

**THE EFFECTS OF SUPPLEMENTAL INSTRUCTION
ON STUDENT SUCCESS
AT DELAWARE TECHNICAL COMMUNITY COLLEGE**

by

Curtis J. Line Jr.

An education leadership portfolio submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Doctor of Education in Educational Leadership

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ABSTRACT

Delaware Technical Community College (DTCC) is a two-year, open admission college that has served the needs of Delawareans for over 50 years. Throughout these years, low pass rates in certain developmental and gatekeeper courses have been a noticeable problem. Two such courses are Elementary Algebra (MAT020) and Anatomy & Physiology I (BIO120). Different attempts to address this problem include revision of syllabi, course redesigns, reorganization of the tutoring services, and incorporating technology into the classroom. Despite these efforts, the problem still persists at the college and continues to be a challenge to student success. In order to ameliorate this problem, DTCC implemented a new program in supplemental instruction.

Created in 1973 at the University of Missouri-Kansas City (UMKC), supplemental instruction (SI) is a peer-led academic support service. An SI coordinator, a college staff or faculty member trained in the UMKC model, leads the SI program. SI is characterized by sessions in study skills and notetaking as well as incorporation of group collaboration and various learning strategy activities. These sessions are developed and managed by a trained SI leader who has previously taken the course, been highly successful in it, and attends the class again to serve as a model student. DTCC launched its new SI program in August 2016, starting with two sections of BIO120 and two sections of MAT020. The main goal of the SI program is to increase the pass rates in BIO120 and MAT020, which will lead to greater student

success. The purpose of this Education Leadership Portfolio (ELP) is two-fold: (1) to illustrate my leadership role in the research, development, and implementation of the new SI program, and (2) to analyze the effectiveness of the program in order to make recommendations for future improvements.

Creating, implementing, and evaluating SI at DTCC involves multiple steps. SI coordinators were interviewed, hired, and trained in the UMKC SI model. Then, the SI coordinators had to recruit, hire, and train the SI leaders. Each semester, the SI coordinators and SI leaders work closely to make the program successful. There are a few ways to analyze the program's effectiveness. First, SI coordinators compare the grades of the students who attend the SI sessions to the grades of the students who did not attend at all. Next, the coordinators conduct weekly observations of the SI sessions and examine the results to determine if the expectations of the program are being met. Finally, student surveys and interviews determine which aspects of the program the attendees liked and which ones they would change, as well as the possible reasons that non-attendees did not go to the SI sessions.

The results of the grade, observation, and survey analyses show how well the program is meeting its goals. Moreover, this ELP provides the insight needed to make recommendations for improving the program in the future. Through continued professional training and rigorous evaluation, this program has the potential to reach its ultimate goal of improving student retention of material, mitigating failure and dropout rates, and increasing the graduation rate of the college.

Chapter 1

INTRODUCTION

Student success is a paramount concern at DTCC, yet two crucial courses, MAT020 - Elementary Algebra and BIO120 - Anatomy and Physiology I, historically had lower than acceptable pass rates. MAT020 is one example of a developmental course at DTCC, and BIO120 is a gatekeeper course. Developmental courses are below college-level classes that are offered at a postsecondary institution (Calcagno, 2007), and gatekeeper courses are “college-level classes that students are required to complete successfully before enrolling in more advanced classes in their major field of study” (Hoachlander, 2003).

The supplemental instruction (SI) program was created to address the low pass rates in these two courses; it is an alternative academic support service which consists of optional, out-of-class sessions led by a near-peer, deemed the SI leader. This SI leader attends the course lectures and plans learning activities based on material from those class lessons. There are two to four SI sessions scheduled per week, and students can attend all or some of them. For the initial pilot program, two sections of both MAT020 and BIO120 will have SI attached to them at each DTCC campus (Wilmington, Stanton, Dover, and Georgetown). The newly assigned SI committee planned and prepared for a year before the program officially launched in August of 2016. A graphic representation of the program is presented in a logic model (Figure 1).

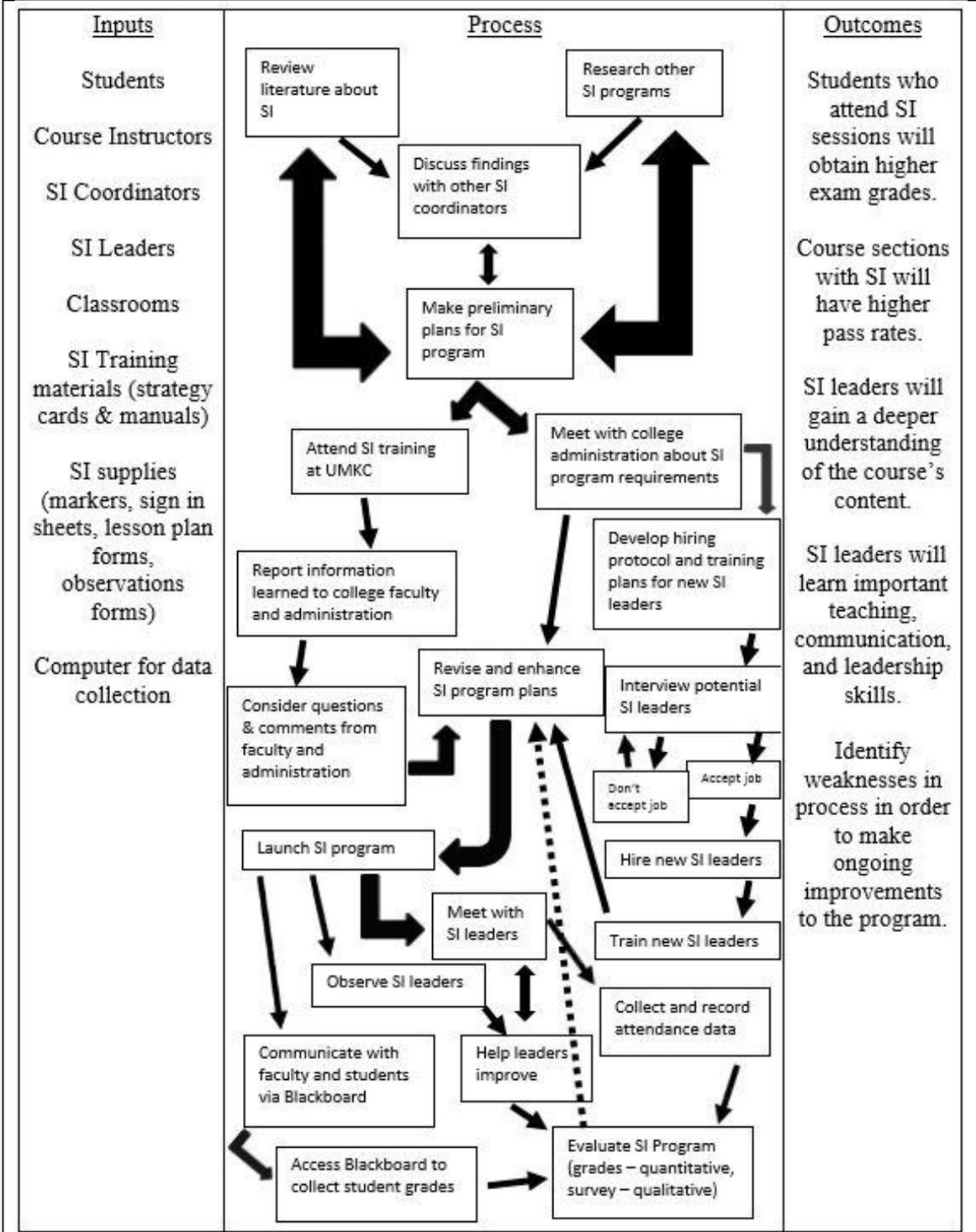
The pilot program lasted for two years and will follow the policies outlined in UMKC's supplemental instruction training materials. Each of Delaware Tech's four campus locations will have an SI coordinator who will oversee the program, manage schedules and the SI leaders, and record all pertinent data related to the program. After the first semester, the SI coordinators surveyed the students about their opinions regarding the program, and the coordinators also recorded attendance and grade statistics using an Excel spreadsheet. In addition, the SI coordinators compiled a preliminary list of recommended changes. This Educational Leadership Portfolio (ELP) examines one year of the SI pilot program and includes background information, planning and training materials, data collection and a logical data analysis, student opinions of the program, successes and failures, and recommendations for continuing the program while enhancing its effectiveness.

The three major categories for the ELP artifacts are as follows: background and support information, program development and leadership, and data collection and analysis. The background and support artifacts include a problem analysis paper, a literature review on the history of supplemental instruction, and a website developed as a repository of memories for the launch of SI at DTCC and as a model for future webpage development. The program development and leadership artifacts present information about the initial planning and preparations for the program, the connections to human resources in developing the SI leader job position and establishing the new hiring protocol, and the procedures for training and managing the SI leaders. Data collection and analysis for this program will be both quantitative and

qualitative. The first of these artifacts is a data analysis plan that collects the grades of the students in the SI course sections and compares them based on SI session attendance. It also compares the pass rates of attendees vs. non-attendees and examines differences in female vs. male student achievement. The second data collection and analysis artifact concerns the effectiveness of the SI sessions based on an examination of observations made by the SI coordinator. Finally, the third data collection and analysis artifact is the final artifact of the ELP, and analyzes the effectiveness of the SI program from the students' perspectives based on surveys and focus group interviews given at the end of the semester. These artifacts verify my leadership role in creating and managing DTCC's SI program, provide data to show program successes, and support my recommendations for improving the program in the future.

Divided into chapters, this ELP describes in detail the problem of low pass rates, my organizational role as a problem-solver, improvement strategies and results, and, finally, my reflections on the improvement efforts and my own leadership development. The nine artifacts give a full yet concise picture of the SI program at DTCC within the appendices at the end of this narrative.

Figure 1
SI Program Logic Model



Chapter 2

PROBLEM ASSESSED

Background Information

DTCC is an open enrollment two-year institution that serves a diverse population of students throughout the state of Delaware. As of July 2016, the total enrollment was 62 percent female and 38 percent male, with 55.5 percent of the student population identifying as white, 24.6 percent African American, and 9.6 percent Hispanic (DTCC website, 2017). The graduation rate, as measured by the college, has been low and stagnant at 14 percent. In order to produce a higher caliber of graduates to fill the workforce, DTCC must address the gaps in student success and graduation rate. Examining the courses offered is one such remedy to this problem.

Not only have some developmental and gatekeeper courses been identified as challenging for students to pass, but they also slow a student's ability to progress through the sequence of courses for their major. Furthermore, developmental and gatekeeper classes are often prerequisite courses, which is why it is even more important that students pass them; however, they often fail to do so. MAT020 is one such developmental course at DTCC. Students who score between a 450-499 on their SAT or 90-120 on the college's CPAR math placement test (DTCC course placement matrix, 2016) place into MAT020. Students must pass this course with a C or better in order to move onto college-level math courses in algebra, statistics, and pre-calculus as well as some chemistry courses. In an attempt to address the difficulties that

students have in passing developmental math, the curriculum was re-designed and MAT020 took the place of MAT015, a previous version of elementary algebra.

In my area of expertise as a science instructor, BIO120 is the major gatekeeper course for students in health majors at DTCC. The nursing and allied health programs at DTCC have a competitive admissions process in which students apply to their program of choice after one to two years of study. Students applying to these programs earn points on a ranking sheet based on the letter grades they receive in several courses. Almost all of the majors under the health sciences umbrella require BIO120 in the first year of study; this course is a prerequisite for BIO121 and counts as a substantial number of points on the ranking sheet.

DTCC values the success of its students above all other attributes; this is illustrated by the college's vision and mission statements, stating that DTCC is "dedicated to providing innovative instructional practices and high-impact engagement strategies to support student success" and the college is "committed to fostering student success in higher education as a means to economic and personal advancement" (DTCC website, 2017). The purposes of the SI program, student engagement and success, mirror the principles that govern DTCC. As a leader, I hope to improve and expand the SI program in order to positively serve more students, thereby keeping it in line with the spirit of the college's vision and mission.

Problem Statement

Student success, as measured by grades, GPA, pass/fail rates, and graduation rates, has been a major concern at DTCC. The ability of college students to complete their studies in a timely manner has become a major issue, especially in the past few years as educational and economic issues have moved to the forefront of problems facing the country (Carr, 2010). Despite many different efforts to raise pass rates, students continue to struggle academically in their early courses, especially in developmental classes in math and some gatekeeper courses in science. The problems this ELP will address are the low pass rates in MAT020 and BIO120 and ways to improve the college's SI program in the future. DTCC's internal data analysis system tracks pass rates; Table 1 compiles the results for MAT015 (a previous version of MAT020) and BIO120.

Pass rates for these courses have been on the decline or remained nearly the same throughout recent years, with only little evidence of improvement. Finding ways to help students perform better in these courses has been a consistent problem at DTCC. In an effort to improve student success, DTCC launched the SI program. Based on principles of peer learning and student-centeredness, SI provides students with regularly scheduled, out-of-class, peer-facilitated learning and support sessions to assist them in mastering course content and improving study skills and learning strategies (Ning, 2010).

Table 1 2012-2016 Percent Pass Rates for MAT015* and BIO120 at Delaware Technical Community College's Four Campus Locations								
	Fall 2012	Spring 2013	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016
<u>MAT015</u>								
Dover	36.2	49.0	54.3	53.9	42.4	45.9	39.3	38.0
Georgetown	39.6	45.3	50.0	39.3	56.5	50.0	55.7	66.7
Stanton	32.9	46.1	45.7	40.1	41.8	48.9	54.0	49.3
Wilmington	47.7	51.8	50.2	43.4	47.4	43.3	43.9	48.3
<u>BIO120</u>								
Dover	71.0	72.0	80.0	77.0	67.0	49.0	68.7	63.2
Georgetown	73.0	70.0	80.0	78.0	80.0	77.0	87.6	79.1
Stanton	75.0	57.0	67.0	62.0	69.0	74.0	59.1	62.4
Wilmington	82.0	79.0	75.0	66.0	79.0	74.0	80.7	77.5

*MAT015 was replaced with MAT020 in the fall 2016 semester, the same semester that SI was first implemented.

SI coordinators hire and train SI leaders, based on UMKC's SI model to develop educational strategies. These learning activities are designed to help students improve study habits and skills, increase their understanding of course content, and encourage them to collaborate with their peers to find answers to questions (International Center for Supplemental Instruction, 2016). This approach will support the college's aim to increase collaborative student engagement and active learning, two critical aspects in higher education (Gasiewski, 2012). Since its inception, SI has been modified into different types of academic support programs, but time and again its methods have been shown to improve retention and grades in higher education (Price, 2012). One of the purposes of this ELP is to determine whether SI helps to solve the problem of low pass rates in Elementary Algebra and Anatomy & Physiology I. SI should improve the course grades of the students attending the peer-

led study sessions and, therefore, should increase the overall pass rates in the courses. More research is required to determine SI's long-term effects on overall pass/fail rates and graduation rates. This ELP also represents a powerful way to investigate DTCC's SI program and make changes for the better, while also showing how my leadership has shaped and improved this initiative.

Organizational Role

I began working at DTCC in the summer of 2012 as an adjunct instructor. In December of 2012, I was hired full time as a science instructor in the Allied Health/Science department at the Wilmington campus. My responsibilities as a science instructor include the effective teaching of a variety of biology courses, including BIO120. As a faculty member and leader at DTCC, I am concerned about the academic achievement of the students as well as their ability to succeed in their courses, reach their goals, and ultimately graduate in a reasonable amount of time. Trusted with my first leadership role as the lead instructor for the BIO140 - General Biology course, I have had many responsibilities assigned to me as well as taken on other projects on my own accord to improve the learning materials and student success in the course.

As an educator for over ten years, my goal has been to help students seek knowledge, understand the course material, and meet their educational goals. To that end, I have always had an interest in researching alternative methods of instruction and academic support services that more effectively meet the students' needs. The SI

program is one of many such initiatives, and it has been implemented at DTCC as a part of its *Blueprint for the Future: Keeping Students First* strategic plan (DTCC, 2015). After a competitive interview process, I was selected to lead the SI program as the coordinator for the Wilmington campus in August 2015; this began a year-long journey to learn as much as possible about SI and foster a close working relationship with the new SI committee.

In March 2016, I attended a three-day training session at UMKC. Home to the International Center of Supplemental Instruction, UMKC has been conducting training programs in SI for professionals for several decades. I learned a staggering amount of information about creating and managing a new SI program. This training provided me with the tools that I would need to lead DTCC in the implementation of the SI program. Not only did I learn about the logistical requirements of an SI program and the administrative and supervisory duties of an SI coordinator, I also learned important leadership qualities such as communicating with peers and leading group discussions and brainstorming activities.

As SI coordinator, my responsibilities include hiring, training, and managing the SI leaders, observing the SI sessions, keeping a record of the SI session attendance and the grades of the students in the SI sections, communicating with students and faculty regarding schedule and room changes, and presenting any necessary information to the DTCC administration regarding the SI program. Effective communication and organizational skills are crucial to my responsibilities as an SI coordinator and to the success of the SI program. Late-spring and summer of 2016

were spent making final plans for the SI pilot program based on the information obtained from the UMKC training.

In May 2016, I presented the details of the new SI program to the entire college community at the DTCC Academic Summit. The duty of speaking to the entire faculty population from all four campus locations across the state of Delaware is a privilege bestowed upon those viewed as important leaders at the college. I also had to work with the department of instruction and the registrar to lead the development of the new SI schedule and with human resources in order to create the SI leader job position and recruit and hire the new SI leaders. A week prior to the start of the semester, the SI coordinators hosted a two-day training program for the students hired as SI leaders.

The SI pilot program officially launched at the beginning of the fall semester, on August 22, 2016. All of this work could not have been accomplished without my leadership role as the SI coordinator for the Wilmington campus and as a science instructor. A big part of being a leader, especially for a new program, is the willingness to listen to others and work with them collaboratively to reach a common goal. I feel as though the SI program will help me become a much stronger leader because I am learning when it is appropriate to take charge of the SI committee meetings but also when to let others lead the group.

Chapter 3

IMPROVEMENT STRATEGIES EMPLOYED

This ELP has two major goals: 1) to illustrate my leadership role in the planning, development, and implementation of DTCC's SI pilot program; and 2) to evaluate this SI program in order to make informed decisions and recommendations for future improvements. Any SI program around the world has a similar goal: to help the students in the course develop better understanding of the material and achieve greater academic success. When I became an SI coordinator, I was informed that the primary targets of SI would be BIO120 and MAT020 because DTCC data indicated that these two courses had the lowest pass rates across all four DTCC campuses. Unlike other academic support services, SI targets difficult courses, not struggling students; therefore, it makes sense to attempt to solve the problem of low pass rates in these two historically difficult courses. To that end, the new SI committee, consisting of the four SI coordinators and the Dean of Instruction from the Dover campus, had to research SI best practices and attend the national SI training at UMKC before laying down the major groundwork in the creation of the new program.

Background and Support Artifacts

In order to address the problem of low pass rates in developmental courses such as MAT020 and gatekeeper courses like BIO120, I had to research the problem thoroughly. I began by constructing a literature review (Appendix B) that would describe the problem in greater detail using research from other higher education institutions. This artifact would shine more light on the problem itself and give me more ideas about how to address it effectively. Next, using part of what I had already

learned about SI from previous research and from my UMKC training, I set out to develop a white paper on the history of supplemental instruction (Appendix C). This artifact covers the foundations of SI, how it operates, and the successes and challenges other SI programs worldwide have experienced. I created a website for a final project in one of my educational technology courses; this website was reorganized and updated into the SI @ DTCC website (Appendix D). My goals for this website were to provide a repository of information regarding the creation of the SI pilot program at DTCC and for DTCC web designers to use this website as a springboard for the SI webpage on the official DTCC website.

