Benefits of Guiding Supplemental Instruction Sessions for SI Leaders: a Case Study for Engineering Education at a Swedish University

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INTRODUCTION

Supplemental Instruction (SI) is an academic support program that aims at increasing student success in "difficult" courses (Hurley, Jacobs, & Gilbert, 2006). SI was developed at the University of Missouri in Kansas City in the early seventies and has since spread to over 1500 universities and university colleges in nearly 30 countries (Martin 2008). SI also exists under other names such as PASS – Peer Assisted Study Sessions and PAL – Peer Assisted Learning.

The main component of SI is an informal collaborative learning environment under the guidance of a "senior" student. This SI leader is a student who has previously completed the course successfully and can therefore act as a model student. The role of the SI-leader is not that of a teacher – they do not impart new knowledge. Instead the SI leader facilitates the process of understanding difficult course material.

Research on Supplemental Instruction has so far been limited, and mostly focused on its potential to increase grades and retention among students who attend Supplemental Instruction sessions (see, for instance, Arendale, 2001; Blanc, DeBuhr, & Martin, 1983; Blat, Myers, Nunnally, & Tolley, 2001; Bruzell-Nilsson & Bryngfors, 1996; Burmeister, Kenney, & Nice, 1996; Congos & Schoeps, 1993; Hensen & Shelley, 2003; Malm, Bryngfors & Mörner, 2010; Rye, Wallace, & Bidgood, 1993; Ogden, Thompson, Russell, & Simons, 2003; Packham & Miller, 2000; Ramirez, 1997; Sawyer, Sylvestre, Girard, & Snow, 1996; Webster & Hooper, 1998; Wright, Wright, & Lamb, 2002). Focus on the senior students who lead the sessions has been little documented, and then mostly in the context of how the session participants develop, and how SI sessions are planned and run (see for example Allen & Court 2009; Clulow 1999; Congos & Mack 2005; Green 2007; Hurley, McKay, Scott & James 2003; Marra & Litzinger 1997; Power & Dunphy, 2010; Smith, May & Burke 2007). If we restrict ourselves to the actual benefits SI leaders may gain – such as improved study techniques, leadership experience, group and individual management, practice in planning meetings and a general pedagogic insight - there have been relatively few research studies conducted (although there are numerous studies that claim benefits for SI leaders but with little data to support this). Ashwin (2003) concluded that peer facilitators changed their view on what was important in learning, with more focus on student to student interaction. Congos & Stout (2003) surveyed former SI leaders after graduation on the benefits of the SI leadership experience. They found that the main benefit categories were communication and interpersonal relations skills, learning skills, leadership skills (in a very general sense) and improved course content knowledge. Furthermore it appears that many of the former SI leaders seem to use these improved skills either in further studies, or in professional life. Couchman (2009) studied self reflections from 11 SI leaders and found that the SI leaders developed empathy with their students, practice in using collaborative techniques, and experience in getting all participants actively involved in the processing of the course material. Reflection on how to improve their sessions, and communicating and learning course material were other competencies acquired. Couchman also noticed a growing confidence among the SI leaders during their work. Lockie & Van Lanen (2008) used reflections from 29 SI leaders in Science, on a couple of open-ended questions, to extract advantages of the SI experience for the

SI leaders. The main benefits obtained were appreciation of the diversity in students learning styles, better understanding of course material, improved self confidence as a learner, improved relations with faculty, transfer of skills learned to other courses and understanding the value of collaborative learning. Thus, insight into the potential benefits for senior students who guide SI sessions is a relatively unexplored area, research wise, and would benefit from more information on the range and depth of the SI leaders experiences and development. In this study we look into the following potential benefits of the SI leadership in engineering education:

- What specific competencies do they develop as a result of being an SI leader?
- Is the merit of being an SI leader an advantage when applying for a job?
- Do former SI leaders, in their professional life after graduation, have use of the skills they gained and developed when running SI sessions?

The study will be made using data from the faculty of engineering at Lund University in Sweden. Therefore some insight is needed into how Supplemental Instruction is used at this faculty.

Supplemental instruction was introduced in 1994 at the Faculty of Engineering at Lund University as an experimental project to increase student retention and improve performance in courses generally considered as difficult (Bruzell-Nilsson and Bryngfors 1996). Recently the overall objective of supplemental instruction at the Faculty of Engineering has changed slightly, and is today aimed at bridging the gap between secondary school and university, in addition to supporting students in initial demanding compulsory courses.

