raised to 4.3 from the previous level of 3.0 before the introduction of the SI model.

Murray, M. H. (2001). Students managing to learn and teachers learning to manage. In J. E. Miller, J. E. Groccia, & M. S. Miller (Eds.), *Student-assisted teaching: A guide to faculty-student teamwork* (pp. 50-55). Bolton, MA: Anker Publishing Company. (ERIC Document Reproduction Service No. ED449713).

This chapter describes the use of Supplemental Instruction (SI) at Queensland University of Technology (QUT), an inner-city, multicampus university with 35,000 students in Australia. SI was implemented in the engineering course taught by the author. Final course scores were higher and attrition rates lower for SI participants in the 1995-96 study. The overall cost of offering the course was reduced through introduction of SI since additional part-time lecturers and tutors were replaced by the SI scheme. The author also reported benefits for the SI leaders in terms of personal and professional growth.

Murray, M. H., Grady, J., & Perrett, S. (1997). *Students managing students' learning*. Paper presented at the 9th Annual Conference of the Australian Association of Engineering Education, December 14-17, 1997.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes the use of Supplemental Instruction (SI) at Queensland University of Technology (Brisbane, Australia) in engineering classes (Engineering Mechanics I and II). Student participant comments said that

participation in SI sessions: developed greater understanding, more helpful than tutorials, made discussions more enjoyable, developed greater confidence, enjoyed group work, and found the atmosphere more relaxed and helpful. SI leaders mentioned the following benefits for themselves: reinforced own learning and study skills, developed more confidence, made academic coursework more challenging and satisfying.

Phillips, K. (Ed.). (2001). *Proceedings of the First National Conference on Supplemental Instruction/VSI* Kansas City, MO: Center for Academic Development, University of Missouri-Kansas City.

This set of conference proceedings provides an overview to the First National Conference on Supplemental Instruction/VSI here in Kansas City, MO in May 1999. Articles include: SI, an effective program within student affairs, Edit Kochenour and Kenneth Roach; Get creative, working with SI data, Jeanne Wiatr and Barbara Stout; SI supporting quality in higher education in the United Kingdom, Jenni Wallace; Managing an expanding program or SI empire, Valeric Merriwether; Supplemental Instruction with math study skills templates, Paul Nolting and Kimberly Ruble; SI down under, Australian innovations, Martin Murray; Distance PALS in real and virtual classes, Judith Couchman; SI leadership and personal grown, a South African perspective, Linda Smith; Discipline-specific SI strategies for writing, Sandra Zerger; VSI, partnerships, and the transformation of education in South Africa, Paul Du Plooy and Cathy Clark; and SI leaders, the real winners,

Maureen Donelan Phillips, K. (1995). *Supplemental Instruction in Australia*. Unpublished manuscript, The University of Missouri-Kansas City.

This report records the observations by a staff member from the National Center for Supplemental Instruction (SI) located in Kansas City, MO during her professional development leave in Australia in the first half of 1997. The author records her observations concerning the SI programs operating at Queensland University of Technology, University of Southern Queensland, and the University of Western Sydney- Nepean. Some of the adaptations of the SI model frequently used with Australian higher education include: use of multiple SI leaders in a single class, SI leaders work in pairs during SI sessions, and the SI program is usually decentralized on campus. Often the course lecturer selects, hires, trains, evaluates, and supervises the SI leader. This administrative procedure encourages higher involvement of the lecturer in the SI program. A drawback mentioned by the author is that this responsibility is added due to heavy work demands placed upon the lecturer for other responsibilities. There is continuing discussion with Australian educators regarding the strengths and challenges with a decentralized SI administrative structure.

Ross, T. (1995). *Report on Peer Assisted Study Sessions conducted in visual arts, second semester 1995: AASB726, Introduction to Art History*.

Unpublished manuscript, Queensland University of Technology, Brisbane, Queensland, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This report discusses the use of Peer Assisted Study Sessions (PASS), the local institutional name for the Supplemental Instruction (SI) program with students enrolled in an Introduction to Art History course (AAB726). For several reasons, the grades of PASS and non-PASS students were nearly the same. The author suggests that part of the difficulty for the PASS program was that the PASS leaders did not attend class along with the other students. The course curriculum had undergone a significant change between when the PASS leaders attended the same class and when they attempted to provide academic assistance to the students. However, surveys found that PASS leaders found the experience very helpful: improved interpersonal skills (100%); improved learning skills (100%); developed facilitating skills (100%); and developed leadership skills (100%).

Shores, P., & Tiernan, J. (1996). *Peer mentor training: A collaborative exercise in systemic change*. Unpublished manuscript, University of Western Sydney at Nepean, New South Wales, Australia.

Available: Ms. Penny Shores, Counseling and Health Unit, University of Western Sydney, Nepean, P. O. Box 10, Kingswood New South Wales 2747, Australia.