Program Development and Leadership Examples

Once all of the initial research and preparations were completed, the SI committee needed to develop the program. In many ways, I led the SI committee in establishing the program's structure and procedures through careful planning and thorough discussion. The first task was to create the initial plan of how to manage the program, using the UMKC SI model as a reference. The college's leadership team, including the Deans of Instruction and Vice President of Academic Affairs, had to review the plan's logistics. After the program was fully developed, the next step was to inform the registrar, the department chairs, and other faculty about our plans. I took the initiative to contact the department chairs of math and science at my campus in order to schedule speaking appearances at their respective department meetings. After informing the department chairs and the instructional faculty about the details of the program, the SI committee addressed their questions and concerns, modifying the plan as necessary. As an SI coordinator, I spoke at several department, campus, and

college-wide engagements to inform faculty, staff, and administrators about the SI program; this information is shown in artifact four (Appendix E).

The next task was to work with the human resources department to create the SI leader position and establish the hiring protocol for recruiting, interviewing, and hiring these new student employees. This was an overwhelming challenge because I had no prior experience in human resources; I had never interviewed potential employees before, never been a supervisor, and was ignorant to the DTCC hiring policies. I supported the other SI committee members in this endeavor, and we were able to help each other succeed, despite the differences in human resources protocols at the four campuses. The documents that I helped develop were the SI leader job responsibilities (part of the JAQ), the classification specification that became the online job description, and the interview questions (Appendix F). Once we completed everything necessary to hire the new SI leaders, the next task was training these new employees, which is one of the most important parts of a successful SI program.

I learned a lot about training SI leaders from my own SI coordinator training at UMKC and even more about it at the 8th Annual SI Conference at Texas A&M University. Effective and meaningful training of the SI leaders is crucial to the success of an SI program, and it is important to understand that the training is ongoing, with modifications and occasional challenges. Once SI leaders feel as though they are doing a good job, they might be resistant to additional training and practice; a good SI coordinator must address this reluctance. Training SI leaders to be effective in helping students learn the material and in managing collaborative group activities is one of the most challenging but most rewarding aspects of being an SI coordinator. The training

protocols (agenda, methods, PowerPoint presentations, and follow-ups) are presented in artifact six (Appendix G).

Data Collection and Analysis

The last three artifacts summarize the data. Analysis of program data was used to determine the levels of success and effectiveness of DTCC's new SI program. One of my major responsibilities as an SI coordinator is to collect every SI session attendance sheet from each SI leader and keep a record of the students who are attending. Each time a student attends a scheduled session, I mark a "1" on an Excel spreadsheet to indicate that student's SI participation. Then, after exams, I transfer the scores from Blackboard (DTCC's Learning Management Service) to the spreadsheet and separate the exam averages into SI attendees and non-attendees. This provided an effective means of formative assessment for the SI program because it gave snapshots throughout the semester as to how much the sessions were helping students succeed. In order to motivate the SI leader, I would tell them how much higher the students who attended SI performed on the exam compared to the students who did not come to any SI sessions. The SI group would usually have a higher average score, which gave the SI leader a sense of pride in his or her abilities to help the students do better. When the scores were not higher, I would provide the SI leader encouragement to try to do better next time and perhaps to modify the delivery of their learning strategies.

Artifact seven is a highly detailed data analysis plan that takes all of the grade data from the spring 2017 semester of the SI program and examines it through multiple lenses (Appendix H). This artifact illustrates SI attendance and how frequently students came to the SI sessions throughout the semester. Next, I present

the averages for exams and final grades and separate these scores into SI attendees and non-attendees. Taking things a step further, I compare the final course grades of students who attended ten or more sessions to students who attended fewer than ten sessions. Based on UMKC's findings that between eight to ten sessions maximizes the benefits of SI (International Center for Supplemental Instruction, 2016), I chose ten sessions as the cut-off point. In addition, ten sessions was the upper limit of UMKC's recommended range, so I wanted to set a strong goal-point for DTCC's program. This artifact then presents a statistical analysis examining the final grades in relation to the session attendance in order to determine if there is any correlation between the two. Next, I compare the pass rates of the SI attendees vs. the non-attendees and the pass rates of the SI sections as a whole. Finally, the artifact concludes with an examination of the effects of gender on SI attendance and final grades. Data has been shown that indicates female students often attend the SI sessions more often than their male counterparts and as a result, usually end up performing better in the course (Rabito, 2015).

After analyzing the quantitative data, I decided to consider qualitative data as well in order to get a more complete picture of the results of the improvement strategies. Using insights from my program evaluation course, I designed an analysis of the SI session observations that I made as the SI coordinator. An SI coordinator is required to observe an SI session given by each SI leader once a week, in order to determine if the sessions are meeting the expectations of the program and to discuss with the SI leader which aspects of their sessions are satisfactory and which need improvement. To that end, I analyzed the number of satisfactory and unsatisfactory aspects throughout the entire semester in order to determine any patterns or pertinent

information regarding program improvement (Appendix I). I also wanted to use the information gleaned from this artifact to improve my own leadership in training and preparing the SI leaders to be successful and as support for the recommendations I was preparing to make in improving the program itself.

The final artifact is a comprehensive analysis of student satisfaction surveys and focus group interviews that were given to the students in the SI sections during the spring and fall 2017 semesters. The SI committee decided that we must come up with a way of analyzing the student opinions of the SI program, and so, I led the development of the student satisfaction survey during the first semester of the pilot program. We wanted to know which aspects of the sessions the attendees liked and which aspects they would change for the better, as well as what they thought about the job their SI leader had done in helping them. Also, we desired to learn the reasons behind why the non-attendees did not attend any sessions, in the hope that we could address this attendance issue. The group decided that we would draft a survey that was to be given out face to face during class; even though this was a slight inconvenience to the course instructor, we did not want to do an electronic survey that could be done outside of class and risk a low response rate. I took it upon myself to design a focus group interview protocol during the spring 2017 semester to get a more personal and hands-on account of what students really thought about the program and the performance of their SI leader. Artifact nine presents a highly detailed presentation of the results of the student satisfaction surveys and the focus group interviews and gives a discussion about the effectiveness of the SI program from the students' perspective (Appendix J).

Chapter 4

RESULTS OF IMPROVEMENT STRATEGIES

The results of the improvement strategies developed for the SI program to combat the problem of low pass rates in BIO120 and MAT020 are promising in some ways and discouraging in others. There is evidence that indicates the program was successful, that the students greatly appreciated the program and the work of the SI coordinator and SI leader, and that the college benefitted from many aspects of the program. In addition, some results indicate that parts of the program did not achieve their goals and point to areas of improvement and adaptation that the program must make in order to realize its goals more fully. As the program continues semester after semester, there have been slight improvements made to streamline the initial program development and policies. The SI coordinators continue to improve their practices of informing faculty about the program who are either new to the college or new to teaching an SI section, working with human resources to continue re-posting the job online and collecting applications, and in training the SI leaders more thoroughly and effectively. Indeed, the procedures that were once new and challenging, have become all too commonplace and routine for the DTCC SI coordinators, ingrained within us, and consistently managed.

Attendance Results

Getting the students to attend the SI sessions was a challenge that the SI committee knew we would encounter. The SI coordinators would inform the students in the course about the SI program via Blackboard and the SI leaders gave a short speech on the first day of class telling the students about the SI sessions and what to

expect. Also on the first day, the SI leaders handed out flyers to advertise the days and times of their sessions, provide contact information, and to give the students answers to frequently-asked questions about SI. The coordinators and leaders posted announcements and sent emails to remind the students about the SI sessions and about any of the planned activities (e.g. practice tests and test reviews).

For the most part, attendance in the SI sessions was strong and steady in the BIO120 sections. As described in Chapter 2, BIO120 is a course that counts as a significant number of points on the ranking sheet for Nursing and Allied Health program admissions, and therefore the students are highly motivated to attend services that will help them be more successful in the course. BIO120 also has a reputation among students for being a very difficult class with an overwhelming amount of content covered. Spring 2017 was a particularly strong semester for the pilot program, perhaps because the BIO120 SI leaders for the Stanton and Wilmington campuses were returning leaders from the previous semester, who were now well informed about SI and very confident in their abilities to conduct effective SI sessions.

MAT020 was a different story unfortunately, as attendance was very low throughout the pilot program. At our UMKC training, the SI coordinators learned that SI attached to math, especially development math, usually fails to see very much attendance (International Center for Supplemental Instruction, 2016). No one seemed to give a reason why this happens, it was simply a national trend. Despite this, it was decided to go forward with the plan of having SI for MAT020 for the pilot. Occasionally a math leader would get one to three students attending their sessions, but very little was regular attendance. There were some individual success stories however, so all is not lost. One student emailed his MAT020 leader at the end of the

semester to thank him for all his help and stated that without SI, he never would have passed the course. Another student who attended math SI fairly regularly obtained one of the highest grades in her section. Even though there were small successes, the SI committee decided to abandon MAT020 and institute SI in a credit level math course. I had been supporting SI in MAT153 – College Math and Statistics since the start of the pilot program because it is another course that counts as a significant number of points on many Allied Health programs ranking sheets; using my knowledge and experience, I convinced the SI committee to give this course a chance to have SI.

Quantitative Results

One of the best indicators of program success is to compare the final course grades of the SI attendees to the non-attendees, this information is presented in Table 2 and in Appendix H.

	<u>Class</u> <u>Average</u>	<u>SI Average</u>	<u>Non-SI</u> <u>Average</u>	<u>Difference</u>
BIO120-501	81.6 (n=15)	82.4 (n=10)	79.9 (n=5)	2.5
BIO120-502	77.0 (n=13)	74.9 (n=8)	80.3 (n=5)	-5.4
BIO120-407	88.3 (n=15)	92.9 (n=12)	69.6 (n=3)	23.3
BIO120-408	83.7 (n=15)	84.7 (n=13)	77.0 (n=2)	7.7
MAT020-501	66.5 (n=15)	67.5 (n=4)	66.1 (n=11)	1.4
MAT020-504	65.9 (n=15)	69.3 (n=6)	63.7 (n=9)	5.6
MAT020-406	61.2 (n=15)	84.6 (n=2)	56.9 (n=13)	27.7
MAT020-408	66.6 (n=15)	79.7 (n=3)	64.4 (n=12)	15.3

Table 2 shows that attendees in three out of four sections of BIO120 had a higher final course average than non-attendees, BIO120-407 being by far the largest disparity

between the groups. All four sections of MAT020 had a higher SI average than the non-SI average, with MAT020-406 having the biggest difference; however, SI attendance was much lower in the MAT020 sections and therefore the SI average is based on only a small number of students (Table 2). The range of grades in the BIO120 classes were 24%-48% for U's (unofficial withdraw, which count as an F), the lowest F was a 56%, and the grades went as high as 104%. In MAT020, the range of grades were 17% (the lowest U) to 22% (the lowest F) up to 93%.

In my opinion, a much better indication of program success based on final course grades is to create two new comparative groups – students who attended ten or more sessions and students who attended less than ten sessions. The rationale for this decision is explained in Chapter 3 and the results of this analysis are presented in Table 3 below.

Table 3
*Final course grades of students who attended ten or more SI sessions vs. students who attended less than ten sessions at the Stanton and Wilmington campuses of DTCC during the spring 2017 semester**

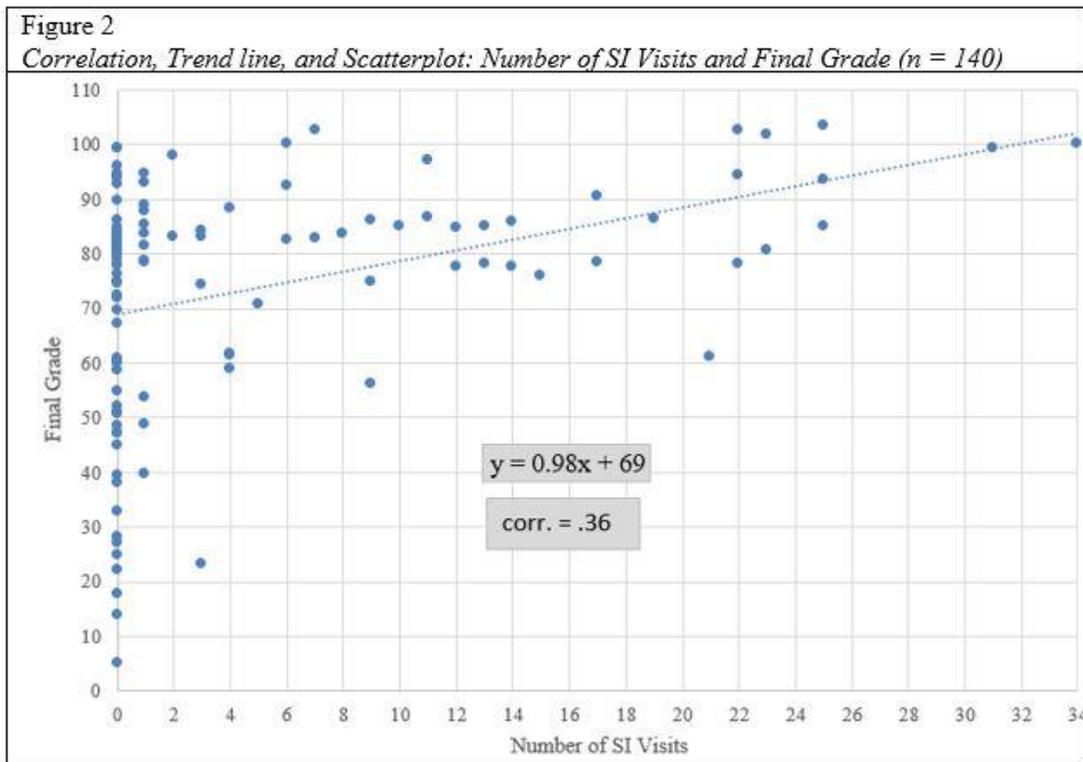
	<u>Average of students who attended 10 or more SI sessions</u>	<u>Average of students who attended less than 10 SI sessions</u>	<u>Difference</u>
BIO120-501	86.6 (n=7)	77.2 (n=8)	9.4
BIO120-502	83.7 (n=4)	74.0 (n=9)	9.7
BIO120-407	96.7 (n=5)	83.9 (n=10)	12.8
BIO120-408	86.0 (n=6)	82.2 (n=9)	3.8
MAT020-504	61.2 (n=1)	65.6 (n=14)	-4.4
MAT020-408	85.0 (n=1)	65.1 (n=14)	19.9

*There were no students who attended ten or more SI sessions in MAT020-501 and MAT020-406

One should only consider the data for BIO120 since the grades for MAT020 are based off of only one student coming to more than ten sessions for each section. Table 3

indicates that there could possibly be a strong connection between attending SI sessions regularly and getting better grades. There could be any number of reasons why the final grades differ so much among the sections. Two sections are from Stanton and two are from Wilmington, while they are the same course, they are taught by different instructors who use different textbooks and construct their own exams. BIO120 at Stanton is more focused on serving the Nursing program, while at Wilmington, BIO120 is geared towards Allied Health majors such as physical therapy and dental hygiene. The differences in the individual double sections is much more confounding; sections 501 and 502 meet together in the same classroom, at the same time, and take the same exams, the same goes for the Wilmington sections (407/408). I have been puzzled for years as to why one section does significantly better than another section, even when they attend class and take exams together. My best guess as an experienced science instructor is that students who register earlier sign up for the first of the two double sections (i.e. sections 501 and 407) and are more motivated to do well in the course. Less motivated students who register later sign up for the second of the two sections (502 and 408) and do not perform as well. Table 3 supports this claim, but this is a small sample size and investigating this issue further is beyond the scope of this ELP.

To further examine the relationship between SI attendance and final grades, a scatterplot and trend line was developed in order to determine how strong a correlation between the two existed (Figure 2).



The correlation shows a statistically significant positive relationship between SI session attendance and final grades. It is significant, although not a strong correlation (.7 or above would be considered strong). This is, perhaps, because there is a fairly large number of students who have high final grades with zero SI participation. It is reasonable to assume these successful students have high aptitude and strong study habits, and so they would not benefit very much from attending SI sessions. The trend line formula shows a slope of .98, which indicates, on average, for every SI visit, the final grade average goes up by about one point. All of this information is presented in artifact seven (Appendix H), which also shows that the pass rates for SI attendees were higher in all four sections of BIO120 and three out of four sections of MAT020 during the spring 2017 semester (Table H.5). The data for BIO120 is much more reliable due

to the much higher regular SI attendance seen in that course versus the extremely low attendance seen in MAT020.

Qualitative Results

My analysis of the SI session observation results leads me to three conclusions: 1) the BIO120 sessions during the spring 2017 were very effective in meeting the expectations of the program; 2) the SI leaders need more support and training, especially during the middle of the semester; and 3) a new observation form needs to be created that fits the needs of the program more completely and is more meaningful to the leaders in their attempts to better themselves professionally.

Both SI leaders at Stanton and Wilmington had high satisfactory ratings throughout the semester. It is worth noting that both of these BIO120 leaders were employed in the fall 2016 semester and returned in the spring when these observations were quantified. I believe the experience they gained during the first semester of the program was very valuable and helped them be much more effective in the second semester. I observed many activities and learning strategies that were appropriate, well planned, and well executed. The aspects of their sessions that needed the most improvement were mostly logistical concerns such as paperwork, time management, and including an agenda, not the more important issues such as helping the students gain more understanding or getting them to work collaboratively.

My second conclusion results from the analysis of the figures in artifact eight (Figures I.1 and I.2) that show a drop in the number of satisfactory aspects for the SI sessions at both Stanton and Wilmington. The reason for this drop is not known, it could possibly be from mid-semester fatigue on the part of the SI leader or from a

particularly difficult topic that was being covered in the course at that time. It could very well be the latter because often in BIO120 the most difficult content is covered during the middle of the semester; I know this first hand due to my role as a science faculty member and an instructor of BIO120. Providing more support to SI leaders, especially in the middle of the semester, is my main recommendation in solving this problem. The results suggest that the SI leaders need more support in the middle of the semester because there was an obvious drop in the quality of the SI sessions in late February/early March. I would recommend one or two additional group training sessions in the middle of the semester, to give the SI leaders an opportunity to discuss their challenges, vent about their frustrations, and obtain more practice in the development of their skills. This support could help minimize some of the stress the leaders may experience and improve the quality of the SI sessions in the middle of the semester. Also, the SI coordinators need to focus on the more important aspects of managing the SI sessions during all SI leader training sessions, while developing better time management skills and more effective utilization of learning strategies in the SI leaders.