What does a typical SI session at the Faculty of Engineering at Lund University look like? First of all it is a scheduled weekly 2-hour session during normal school-hours when the students are free from other educational activities. Normally it is attached to an introductory course in mathematics (most common), physics or chemistry. It generally commences in a relatively easy-going fashion with some 5-10 minutes of talk, guided by the SI leader (the SI-leader is usually a 2nd or 3rd year student) about occurrences in the course during the previous week. Thereafter the participants decide which areas they want to focus on during the SI session – these may be terminology, theorems/proofs or concepts that need clarification, or problems that have been difficult to understand and solve. In addition – time allowing, which is generally the case - the participants work with more difficult tasks at exam level, which the SI leader has prepared. The SI leader usually divides the group into smaller sub-groups to ensure that all participants may be active and able to contribute to the work with the material. The SI leader's main task is thereafter to act as a facilitator to ensure that the work and discussions in the groups progresses smoothly. This is done for instance by asking or redirecting questions within the group, helping to break down problems, and encouraging participants to help each other towards understanding, by posing critical or probing questions. It is essential that the SI leader works to obtain an open climate in the group whereby all participants are free to ask the questions they would like to have answered. The SI sessions are generally concluded with the participants presenting for each other, the solutions and answers they have arrived at, using the blackboard.

There are several aims with an SI session at the Faculty of Engineering at Lund University. Obviously it is an extra learning opportunity in a difficult course. However, it is NOT a help session for less able students. Instead the sessions benefit from having students with different prerequisites and abilities within the subject, as they help each other to understand the difficult parts of the relevant course. Other aims are of a more general character. It serves as a bridge between secondary school and university in the method of studying, and students come to understand what assets their fellow students are. They learn that you can solve problems together, which you were not able to do on your own, practice learning strategies, critical thinking, discussing course material and presenting problems and solutions in front of others.

METHODOLOGY USED IN STUDY

In order to answer the questions raised above in the introduction we used two questionnaires – one for students who have just concluded their term as SI leaders (see tables 1 and 3), and one for former SI leaders who have graduated and who are currently working (see tables 2 and 4). Both questionnaires consisted of a few statements to which respondents expressed agreement using a 5-level Likert-type scale, as well as a number of open-ended questions. The first questionnaire was handed out to 36 students who had completed their SI leadership at the end of the autumn semester. The second questionnaire was posted to 40 SI leader alumni who are currently employed.

Table 1. Open-ended questions to students who have just finished their term as SI leaders

What has been most rewarding in your job as an SI leader?
What has been least rewarding in your job as an SI leader?
Name three qualities that you believe characterize a good SI leader
Describe how your role as an SI leader changed during the semester
Have you, by being an SI leader, changed your view on your own studies?
Briefly name and explain three skills you improved upon by being an SI leader
Describe what you did to try to create a trust between you and your participants at the SI sessions. Do you feel that you succeeded in creating this trust?
Describe what you did to create an easy-going, positive and supportive atmosphere at you SI sessions. Do you feel that the atmosphere at your sessions can be described in that way?
Other remarks

Table 2. Open-ended questions to former SI leaders who have graduated and who are currently working

Describe briefly your employment and work tasks since graduating from the School of Engineering at Lund University
In hindsight – What skills did you develop during your SI leadership?
Which skills developed during your SI leadership have you had use for in your work, and in what way?
Give an example of, and describe a situation where you used the experiences of your SI leadership in your professional life.
Other remarks

RESULTS

35 students (97 %) completed and handed in the first questionnaire. The results regarding agreements with statements are shown in table 3. A clear majority of the students agree, or agree to a large extent, that they have developed several capabilities through the SI leadership: the ability to communicate with, and talk in front of others, to listen to their thoughts and reasoning and to meet and inspire different individuals; the ability to get students to help each other and improve students enthusiasm about performing a job, the ability to organize the work for a group. Furthermore, a clear majority of the students felt that their SI leadership made them more secure in being a leader of a group and in leading a discussion. And as a bonus a majority felt that they got a deeper understanding of the course as well as improved self-confidence. Many of these results confirm earlier findings by Congos & Stout (2003), Couchman (2009), and Lockie & Van Lanen (2008) from other universities and in other subject areas.

The results in table 3 are supported and expanded by the answers to the open-ended question "Name and explain briefly three skills you improved upon by being an SI leader". Some examples:

Leadership – you learn a lot by organizing a group. Social competence – you learn to work with and help all kinds of students. Mathematics – I definitely got better in calculus ☺.