The Learning Center and the Counseling and Health Unit of the University of Western Sydney (Nepean, Australia) have been piloting a Peer Mentor program that is based on the American Supplemental Instruction (SI) program. The SI program is being used an a tool for systemic intervention at the institution by creating an environment for students to change their attitudes. The SI program is being used to serve the increasingly diverse population at the university. Much of the report centered on the training of the SI leaders. Some faculty members also report using the SI program as a feed back mechanism to identify the comprehension level of the students regarding the classroom lectures.

Spencer, C., & Loh, H. (1994). *Improving the learning style of first year Aboriginal & Torres Strait Islander nursing students studying anatomy*. Paper presented at the Conference of Science in Nurse Education, Ballarat, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This report describes the use in 1994 of Supplemental Instruction (SI) at Queensland University of Technology (Australia) with first year Aboriginal and Torres Strait Islander (A&TSI) students. The local institutional name for the

program is Peer Assisted Study Sessions (PASS). Many of these A&TSI students began postsecondary education with high anxiety (79% student response), low to medium confidence in passing their courses, limited knowledge of study skills, and high to moderate difficulty levels within their respective subjects. Based on qualitative research interviews with the A&TSI students, the majority reported they were more confident in passing anatomy after attending the SI sessions. Further, they reported that they were more motivated to perform better and most felt that the SI sessions helped them in developing study skills as their anxiety for the subject decreased.

Staff writer. (1993, November). Academic programme at Queensland University of Technology well supported. *The Chinese Business and Professional Association of Queensland Newsletter,* 20-21.

This newsletter article describes the use of Peer Assisted Study Strategies (PASS) at Queensland University of Technology (Brisbane, Queensland, Australia). PASS is the local institutional name for Supplemental Instruction (SI). The article cites the PASS program as one of the projects that contributed to QUT being selected as Australia's University of the Year in 1993. Benefits reported for PASS participants include reduction of the failure rate and increased student motivation and confidence. PASS leaders listed the following benefits for them: developed personal character and leadership skills, improving their own learning skills, improved their facilitating techniques, acquired group management and presentation skills, and built their self-confidence and self-esteem. Ron Gardiner and Henry Loh are cited as the early leaders of the PASS project.

Staff writer. (1993, November 1). Academic programme at QUT well supported. *The Chinese Business and Professional Association of Queensland Newsletter, 47*(66).

This newsletter article describes the use of Supplemental Instruction (SI) at the Queensland University of Technology (Brisbane, Australia).

Staff writer. (1997, August 19). Engineering course lifts grades and retention rates. *Inside QUT (Queensland University of Technology, Australia)*, p. 2.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

Dr. Martin Murray from Queensland University of Technology in Australia is using Peer- Assisted Study Sessions (PASS) to improve student performance in engineering courses. PASS is the locally used name for the Supplemental Instruction (SI) program. PASS was one of several new additions to the course delivery system that both increased student academic achievement but also lowered the cost of instruction.

Staff writer. (1995, July 18). New learning process to help first-year University of Southern Queensland students. *The Chronicle Newspaper*, Toowoomba, Queensland, Australia, p. 8.

The newspaper article describes the use of Supplemental Instruction (SI) at the nursing department at the University of Southern Queensland in Australia. In the article Deanna Martin, creator of the SI model, provided an overview of the SI program while she was visiting the university.

Staff writer. (1995, August 2). Students helping boost pass rates. *The University of Southern Queensland Newspaper*, Toowoomba, Queensland, Australia, p. 5.

This newspaper articles describes the implementation of Supplemental Instruction (SI) at the University of Southern Queensland at Toowoomba in the Nursing Department during Fall 1995. In addition to describing the academic benefits to the SI participants, the USQ SI coordinator, David Anderson, reports that a value for SI leaders is that the experience provides leadership development and increases their post-graduate opportunities.

Staff writer. (1995, July 7). Survey shows many study hours wasted. *Campus Review*, Australia

This newspaper article describes the use of Supplemental Instruction (SI). It mentions that the SI program has been adopted for use in several Australian institutions: University of Southern Queensland in Toowoomba, University of Queensland, and the Queensland University of Technology.

Staff writer. (1993, September 28). US experts focus on teaching strategies. *Inside QUT (Queensland University of Technology Newspaper)*, Brisbane, Queensland, Australia, p. 2.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This newspaper article describes the upcoming arrival of Deanna Martin and Robert Blanc from the University of Missouri-Kansas City to conduct a Supplemental Instruction (SI) Supervisor training workshop at Queensland University of Technology (Brisbane, Australia). The visit to QUT will be supported by the Higher Education Research and Development Society of Australasia. SI is recognized at QUT as one of the teaching strategies which helped the university win the national Good Universities Guide 1993 University of the Year award.