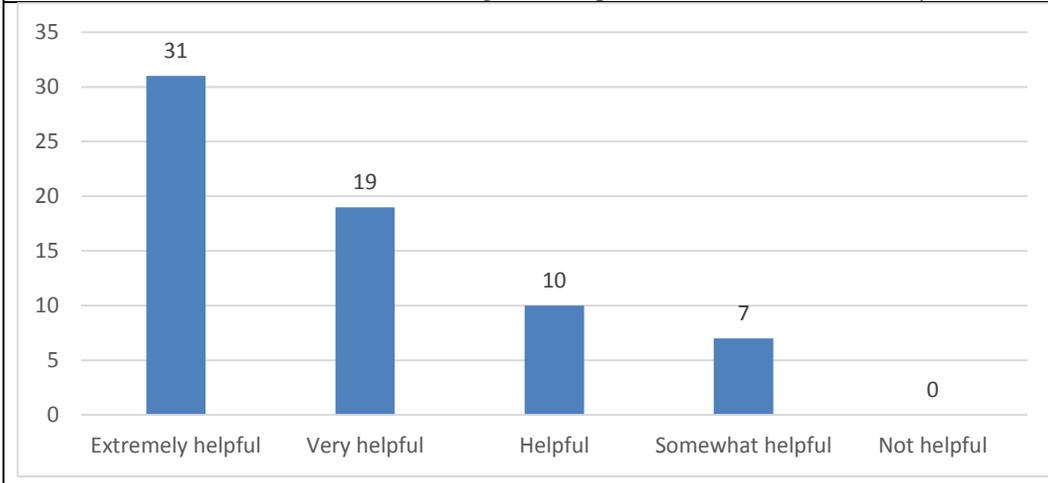
The final conclusion that I have from the results of the analysis in artifact eight is the need for a new and more appropriate SI session observation form. The form that we use was provided in the training materials from UMKC (Appendix I - instrument) and is a simple checklist of various aspects of the SI sessions. This form, while easy to use, was not complete or thorough enough for the purposes of our program. It also did not separate the aspects into less important (logistical concerns) and more important (SI session execution), so the leaders did not get a lot of meaning out of their discussions with the coordinator regarding the quality of their sessions. The

professional growth of the SI leaders is one of the many fringe benefits of an SI program and needs to be addressed more directly. To that end, I took it upon myself to draft a new and more complex SI session observation form, one that would meet the needs of the coordinators and leaders much more effectively (Appendix I - new observation form). I shared my creation with the SI committee, they greatly approved of it, and it was adopted for use in the spring 2018 semester.

The student satisfaction surveys indicate that the students who attended the SI sessions were satisfied with the SI program. Figure 3 shows the combined results of the question asking the SI attendees how helpful the SI sessions were in helping them learn the material better. Fifty out of the 66 students surveyed during the spring and fall 2017 semesters indicated that they found the sessions to be either extremely helpful or very helpful and none of the attendees surveyed indicated that the SI sessions were not helpful (Figure 3). In both BIO120 and MAT020, 62% of the non-attendees indicated that they wanted to attend the SI sessions but couldn't due to schedule conflicts (Appendix J). Throughout the surveys, students had almost all positive comments about the SI leaders, regardless of attendee-status or subject. The vast majority stated that the SI leaders were helpful, supportive, welcoming, knowledgeable about content, and willing to go the extra mile to help the students understand the material better.

Figure 3

The Levels of Helpfulness as Reported on the Student Satisfaction Survey by all SI Attendees at the Stanton and Wilmington campuses in the 2017 school year



The focus group interviews performed during a BIO120 SI sessions echo much of the comments left on the student satisfaction surveys. There were four Stanton attendees present for the focus group interview and 12 Wilmington attendees present. Stanton attendees praised their SI leader for being very personally supportive and stated that the SI program has certainly helped them be successful in the course. Some of the students said the study skills learned in SI helped them in other non-SI courses. All of the attendees interviewed would recommend the SI program to other students because it is very helpful and motivating. As far as changes to the SI program, one student stated that they would sometimes have a hard time participating when one student dominates the session because they “think they know everything”. Another student said that larger attendance at test review sessions can be frustrating to the regular attendees because the extra attendees are not as knowledgeable of the content and slow the session down or the SI leader could run out of copies for everyone.

The attendees present for the interview in Wilmington were more vocal about praising the work of the SI leader in creating worksheets, learning games, and Quizlet activities for them during the sessions. The comments about how the SI program benefitted them included statements such as the availability of the sessions and leader, saving on study time, and all 12 students present agreed that it helped them get better grades. Nine out of 12 agreed that the skills learned in SI has helped them in other classes and will probably help them in future classes. All 12 agree that they would recommend the SI program to other students, with one student stating that it “helps with making sense out of the lecture notes” and another student saying that the SI leader actually found an error on one of the exams, resulting in more points for the entire class. These students really applauded the SI leader on her attention to detail, being attentive but relaxed, and providing a judgment-free zone where they were comfortable enough to ask questions. When asked about what they would change about the SI program, the students said that they would like to have more models and supplies, a dedicated room just for SI (e.g. to store those materials), and more practice tests.

Chapter 5

REFLECTION ON IMPROVEMENT EFFORTS

Initial Efforts and Artifacts

I could not have asked for a better team of people to work with on the DTCC SI committee. Everyone in the group was dedicated, open to discussion, fiercely hard working, and determined to make the program successful. I believe we worked as diligently as possible in researching SI best practices, learning as much as we could from the training at UMKC, and developing the best program to benefit the students enrolled in the SI sections. I am grateful to my experiences as an SI coordinator and I am happy that I have had the opportunity to develop a new planning sheet, attendance form, and a more effective observation protocol that will benefit the program for years to come as well as enhance the quality of my ELP.

I learned so much about what is being done to curtail low pass rates in higher education and about the history of SI. I am proud of the website that I created for our program and of the background work that I did to get the program off to the right start. I am grateful for the opportunities to discuss this program with my fellow faculty members and the administrators at DTCC, as well as working with representatives in human resources and learning to effectively train new SI leaders. These processes helped me learn more about being open to suggestions, having patience in frustrating situations, and engaging in effective management and communication practices. I am satisfied with our hiring protocol and our training processes as they are now, once we made some modifications after the first year of the pilot program. The committee has streamlined the processes and made them both more efficient.

In terms of my data collection, I am relatively happy with the outcomes although there are some things I would change. First, I do not think that it is necessary to include the individual exam grades in official reports, although I think it is helpful to track as the program goes along to provide the SI leaders with encouragement based on the grades. Also, I would probably take out the questions on the student satisfaction survey regarding number of sessions attended and expected grade in the course because the SI coordinator has direct access to this information. Also, the number of hours spent studying or on homework, while interesting and thought provoking, is really not useful in evaluating the success of the SI program. Finally, I should have recorded the focus group interviews, especially with such a large group from the Wilmington campus. I am afraid that I may have missed an important thought or anecdote since I was simply taking handwritten notes. All things considered, I think that the artifacts I constructed give a full and detailed account of the entire SI program at DTCC and can be used to dissect the program, discover new things about it, and help to make recommendations for future improvement.

Improvement Efforts and Results

Overall, I believe that the improvement efforts on the part of DTCC's SI program were successful. An SI attendee is defined by any student who attended at least one session during the semester. Therefore, the college-wide SI attendance rate for BIO120 and MAT020 in the fall 2016 semester was 44% and in spring 2017 it was 50%. This surpasses UMKC's suggested minimum attendance rate of 40% (International Center for Supplemental Instruction, 2016). In addition, it is promising that attendance increased from the fall semester to the spring semester, especially

because the total number of students enrolled in SI sections college-wide was 289 and 287 respectively. This shows that with nearly the exact same number of potential SI attendees, the program was well received at the college in the first semester and served even more students in the second semester. It could also indicate that the experience gained and the lessons learned by the SI coordinators and the SI leaders in the fall helped them make a more successful program in the spring.

Although the program surpassed UMKC's recommendation for attendance, we still have room for improvement. The survey results from non-attendees indicate that many students wanted to attend the sessions but were unable to, usually due to other classes or work/personal schedules (Appendix J). This suggests a potential for much higher attendance in the future. One strategy to boost attendance is to identify the SI sections in DTCC's course banner system. This, however, may be a difficult process logistically and may not solve the problem entirely. Another course of action is to add more SI sessions on different days and times, which would require more money to employ a greater number of SI leaders working more hours.

The higher course grades and greater pass rates in BIO120 indicate that the sessions are successful in helping the students perform better academically. The students themselves indicated on the surveys and in the focus group interviews the same conclusion. It is therefore my recommendation that the program be continued and expanded upon in all sections of BIO120. This would again require additional money to be allocated to the SI program to hire more SI leaders. Due to the very low attendance and only slight positive results in the grade data, it is my recommendation that SI not be utilized in MAT020. Our results agree with the national data collected by UMKC that SI simply does not work in developmental math. As a result of my

recommendation, DTCC’s SI program began including SI in one section of MAT153 at the Stanton and Wilmington campuses in the fall 2017 semester. Despite this course being for college credit and a ranking course for many Allied Health majors, the SI attendance has still been very low. Should the situation not improve in the spring 2018 semester, it is very possible that math will be totally abandoned by the SI program in order to better serve the student population of DTCC.

Therefore, it is my recommendation that the SI program be expanded to include different courses, with a focus on science, due to the successes with BIO120. One possible science course that could be served by SI in the future is CHM110 – General Chemistry. This course is required by many Allied Health programs and is often highly ranked. CHM110 is also a pre-requisite course for the higher-level CHM150 class, which students in chemistry and biology majors are required to take. In my capacity as a science instructor, I investigated the pass rates for CHM110 across all four DTCC campuses using the college’s data management system. The pass rates for this course are not extremely low across the board, but they could certainly use help in improving, especially at the Stanton campus (Table 4).

Table 4 <i>2016-2017 Percent Pass Rates for CHM110 at Delaware Technical Community College’s Four Campus Locations</i>				
	Spring 2016	Fall 2016	Spring 2017	Fall 2017
Dover	68.2	81.3	75.0	87.5
Georgetown	72.5	84.3	81.1	81.6
Stanton	60.8	76.7	64.7	67.4
Wilmington	82.1	87.1	79.2	82.9

It was also my experience at the Texas A&M SI Conference that most schools with successful SI programs serve introductory chemistry courses with SI. This supports my recommendation in expanding SI to include other sciences such as chemistry, and also supports nationwide initiatives in greater support of STEM education as a whole (Appendix B).

Limitations and Challenges

The choice of CHM110 as a new course to be served by SI at DTCC is one of the limitations of this ELP. As a faculty member, not a department chair or dean, I am not privy to the pass and fail rates of all college-wide courses, nor do I have access to all of the data about all course sections or know which courses the administration considers true gatekeepers. In order to make a more informed decision about which courses to offer SI in, and whether there should be different courses served at different campuses, I would need to consult all three Deans of Instruction and possibly even the Vice Presidents of Academic Affairs. Access to data in general is a limitation because of the need to work through the college's institutional research department, they are not always able to make information readily available. Most of the data that was presented in this ELP I collected myself in my role as SI coordinator, some data was more difficult to access when it necessitated contact with other college departments and supervisors.

Another limitation is the lack of data from the Dover and Georgetown campuses, from the fall 2016 semester, and from the fall 2017 semester. I made the decision to only include data that I had direct control over, Wilmington and Stanton in spring 2017 and Wilmington in fall 2017. I could have requested grade and survey

data from the coordinators in Dover and Georgetown, but that would have given them extra work to do and I would have had to make sure they used my consent form and followed other required procedures. The fall 2016 semester was when the SI program started, but I had not yet completed my coursework and did not have my consent form ready for that semester, therefore I could not collect any data then. The grade data is missing for the fall 2017 semester because there was insufficient time to collect all of the grades at the end of the semester and analyze everything in time to meet the deadlines of the ELP.

There were many challenges that I faced as SI coordinator and in the creation of this ELP. I discussed some logistical and administrative challenges in Appendices E and F. Another challenge was handling the day to day operations of the program and managing the SI leaders, as I had never really been anyone's supervisor before. Sometimes it was very challenging to resolve issues with the SI leader's schedule, the turning in of paperwork on time, and motivating them to improve their job performance. All things considered, it was a great learning experience for all of us and I think we all grew professionally in one way or another.

Another challenge was striving to obtain faculty buy-in for the program and alleviating conflicts between instructors and SI leaders or instructor policies vs. SI policies. Not everyone is as willing or as flexible to have an SI leader in their course who acts as a near-peer, someone who knows the material better than the regular students in the class and who is there to help the students understand the content better. Occasionally, an SI leader would discuss with me a disagreement or problem they had with the course instructor. This put me in a very awkward position, as I was a faculty member but also the SI leader's supervisor, I could see both sides of the issue

but usually the right answer for the SI program was not what the instructor would want to hear. For example, some instructors do not like the SI policy regarding SI session attendance being optional and voluntary, they would rather require students to go and know who is attending. Addressing these types of challenges could be very difficult, I would often need to explain to the faculty member and their department chair that these policies are deemed necessary by the UMKC model and therefore important for the validity of our pilot program and the data collected from it.

Additional Recommendations

There are several recommendations that I would make to improve the SI program at DTCC, in addition to the recommendations previously discussed. These recommendations are based on my research of other SI programs, my discussions with leaders in SI programs from other higher education institutions, and my experiences at DTCC as an SI coordinator. My first recommendation is to restructure the program to include one college-wide coordinator and then have a full time SI coordinator at each of the four DTCC campuses. In order for this program to maximize its benefits and be as efficient as possible, it really needs a dedicated administrative staff and not be run by people who already have full time responsibilities as a dean or faculty member. Most of the SI coordinators whom I met at UMKC during training and at Texas A&M during the conference are either full time SI coordinators or full time staff members in charge of all academic support services (e.g. SI and tutoring).

My second recommendation is to have a dedicated SI space at each of the four college campuses. One classroom and one office space would be ideal, a place where only SI sessions occur and a place where SI leaders can plan and discuss their

sessions. An office would also provide a space for SI coordinators to manage the program, meet with SI leaders confidentially, and store supplies and documents. It is especially difficult at the Wilmington campus to find classroom availability to conduct SI sessions and all SI managerial tasks including record keeping, meeting with SI leaders, and storing of pertinent supplies and resources all occur in my faculty office. A dedicated SI space is critical in order to be more efficient and to better serve the needs of the SI coordinator, SI leaders, and the students.

Thirdly, it needs to be made a priority to market the program more effectively in order to reach more students. I would suggest the implementation of a college-wide SI webpage based on the website I created for artifact three (Appendix D). It would be extremely easy to send the link for this website out to all students enrolled in an SI course, as well as use the website as a marketing tool for academic counselors and new students. In addition, I would push for the creation of t-shirts for SI coordinators and leaders to wear and pens to be handed out at college outreach events. Flyers and posters can also be distributed and displayed in college meeting areas such as the cafeteria, tutoring center, and wellness center to inform a greater number of students about the SI program and its benefits. This could also be used as a tool to recruit more potential SI leaders.

My final recommendation is the need for a more sustainable source of funding for the program. Right now, the pilot program is paid for through a grant received by the Deans of Instruction, which is not enough to keep the program going long term. I took the initiative to ask people at the Texas A&M conference about funding options; most colleges and universities use a combination of a fee that students pay as part of their tuition and fees and funds that come from the academic departments who benefit

from SI. Often, these funds are also tied with the institutions' other academic support services (tutoring, writing lab, etc.). Other schools obtain funds via grant programs, from connected four year universities, or through support from alumni associations. At one university, the SI leaders are paid as work study students. I also met with the director of communication and planning at the Stanton and Wilmington campuses to discuss options, grants, and grant writing. She indicated to me that the process is very long and involved, again necessitating the need for a college-wide SI coordinator whose main responsibility would be the funding of the program.

Chapter 6

REFLECTION ON LEADERSHIP DEVELOPMENT

Development as a Scholar

The Ed.D. program provided me with skills in fortitude, deep thought, and teamwork. I obtained my Master's degree in Agricultural Education from the University of Delaware after completing my student teaching and master's portfolio a decade ago. That experience prepared me to be a teacher. The experiences in the Ed.D. program prepared me to be a problem solver and a leader. I started out in the program not realizing what my ELP topic would be, but knowing that it would relate somehow to improving the academic success of the students at DTCC because that is what I am most passionate about. I am grateful to my employer for providing me the perfect topic for my doctoral studies when presented the opportunity to manage the new SI program. When I read the description of what supplemental instruction was in that job posting, I knew that this was something I would be interested in and something that I could turn into a stellar program.

I had some skills as a researcher and writer when I entered the program from my experiences in the undergraduate sciences and the graduate school of education at the University of Delaware. The Ed.D. program built upon these existing skills and helped turn me into an experienced and well versed academic scholar. I probably learned the most about educational technology since it had been almost ten years since I had been in a formal education setting. The first time I had ever taken any online or hybrid courses was in this doctorate program. These courses not only gave me new skills that I had to learn, they also helped me gain a greater understanding and appreciation of the experiences students at DTCC may have in similarly structured

courses. I also appreciated many of the skills I learned in my educational technology classes, including web design, leveraging YouTube for education, gamification, and computational thinking.

I gained a great amount of knowledge in data analysis and statistics, topics that I knew very little about beforehand. I took one statistics course as an undergraduate that never made very much sense, so knowing that I had to take courses in this area again made me nervous. I discovered that I had pretty good skills in statistical analysis that I did not know I was capable of and I even took an elective course in statistics to enhance my understanding of the field and its practices. This knowledge base helped me as an educator because I was asked to teach a course in basic scientific research, a course that I never would have taught successfully without the help of my Ed.D. courses.

My development as a scholar is exemplified by my first set of artifacts. These include a problem paper, a literature review, and a website (Appendices B-D). I was able to find information about low pass rates in developmental and gatekeeper courses and the history of SI, developing a thorough account of each topic in my papers; I accomplished this by using my skills as a researcher which were finely tuned by the Ed.D. program. In addition, I was able to create an SI website for DTCC with the knowledge I gained in my Ed.D. coursework, I would not have been able to fashion such an attractive website without that experience.

Development as a Partner

I have developed long lasting relationships with classmates and colleagues thanks to the Ed.D. program. A couple classmates have actually become close

personal friends, something that never happened to me previously in college.

Expanding my small circle of friends is something I never thought would happen as a result of my doctoral studies. I have also been given the opportunity to work with many of my fellow DTCC colleagues, most of whom I never would have had the opportunity otherwise because they work at different campuses or different departments. I have a bond with these people now, one that we will share forever.

I have helped several UD classmates understand course material or assisted in the development of their own ELP. I am so proud that I have had the opportunity to lead these people in their own intellectual and professional growth. I am currently working with a UD faculty member on a completely different initiative unrelated to my ELP. I never would have built this strong professional relationship without the Ed.D. program. This faculty member is helping me improve the problem solving and cognitive abilities of the students at DTCC as well as giving our faculty an additional professional development opportunity.

My development as a partner is reflected by my second set of artifacts, leadership duties, connections to human resources, and training SI leaders (Appendices E-G). I have had to collaborate with many different people that I would have never met otherwise as a result of my position as SI coordinator. My growth as a leader and partner is highlighted by attending a nationwide training and conference, leading campus-level and college-wide presentations, learning HR policies and procedures, and engaging with students as a manager and mentor. This is the aspect of being a doctoral student that I have enjoyed and learned from the most, the human connections that I have fostered, that have helped me be a more effective leader, and a more patient and confident person.