To study and inspire large groups and to talk in front of others. To plan and take responsibility. To reflect on my own studies.

Encouragement – by trying to get people to talk although they do not possess the complete answer to a problem. Planning – explanation superfluous! Flexibility – to try to adapt and to not fear the unexpected.

To talk in front of a group and be able to do it in a simple, relevant and relaxed way. To see other people's problems, i.e., understand what others are thinking and need help with. To be able to pass on questions and thoughts and give others the opportunity of expressing their thoughts.

Lead – by practicing getting discussions on the right track.

Organizing – to prepare for the sessions and to take practical decisions in the classroom. Listen – since it is vital for how the discussions need to be directed, how to organize the sessions in the best way and how the groups should be guided in the best way.

Table 3. Agreement (% of students) with statements in questionnaire by students who have just completed their term as SI leaders

Statements (all beginning with – By being an SI leader ......)	Disagree	Agree to a minor extent	50 % agreement	Agree to a large extent	Agree
I have developed my ability to communicate with others	0	0	6	29	66
I feel more secure in being a leader of a group	0	3	3	31	63
I improved in organizing the work for a group	0	0	11	34	54
I have developed my ability to listen to other people's thoughts and reasoning	0	3	11	31	54
I feel more secure in leading a discussion	3	0	17	34	46
I have developed my ability to make a group of individuals enthusiastic about performing a task	0	3	17	40	40
I got a considerably deeper understanding of the course content	3	3	17	37	40
I have developed my ability to get students to help each other	0	6	9	49	37
I have improved my self-confidence	0	6	26	34	34
I improved my ability to talk in front of others	0	6	17	46	31
I improved my ability to meet and inspire different individuals	0	3	23	46	29
I improved the planning of my own work	6	23	29	31	11
I improved my own way of studying	14	34	26	26	0

Further support, as well as more nuances on the results in table 3, are found in the answers to the open-ended questions "What has been most rewarding in your job as an SI leader?" and "Have you, by being an SI leader, changed your view on your own studies?". A few examples of answers to the former question are:

To have the role of a leader and thereby realise that you can inspire, share and be a part of the learning process of others. Makes me feel real good.

To see how a group works and how great an impact a leader has on the mood of the group. To get feedback and gratitude for the work I put in.

To learn to motivate a group of people and push their work forward (reminds me of professional project management!).

Support for some of the results in table 3 can also be found in the answers to the open-ended question put to former SI leaders who have graduated and are currently working, "Seen in hindsight – What skills did you develop during your SI leadership?". A few examples:

Communication. The ability to explain in different ways. Leadership in a group. Optimism. The ability to see/feel if people understood a certain message.

Knowledge sharing, planning and responsibility. Besides my confidence grew regarding my ability to handle problems that were new for me within unknown areas. To handle different kinds of people and understand their problems and difficulties.

I am more secure in supporting others both in working and private life. I am also more comfortable in a leadership role.

I have improved my leadership abilities, seen the value of involving and engaging those who participate in projects by promoting active participation and own initiatives

Not to stress for answers. To let people explain their way of thinking a second time. Not to be afraid of silence!

Two items in table 3 that did not change much for the majority of the students during the SI leadership, were the planning of their work and their way of studying. This observation is confirmed by the answers to the open-ended question "Have you, by being an SI leader, changed your view on your own studies?". More than half answered negatively to the question. However, some of the SI leaders who answered negatively mention that they had preferred to work in groups prior to SI leadership, or state that they changed their view on their own studies through SI sessions, when they themselves were participants. A few examples:

I already enjoyed working with others and explaining. Perhaps I have started to choose to study in groups with people that have a hard time with their studies so I can also be an "SI leader" then.

I got my view of studying in the previous year when I was a new student and participated in SI sessions

Since I was also an SI leader last year, my views on my studies have not changed that much. However, last year I think I saw the importance of understanding what you are doing in a "deeper" sense and not just solving problems routinely.

The students who felt that they did change their way of studying by being an SI leader, mention the benefits of working in a group, to look at a problem in different ways and to learn in a more meaningful way – not just for the exam. Some examples of comments:

Yes, many questions brought forward during SI sessions are questions you had not thought about before. You start to see the problems from different points of view.

Yes, it gives you a clearer sense of it paying off, to always try to cooperate. Besides, I have begun to understand how much your own understanding improves when you try to explain to others.

Yes! I have started to think differently. Earlier I just studied for the exams. Now I study for the sake of learning in some courses. It is fun.