Tanaka, C. (1995). *Peer Assisted Study Sessions in HUB 661 Japanese*. Unpublished manuscript, Queensland University of Technology, Brisbane, Queensland, Australia.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This research report documents the use of Peer Assisted Study Sessions (PASS) at Queensland University of Technology (Brisbane, Queensland, Australia) in HUB 661 Japanese language course. This course is often chosen as a second-semester, first year subject for International Business students. PASS is the local institutional name for the Supplemental Instruction (SI) program. Benefits of the PASS program for participants included slightly higher mean final course grades and lower rates of withdrawal. The professor who had PASS attached to his class reported receiving helpful feedback from the PASS leader concerning the comprehension level of the students. This afforded them an opportunity to revise lectures and review upcoming examinations. PASS leaders reported the following behavioral changes: learned how to give feedback to the course lecturer in an appropriate fashion; learned to work in harmony with other students and leaders; improved their own communication skills; improved their content knowledge and skill; and gained valuable insight into the learning process.

Watson, J. (2000). ***A Peer Assistance Support Scheme (PASS) for first year core subjects*****. Unpublished manuscript, School of Economics, University of New South Wales, Australia**.

Retrieved July 1, 2004: http://www.qut.edu.au/talss/fye/ papers/WatsonPaper.doc

This paper examines a peer assisted study program that has been offered to three core first year subjects in the School of Economics at the University of New South Wales in Australia. While the paper refers to the program as PASS, it is adapted from Supplemental Instruction (SI) originally developed in the United States. Several variations of the SI model include: not requiring the SI leaders to attend class along with the rest of the students and employing faculty members or academic staff members to supervise the program rather than staff from the campus learning center. Common classes supported through PASS were microeconomics and accounting. The PASS program was evaluated through both student questionnaires as well as evaluating their final course grades. The questionnaire data suggested that PASS contributed to higher satisfaction and deeper learning of the course content material. Evaluation of the final grades suggested a statistically significant relationship between attending six or more PASS sessions and higher grades. PASS leaders reported benefits of the program as well with development of personal communication skills as well as deeper understanding of the course material.

Watters, J. J., & Ginns, I. S. (1997). ***Peer assisted learning: Impact on self-efficacy and achievement*****. Paper presented at the American Educational Research Association Conference, March 24-28, 1997, Chicago, IL.**

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes the use of program modeled after Supplemental Instruction (SI) in a teacher education course at Queensland University of Technology (Brisbane, Australia). The institutional name for the program is Peer Assisted Study Sessions (PASS). The class had 124 students enrolled in a course designed for first-year Bachelor of Education students. Program outcomes were that SI participants earned higher final course grades (4.88 vs. 4.15 on a scale of 0 to 7) and self-reported development regarding confidence and improved attitudes to learning and science. There was a trend for higher grade achievement with higher levels of attendance at the SI sessions. The SI leaders reported improved confidence, facilitatory skills, and insight into adult education.

Whatman, S. (1995). ***Peer assisted study sessions with Aboriginal and Tores Strait Islander students during semester two, 1995*****. Unpublished manuscript, Queensland University of Technology at Brisbane, Queensland, Australia.**

This report describes the use in semester 2, 1995 of Peer Assisted Study Sessions (PASS) at Queensland University of Technology (Australia) with first year Aboriginal and Torres Strait Islander (A&TSI) students who were attending class at the Gardens Point Campus. PASS is the locally used name for Supplemental Instruction (SI). A&TSI students had typically experienced considerable difficulty in courses such as Information Technology and Business. These courses historically had low Indigenous student enrollments, and consequently, had very few successful graduates. Eight courses were selected for PASS support: Computer Applications, Software Development 1 & 2, Technology of Information Systems, Business Communication & Application Development, Theoretical Perspectives on Communication, Microeconomics, and Reporting Principles. Before introduction of the PASS program in the second semester, the A&TSI students as a group earned fairly low grades. At the end of the semester with PASS support, the students earned higher final course grades. PASS leaders reported the following benefits for themselves: more opportunity to talk with faculty members, greater understanding of course content which helped in other classes, and developed friendships with more students that they would normally would have not met.

White, B. (1996). The student peer mentor program in its trial year: A mentor's perspective. ***Queensland University of Technology Law Journal, 12*****(1), 221-228.**

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

In 1994 the Student Peer Mentor program was piloted in the Bachelor of Laws program of study (two individual classes: Torts and Law of Contract) at Queensland University of Technology in Australia. The program was based upon Supplemental Instruction (SI). This article describes the program from the perspective of one of the student mentors. Strengths of the program included: less private time needed to study; non-threatening environment; identified academic skills needed for success; and expanded social circles. Benefits of the program for the mentors included: improved interpersonal communication skills; increased content comprehension; provided personal satisfaction of helping others; and improved confidence in leadership and group situations.