Development as a Problem Solver

I have always prided myself on being an effective problem solver. The curiosity and thought that comes with being someone interested in science and education serves one well as a problem solver. When a challenge presents itself, I enjoy learning about the problem, thinking about possible solutions, and creating a plan of action to help mitigate the issue. I have experienced a multitude of problems as a student, a doctoral candidate, and as an SI coordinator. One major challenge is balancing a full time job and taking graduate-level courses, something that I did not have to do in the past. Luckily, my employer greatly supported my efforts in obtaining my Ed.D. and the subject of my ELP was directly related to my role at DTCC. I was ready to meet the challenge of balancing this work load and I am proud to have served my organization in this way, while bettering myself as a problem solver. My interpersonal skills, my ability to look at a problem from many different frames and perspectives, and my communication proficiency have all been greatly enhanced by my membership in the Ed.D. program.

There have been many problem solving opportunities in my role as an SI coordinator. The first major challenge was probably when I volunteered to be the SI coordinator for both the Stanton and Wilmington campuses when the coordinator from Stanton went on maternity leave. I had to make a colossal adjustment to my day to day work activities, having to work two days at Stanton and three days at Wilmington, needing to remember the right materials on the right days, and making sure each SI leader received the help and attention that they needed. It was also the only semester that I took two Ed.D. courses instead of one so that I could graduate when I wanted to.

That semester tested my abilities, but I am grateful for it, it showed me how strong my planning and organization skills are and the type of leader I have the potential to be.

One recent problem that I had to address was when we had to cancel our SI leader training at the beginning of the spring 2018 semester; this was due to the college being closed because of bad weather. I was in constant contact via email and text with the other SI coordinators so that we could make our plans and figure out how to effectively train the new leaders. The issue was further complicated by the fact that the Dover campus coordinator was new to the program and had never trained leaders before. We were able to support him as best we could and I was able to put together a plan of action to train my leaders as efficiently as possible the following day.

My growth as a problem solver is illustrated by my final set of artifacts (Appendices H-J). I needed the skills I learned as a scholar to develop the data analysis plan, surveys, and interviews, but then I had to use my problem solving skills to analyze the data, interpret them, and most importantly use them to improve the SI program for the future. Statistics can only take a problem solver so far; what is really needed is deep thought, discussion with others, and the strength of character to admit when results do not go as planned and to create change accordingly.

Final Thoughts

I want the SI program to grow and expand at DTCC by increasing the amount of program staff, offering more sessions each day, and raising the numbers of courses and sections supported. I have no doubt that through additional resources and support, the SI program can help meet the college's goals of improving retention and raising the graduation rate. SI can assist students in saving money by helping them pass

courses that they would not have passed on their own, and therefore not having to pay for the same class multiple times. SI can help the college save money by diverting funds from areas that are not as effective at improving student success. The SI program has the potential of producing better problem solvers and people with better collaborative and interpersonal skills, thereby creating more marketable graduates. And finally, the SI program shows the students and community that DTCC really cares about its students by actively providing a service aimed at helping them perform better in their classes and earning higher grades than what they would have earned on their own.

I hope that the SI program will continue to grant me leadership and learning opportunities. This will happen if I can manage more employees, attend more professional development opportunities such as national/international conferences, and have more oversight over the program's budget while be given permission to seek out more funding sources. I have already traveled the country twice to learn about ways to help students and manage others through SI, I hope this will continue as my leadership duties grow. I am working with an incredibly diligent group of colleagues, and continue to be a leader to both my peers and my employees. I continue to offer advice and ideas to the other SI coordinators when they encounter challenges in their programs. The SI leaders look to me for guidance in how to improve their sessions and to encourage more students to attend SI; I work with these peer leaders to help them assist more students and to fulfill their responsibilities more effectively. I am confident that I can enact positive change that will benefit the students of DTCC and help them be successful through my leadership role in SI.

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Appendix A

PROPOSAL

Overview

Student success is a paramount concern at Delaware Technical Community College (DTCC); it is examined through multiple lenses and evaluated through various means. One way to examine student success is through course pass rates, which are the percentages of students who pass a certain course. Throughout the years, some courses have been identified as historically difficult due to having lower than acceptable pass rates; two of these courses are MAT020 - Elementary Algebra and BIO120 - Anatomy and Physiology I. MAT020 is one example of a developmental course at DTCC and BIO120 is often referred to as a gatekeeper course. Developmental courses are classes considered below college-level (not for college credit) that are offered at a postsecondary institution (Calcagno, 2007) and gatekeeper courses are “college-level classes that students are required to complete successfully before enrolling in more advanced classes in their major field of study” (Hoachlander, 2003).

In an effort to increase the pass rates of these previously identified courses, DTCC has created a program in supplemental instruction (SI). SI was first created in 1973 at the University of Missouri-Kansas City (UMKC) and began as a program to help minority students succeed in health science courses (International Center for Supplemental Instruction, 2016). SI is an alternative academic support service which consists of optional, out-of-class study sessions led by a near-peer, deemed the SI leader. The SI program at DTCC will attach these optional SI sessions to two sections of MAT020 and two sections of BIO120 at each campus location. The SI leader

attends the course lectures and plans learning activities based on material from those class lessons. Then, each SI leader will conduct SI sessions two to four times each week for their assigned sections. Each DTCC campus location has an SI coordinator who leads the program.

Organizational Context

DTCC was created in 1966 by the Delaware General Assembly (DTCC website, 2017). By 2015, DTCC grew to consist of four different campus locations throughout the state of Delaware; the locations are the George campus in Wilmington, the Stanton campus in Newark, the Terry campus in Dover, and the Owens campus in Georgetown. DTCC's mission statement is:

“Delaware Technical Community College is a statewide multi-campus community college committed to providing affordable, open admission, post-secondary education that is relevant and responsive to labor market and community needs. The College offers comprehensive educational opportunities that contribute to the economic vitality of the State, including career, general, developmental, and transfer education; workforce development; and lifelong learning. The College respects its students as individuals and as members of diverse groups and is committed to fostering student success in higher education as a means to economic and personal advancement” (DTCC website, 2017).

The 2016-2020 vision statement for DTCC is made up of seven parts, which state that DTCC will be dedicated to providing innovative instructional practices, fuel the economic success of Delaware, create innovative pathways to advance career and education of students, cultivate industry, government, and donor partnerships, harness media to elevate its reputation, be driven by a culture of inquiry, and support flexibility and responsiveness (DTCC website, 2017).

DTCC is an open enrollment two-year institution that serves a very diverse population of students throughout the state of Delaware. As of July 2016, the total enrollment was 62 percent female and 37.9 percent male, with 55.5 percent of the student population identifying as white, 24.6 percent African American, and 9.6 percent Hispanic (DTCC website, 2017). The graduation rate, as measured by the college, has been low and stagnant at 14 percent. In order to produce a higher caliber of graduates to fill the workforce, DTCC must address the gaps in student success and graduation rate. Examining the courses offered is one such remedy to this problem.

Not only have some developmental and gatekeeper courses been identified as challenging for students to pass, but they also slow a student's ability to progress through the sequence of courses for their major. Furthermore, developmental and gatekeeper classes are often prerequisite courses, which is why it is even more important that students pass them; however, they often fail to do so. One example of a developmental course where students at DTCC have trouble is MAT020 - Elementary Algebra. Students who score between a 450-499 on their SAT or 90-120 on the college's CPAR math placement test (DTCC course placement matrix, 2016) are

placed into MAT020. This course must be passed with a C or better in order for students to move on to college-level math courses in Algebra, Statistics, and Pre-calculus as well as some Chemistry courses. In an attempt to address the difficulties that students have in passing developmental math, the curriculum was re-designed and MAT020 took the place of MAT015, a previous version of elementary algebra, though the courses are not totally identical.

In my area of expertise as a Science instructor, the major gatekeeper course for students in Nursing and Allied Health is BIO120 – Anatomy and Physiology I. The Nursing and Allied Health programs at DTCC have a competitive admissions process in which students apply to their program of choice after one to two years of study. Students applying to these programs earn points on a ranking sheet based on the letter grades they receive in several courses. Almost all of the majors under the health sciences umbrella require BIO120 in the first year of study; this course is a prerequisite for BIO121 and counts as a substantial number of points on the application ranking sheet. DTCC values the success of its students above all other attributes; this is illustrated by the college’s vision statement, stating that it is “dedicated to providing innovative instructional practices and high-impact engagement strategies to support student success” (DTCC website, 2017) and with the mission statement ending with the phrase “committed to fostering student success in higher education as a means to economic and personal advancement” (DTCC website, 2017). As a leader, I hope to improve and expand the SI program in order to positively

serve more students, thereby keeping it in line with the spirit of the college's mission and vision.

Problem Statement

Student success, as measured by grades, GPA, pass/fail rates, and graduation rates, has been a major concern at DTCC. The ability of college students to complete their studies timely and successfully has become a major issue, especially in the past few years as educational and economic issues have moved to the forefront of problems facing the country (Carr, 2010). Students continue to struggle academically in their early courses, especially in developmental classes in math, as well as in some gatekeeper courses in science. The problems this ELP will address are the low pass rates in Elementary Algebra and Anatomy & Physiology I at DTCC and the ways in which the college's SI program can be improved in the future. Pass rates are tracked by DTCC's internal data analysis system and the results for MAT015 and BIO120 are shown in Table A.1.

Table A.1 2012-2016 Percent Pass Rates for MAT015* and BIO120 at Delaware Technical Community College's Four Campus Locations								
<u>MAT015</u>	Fall 2012	Spring 2013	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016
Dover	36.2	49.0	54.3	53.9	42.4	45.9	39.3	38.0
Georgetown	39.6	45.3	50.0	39.3	56.5	50.0	55.7	66.7
Stanton	32.9	46.1	45.7	40.1	41.8	48.9	54.0	49.3
Wilmington	47.7	51.8	50.2	43.4	47.4	43.3	43.9	48.3
<u>BIO120</u>								
Dover	71.0	72.0	80.0	77.0	67.0	49.0	68.7	63.2
Georgetown	73.0	70.0	80.0	78.0	80.0	77.0	87.6	79.1
Stanton	75.0	57.0	67.0	62.0	69.0	74.0	59.1	62.4
Wilmington	82.0	79.0	75.0	66.0	79.0	74.0	80.7	77.5

*MAT015 was replaced with MAT020 in the fall 2016 semester, the same semester that SI was first implemented

Pass rates for these courses have been on the decline or remained nearly the same throughout the years, with only little evidence of improvement. Finding ways to help students perform better in college has been a consistent problem at DTCC. In an effort to improve student success, DTCC launched a brand new initiative in SI. Based on principles of peer learning and student-centeredness, SI provides students with regularly scheduled, out-of-class, peer-facilitated learning and support sessions to assist them in mastering course content and improving study skills and learning strategies (Ning, 2010).

SI leaders are hired and specifically trained by the SI coordinators, based on UMKC's SI model, to develop educational strategies. These learning activities are designed to help students learn better study habits and skills, increase their

understanding of course content, and encourage them to collaborate with their peers to find answers to questions (International Center for Supplemental Instruction, 2016). This approach will support the college's aim to increase collaborative student engagement and active learning, two aspects that have become very important in higher education (Gasiewski, 2012). Since its inception, SI has been modified into different types of academic support programs, but time and again its methods have been shown to improve retention and grades in higher education (Price, 2012). The purpose of this ELP is to determine whether SI helps to solve the problem of low pass rates in Elementary Algebra and Anatomy & Physiology I. SI should improve the course grades of the students attending the peer-led study sessions and therefore, should increase the overall pass rates in the courses. This ELP also represents a powerful way to investigate DTCC's SI program and make changes for the better, while also showing how my leadership has shaped and improved this initiative. More research will be conducted in order to determine SI's long-term effects on overall pass/fail rates and graduation rates.

Improvement Goals

My first improvement goal is to help increase the understanding, comprehension, and retention of course material for students in the targeted courses. As a leader at DTCC who wants to see the college fulfill its mission, I want students to be able to succeed in their courses; this ELP will further investigate whether the SI program is helping to meet this goal. The exam grades and final course grades for all

of the students in the SI sections will be recorded. To determine whether this goal is being met, the data will be separated into “SI attendees” and “non-attendees”; UMKC defines an SI attendee as a student who attended at least one SI session during the semester (International Center for Supplemental Instruction, 2016). If the SI attendees had higher grades on their exams and higher final course grades, compared to the non-attendees, then I will have met my goal of improving student success through SI.

Since student success is my major goal with this ELP, I want to try to examine it in multiple ways. Related to the first goal is my goal of increasing the pass rates in the previously identified courses, which is another way of determining student success. In order to measure this improvement goal, the pass rates of the course sections with SI will be compared to the pass rates of similar sections of MAT020 and BIO120 (i.e. the same instructor) that did not have SI attached at all. Students may measure success in different ways, some may want an A, others may want to just pass with a C; some students may be primarily concerned with not having to repeat a course, while others may only be concerned with graduating as soon as possible. Increasing the pass rates overall, through SI, is a way to measure all of these definitions of success. I can use this information to show the DTCC administration that the SI program is improving student success and that I should lead the program’s improvement and expansion.

A third improvement goal that I have is to determine which parts of the new SI program the students liked and disliked; this metric will be examined through the use of a student satisfaction survey and a focus group interview. I led the SI committee in

developing the student satisfaction survey and I conducted the focus group interview based on questions I created. The purpose of the survey and interview is to find out from the students which aspects of SI are successful at DTCC and which ones are not working for them. It will also help me determine the effectiveness of the SI sessions and the learning activities that were conducted. Finally, the information gleaned from the surveys and focus group interview will help me lead the SI committee to improve the program for the future.

It is possible that there are some hidden benefits for all students in an SI course, even if they do not attend any SI sessions since they are voluntary. This could be due to the presence of the SI leader in lecture, as they demonstrate the behaviors of a model student (showing up on time, staying for the entire class time, taking notes, paying attention, not using their cell phone during class, etc.). SI leaders also meet briefly and informally with students to answer basic questions or to help guide them to resources. In order to ferret out these possible hidden benefits, the final course grades of the entire SI section will be compared to course sections that did not have SI attached. This will also help to identify the degree to which the SI program had an effect on student success.

Finally, I have several improvement goals for the future of the SI program. I want to try new ways of improving the attendance of students in the SI sessions and use my influence to increase the number of courses offered with SI attached to them. I am confident that in my role as a leader in the Science department, I can get DTCC to start providing SI for General Chemistry in addition to Anatomy & Physiology I. I

took it upon myself to start offering monthly SI leader training sessions, in addition to the 2-day training we do at the beginning of the semester, in order to improve the skills of the leaders. This idea is something that I learned about at an SI conference at Texas A&M University, and it is a practice that I have led the other SI coordinators in adopting. Lastly, I am hoping to gain more support for the SI program from more faculty and administrators. My role as a leader at DTCC will help me get more faculty members excited about the successes of SI and have them demand it for their courses. Through this, I hope to gain more administrative support in funding the SI program and in providing important program components, such as a dedicated space at each campus (for storing SI supplies, conducting SI sessions, and providing SI leaders a place to work and plan).

I want my leadership at DTCC to grow and expand in order to make our organization stronger. The SI program will be a doorway to gaining more experience and responsibilities as an educator at DTCC. My overall goal is to lead the SI program in becoming a major way that DTCC improves student success. This program, through my leadership, will help the college move from the current levels of understanding and comprehension the students are receiving and the current course pass rates to higher levels of academic attainment and increased pass rates. This ELP will also allow me to evaluate the effectiveness of the new SI program and develop improvements to make the program more successful. As a leader at DTCC, I will continue to research ways to improve the SI program, as well as to increase student success in other ways.

Organizational Role

I began working at DTCC in the summer of 2012 as an adjunct instructor. In December of 2012 I was hired full time as a Science instructor in the Allied Health/Science department at the Wilmington campus. My responsibilities as a Science instructor include the effective teaching of a variety of Biology courses, including BIO120. Most of the courses I teach include laboratories which require the use of hands-on learning activities and engaging instruction. I also serve as an advisor to students seeking admission into the respiratory care program. As a leading faculty member at DTCC, I am very concerned about the academic achievement of the students, as well as their ability to succeed in their courses, reach their goals, and ultimately graduate in a reasonable amount of time.

The first leadership role that I was tasked with was lead instructor for the BIO140 - General Biology course. In my role as lead instructor, I have had many responsibilities assigned to me as well as other projects that I have taken on myself to improve the learning material and student success in the course. I also took initiative by applying for a student success grant that is offered by the college. In this grant, I requested a modest amount of money to purchase Jeopardy-style game buzzers to use in my classes for review games, which help students retain the material better, and thus improve exam scores. They were such a success that I was asked by the college's Dean of Instruction to present the buzzers as a workshop at DTCC's first college-wide Instructional Innovation Conference held at the Dover campus. My hope is that as my leadership roles in the organization expand, so will my ability to conduct more

engaging lessons, as well as perform community outreach and educate more people about what DTCC can do to improve their lives and their community.

As an educator for over 10 years, it has been my goal to help students understand the course material, help them as they seek out knowledge, and see that they meet their educational goals. To that end, I have always had an interest in researching alternative methods of instruction and academic support services that more effectively meet the students' needs. The SI program is one of many such initiatives, and has been implemented at DTCC as a part of its *Blueprint for the Future: Keeping Students First* strategic plan (DTCC, 2015). After a competitive interview process, I was selected to lead the SI program as the coordinator for the Wilmington campus in August 2015; this began a year-long journey to learn as much as possible about SI and foster a close working relationship with the new SI committee. This committee was made up of myself, the other three SI coordinators (Stanton – Lauren Patson, Dover – Laretta Cooper, and Georgetown – Jill Smith), and John Buckley, the Dean of Instruction from the Dover campus.

In January 2016, the SI committee met with all three Deans of Instruction to discuss the preliminary plans for the program; it was at this meeting that the coordinators learned that BIO120 and MAT020 would be the two courses involved in the SI pilot program. After this important foundational meeting, the SI coordinators agreed to continue to work together on the development plans for the program, as well as meeting with math and science faculty to discuss the program more. In March 2016, I attended a three-day training session at UMKC with Mr. Buckley, Ms. Cooper, and

Ms. Smith. UMKC is home to the International Center of Supplemental Instruction and has been conducting training programs in SI for professionals for several decades. We all learned a staggering amount of information about creating and managing a new SI program. This training provided me with the tools that I would need to lead DTCC in the implementation of the SI program. Not only did I learn about the logistical requirements of an SI program and the administrative and supervisory duties of an SI coordinator, I also learned important leadership qualities such as communicating with peers and leading group discussions and brainstorming activities.

Late-spring and summer of 2016 were spent making final plans for the SI pilot program based on the information obtained from the UMKC training. In May 2016, I presented the details of the new SI program to the entire college community at the DTCC Academic Summit. The duty of speaking to the entire faculty population of DTCC is a responsibility bestowed upon those viewed as important leaders at the college. I also had to work with the department of instruction and the registrar to lead the development of the new SI schedule and with human resources in order to create the SI leader job position and recruit and hire the new SI leaders. A week prior to the start of the semester, the SI coordinators hosted a two-day training program for the students hired as SI leaders. The SI pilot program officially launched at the beginning of the fall semester, on August 22, 2016. All of this work could not have been accomplished without my leadership role as the SI coordinator for the Wilmington campus and as a Science instructor. A big part of being a leader, especially for a new program, is the willingness to listen to others and work with them effectively to reach

a common goal. I feel as though the SI program will help me become a much stronger leader because I am learning when it is appropriate to take charge of the SI committee, but also when to let others lead the group.