Two other competencies in need of development in the SI leaders were addressed in the open-ended questions regarding trust between SI leader and participants and creating an easy-going, positive and supportive atmosphere in the SI sessions. The answers reflect that all SI leaders had strategies to create both trust and a fruitful atmosphere and they appear to have succeeded well in both respects. Some examples of comments:

I have always tried to show respect and give encouragement whenever they do good things or start to think in the right way. I have tried to create a relaxed friendly relation/feeling inside and outside the classroom. But I have also shown that I am the leader.

By being friendly and helpful but also firm regarding helping each other. To encourage the students and give plenty of praise for good questions etc. No questions are bad! They have trust in the SI leader if they feel free to ask him/her questions.

I have worked with creating a sense of friendship with them. We always talk about other things like parties, studies and what happens inside and outside school. I always greet them when I see them and stop and talk if I have time. I e-mail them before the SI sessions and say that they can always ask me – even outside the sessions. I believe that they feel that SI goes beyond the sessions. At least I hope so.

If they are too quiet I smile and tell them to stop being so quiet which usually gets them in a good mood. I try to see that everybody is participating in the group they are in and that no one is left out.

By sitting down with the different groups to listen and encourage. It helps a lot to show that you yourself do not know everything and to show things that you thought were difficult. It is also important to talk about student life in general and not be too strict.

In the last open-ended question "Other remarks" it is impressive how many students - actually a majority of them - express how much fun it is to be an SI leader (some of them being quite surprised at this conclusion!). Perhaps this is partly a reflection of the development described above which the SI leaders go through.

Twenty (50 %) of the 40 SI leader alumni sent in a completed questionnaire (questionnaire no. 2). The types of jobs they represent vary quite a lot – a researcher at a university to purchase manager at a communication company, a development engineer at a packaging company and a management consultant are just a few examples. The results regarding agreement with statements are shown in table 4. It is encouraging to see that a clear majority of the respondents judge the merit of having been an SI leader, increasingly from being of some importance, to being of very high importance in regard to attaining employment after graduation. An illustration of this is also found in one answer to the question "Other remarks":

To have been an SI leader was seen as very positive at job interviews, since so many positive experiences are linked to this, like leadership, pedagogy, coaching, responsibility etc.

Table 4. Agreement (% of former SI leaders) with statements in questionnaire by former SI leaders who have graduated and are presently working

Questions	Not at all	Of very limited importance	Of some importance	Of high importance	Of very high importance
How important was the merit of being an SI leader in attaining employment after graduating from the Faculty of Engineering at Lund University?	6	28	17	22	28
	Not at all	Very little use	Some use	Good use	Very good use
In your job, how much use have you had of your SI leadership after graduating from the Faculty of Engineering at Lund University?	5	15	35	45	0

It is also encouraging that most former SI leaders feel that they had some use, or good use of their SI leadership experience in their current employment, agreeing well with the findings of Congos & Stout (2003). This is also illustrated in the answers to the open-ended question "Which competencies developed through your SI leadership have you had use for in your work and in which way?". Some examples:

As I interact with people with a different background and knowledge in technical matters it is important to adjust to that. Besides, a large part of my work is about knowledge sharing and helping others, in which my time as SI leader gave me good training.

Leadership is something I use almost every day in my work as I have responsibility for parts of projects or smaller projects. As almost all work is done in groups such experiences are of value.

Very good use since I am often in charge of different jobs. It is about communication, patience to explain in different ways etc. It has also made me feel comfortable when I am in charge of meetings.

Leadership in my job as team leader. In coaching and motivating colleagues. To see people's different qualities and how they can be used in the best way to create a good group dynamic. Problem solving on a day to day basis. Social skills and presentation technique. Understanding of people's different ways of learning and understanding. Empathy for other people in a learning situation.

Further illustrations of the use of competencies developed through the SI leadership were expressed in the answers to the open-ended question "Give an example of, and describe a situation where you used the experiences of your SI leadership in your job". Some examples of answers:

Every day in principle. For example. I was part of a team that lost its leader. In spite of my "junior" position I could transfer my SI experiences to working life and take the role of a natural leader. I already had all the tools and experiences that were needed to lead, motivate and run problem oriented work forward.

To get co-workers in a project to come up with suggestions and new solutions and motivate them to become more engaged in the project. It actually works in the same way as with students.

In many cases the colleagues in the operation division do not feel that they are listened to. I gained their trust by letting them express their views and ideas, taking them seriously and trying to pass on their thoughts.