Wilcox, F. K. (1997, Spring). Supplemental Instruction in Australia: An interview with Ron Gardiner. *Supplemental Instruction Update,* 1-2.

This interview with Ron Gardiner provides an overview of the development of Supplemental Instruction (SI) at institutions in Australia. Gardiner, a physicist, is an SI Certified Trainer and is Emeritus Professor and Coordinator of the SI program at Queensland University of Technology in Brisbane. An additional feature of the SI program is that the classroom instructor requests feedback from the SI leader concerning the comprehension level of the students. This provides an opportunity for the instructor to clarify or provide more information at the next class period.

Worthington, A., Hansen, J., Nightingale, J., & Vine, K. (1995). Peer teaching and introductory economics: An application using the Peer Assisted Study Scheme (PASS) at the University of New England. *Conference Proceedings of the Australian Economics Education Symposium in conjunction with the 24th Conference of Economists* (pp. 22- 38). Adelaide, South Australia, Australia: Australian Economics Education Symposium.

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper discusses the use of Peer Assisted Study Scheme (PASS) with approximately 300 students in an Introductory Microeconomics class at the University of New England (Australia) in 1995. PASS is an Australian contextualization of the Supplemental Instruction (SI) program. After an overview of peer collaborative learning and challenges with student learning in economics courses, the paper shares the results of qualitative and quantitative research. Quantitative data included assessment scores, the final exam results and the responses to a 34 item survey administered to all students in the class. The survey included questions about their experience in the PASS sessions, reasons they did or did not participate in PASS, usefulness of the tests, possible reasons for academic difficulty in the class, and to predict their final grade in the class. Data were analyzed using Item Response Theory and multiple linear regression techniques. Qualitative data were collected by the PASS coordinator from weekly

written reports of the PASS facilitators, PASS session observations, and indepth interviews. About one-third of the students participated in SI. Of these students, more than 50 percent attended more than half of the available sessions during the academic term. The PASS participants listed either "to improve understanding" or "to gain additional information" as the top reason for attending the sessions. Only five percent listed "to learn study skills" as the top reason. Only 22 percent of the non-participants said that they had no desire to attend or thought they were unnecessary. The most common reason not to attend related to insufficient time. It appears that the SI programs is directly beneficial to the SI participants and indirectly beneficial to non-SI participants since the program influenced the teaching staff to increase student learning. Before introduction of PASS, the failure rate in the course was 33 percent. Following the introduction of PASS, the failure rates have dropped to18 percent. Through weekly feedback from the PASS facilitator, the class lecturer reported that he intentionally modified the lecture content and his lecturing style. One change was that the lecturer reduced the volume of information delivered so that more time could be spent on improving student understanding of critical concepts.

Worthington, A., Hansen, J., Nightingale, J., & Vine, K. (1997, September). Supplemental Instruction in introductory economics: An evaluation of the University of New England's Peer Assisted Study Scheme (PASS). ***Australian Economic Papers,*** **69- 80**

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This articles discusses the use of Peer Assisted Study Scheme (PASS) with approximately 300 students in an Introductory Microeconomics class at the University of New England (Australia) in 1995. PASS is an Australian contextualization of the Supplemental Instruction (SI) program. After an overview of peer collaborative learning and challenges with student learning in economics courses, the paper shares the results of qualitative and quantitative research. Quantitative data included assessment scores, the final exam results and the responses to a 34 item survey administered to all students in the class. The survey included questions about their experience in the PASS sessions, reasons they did or did not participate in PASS, usefulness of the tests, possible reasons for academic difficulty in the class, and to predict their final grade in the class. Data were analyzed using Item Response Theory and multiple linear regression techniques. Qualitative data were collected by the PASS coordinator from weekly written reports of the PASS facilitators, PASS session observations, and indepth interviews. About one-third of the students participated in SI. Of these students, more than 50 percent attended more than half of the available sessions during the academic term. The PASS participants listed either "to improve understanding" or "to gain additional information" as the top reason for attending the sessions. Only five percent listed "to learn study skills" as the top reason. Only 22 percent of the nonparticipants said that they had no desire to

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Yates, J., Gill, F., & Webb, C. (1995). Peer mentoring to facilitate learning in economics. In *Australian Economics Education Symposium Proceedings: Addendum* (pp. 40-56). Adelaide, South Australia, Australia

Available: Center for Supplemental Instruction, University of Missouri-Kansas City, 5014 Rockhill Road, SASS #210, Kansas City, MO 64110.

This paper describes and provides a preliminary evaluation of Supplemental Instruction (SI) used at the University of Sydney (Australia) in an economics course during 1995. Three quarters of the SI leaders listed the following benefits of involvement with the program: improved teaching skills; improved leadership skills; increased confidence; and/or a change in the way they thought about economics.