In addition to the initial planning and program implementation stages, I have other responsibilities as SI coordinator. First, I am required to observe one SI session per SI leader every week. The SI sessions are scheduled on certain days and times and can last from 50 to 65 minutes; I observe these sessions when my work schedule allows. When I observe an SI leader's session, I record the results and my thoughts on an observation form. Second, I meet with each SI leader for up to one hour each week. In these meetings, we discuss any observations made previously (what worked well during the session and what needs improvement), scheduling issues, timesheets, and any problems or concerns the SI leader may have regarding the class, the students, or the sessions.

A third important responsibility is the recording of attendance and grade data. The students sign in for every SI session - the SI leaders are responsible for making sure students sign in and for giving the sign in sheet to the SI coordinator. Occasionally, the SI leaders do not turn in forms in a timely fashion, so as their supervisor, I need to work with them more about the importance of meeting deadlines and submitting quality work. Working with these student employees will be a major way that I develop my own leadership skills. Once I receive the sign in sheet, I enter the student's attendance time on one spreadsheet and enter a "1" on another spreadsheet in which we track session attendance and grades. At the end of each week,

I enter the total number of visits for each SI section and update the same information on a Google Drive document for all four coordinators to see. Once an exam is given in class and the instructor posts the grades to Blackboard, DTCC's Learning Management System, the SI coordinator records the grades on the attendance/grades spreadsheet. As a college wide committee, data collection is very important in order to track whether or not the program is meeting its goals. At the end of each semester, a report is created by the SI coordinator detailing the student attendance results, the student grade data separated into SI and non-SI attendees, and information gleaned from the student satisfaction survey. Based on these data, the SI coordinators discuss conclusions and whether or not the program can be deemed effective and successful. SI is a new program at DTCC, so I am helping to lead the charge to improve the academic support services at the college. Moreover, the data collected will help me lead the committee to make decisions that impact the future implementation strategies and the long-term improvements of the program.

In May 2017, I attended Texas A&M's 8th annual SI Conference in College Station, TX. This conference gave me a crucial opportunity to learn more about how other schools operate their SI programs and the types of successes and failures they have had in their attempts to create effective SI programs. I learned helpful new information about training SI leaders, managing SI leaders and SI faculty, and most of all how to modify and improve the program at DTCC to make it more successful at meeting its goals. Networking with others from around the country who share a similar goal of student success is another important attribute of a leader that this

conference helped me improve upon. I made lasting professional relationships with people who will help me be more effective in leading the SI program at DTCC.

The SI program will continue to grant me leadership and learning opportunities I never could have imagined. Hopefully the program will expand and I will begin training and managing more employees, learning how to manage more people will be an important leadership opportunity. Also, I should be granted more oversight over the program's budget, while being permitted to seek out grants to fund the program. I have already traveled the country twice to learn about ways to help students and manage others through SI, I hope this will continue as my leadership duties grow. I am working with an incredibly diligent group of colleagues, and continue to be a leader to both my peers and my employees. I continue to offer advice and ideas to the other SI coordinators when they encounter challenges in their programs. The SI leaders look to me for guidance in how to improve their sessions and to encourage more students to attend SI; I work with these peer leaders to help them assist more students and to fulfill their responsibilities more effectively. I am confident that I can enact positive change that will benefit the students of DTCC and help them be successful through my leadership role in SI.

Table A.2
List of Artifacts

Number	Artifact	Type	Audience	Description	Timeline
1	SI Paper	Literature Review	Committee	This paper will provide background information about the history of supplemental instruction and evidence of its effectiveness. Much of this information will be used by me to lead the implementation and improvement of DTCC's SI program.	Completed by December 1, 2017
2	Problem Paper	Problem Analysis	Committee	This paper will provide information surrounding the difficulty of gatekeeper and developmental courses both nationwide and at DTCC. This will be the basis of the problem that the SI program is trying to address.	Completed by December 15, 2017
3	Data Analysis Plan	Model Design, adapted from the original plan I developed in EDUC827	Committee	A presentation of the data collected and analyzed from the SI program in order to prove its effectiveness. This information will be used to highlight the SI program's successes as well as find ways to improve the program for the future.	Completed by November 10, 2017, pending committee input
4	Leadership Duties	Internal Communications	Committee	A collection of meeting agendas & minutes from every SI coordinator meeting and meetings with DOI's/Academic Affairs. Demonstrates my leadership skills in planning/ conducting meetings with peers and in discussing issues with my superiors. Contains the agenda for when I presented information about the SI program to all of the DTCC faculty collegewide.	Completed by November 15, 2017
5	Training Materials	Tools	SI coordinators	A collection of materials (agendas, activities, plans) that the I developed, based off of the UMKC model, to train new and returning SI leaders. I also led individual SI	Completed by November 15, 2017

				leader training in Wilmington using my own ideas to help the SI leaders be more successful.	
6	Connections to Human Resources	Hiring Protocols	DTCC administration	A collection of materials provided by and to DTCC human resources to create the SI leader position. I was integral to the creation of the SI leader position and led my campus in establishing the new job, interviewing, and hiring the new personnel for the program.	Completed by November 10, 2017
7	SI Session Effectiveness	Observation analysis, adapted from an idea obtained in EDUC863	Committee	Observations are key to maintaining and improving the effectiveness of the SI sessions. As the leader for the program at my campus, I had to observe the SI leaders (student employees) and meet with them about the satisfactory aspects of their sessions and the aspects that need improvement. I helped these employees to improve their sessions and to address any problems or concerns. For this artifact, I will attempt to quantify these aspects in order to see upward or downward trends in the quality of the sessions.	Completed by November 10, 2017, pending committee input
8	SI Program Effectiveness	Survey and interview analysis, modified from a report written in EDUC863	Committee and SI coordinators	This is an analysis of the student satisfaction survey that was given to students in order to collect their opinions of the SI program and the results of a focus group interview. This will help rate the effectiveness of the SI program using the students' point of view.	Completed by November 20, 2017
9	History of SI at DTCC	Website, created in EDUC639	DTCC administration and the community at large	This will be a repository for the history of DTCC's SI program including general SI information, a timeline, success stories, and pictures.	Completed, ongoing updates and additions

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Appendix B

ARTIFACT 1: PROBLEM PAPER

High Fail Rates in Developmental and Gatekeeper Courses in Higher Education

Introduction

A major problem exists in American community colleges today: extremely low graduation rates, which is linked to high course fail rates and high attrition rates. This problem is compounded by the fact that many students enter college who are not yet ready for college-level courses; these students are required to take developmental courses and often have even lower graduation rates than students who do not require such courses (Bailey, 2010). Developmental courses are classes considered below college-level (not for college credit) that are offered at a postsecondary institution (Calcagno, 2007). Not only do developmental courses have extremely high fail rates, but so do many community college gatekeeper courses. Gatekeeper courses are “college-level classes that students are required to complete successfully before enrolling in more advanced classes in their major field of study” (Hoachlander, 2003). Delaware Technical Community College (DTCC) is one such community college that struggles with a low graduation rate and high fail rates in certain developmental and gatekeeper courses. The graduation rate at DTCC is about 14%, and the majority of students require developmental education (DTCC fact book, 2017). Defining student success is quite challenging; often colleges and universities fall into the trap of only considering graduation rate, but there are many other metrics to take into consideration, including course pass rates, graduate employment, and student satisfaction surveys (Mullin, 2012).

Not only have some developmental and gatekeeper courses been identified as challenging for students to pass, but they also slow a student's ability to progress through the sequence of courses for their major. Furthermore, developmental and gatekeeper classes are often prerequisite courses, which is why it is even more important that students pass them; however, they often fail to do so. MAT020 - Elementary Algebra is one example of a developmental course that causes trouble for DTCC students. This course is the last in a sequence of three developmental math courses that students can place into based on their SAT score or their score on the Accuplacer placement test that DTCC utilizes. Students who score between 450-499 on their SAT or 90-120 on the college's CPAR math placement test (DTCC course placement matrix, 2016) are placed into MAT020. This course must be passed with a C or better in order for students to move on to college-level math courses in algebra, statistics, and pre-calculus as well as some chemistry courses. According to the mastery learning philosophy ascribed to by the math department, students must pass each and every exam in their math courses. The DTCC grading scale is as follows:

A = 92-100%

B = 83-91%

C = 75-82%

F = below 75%

Therefore, students in the developmental math classes must score a 75% or better on every course examination and have a final average of at least 75% in order to pass the class and move on in their program of study. In an attempt to address the difficulties

that students have in passing developmental math, the curriculum was re-designed, and MAT020 took the place of MAT015, a previous version of elementary algebra, though the courses are not totally identical.

In my area of expertise as a science instructor, the major gatekeeper course for students in nursing and allied health majors is BIO120 – Anatomy and Physiology I. The nursing and allied health programs at DTCC have a competitive admissions process in which students apply to their program of choice after one to two years of study. Students applying to these programs earn points on a ranking sheet based on the letter grades they receive in several courses. BIO120 is not graded based on mastery learning; rather, the students must have an exam average of 75% or better, a lab average of 75% or better, and a final grade average of 75% or better in order to pass the class. The exam average is worth 75% of the final grade average, the lab average is worth 20%, and the remaining 5% is based on small formative assessments given throughout the semester. Almost all of the majors under the health sciences umbrella require BIO120 in the first year of study; this course is a prerequisite for BIO121 and counts as a substantial number of points on the application ranking sheet. Students often dread taking this class because there is a lot of content that is covered, and the course has a reputation for being especially difficult to pass.

Pass rates are tracked by DTCC's internal data analysis system, and the results for MAT015 and BIO120 are shown in Table B.1. The pass rates for these courses have been on the decline or remained nearly the same throughout the years 2012-2016, with only little evidence of improvement. An interesting phenomenon seems to

indicate that students usually perform better in the spring semester, especially in BIO120. The reason for this is not apparent, but could possibly be the result of students taking the classes in the fall and failing it, and then re-taking the course in the spring and passing it. Finding ways to help students perform better in college has been a consistent problem at DTCC.

<u>MAT015</u>	Fall 2012	Spring 2013	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016
Dover	36.2	49.0	54.3	53.9	42.4	45.9	39.3	38.0
Georgetown	39.6	45.3	50.0	39.3	56.5	50.0	55.7	66.7
Stanton	32.9	46.1	45.7	40.1	41.8	48.9	54.0	49.3
Wilmington	47.7	51.8	50.2	43.4	47.4	43.3	43.9	48.3
<u>BIO120</u>								
Dover	71.0	72.0	80.0	77.0	67.0	49.0	68.7	63.2
Georgetown	73.0	70.0	80.0	78.0	80.0	77.0	87.6	79.1
Stanton	75.0	57.0	67.0	62.0	69.0	74.0	59.1	62.4
Wilmington	82.0	79.0	75.0	66.0	79.0	74.0	80.7	77.5

*MAT015 was replaced with MAT020 in the fall 2016 semester

Other community colleges have attempted to address the issues that students have in passing developmental and gatekeeper courses. There is a long and well established connection between academic engagement and performance to persistence (Gasiewski, 2012), and members of the City University of New York (CUNY) sought to target persistence in their attempt to decrease developmental education fail rates while increasing their graduate rate. To that end, CUNY launched a program called Accelerated Study in Associate Programs (ASAP) at its six community colleges in

2007. CUNY ASAP required comprehensive advisement, mandatory tutoring, and financial supports for students enrolled in their developmental courses (Scrivener, 2013). The program improved rates of persistence, helped students complete their developmental education requirements, and raised rates of graduation (Scrivener, 2013). As a DTCC faculty member, I hope that the college will continue to investigate programs such as CUNY ASAP and strive to find ways of improving the educational success of all of its students.

The Struggles of Developmental Math Education

About half of all American college students attend two-year community colleges, and about half of those students have to take developmental math courses (Chingos, 2016). It is estimated that this need for mathematics remediation costs about two billion dollars annually (Hudesman, 2014). This is a big problem; in fact, students who test into developmental math often do not make it out of developmental math, are unable to progress in their coursework, and drop out of college. It seems that many community college students are graduating high school without a basic knowledge of mathematical skills and are unable to begin college-level math courses. There are also many non-traditional students who attend community college, students who have been out of high school for a number of years; these students often also test into developmental math courses along with their younger counterparts. Most of these students struggle to pass developmental courses, as evidenced by the pass rates in Table 1; nationwide about one-third of students in developmental math education make it to credit-level math courses (Cox, 2014).

One solution might be to employ better teachers to instruct students in these mathematical concepts. It has been found that Master's level, full-time community college instructors tend to have the best pass rate results in their developmental math courses (Chingos, 2016). It is also important to employ teachers who reflect upon their teaching approaches and are flexible enough to change their methods and approaches when something does not seem to be working (Potter, 2008). In addition, having faculty who are members of learning committees and professional organizations are more effective in their instruction of developmental courses (Cox, 2015). Establishing clear goals and creating diverse learning opportunities is crucial to the success of college students, especially in developmental education. High quality faculty members should deliver high quality instruction, thereby increasing student success in developmental courses.

Related to the quality of the instructors is the quality of instruction; perhaps most schools need to take a closer look at the curriculum and make some over-arching changes or modifications. One method of modifying a curriculum is the addition of graded formative assessments, small assignments throughout the semester that encourage students to keep up with the course material. The key to the successful implementation of formative assessments is fast and meaningful instructor feedback (Hudesman, 2014). Simply stated, the students need to know how they are performing in the class at multiple points throughout the semester and, more importantly, need to know what they are doing wrong and how to fix their mistakes. There is often little time in the semester for the review of multiple formative assessments; it takes a lot of

dedication on the parts of both the instructor and the student, but with proper planning and perseverance, it can be done. One college developed a comprehensive program of formative assessments called Enhanced Formative Assessment and Self-Regulated Learning (EFA-SRL) in which the instructors were all highly trained and prepared and the students were quizzed often with immediate instructor feedback. The study of this program showed that the students in EFA-SRL had a pass rate in developmental math of 79.2% while the students not in the program had a pass rate of 63.5% (Hudesman, 2014).

Another example of changing the entire developmental education curriculum can be found at Rasmussen College; this school created a new, accelerated, synchronous, and fully online version of developmental education that showed great increases in developmental pass rates (Doherty, 2016). This reform movement was created by the college's leadership in response to abysmal pass rates in developmental courses. The instructional departments worked closely together, revised their placement tests policies, provided training and support to its faculty, and worked with instructional design teams to create this new online program. There was some initial success, then the program was further improved by the inclusion of faculty-created asynchronous tools, formative assessments, and a new motivational framework to guide the program (Doherty, 2016). The pass rates consistently rise each year, so the program continues to be studied and enhanced.

The final struggle in developmental education that needs to be discussed is the disparity between the pass rates of white males and their non-white and/or non-male

counterparts. Nationwide, white male students have consistently scored higher on math placement exams than female or African American students, perhaps because the tests themselves are biased (Rech, n.d.). In one case, ACT scores accurately predicted grade outcomes for white male students in developmental algebra, but they were not accurate predictors for African American male students (Rech, n.d.). Colleges and universities need to find ways to accurately assess the level of math aptitude in underrepresented groups and then to support these students better as they progress through their developmental math program. It is possible that these groups are not receiving the educational supports and guidance that they need in their K-12 education, which is also something that bears additional research and more attempts at closing the educational gaps that minorities often experience.

The Prevalence of Introductory Biology as a Gatekeeper Course

As an introductory biology instructor for over ten years, I have noticed a pattern for many students. Often times, a student is interested in science or a health-related field such as nursing, so they register for the first of many biology courses, something that might be called Biology I, General Biology I, or Anatomy and Physiology I. These students have high hopes, a desire to be successful so that they can move on to their next biology course, and they obviously want to graduate so that they can get into their choice of career. However, for many of these students, passing this introductory biology course is nearly impossible, and not getting past this gatekeeper means that they will not be able to get the job that they want. Why does this happen? Why are these gatekeeper science courses so difficult for students to

pass? I cannot fully answer these questions, questions that have confounded me since I began teaching college-level science.

Two of the biggest problems with introductory biology are that the instructional delivery often encourages passive learning and that the individual sections have a large number of students. A large, lecture-style class can be daunting for a new college student, as most science/health science majors take their gatekeeper biology course in their first semester (Scott, 2017). There have been numerous studies that have shown strong relationships between smaller class sizes and greater student success, in both K-12 and higher education. One such study showed that student engagement and final grades were much higher in a smaller introductory biology class (23 students) than in a larger section (80 students) of the same course; in fact, the difference in student engagement and final grades was statistically significant (Scott, 2017). In addition, students tend to become discouraged by the copious amount of material delivered in a fast-paced lecture, in which rote memorization is the norm (Seymour, 1997). Many students experience worry and anxiety when they begin a gatekeeper biology course, such as Anatomy and Physiology I, because other students have told them that the class moves quickly, has a lot of material that needs to be memorized, and is challenging and difficult to pass. At DTCC, this issue is exacerbated by the fact that the course counts for a significant amount of points on their ranking sheet for acceptance into an allied health or nursing program.

One way to deal with the massive class size is scheduling smaller lab groups and/or out of class discussion, recitation, or study sessions. These meetings encourage

more student interaction and give them opportunities to study and ask questions in a more comfortable, less formal environment. These smaller group sessions or meetings will also help with students learning the content better because they can discuss the material and break it down into more manageable chunks of information. Providing the students with a teaching assistant, student leader, learning coach, or tutor during these sessions is key to helping the students develop better study skills and test preparation strategies. Improving student success by utilizing these strategies as well as other ways to address the issues of class size and instructional delivery could transform these courses “from gatekeepers to gateways” (Scott, 2017).

Another method of improving the instruction of gatekeeper biology courses is to institute more hybrid course delivery, in which some instruction takes place in the classroom and some happens online, both synchronously and asynchronously. Providing massive amounts of course content online is nothing new and it has been in use for years (Chingos, 2017), but oftentimes instructors do not utilize available resources effectively. Studies have shown time and time again that traditional face-to-face courses, hybrid courses, and online courses are all equally effective in terms of student learning (Chingos, 2017). The issue is more about the willingness of colleges and universities to offer courses in hybrid and online formats, especially in the sciences that utilize critical hands-on activities in lab sections. It is possible that a hybrid format could help more students succeed in the course; laboratory activities could be done in person, while homework, study tools, notes, lessons, and practice tests could all be offered online for the students to access at times convenient to them.

This flexibility coupled with a total immersion into the course content should improve the pass rates of students in an introductory biology course and give them the tools they need to be successful in future science courses.

Other Concerns Related to STEM Education

The deficiencies in science, technology, engineering, and mathematics (STEM) education in the United States have been apparent for several years. Other countries in Europe and Asia are educating students who are better informed and more prepared for a career in STEM, whether it be in engineering, research, education, technology, or health. The problems with developmental education and gatekeeper science courses mark the beginning of a much wider gap in American STEM education. What is preventing the United States from being competitive in these areas, and why are we falling so far behind?