DISCUSSION AND CONCLUSIONS

The study indicates that students who work as SI leaders gain several benefits from their SI experience. The benefits can be divided into the following main themes:

- Improved communication skills
- Improved interpersonal skills (including abilities to listen to other people's thoughts and reasoning; creating trust between yourself and your group members; to meet and inspire different individuals; to make a group of individuals enthusiastic about performing a task; and to get students to help each other)
- Improved leadership skills (including being a leader of a group, talking in front of others, leading a discussion, organizing the work for a group, and creating an easy-going, positive, and supportive atmosphere at the learning sessions)
- Improved self confidence
- Deeper understanding of course content

Several of these benefits are confirmed in the few other studies made on the subject (one has to be aware though that the definitions of the themes/categories differ between the studies to at least some extent). The studies of Zaritsky & Toce (2006) and Lockie & van Lanen (2008) indicate that SI leaders develop leadership and communication skills as well as an improved self confidence. Zaritsky & Toce also found that the SI leaders reported an improved understanding of course material as a consequence of their work. Interpersonal skills including communication skills were most frequently reported in the study by Congos & Stout (2003) on benefits for former SI-leaders after graduation. Couchman's (2009) study of 11 PAL leaders (Australian equivalent of SI-leaders) indicated improved confidence and communication skills for the PAL leaders which agrees well with the results above. Couchman also found pronounced reflective practices among the PAL leaders. This was not covered by the questions in this study and only vaguely indicated in some of the answers to the open-ended questions here.

In the present study it does not seem that SI leaders in general feel that they improve their study skills or become better in planning their own work as a consequence of their leadership. These results are contrasted by the findings of Congos & Stout (2003) and Lockie & van Lanen (2008) that indicate that the SI leaders do indeed improve their general study skills and strategies due to their work as SI leaders. The reasons for these differences between the studies are hard to say. One possible reason is that study skills were emphasized more in these other SI programs.

SI alumni and to what extent their SI leadership have benefitted them in their working life after graduation have received little attention previously. In the present study a majority of former SI leaders regard their SI leadership as important experience in attaining employment after graduation. A clear majority of former SI leaders have had some use, or good use in their later professional life, of the skills acquired and developed during their SI leadership. This implies that the university should provide more information about SI to potential employers, since SI leaders can be a valuable resource for them. A suggestion for the future is to see if the skills SI leaders acquire and develop are the same independent of subject area they covered or university they worked in. And furthermore, what use SI leaders from different disciplines have of these skills in working life after graduation.

REFERENCES

Allen, A., & Court, S. (2009). Leader Self Disclosure within PAL: A Case Study. *Australasian Journal of Peer Learning, 2, 68-86.*

Arendale, D. R. (2001). *Supplemental Instruction (SI): Review of Research Concerning the Effectiveness of SI from the University of Missouri-Kansas City and other Institutions from across the United States.* [On-line]. Retrieved August 28, 2010, from http://www.tc.umn.edu/~arend011/SIresearchreview01.pdf

Ashwin, P., (2003). Peer facilitation and how it contributes to the development. *Research in Post-Compulsory Education, 8: 1, 5-18.*

Blanc, R.A., DeBuhr, L.E., & Martin, D.C. 1983. Breaking the attrition cycle: The Effects of Supplemental Instruction on Undergraduate Performance and Attrition. *The Journal of Higher Education* 54: 80-90.

Blat, C., Myers, S., Nunnally, K., & Tolley, P. (2001). Successfully Applying the Supplemental Instruction Model to Sophomore-level Engineering Courses. *Proceedings of the 2001 American Society for Engineering Education Annual Conference & Exposition,* American Society for Engineering Education.

Bruzell-Nilsson, M., & Bryngfors, L. (1996). Supplemental Instruction: Student success in high-risk courses. The Faculty of Mathematics and Natural Sciences, Lund Institute of Technology, Sweden. Paper presented at the Ninth International Conference on the First-Year Experience, St. Andrews, Scotland.

Burmeister, S.L., Kenney, P.A., & Nice, D.L. (1996). Analysis of Effectiveness of Supplemental Instruction (SI) Sessions for College Algebra, Calculus, and Statistics. *CBMS Issues in Mathematics Education, 6,* 146-154.

Clulow, V., (1999). Supplemental Instruction and Statistics for Marketers: a match made in heaven? 2nd Regional Conference on Tutoring & Mentoring, Perth, Western Australia, Set 30th – Oct 2, 1999.