One answer to these questions may be because we are not informing students about STEM fields early enough, and we aren't working hard enough to include women and minorities in such careers. Preparation should begin in middle school, by offering students opportunities to join math clubs, participate in science fairs, engage in computer programming, conduct research using technology and basic engineering skills, and a whole host of other activities that can be done both inside and outside the classroom. The barriers to early, focused STEM initiatives are often funding, lack of administrative support, teacher apathy, and school policies on use of classroom time (such as more focus given to state testing requirements). The problems only become greater in high school when interest in pursuing a STEM education seems to diminish;

less than half of all high school students in America actively seek courses in math and science in preparation for college (Redmond-Sanogo, 2016). The number of women and minorities who obtain STEM careers remains much lower than the number of white males, so it is critical for high schools and colleges to find more ways to encourage these students to pursue STEM classes and possible careers in one of those fields. Only 20% of individuals from underrepresented groups who begin college in a STEM major actually finish with a STEM degree (Freeman, 2014). Interestingly, women who choose STEM degree programs complete these courses of study in similar numbers to their male counterparts, but “the enduring issue seems to be attraction and recruitment” (Redmond-Sanogo, 2016). Once middle and high schools improve programs that encourage students to obtain a deeper education in STEM, it will then fall to institutions of higher education to keep these students in their area of interest and steadfastly pursue a career in STEM.

One way that colleges and universities can increase participation in STEM is to move beyond gatekeeping to a more proactive dedication to student engagement (Gasiewski, 2011). When students find themselves disengaged from a course due to lack of interest, passive teaching approaches, little to no collaboration, and a general lack of support from the instructor, they will stop attending classes and possibly give up on STEM all together (Gasiewski, 2011). There needs to be a shift in the way we teach STEM in higher education, a shift from the classic lecture style to one of active learning. Active learning makes students more excited about approaching new concepts, which greatly increases their engagement (Gasiewski, 2011). Additionally,

active learning has been shown to decrease failure rates in STEM courses by 55% (Freeman, 2014).

Another way to increase the number of students in STEM majors (and ultimately STEM careers) is through properly identifying predictors of success and by leveraging appropriate and meaningful advisement to the students throughout their education. First, the grade in high school chemistry is an accurate predictor of how well a student will perform in college-level math and chemistry (Gasiewski, 2011 & Redmond-Sanogo, 2016). Therefore, more high school students should be encouraged to take chemistry, and then college advisement personnel can examine that grade. If students with high aptitude in chemistry can be identified and encouraged to pursue a STEM field, it could result in higher STEM graduates. The relationship between math and chemistry suggests how vital it is for STEM educators to work together to improve identification of predictors, to develop better placement exams, and to find ways to increase their involvement in advising students in their pursuit of their educational and career goals. One team of educators developed an algebra test that was highly predictive of a student's success in general chemistry, with an 83% accuracy rate (Cooper, 2012); this test became extremely useful to the chemistry faculty and enabled them to provide a better education to the students. This is one example of what can happen when multiple instructional departments all under the STEM umbrella work together to help students succeed.

Discussion

We, as educators, can do better. Students in higher education continue to struggle in developmental math and introductory science year after year, with diminishing hope that they will succeed. There have been numerous attempts at DTCC to improve the developmental math curriculum, but with little progress actually made. The college went from lecture model, to an emporium model, to a complete revision of the curriculum in the span of only a few years; however, the emporium model, in which students do the majority of the work on their own on a computer is an affront to what research says about adult learners (Bradley, 2017). The current way in which we teach math and science often violates what we know about student engagement, how people learn, and the principles set out by Knowles in terms of experiential learning for adults (Bradley, 2017).

In order to make the instruction more student-centered and active, DTCC must implement changes that encourage collaboration and problem-solving. These problems will not be solved quickly, but everyone involved in education can take steps to move in a better direction to improve students' ability to succeed in math and science. One possible solution to this problem at DTCC is the implementation of a program in supplemental instruction. This would provide students opportunities to work collaboratively in smaller groups, to learn from their peers and obtain new strategies for tackling the course content, and would provide a welcoming atmosphere for all students, regardless of age, gender, race, ethnicity, or country of origin.

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Appendix C

ARTIFACT 2: HISTORY OF SUPPLEMENTAL INSTRUCTION

The History and Growth of Supplemental Instruction

Introduction

Supplemental instruction (SI), an alternative academic support service that was created in 1973 by Dr. Deanna Martin, began as a program to help minority students in the health sciences at University of Missouri – Kansas City (UMKC) (International Center for Supplemental Instruction, 2016). One of Dr. Martin’s immediate concerns was how to create a cost-effective program that would be financially sustainable. To protect the program more from budget cuts, she attached SI to student affairs rather than academic affairs (Martin, 1994). The leadership at UMKC did not want to lose students to attrition or lower the high academic standards of the university, so SI became one of the solutions to this problem (International Center for Supplemental Instruction, 2016). SI consists of optional, out of class study sessions led by a near-peer, deemed the SI leader. This SI leader attends the course lectures and plans learning activities based on material from those class lessons. The SI coordinator is the faculty or staff member who oversees the program, trains and manages the SI leaders, observes the SI sessions, and reports back to the institution’s administration about the program. In 1981, the U.S. Department of Education recognized the validity of SI by designating it as an exemplary educational program (Lockie, 2008).

Almost immediately, the data at UMKC showed that SI was helping students improve their grades; the “A-students did not want C’s and the C-students did not want D’s or F’s” (Martin, 1994). By being more proactive and focusing more on the “high-risk” courses and students, SI challenges traditional academic support services

that are reactive (International Center for Supplemental Instruction, 2016). Drawing from national data from 2002-2012, SI has shown to improve overall course grades by about half a letter grade and decrease D/W/F grades by half (International Center for Supplemental Instruction, 2016).

The major goals of any SI program is to improve the learning and performance of the students who attend the SI sessions and to increase the pass rates and retention in the targeted courses. SI has been shown to support cultural diversity in higher education, develop critical thinking skills, and increase retention and performance (Martin, 1994). The final key to the success of an SI program is having the faculty and administrative support from the college or university (Zaritsky, 2006). SI coordinators and leaders must be supportive of the needs of faculty while also being persuasive in their roles to garner support. When a faculty member is not supportive of SI, it is better to not offer SI in that course rather than spend the time and energy trying to win the person over (International Center for Supplemental Instruction, 2016). When implemented correctly, it is possible for the students, faculty, and administrators to become more effective active learners as a result of SI (Martin, 1994). Extensive training of the SI leaders, professional development of SI coordinators, and institutional support from faculty and administration are all crucial components to the success of an SI program.

SI targets historically difficult courses that have high fail rates or withdraw rates; usually these courses are identified as gatekeeper or pre-requisite courses. Knowledge is constructed, rather than delivered; SI seeks to break the dependency

cycle in which students passively receive knowledge from an instructor (International Center for Supplemental Instruction, 2016). Instead, SI follows a learning paradigm which states that learning is student-centered, active, and messy, sometimes to the point of being uncomfortable. SI is not tutoring or re-lecturing, rather the SI leader facilitates the time and organizes activities in which the students interact and cooperatively help each other learn. SI sessions incorporate the use of redirecting questions, extended wait time, and methods of checking for understanding to increase the active learning of the students. There is also evidence that SI does a better job at supporting women and minority students in their education and that these groups are more likely to attend SI rather than seek out other help such as tutoring (Stone, 2008).

SI was implemented at Delaware Technical Community College (DTCC) during the 2016 – 2017 school year. For this pilot program, each campus's SI coordinator selected two sections each of MAT020 (Elementary Algebra) and BIO120 (Anatomy and Physiology I) to be designated as SI sections, and SI leaders were hired and assigned to a particular section. The SI leaders had previously taken and been successful in the course (or a similar course), attended the class lecture, and facilitated two or more one-hour SI sessions each week. These sessions were optional for the students to attend and focused on integrating content with study skills through student-to-student interaction.

The Benefits of Supplemental Instruction

There are four major groups of people who benefit from SI: engaged students, SI leaders, SI coordinators, and involved faculty. First and foremost, the students who are in the SI courses and attend the SI sessions primarily benefit by learning the material more effectively and obtaining higher grades in the course. The University of Alabama conducted a study in a psychology course in which students who attended SI averaged more than 10 points higher for their final course grade than non-attendees (Price, 2012). Another study showed that SI can have a strong positive influence on the academic performance of students in China (Ning, 2010). Studies have demonstrated time and again that SI helps students in improving their grades and reducing failure (Zaritsky, 2000); however, there are more benefits to the students than just academic numbers.

One of SI's most prominent benefits to students is not just that it helps them learn, it teaches them *how* to learn (McGuire, 2006). Many college classrooms are lecture based, so the students are expected to show up on time, pay attention to the instructor, and take a copious amount of notes. Rarely is there a chance to ask probing questions or engage in discussion; this is what SI allows for. The students are also given opportunities to learn study skills and note-taking strategies from the SI leader and from each other. SI seems to increase the self-efficacy (Price, 2012) and the intrinsic motivation (Ning, 2010) of the students, at least those who attend the sessions regularly. SI supports all three modern learning theories: behaviorism is supported by some of the learning activities that occur in the sessions (ex. worksheets or practice

quizzes to check for understanding); the cognitivist approach encourages active learning which is consistent with how effective SI programs are delivered; and constructivists emphasize the importance of building on prior knowledge to increase new knowledge, something that also often occurs during SI sessions (McGuire, 2006). SI has the potential to give students a much deeper understanding of the material in the course and increase the retention of what was learned.

The next group that benefits from the SI program are the SI leaders. These student employees learn crucial time management, problem-solving, and communication skills (Stone, 2008). For example, they must plan the SI sessions within a specific time frame and then adjust the activities based on how the students perform; as a result, the SI leaders are honing critical skills of valued educational professionals. SI leaders have to design and implement various types of interactive activities and learning games (Stone, 2008) which can be difficult to manage and control at times. Through their role, SI leaders need to communicate using technology as well as words and body language, all important skills for them to gain in whatever field they are pursuing for a career. It has also been shown that being an SI leader improves their own performance as a student by giving them opportunities to learn different methods of studying and retaining course material (Lockie, 2008). SI leaders also benefit in that some schools offer credit courses in leadership to them, free or reduced tuition, and/or priority registration.

The third group who benefit from an SI program are the SI coordinators; the benefits are similar to those of the SI leader. SI coordinators gain important leadership

experience and communication skills in their role as manager. They develop superior organizational skills while they effectively manage the schedule of SI sessions, conduct observations, and plan meeting times accordingly. Communication is key for SI coordinators as they have to describe the program to faculty, train the SI leaders and provide them with meaningful feedback, and explain the status and findings of the program to administrators.

The final group that benefits from SI is the instructional faculty who are involved in the program. Preparing to be SI faculty requires professional development opportunities and training, and participating in SI could encourage faculty to reassess their own teaching methods (Martin, 1994). It is common for an SI leader to give a faculty member an idea about a learning strategy or a way to check for understanding in the classroom, since the leader and faculty member meet occasionally to discuss course material. In addition, the students in courses with SI recognize that the college is trying to provide them with more support, so they are more appreciative and happier with their course placement. Faculty are often more satisfied if a greater number of students are doing well in the course and eventually pass, which is the main focus of SI.

Role in S.T.E.M. Education

SI seems to be the most successful when attached to higher education courses in science, technology, engineering, and mathematics (STEM). Specifically, studies reveal that students in chemistry, biology, nursing, and engineering courses with SI benefit greatly. In a study of students in general chemistry I and II and organic

chemistry I and II at a mid-sized public university, it was found that SI helped raise the pass rates and course grades of general chemistry I and organic chemistry I and II; only in general chemistry II were the pass rates identical and the SI group had slightly lower grades (Rath, 2011). For the most part, Rath (2011) reports that SI helped decrease the gap in the grades of under-represented racial minorities; however, this difference was not found to be significant. Researchers concluded that SI tends to help students more in introductory courses vs. second tier classes (Rath, 2011).

Not only can SI be successful when attached to general chemistry courses, it can also help students excel in biology. In a small case study that focused on at-risk college students in an introductory biology course, it was found that the SI attendees had a 90% pass rate, while 32% of the non-attendees passed the course. Also, the difference in the final course grades of the SI group vs. the non-SI group was found to be significant (Shaya, 1993). In this study, the students' high school GPA and ACT scores were also collected and compared, and the differences between the SI group and non-SI group were not significant. This would indicate that it was SI that helped that group of students succeed in the introductory biology class, rather than their previous high school courses or background knowledge. The researcher mentioned that this SI program was especially successful because "students who attended supplemental-instruction were, in effect, learning more than biology; they were learning how to learn" (Shaya, 1993). The University of Minnesota also conducted an interesting study on SI attached to an introductory biology course; the final results were thought-provoking. On individual exams and final course grades, the SI group

performed only slightly better; however, when examining the final course grade distributions, it was found that many more non-SI attendees received A's than the SI attendees and about the same number received B's, but the SI attendees received a significantly greater number of C's and a significantly lower number of D's and F's than the non-SI group (Moore, 2006). To me, this would indicate that SI may not have had a huge effect on individual grades or in helping students get A's, but it most likely helped a great deal of students get B's and C's who may very well have failed the course altogether without the assistance provided by SI, and, for the most part, the researchers agreed with this conclusion in their report.

The next logical move is to determine whether SI has a long-term effect on students' abilities to perform better in higher-level STEM courses. One study compared nursing program transfer students who attended a version of SI called Guided Study Session (GSS) to students who did not attend any such program; it was found that attending GSS helped the students perform better academically and that it also mitigated the impact of "transfer shock" (Clark, 2015). SI and its off-shoots have shown over and over again to be instrumental in improving academic performance, but this study also illustrates some of the subtler benefits of SI, such as giving the students more confidence and the ability to adapt to challenges when they transfer to a new institution. A study out of Sweden looked at the effects of SI on students in engineering majors and found that SI in the lower-level courses helped to reduce the attrition rate of engineering students, enabled students to move through their course work more successfully, and increased the graduation rate (Malm, 2012). The

researchers in this study also pointed out the notion of SI increasing the confidence and satisfaction levels of the students, therefore helping them be more successful in the long-term. The benefits that SI can have on STEM courses was one of the driving forces in DTCC's decision to launch their pilot program in BIO120 and MAT020 classes.

The Future of SI

Many colleges and universities are now looking at adapting the SI model into other forms of student centered academic support, including the previously discussed GSS and other programs known as Peer Assisted Study Sessions (PASS) (Price, 2012) and Peer Assisted Learning (PAL) (Painter, 2006). It can be necessary to deviate from the UMKC model in order to accommodate the needs of the respective institution through SI program alternatives. Another adaptation is carrying SI into arts and humanities courses rather than just having it remain in science and math. At the University of Regina in Canada, for instance, some of the school's faculty wanted to model an SI program for an English composition course off of the already established and very successful SI program in the sciences and math. Attendance was low and this program was not seen as successful; the researchers then decided to try SI in a historically difficult philosophy course and saw better results (Cheng, 2014). This indicates that while it is possible to modify SI to fit with non-STEM courses, it is important to focus on classes that are considered historically challenging, which makes sense since one of the main tenants of SI is to target difficult courses, not struggling students.

Another future area of study is to determine what effect demographics (gender, race, socioeconomic background) play in the success of SI attendees. A community college in Southern California studied this and found that SI attendance was a stronger predictor of academic success in females when compared to prior GPA, but not in males (Rabito, 2014). These results could indicate that female students get more benefits from attending SI than male students do, and therefore females should be encouraged to attend. Another finding was that SI attendance was higher in students of color when the SI leader was also a student of color, but race seemed to have no effect on white students attending SI sessions when the SI leader was also white. This study underscores the importance of studying the effects of SI from other angles, such as demographics, rather than just focusing on the effects on academic performance.

Other future possibilities for SI include online or video-based SI, linking SI with learning communities, and involving more faculty members in the process. Video-based supplemental instruction (VSI) would be especially helpful in dual enrollment courses, when high school students take college courses to earn credit at both institutions (Painter, 2006). The students would benefit greatly because VSI can be done on their schedule asynchronously and give them opportunities to learn new study skills. This coupling of SI and technology would be advantageous to the students, SI leaders, and to the faculty member; not only would the academic assistance be more available, VSI would provide all participants with valuable experience in working with new technologies (Stone, 2006). The best practice seems

to be to integrate typical face-to-face SI sessions with online SI to reach more students and maximize potential benefits (Painter, 2006).

Learning communities (LCs) in higher education typically organize two or more courses around a central theme in order to improve student success (Couchman, 2008). Designing a learning community is usually accomplished by focusing the courses' content on the central theme, combining a course with a skills focus and a course with content that supports the skills, and/or integrating general courses for an occupational program (Painter, 2006). Integrating SI into LCs is a smart, logical idea; they share common goals of improving academic success, increasing student confidence, and encouraging cooperative learning. Students would most likely be able to work more closely with the faculty member, and therefore gain a deeper understanding of the content and earn higher grades as a result of the marriage between SI and LCs (Painter, 2006). A profound transformation is occurring right now in higher education, especially in the diversity of learners and learning styles, and, as a result, it is important for an academic support program like SI to adapt to these changes and accommodate this new diversity (Couchman, 2008).

The final way that SI may be changing in the future seems to violate one of the primary tenants of SI, but could very well improve it, and that is including the faculty member in the SI sessions. For decades, UMKC has recommended that not only should faculty be barred from attending the SI sessions, but that they should not even know which students are attending sessions and which ones are not (International Center for Supplemental Instruction, 2016). Is it feasible to violate this rule and allow

the faculty member to visit the sessions, be involved as a participant, or lead the SI sessions themselves? A study conducted at an historically black university in the southern United States seems to indicate that not only is it feasible, it should be done. SI sessions led by the course instructor (as opposed to the typical SI leader) resulted in higher weekly attendance 11 out of 12 weeks. Moreover, the grades of students who attended the instructor-led sessions were higher than the grades of students who attended SI leader-led sessions (Drake, 2011). I echo the author's suggestion that the SI leader and the faculty member team up, with a shared sense of responsibility for and cooperation in developing SI session plans. Ideally, combining these notions into that of an SI learning community will maximize the benefits of SI.

Conclusion

Stating that SI helps students improve their grades and reduces attrition and fail rates is really a moot point as this statement has been proven true over and over again in countless studies in higher education. The two most important questions to ask now are (1) how can individual institutions maximize the benefits of SI for their students? and (2) how can the SI model be modified to fit each school culture? SI was invented at a large four-year university with an enormous student population, diverse programs of study, and dormitories. To apply that model directly to a two-year open admission commuter college like DTCC would not be without challenges and mistakes along the way. SI has the potential to work at any school in any course, with a well-trained, charismatic SI leader, an organized and determined SI coordinator, and a supportive faculty and administration. I believe that the benefits that SI provides to

the students, SI leader, SI coordinator, faculty, and the institution as a whole greatly outweigh the costs in managing the program and in dealing with setbacks and challenges.

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Appendix D

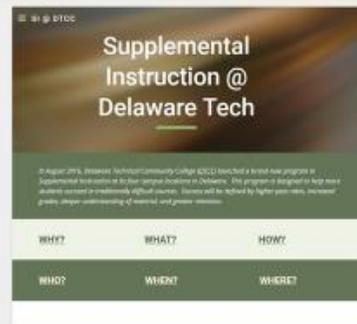
ARTIFACT 3: SI @ DTCC WEBSITE

HISTORY OF DTCC'S SI PROGRAM WEBSITE

Curtis Line
ELP Artifact 3

<https://sites.google.com/dtcc.edu/si-dtcc/home>

Website's Homepage



- I included a brief description of the new SI program at Delaware Tech and added in a link to the DTCC website
- I thought up the "why?", "what?", etc. motif as a creative way of providing the history of the SI program at Delaware Tech, each question word is a link to the next page of the website

Why?



- "Why?" is the purpose of SI
- For this page I just did a series of colored starburst effects to highlight the main purposes of SI: Improving test scores, promoting deeper understand of the material, and ultimately raising graduation rates

What?



- "What?" is the SI courses
- This page includes a brief description of the SI sessions and names the two courses that DTCC is piloting, BIO 120 and MAT 020

How?



- "How?" is the SI process, or how SI works
- This is a longer webpage that goes into a lot more detail about how the SI program works and what the sessions are all about
- I included a photo that I took during an actual SI session at DTCC

Who?



- "Who?" is the SI team
- This page includes information about the members of the SI committee (or SI team as we prefer to be called)
- I included the picture that was taken of all of us at Delaware Tech Academic Summit when we presented information about SI and identified each person on the team

When?



- "When?" is the SI timeline
- This is a brief introduction about the creation of SI and how it spread nationally, then a monthly account of everything that happened at DTCC with the program from the SI coordinator job posting to the launch of the program
- This is my favorite part of the website, an historical record of everything that happened with the program for people in the organization to always refer back to

Where?



- "Where?" is the SI location
- This is simply a page with a link to the Delaware Tech website that lists the location of each of the four campus locations
- It is intended to provide people a place to go for more information about Delaware Tech

About the Author



- The last page of the website is information about myself and about how this website is connected to my leadership at DTCC
- I also included a link to my professional E-portfolio

Reflection

- This website was developed initially in EDUC639 with Dr. Fred Hofstetter, he gave me a lot of good advice about how to create it and improve it, while at the same time giving me full creative freedom to design it the way I wanted to.
- I appreciated this opportunity to develop something that would provide a repository of history and information about the new SI program at Delaware Tech and this website is an example of my passion about SI, my goal to help the students succeed, and my desire to provide a template website to my superiors at Delaware Tech.
- It is my hope that this website will be incorporated into the official Delaware Tech SI Website, which has been briefly discussed, but nothing has been implemented for it. Through my role as a leader in this new program, I hope to present this website to the DTCC administration for official inclusion.

Appendix E

ARTIFACT 4: LEADERSHIP DUTIES

Becoming a Supplemental Instruction Coordinator: A Reflection of Leadership Duties, Responsibilities, and Experiences

Introduction

I had never heard of supplemental instruction (SI) before reading about the job posting on the DTCC website in August 2015. After reading the description of the responsibilities and duties of an SI coordinator, I knew that this would be a way that I could contribute to positive changes for the students at DTCC. Once I applied, interviewed, and was accepted for the position of SI coordinator at the Wilmington campus, I was tasked with learning as much as I could about SI in preparation for meeting with the leaders of the instructional division of DTCC. It was at this point that I knew SI would be a valuable attempt at improving student success, as well as a powerful topic for my ELP.

Responsibilities and Experiences

My first leadership experience in my new role was attending the college wide Deans of Instruction meeting on January 19, 2016; it was at this meeting the four coordinators met each other in person, found out which courses were to be targeted for the SI pilot program, and learned about the training at University of Missouri-Kansas City (UMKC) that we would each need to attend. After this important foundational meeting, many other leadership duties became immediately apparent. The SI coordinators needed to work together to develop a meeting schedule to further discuss and plan the program, and then each coordinator needed to meet with their respective

science and math department chairs, registrar, learning community coordinator, and human resources representatives to inform them about the plans for the pilot program, how they were going to be affected, and any issues or concerns that they may have or might come up. This was a huge undertaking, coordinating meeting times with this many people, and then explaining the program to them while fielding questions and responding to concerns was very daunting.

Prior to my March 2016 training at UMKC, I had two very important leadership experiences. First, I met with the other coordinators and the Dean of Instruction from the Dover campus about updates regarding the SI program. I was integral to the planning of marketing for the program and the importance of explaining to people that SI is not tutoring. Second, I was invited to attend the Allied Health/Science Council meeting in order to discuss the SI program in detail to the director, department chairs, coordinators, and other program leaders in that department. I described the preliminary plans for the program and fielded questions from those present. These were two very important experiences in my own personal leadership development, I was especially grateful to be invited to the Allied Health/Science Council meeting because I am a faculty member in that department but my position does not permit me to attend the council meetings regularly; being asked to attend showed me that my department cared about this new program and about giving me a voice to explain it to my colleagues.

The coordinators from Dover and Georgetown, the Dean of Instruction from Dover, and myself all attended the UMKC training from March 21-23, 2016. UMKC

is home to the International Center of Supplemental Instruction and has been conducting training programs in SI for professionals for several decades. We all learned a staggering amount of information about creating and managing a new SI program. This training provided me with the tools that I would need to lead DTCC in the implementation of the SI program. Not only did I learn about the logistical requirements of an SI program and the administrative and supervisory duties of an SI coordinator, I also learned important leadership qualities such as communicating with peers and leading group discussions and brainstorming activities. After this crucial training, the coordinators all met to discuss our experiences and I took on the responsibilities of communicating with the trainers at UMKC to obtain a list of the colleges in our area that have SI programs and keeping a record of all the questions we have for the DTCC administration in restructuring the program based on our experiences at the UMKC training.

Late-spring and summer of 2016 were spent making final plans for the SI pilot program based on the information obtained from the UMKC training and the DTCC administration. In May 2016, I presented the details of the restructured SI program to the Allied Health/Science department during in-service and two weeks later, to the entire college community at the DTCC Academic Summit. Again, I was very pleased at the level of interest my department was taking in the new program and was honored to speak to everyone in the department, this time the administrators and faculty. The duty of speaking to the entire faculty population of DTCC is a responsibility bestowed only upon those viewed as important leaders at the college. I led the SI coordinators in

the planning and organization of our presentation at this event and coached them with a positive attitude right up to the start of the summit. We were all nervous about speaking to such a large group, but our knowledge and leadership shined through and made for a very successful launch of the program.

In addition to the initial planning and program implementation stages, I have other responsibilities as SI coordinator. First, I am required to observe one SI session per SI leader every week. The SI sessions are scheduled on certain days and times and I must observe these sessions when my faculty schedule allows. When I observe an SI leader's session, I record the results and my thoughts on an observation form. Another responsibility is meeting with each SI leader for up to one hour each week. In these meetings, we discuss observations made previously (what worked well during the session and what needs improvement), scheduling issues, timesheets, and any problems or concerns the SI leader may have regarding the class, the students, or the sessions.

A third important responsibility is the recording of attendance and grade data. The students sign in for every SI session - the SI leaders are responsible for making sure students sign in and for giving the sign in sheet to the SI coordinator. Occasionally, the SI leaders do not turn in forms in a timely fashion, so as their supervisor, I need to work with them more about the importance of meeting deadlines and submitting quality work. Working with these student employees will be a major way that I develop my own leadership skills. Once I receive the sign in sheet, I enter the student's attendance time on one spreadsheet and enter a "1" on another

spreadsheet in which we track session attendance and grades. At the end of each week, I enter the total number of visits for each SI section and update the same information on a Google Drive document for all four coordinators to see. Once an exam is given in class and the instructor posts the grades to Blackboard, DTCC's Learning Management System, the SI coordinator records the grades on the attendance/grades spreadsheet.

As a college wide committee, data collection is very important in order to track whether or not the program is meeting its goals. At the end of each semester, a report is created by the SI coordinator detailing the student attendance results, the student grade data separated into SI and non-SI attendees, and information gleaned from the student satisfaction survey. Based on these data, the SI coordinators discuss conclusions and whether or not the program can be deemed effective and successful. SI is a new program at DTCC, so I am helping to lead the charge to improve the academic support services at the college. Moreover, the data collected will help me lead the committee to make decisions that impact the future implementation strategies and the long-term improvements of the program.

The SI coordinators continued to meet about twice per month to update each other about SI session attendance, to discuss challenges in managing the program and SI leaders, and to give each other ideas and support in solving problems. I attended the college wide Deans of Instruction meeting with Laretta Cooper, the coordinator from the Dover campus, on January 26, 2017. It was our responsibility at this meeting to present quantitative and qualitative data from the first semester to the instructional

administrators in support of continuing the SI program. My leadership and knowledge was very important at this meeting and we were met with much congratulations for a job well done and approval to continue the program as planned.

The first major shake up to our committee was when the coordinator from the Stanton campus informed us that she was pregnant and would be going out on maternity leave at the start of the spring 2017 semester. I volunteered to take on the additional responsibility of being the coordinator for both the Stanton and Wilmington campuses, in order to ensure the program would continue uninterrupted at the Stanton campus. This would require a lot of work on my end, including changes to my teaching load, traveling back and forth between campuses, and managing twice as many SI leaders as I had before.

In May 2017, I attended Texas A&M's 8th annual SI Conference in College Station, TX. This conference gave me a crucial opportunity to learn more about how other schools operate their SI programs and the types of successes and failures they have had in their attempts to create effective SI programs. I learned helpful new information about training SI leaders, managing SI leaders and SI faculty, and most of all how to modify and improve the program at DTCC to make it more successful at meeting its goals. Networking with others from around the country who share a similar goal of student success is another important attribute of a leader that this conference helped me improve upon. I made lasting professional relationships with people who will help me be more effective in leading the SI program at DTCC. I

returned to DTCC from this conference with extremely valuable information for my colleagues in our attempts to improve our SI program for future students.

The next major change to the SI committee was finding out that the coordinator from the Dover campus would be retiring at the end of the spring 2017 semester and that there would not be a new coordinator in place for the start of the fall 2017 semester. Once a new coordinator was found for that campus, they would not have time to go through the formal UMKC training as the rest of us had; therefore, we had to lead this new committee member ourselves in their education of SI at DTCC. We continued to meet once a month, including the new coordinator from Dover, to give updates and offer support to each other. I struggled considerably during the fall 2017 as a leader for the SI program in managing my new SI leaders (student employees). One of my new leaders was an excellent employee in meeting her job requirements, but had to leave before the end of the semester. The other new leader was disorganized and struggled a lot in meeting my expectations for the effective operation of the program, I had to make the difficult leadership decision of asking him not to return as an SI leader. Therefore, I had to recruit and hire two new leaders for the spring 2018 semester.

Finally, at the end of the fall 2017 semester, I led the SI committee in preparations for the two-day training sessions that we would hold on January 4-5, 2018 for the new and returning SI leaders. I convinced the group to make a lot of positive changes in the training schedule, while at the same time, informing the new coordinator from Dover about all of the important information he needed to have a

successful program. Using my leadership skills, I incorporated all of the feedback from the coordinators, developed the new training schedule and agenda, persuaded the group to start using a new observation form and attendance sheet that I developed, and emailed all of these pertinent documents to the committee. Every day, I dedicate my time and energy to the improvement of DTCC's SI program while always being available to support my fellow SI coordinators.

Examples of Leadership

- A copy of the January 19, 2016 Deans of Instruction meeting agenda
- A copy of the March 3, 2016 SI Coordinator meeting minutes
- A copy of the March 11, 2016 Allied Health/Science Council meeting agenda
- A copy of the May 12, 2016 Allied Health/Science department in-service agenda
- A copy of the May 27, 2016 DTCC Academic Summit agenda
- A copy of the January 26, 2017 Deans of Instruction meeting agenda

COLLEGEWIDE DEANS OF INSTRUCTION MEETING

January 19, 2016
9:00 am – 12:30 pm
OOP Boardroom

AGENDA

Item	Time	Topic
1.	9:00	Dual Enrollment Guidance (Bobbi Barends)
2.	9:30	Supplemental Instruction Guests: SI Coordinators; Jill Smith, Lauren Patson, Curtis Line, Laretta Cooper
3.	10:00	RN to BSN Guest: Kelly Davis
4.	10:30	Vision Statement (list) Development (As a result of Dec. DOI meeting. List due to Debbie by January 29)
5.	11:30	Academic Summit Survey Responses (Deans agreed to survey to faculty to know what they would like to have as topics at summit)
6.	12:00	HIS 113 Syllabus review (Kathy Friel)

Supplemental Instruction Coordinator Meeting
Thursday, March 3, 2016

Present: John Buckley, Laretta Cooper, Curtis Line, Lauren Patson, Jill Smith

1. John updated the coordinators in regard to the Blueprint assignment of Hilary Valentine to Supplemental Instruction. She was unable to attend this meeting but will be included in the future.
2. The deans and Hilary will be added to the organization.
3. SI will not be identified in Banner for the fall, but will most likely be in the future.
4. Coordinators will be making visits to BIO 120 and MAT 140 spring classes to inform all students of the SI leader opportunity.
5. John will look into website presence – hopefully students will be able to use a link to apply online.
6. The group had a discussion regarding creating a flyer to use this spring for various conversations. John will work with marketing (for this and future SI communications). The coordinators will begin work on content for the flyer – we want a uniform flyer with campus specific information. It was noted that we need to use the correct language in that we make it clear that all students can benefit.
7. The group had a discussion about how SI must be clearly defined and distinguished from other student support services – keep this in mind when we write the program description.
8. John is working on the JAQ for the student leader position. He will let us know when he needs our input or if we can help in any way.

The coordinators will meet via Adobe Connect on Thursday, March 17th at 9:00 a.m.

Delaware Technical Community College
Allied Health / Science Department
Council Meeting
March 11, 2016

I. Allied Health/Science Department

- ❖ SLOA/GEAT (*Kate Haynes*) 1:00 – 1:15 pm
- ❖ Admissions
 - Summary Sheet/Ranking Worksheets (*Viktoryia Varapayeva*) 1:15 – 1:45 pm
 - CBC/DS/Fingerprint update/OTA schedule
 - Task Force development– admissions, reentry, etc.
- ❖ Supplemental Instruction Coordinator (*Curtis Line*) 1:45 – 2:00 pm
- ❖ Advisement
 - Math Department Changes (*Kim Gregor*) 2:00 – 2:15 pm
 - English/DW update
- ❖ Awards Update (*J. Gorecki*)
- ❖ Spring Open House – Wed April 6 @ George Campus
 - Program tables and tours
 - Psychomotor demonstrations
 - Dinner 4pm (tentative), Event 5 - 7pm
- ❖ Form/Policy Revisions
 - Volunteer Form
 - Essential Medical Care
 - Drug Screening
- ❖ Louise's corner:
 - Policy Manual – *any comments or suggestions to me by April 1*
 - Summer contracts – *hiring info to me by April 15*
 - Fall Custom orders – *to vendor by April 15*
 - Graduation applications – *any changes in completion to me as soon as identified*
 - Employee Recognition – *date below; instructions will be sent directly from HR to those receiving a service pin*

II. Dean of Instruction

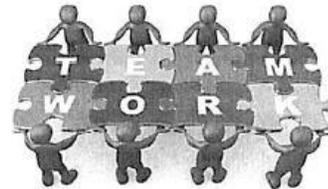
- ❖ Dean's note
- ❖ Department Chair meeting review

IMPORTANT DATES

- ❖ Friday March 11 (end of day) – Final acceptance letters sent
- ❖ Monday April 18 – Advisement and Early Registration for Summer and Fall begins
- ❖ Tuesday April 26 – HealthyU Fair 2-4pm, Conference Room/George Campus
- ❖ **Thursday May 12 - AH/S Dept-Wide Meeting 8:30-11am (Remind all staff & faculty!!)**
- ❖ Thursday May 12 - Council Meeting 11am-1pm
- ❖ Monday May 16 – Awards Night
- ❖ Tuesday May 17 – 9 am Allied Health Program Student Orientation (AHP SO)
- ❖ Wednesday May 18 – Commencement
- ❖ Thursday May 19 – Employee Recognition (Terry Campus)
- ❖ Thursday May 26 – Statewide Academic Summit
- ❖ June dates TBD– SLOA Presentations

Allied Health/Science Department
Department Wide In-Service

Thursday - May 12, 2016
WSE 006



8:30 am Welcome and Breakfast

9:00 am Department Updates

- ❖ Service Award Presentation (*Kathy Friel*)
- ❖ Admissions
- ❖ AHPSO
- ❖ Policy Manual
- ❖ Science
- ❖ Supplemental Instruction (*Curtis Line*)
- ❖ SLOA/GEAT (*Jan Gorecki*)
- ❖ Adobe Connect (*Nadina Davis*)
- ❖ Bookstore *Oct 1st Mar 15th*
- ❖ Fall Contracts *↓ F*
- ❖ Program Manuals *↓ S*
- ❖ Mission Statement
- ❖ Mentoring v. Coaching
- ❖ Achievements (*Dean's Note*)
- ❖ Important Dates
- ❖ Recognitions

*Awards Night
Mon 5/16 @m
Stanton*

*Greg
Store-prike
matches
new books*

*Books are
taken away*

11 am Adjournment

2016 Academic Summit

Changing Lives through Innovation

Morning Agenda

❖ 10:00 – 10:10	Welcome / Opening Remarks	President Mark Brainard
❖ 10:10 – 10:30	Academic Affairs Update	Justina Sapna
❖ 10:30 – 10:45	Professional Development Cycle	Rick Kralevich
❖ 10:45 – 11:00	Morning Break	
❖ 11:00 – 11:50	<i>Morning Keynote: Financial Aid and SEED</i>	Veronica Oney Christine Wilborne Debra Troxler Kristin Krasts Stephanie Beaudet
❖ 11:50 – 11:55	Morning Wrap-up	Rick Kralevich
❖ 12:00 – 1:00	Lunch	

Afternoon Agenda

❖ 1:00 – 1:15	Public Safety Update	Tim Winstead
❖ 1:15 – 1:30	Veterans Affairs Update	David Strawbridge
❖ 1:30 – 1:45	Supplemental Instruction Update	Jill Smith Lauretta Cooper Lauren Patson Curtis Line
❖ 1:45 – 2:00	Workforce Development Update	Paul Morris
❖ 2:00 – 2:15	Afternoon Break	
❖ 2:15 – 3:15	<i>Afternoon Keynote: Supporting Students with Disabilities</i>	Liz Olsen Carla Tingle Matthew Zink Heather Statler Charlie Mundell Victoria Chang
❖ 3:15 – 3:20	Closing Remarks	John Buckley

COLLEGEWIDE DEANS OF INSTRUCTION MEETING

January 26, 2017

9:30 a.m. – Noon

OOP Conf. Room A, Owens DOI Office, Stanton C228, Wilmington WW 350

AGENDA

Supplemental Instruction 9:30-10:00 am

Guests: Laretta Cooper and Curtis Line

FY18 Goals and Objectives

International Education Update 11:00-11:30 am

Guests: Taryn Tangpricha

Q:\Collegewide\Academic Affairs\Deans\DOI Meeting documents\1-26-2017 meeting\DOI 1.26.17 Ex in Teaching Award Discussion-2.docx

Approve Minutes from November and December meetings

Q:\Collegewide\Academic Affairs\Deans\DOI Meeting documents\2016 minutes to approve

AS Degree Update

New Business

Submit February Agenda Items

Discussion

I am very grateful to my experiences in the SI program as a faculty member at DTCC. One of the most rewarding features of this leadership role has been working with a group of people who are so dedicated to student success and to this program, the other SI coordinators are stellar examples of hard working, intelligent, and supportive educators. My leadership in this new initiative would have meant nothing without them there with me. Working with my department in this role has given me better insight into my colleagues and how to work with people who think and act differently than myself. I have also enjoyed working with other DTCC leaders outside of my role as science faculty, such as the deans of instruction, the registrar, and human resources, as these experiences have improved my interpersonal and communication skills and therefore have helped me grow as a leader.