Congos, D. H. & Mack, A. (2005). Supplemental Instruction's impact on students in two freshmen chemistry classes. *Research and Teaching in Developmental Education, 21 (2), 43-64.*

Congos, D.H., & Schoeps, N. (1993). Does Supplemental Instruction really work and what is it anyway? *Studies in Higher Education, 18*(2), 165-176.

Congos, D. H. & Stout, B. (2003). The benefits of Supplemental Instruction (SI) leadership experience after graduation. *Research & Teaching in Developmental Education. 20 (1), 29-41*

Couchman, J.A. (2009). An Exploration of the 'Lived Experience' of one Cohort of Academic Peer Mentors at a Small Australian University. *Australasian Journal of Peer Learning, 2, 87-110.*

Green, A. (2007). Peer Assisted Learning: empowering first year engagement with a formal curriculum through the educative. Bournemouth University. Academic Support – Peer Assisted Learning. Retrieved 25 may 2011 from: http://pal.bournemouth.ac.uk/documents/Alison%27s%20PAL%20research.pdf

Hensen, K.A., & Shelley, M.C. (2003). The Impact of Supplemental Instruction: Results from a Large, Public, Midwestern University. *Journal of College Student Development, 44* (2), 250-259.

Hurley, K.F., McKay, D.W., Scott, T.M., & James, B.M. (2003). The Supplemental Instruction Project: peer-devised and delivered tutorials. *Medical Teacher, 25 (4): 404-407.*

Hurley M., Jacobs G., & Gilbert M. (2006). The Basic SI Model. In *Supplemental instruction: New visions for Empowering Student Learning. New Directions for Teaching and Learning. No. 106.*, eds. M. E. Stone and Jacobs G., 11-22. Wiley Periodicals.

Lockie, N.M., & Van Lanen, R.J. (2008). Impact of the Supplemental Instruction Experience on Science SI Leaders. *Journal of Developmental Education, 31(3): 2-14.*

Malm, J., L. Bryngfors, & L. Mörner, (2010). Supplemental instruction (SI) at the Faculty of Engineering (LTH), Lund University, Sweden. An evaluation of the SI program at five LTH engineering programs, autumn 2008. *Australian Journal of Peer Learning* 3, no. 1: 38–50.

Marra, R. M., & Litzinger, T. A. (1997). A model for implementing Supplemental Instruction in engineering. In Proceedings of the 1997 Annual Conference on Frontiers in Education Conference (pp. 109-115). Pittsburgh, PA: International Electrical Engineers in Education

Martin, D. (2008). Foreword. *Australian Journal of Peer Learning* 1: 3-5.

Ogden, P., Thompson, D., Russell, A., & Simons, C. (2003). Supplemental Instruction: Short- and long-term impact. *Journal of Developmental Education, 26(3)*, 2-8.

Packham, G., & Miller, C. (2000). Peer-Assisted Student Support: a new approach to learning. *Journal of Further and Higher Education, 24*(1), 55-65.

Power, C., & Dunphy, K. (2010). Peer Facilitated Learning in Mathematics for Engineering: a Case Study from an Australian University. *Engineering education, 5*(1), 75-84.

Ramirez, G. M. (1997). Supplemental Instruction: The long-term impact. *Journal of Developmental Education, 21*(1), 2-8.

Rye, P.D., Wallace, J., & Bidgood, P. (1993). Instructions in learning skills: an integrated approach. *Medical Education, 27*, 470-473.

Sawyer, S. J., Sylvestre, P. B., Girard, R. A., & Snow, M. H. (1996). Effects of Supplemental Instruction on mean test scores and failure rates in medical school courses. *Academic Medicine: Journal of the Association of American Medical Colleges, 71*(12), 1357-1359.

Smith, J., May, S., & Burke L. (2007). Peer Assisted Learning: a case study into the value to student mentors and mentees. *Practice and Evidence of Scholarship of Teaching and Learning in Higher Education, 2(2): 80-109.*

Webster, T., & Hooper, L. (1998). Supplemental Instruction for introductory chemistry courses: A preliminary investigation. *Journal of Chemical Education, 75*(3), 328-331.

Wright, G.L., Wright, R.R., & Lamb, C. E. (2002). Developmental Mathematics Education and Supplemental Instruction: Pondering the Potential. *Journal of Developmental Education, 26(*1), 30-35.

Zaritsky, J.S., & Toce, A. (2006). Supplemental Instruction at a Community College: The Four Pillars. In *Supplemental instruction: New visions for Empowering Student Learning. New Directions for Teaching and Learning. No. 106.*, eds. M. E. Stone and Jacobs G., 23-31. Wiley Periodicals.