Becoming the coordinator for both the Stanton and Wilmington campuses was an especially challenging, but rewarding experience. I had to acclimate to a new working environment, as twice a week I was based at the Stanton campus, sitting at the desk of my counterpart within the math department. I met many new colleagues and grew as a person through getting to know them and their individual educational philosophies. I also had to learn the subtle differences in working with the department of instruction and human resources, while at the same time planning my own schedule each day to accommodate this change; for example, having to do office hours remotely for the students in the BIO130 class that I was teaching in Wilmington, or making sure I had the documents that I needed each day for each campus. In addition,

I was now managing six SI leaders instead of three, so I needed to communicate with twice as many people regarding attendance sheets, planning forms, and timesheets while at the same time observing twice as many people and meeting with them in order to improve their own skills and SI delivery. All of these experiences during the spring 2017 semester helped to improve my skills as a program coordinator and solidify my role as a leader at DTCC.

The SI program will continue to grant me leadership and learning opportunities I never could have imagined. Hopefully the program will expand and I will begin training and managing more employees, learning how to manage more people will be an important leadership opportunity. Also, I should be granted more oversight over the program's budget, while being permitted to seek out grants to fund the program. I have already traveled the country twice to learn about ways to help students and manage others through SI, I hope this will continue as my leadership duties grow. I am working with an incredibly diligent group of colleagues, and continue to be a leader to both my peers and my employees. I continue to offer advice and ideas to the other SI coordinators when they encounter challenges in their programs. The SI leaders look to me for guidance in how to improve their sessions and to encourage more students to attend SI; I work with these peer leaders to help them assist more students and to fulfill their responsibilities more effectively. I am confident that I can enact positive change that will benefit the students of DTCC and help them be successful through my leadership role in SI.

Appendix F

ARTIFACT 5: CONNECTIONS TO HUMAN RESOURCES

Introduction

An important responsibility associated with my role as SI coordinator is working with the human resources (HR) department at DTCC in the development and creation of the new job position of SI leader. After working with the SI committee to develop this new job at DTCC, an internal approval process through HR had to be accomplished. Once the job was created, I led the development of a new hire protocol which mostly consisted of a hiring process and interview questions. The final challenge would be to continue the practice of re-posting the job position and hiring new leaders as the previous SI leaders graduate or move on from DTCC.

All of this would not be possible without a close working relationship with the human resources office at DTCC. HR at this institution works at both the campus and college wide levels, which necessitates my need to work with a diverse group of people and figure out who to communicate with based on what needs to be accomplished. The first task is the planning, development, and approval of the Job Analysis Questionnaire (JAQ). This document is critical as it effectively creates the new position of SI leader and it requires approval at all administrative levels of the college. The approved JAQ then becomes the classification specification (class spec); this document is a summation of the JAQ and goes on to become the actual job posting on the DTCC website that prospective employees will see.

Next, the position needs to be advertised, emailed, and discussed with any students who are interested in becoming new SI leaders. Once contact is made, the

student must apply online and submit the application to the human resources office; a representative there will then check the application to ensure that it meets the minimum qualifications as outlined in the class spec. Then, the HR representative forwards the application to the SI coordinator for review and if the application is acceptable, the SI coordinator contacts the applicant to schedule an interview. The interview is held with two college representatives and a series of pertinent questions are asked. After the interview, the responses are discussed and the decision is made whether or not to recommend the applicant to be hired by filling out the new hire approval form. This form is sent to the Dean of Instruction's office for review and approval, and then sent to the human resources office so that the applicant can be contacted and told whether or not they are to be hired. If the person is hired, they must go into the human resources office to sign the new hire paperwork and their contract which will allow them to work and be paid.

Examples of Working within Human Resources

- JAQ development form
- Approved JAQ
- Classification specification (class spec)
- New hire process
- Job posting request form
- New hire approval form & confidentiality statement
- Interview questions

JAQ Principal Accountability Number	Description of Principal Accountability	Est. Hours Per Week	% of Time
1	Conducts and collects data . . .	2.00	18%
2	Attends SI class, takes notes . . .	3.00	27%
3	Plans and attends all SI sessions . . .	3.00	27%
4	Keeps a variety of records . . .	0.50	5%
5	Attends all SI leader trainings, meeting . . .	1.25	11%
6	Actively encourages students . . .	0.50	5%
7	Establishes professional communications . . .	0.50	5%
8	Is familiar with campus academic resources . . .	0.25	2%
TOTALS		<u>11.00</u>	<u>100%</u>

Notes

#1 - Assumes 2 one-hour study sessions per course
#3 - Assumes 3 hours for session plan - worksheets, strategies, review notes, etc.
#4 - Done as part of #1 and #3
#5 - Annual two-day training, plus meetings, etc.

Note from

New budget today regarding our new draft budget which will include 10-12 hours per week, per section for the SI leader. This will include reducing the number of



Job Analysis Questionnaire (JAQ)

Vacant
EMPLOYEE LAST NAME, FIRST OR "VACANT"
Collegewide
CAMPUS
New
CURRENT TITLE OR "NEW" IF NEW POSITION
TBE
POSITION NUMBER OR "TBE" IF NEW

Please complete applicable column information:

Position with Current Incumbent (Filled):	New Position to Establish or Vacant:
<input type="checkbox"/> Regular, Full Time	<input type="checkbox"/> Regular, Full Time
Funding Appropriation:	Funding Appropriation:
Department Name:	Department Name:
<input type="checkbox"/> Regular, Part-Time	<input checked="" type="checkbox"/> Regular, Part-Time TPT Position
% of Contract:	% of Contract:

Please complete for Currently Filled or Current Vacant Positions:

Previous incumbent's name: _____

Please complete for new positions being established, or vacant positions being reclassified, if applicable:

Proposed current or new title: Supplemental Instruction Leader

Campus Human Resources Director/OOP Asst VP for HR Initials: _____

OFFICE OF THE PRESIDENT HUMAN RESOURCES USE ONLY:	
Final Title/PG: <input type="checkbox"/> New <input type="checkbox"/> Existing	Job Code:
Date Processed in PHRST:	FLSA Status: <input type="checkbox"/> Exempt <input type="checkbox"/> Non-Exempt
Collegewide Recruitment and Classification Manager's Initials:	

OVERVIEW

This questionnaire is used to describe the specific job duties and minimum requirements for the current position—not the job as it used to be, or as it may be in the future. The information provided should demonstrate an accurate and complete representation of the level of support given to the campus department and minimum requirement information (completed by the supervisor) should describe what is required to perform the job, not an incumbent's personal background or qualifications.

Please take the time to consider our responses carefully.

SECTION I: JOB SUMMARY AND ANALYSIS

THIS PORTION TO BE COMPLETED BY SUPERVISOR:

JOB PURPOSE:

Write a brief paragraph describing why the job exists. (Example: To provide full performance administrative support in support of a campus department).

Supplemental Instruction(SI) Leaders provide direct instructional support for students in designated courses. This position facilitates regularly scheduled, out of class study/review sessions for all students enrolled in a targeted course. SI leaders share effective study, preparation, and success strategies for the course and how to maximize their potential for success.

LEVEL OF INDEPENDENCE:

What is the extent of supervision and direction given to this position?

SELECT ONE THAT MOST CLOSELY FITS:

- Close supervision with detailed instructions and work reviewed on an ongoing basis. Problems referred to supervisor.
- Immediate supervision with review at regular intervals. Questions referred to supervisor.
- General supervision where deadlines are established and where work is reviewed by results obtained.
- Administrative direction where assignments are based on broadly defined functional objectives and directly accountable for results.
- Strategic direction from a vice president with a broadly defined mission and accountable for planning and implement objectives.

PRINCIPAL ACCOUNTABILITIES:

List in order of priority, the major activities, objectives or functions necessary to achieve the job's end results (this is a good faith estimate). Try to group similar or related activities together. Grouped, related duties that comprise the bulk of the job or that a person spends the bulk of his/her time on would receive higher percentages. Duties that are cyclical, such as yearly items, could be grouped together at 5% of the total job, for example. The percentages of time spent on these accountabilities should add up to 100%.

PRINCIPAL ACCOUNTABILITY	% OF TIME
1. Plans and conducts regularly scheduled SI sessions.	36%

PRINCIPAL ACCOUNTABILITY	% OF TIME
2. Attends SI class, takes notes, and participates in discussions when appropriate.	27%

<p>PRINCIPAL ACCOUNTABILITY</p> <p>3.</p> <p>Maintains a variety of records as required such as time sheets, attendance records, and SI session plans, and submits the records to the SI coordinator in a timely manner.</p>	<p>% OF TIME</p> <p>5%</p>
--	----------------------------

<p>PRINCIPAL ACCOUNTABILITY</p> <p>4.</p> <p>Attends all SI leader trainings, meetings with assigned instructor, and meetings with campus SI coordinator.</p>	<p>% OF TIME</p> <p>18%</p>
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<p>PRINCIPAL ACCOUNTABILITY</p> <p>5.</p> <p>Actively encourages students to attend SI sessions.</p>	<p>% OF TIME</p> <p>5%</p>
--	----------------------------

<p>PRINCIPAL ACCOUNTABILITY</p> <p>6.</p> <p>Establishes professional communications with assigned instructor and understands course requirements.</p>	<p>% OF TIME</p> <p>5%</p>
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<p>PRINCIPAL ACCOUNTABILITY</p> <p>7.</p> <p>Is familiar with campus academic resources for students.</p>	<p>% OF TIME</p> <p>4%</p>
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KNOWLEDGE, SKILLS, AND ABILITIES:

Describe the knowledge, skills, and abilities required for the job. This section identifies the unique knowledge, skills, and abilities that are specifically required to perform the job's objectives and achieve the desired end results. (Example: 1. Knowledge of spreadsheet software. 2. Skill in recording and compiling data accurately).

1. Knowledge of relevant subject matter.
2. Knowledge of student access to Banner and Blackboard.
3. Skill in using Microsoft Office and other relevant forms of technology.
4. Ability to facilitate an SI session incorporating appropriate classroom management and collaborative learning techniques.
5. Ability to communicate effectively both orally and in writing with students, instructors, and administrators.
6. Skill in using the DTCC email system.
7. Skill in organization and time management.
8. Skill in recording and compiling data accurately.
9. Ability to learn and apply effective student success strategies.
11. Ability to maintain a professional attitude at all times.
12. Ability to maintain confidentiality.

**THIS PORTION TO BE COMPLETED BY EMPLOYEE
(OR SUPERVISOR IF VACANT OR NEW):**

DECISION MAKING:

What is the extent of judgment used to carry out job duties? Please give examples of the types of decisions that you make in your position versus what you must take to your supervisor to decide.

This position will require incumbents to make decisions on success strategies that may work for the individual as well as groups of students. For example, SI Leaders will have to work with the instructor and SI Coordinator to implement strategies for effective studying, note taking, completion of homework, time management, test preparation, and test taking.

MANAGEMENT OF PEOPLE:

What is the extent of direction this position provides to others?

SELECT ONE:

- No supervisory responsibility.
- Occasionally supervising part-time employees or student workers.
- No employees report to me on a permanent basis, but my job requires either the technical leadership of a work team or the leadership of a work unit (I serve as a lead worker).
- No employees report to me on a permanent basis, but I am accountable for ongoing project management and special assignments in terms of quality, cost, time-frame, and personnel.
- I directly supervise the work activities of others and make recommendations concerning selection, disciplinary action and termination. I conduct and sign off on performance evaluations.
- I am accountable for the management of others, through a subordinate supervisor, including selection, recommending termination, performance evaluation, and professional development.

COMPLETE IF APPLICABLE:

Number of employees directly supervised _____

Number of employees indirectly supervised _____

Position supervises highly technical areas Yes or No? No

Is the position responsible for developing, controlling, and implementing a department budget? If yes, amount

\$ _____

IMPACT:

What is the level of effect this position has on end results for an activity, program, or department?

SELECT ONE:

- Activities impact outcome of assigned tasks. Errors are detected by immediate supervisor.
- Activities impact end results of related assignments. Errors detected in succeeding operations.
- Activities impact unit or program within a department. Errors may not be readily apparent.
- Activities impact the direction of a department. Errors not readily apparent.
- Activities impact the direction of more than one department. Errors could result in significant costs.
- Activities impact institutional policies and long-range plans in one or more major College areas.

CONTACTS:

What is the nature, frequency, and level of contact required of this position in carrying out job duties?

SELECT ONE:

- Requires very little contact with others outside own work area.
- Requires some contact within or outside the College to give or obtain information.
- Requires frequent contact with students, faculty, staff, and general public. Advises other of options, interprets procedures, and resolves problems.
- Requires continuous contact with internal College groups and outside community groups to represent the College.
- Requires a high level of contact with high level administrators, and government officials to negotiate or persuade outcomes of considerable consequence.
- Requires a high level of contact within the College and with outside organization to address issues affecting the strategic objectives of the College.

CONFIDENTIALITY:

What is the level of access this position has involving confidential data?

SELECT ONE:

- Little or none
- Department-level, i.e. student data, employee data
- Full and complete access to division-level reports
- College-wide level access

Does this position have signature authority for purchase approvals? Yes No

VISUAL EFFORT:

What is the extent of visual effort and concentration required in carrying out job duties?

SELECT ONE:

- Average visual effort with infrequent exposure to visually demanding work.
- Above average visual effort with frequent exposure to visually demanding work involving detailed work.
- High level of visual effort with continuous exposure to highly detailed work requiring substantial concentration.

PHYSICAL EFFORT:

What is the extent of physical effort required in carrying out job duties?

SELECT ONE:

- Average physical effort with some handling of light weights such as supplies or materials on an infrequent basis. (10-15 lbs.)
- Occasionally an above average amount of physical effort including constant standing, lifting, and carrying light to moderately heavy materials, or equipment (15-50 lbs.)
- High level of physical effort such as pushing, pulling bending, lifting, and carrying heavy objects (Over 50 lbs.)

PROBLEM SOLVING:

Which one statement most accurately describes your freedom to consider alternatives when addressing issues or problems?

SELECT ONE:

- I follow detailed task lists or instructions from my supervisor or lead worker to get my work done. I refer problems immediately to my supervisor or others.
- I follow detailed standard procedures or instructions from my supervisor to get my work done. Occasionally, I change the work procedures or the order of the tasks (for example, filing records, sorting mail, cleaning floors).
- I follow standard work routines and well-understood tasks. Problems are alike from day-to-day. When problems arise, I can often respond by changing the order in which tasks are done (for example, typing, record keeping, supply delivery, telephone operation, technical assistance on a help desk).
- Due to changing work situations, I solve problems by considering different options with the guidance of my supervisor or within well-defined principles and procedures. I often consider the most appropriate procedure or example to follow (for example, counseling clients on a program services options, or investigating, and interpreting State and Federal laws in response to a complaint and recommending an appropriate course of action).
- I solve problems by considering many different principles, procedures and standards. Because of changing priorities and work situations, I may consider which among several procedures to follow, and in what order to achieve the proper results (for example, administering College support services, or how to organize campus training sessions).

(CONTINUED ON NEXT PAGE)

PROBLEM SOLVING (CONTINUED):

- I solve problems by considering courses of action within the framework of existing policies, principles and standards. I know what needs to be accomplished, but must decide how to accomplish it. I may consider whether new methods need to be developed to achieve the proper results (for example, reengineering the way work is done and organized to improve the delivery of College services).
- I solve problems by considering courses of action within broad campus or College policies and immediate objectives. I may determine that new College policies are needed. Although general goals are in place, I must set the plan and determine the priorities and processes to achieve campus or College objectives (for example, considering efficient organization of the largest Divisions in the campus/College; developing new principles and practices affecting services to students and the public).

WRITTEN COMMUNICATION:

Which one statement best describes the written communication activities required in your job?

SELECT ONE:

- Checking, marking, or otherwise indicating choices on documents.
- Completing standard forms (hardcopy or on computer).
- Preparing letters, documents or reports from instructions or examples.
- Organizing information provided by others into letters, memos and reports (for example, preparing the minutes of a meeting, customizing or personalizing standard reports,) or composing memos, correspondence and reports related to practical or recurring issues.
- Composing letters, memos, reports, and documents related to unique or non-recurring issues that may involve converting specialized terminology and expressions into a general business or non-technical format.
- Composing correspondence, reports, articles, presentations, or other materials, communicating ideas or concepts related to complex or controversial issues. This may involve converting complex concepts into general business or non-technical language.
- Authoring articles, writing speeches, developing presentations, or other materials that seek to directly influence an audience and achieve a specific result.

SECTION II: SIGNATURES:

EMPLOYEE:

I CERTIFY THAT THE INFORMATION CONTAINED IN THIS QUESTIONNAIRE IS ACCURATE AND COMPLETE:

EMPLOYEE SIGNATURE (WRITE "VACANT" OR "NEW" IF APPLICABLE)

DATE

SUPERVISOR:

I HAVE REVIEWED THE QUESTIONNAIRE AND AGREE THAT THE INFORMATION IS ACCURATE AND COMPLETE. IF CORRECTIONS ARE NEEDED OR IF SUPERVISOR DISAGREES IN ANY AREA OR HAS ADDITIONAL INFORMATION THAT SHOULD BE CONSIDERED IN THE CLASSIFICATION OF THIS POSITION, COMMENTS NEED TO BE ATTACHED.

SUPERVISOR SIGNATURE

DATE

DEAN/DIRECTORS AND VICE PRESIDENTS:

TO THE BEST OF MY KNOWLEDGE, THE INFORMATION IS ACCURATE AND COMPLETE. IF ADDITIONAL INFORMATION SHOULD BE CONSIDERED IN THE CLASSIFICATION OF THIS POSITION, COMMENTS NEED TO BE ATTACHED.

DEAN/DIRECTOR/OTHER ADMINISTRATOR SIGNATURE

DATE

VICE PRESIDENT SIGNATURE

DATE

OOP MATRIX VICE PRESIDENT SIGNATURE

DATE

CHIEF LEGAL COUNSEL AND VICE PRESIDENT FOR HR SIGNATURE

DATE

PLEASE ATTACH COMMENTS IF APPLICABLE. PLEASE ALSO ATTACH AN ORGANIZATIONAL CHART IF AVAILABLE.

Rev. 10/14

CLASSIFICATION SPECIFICATION

Supplemental Instruction Leader

PT Class Code: TBE

Pay Grade: C00

FLSA Exempt

Date: Est. 05/13/16

SUMMARY STATEMENT: Incumbents facilitate Supplemental Instruction (SI) sessions for targeted courses by sharing with students how to effectively study for the course and how to maximize their potential for their academic success. SI sessions are regularly scheduled, out-of-class review sessions for all students enrolled in a targeted course. The sessions are informal seminars in which students review notes, discuss readings, develop organizational tools, and prepare for examinations. SI leaders support classroom instruction by helping students learn how to integrate course content with reasoning and study skills.

NATURE AND SCOPE:

Incumbents work in conjunction with the classroom instructor and SI Coordinator to implement strategies for effective studying, note taking, completion of homework, time management, test preparation, test taking, etc. to promote student success. Incumbents make decisions on success strategies that may work for the individual as well as for groups of students and are expected to be familiar with campus academic resources for students.

PRINCIPAL ACCOUNTABILITIES:

An incumbent may perform any combination of the below listed accountabilities:

1. Attends the targeted SI class, takes notes, and participates in discussions.
2. Ascertains course requirements and maintains regular contact with the classroom instructor and SI Coordinator.
3. Plans and conducts regularly scheduled SI sessions using a wide variety of interactive learning strategies without re-teaching, lecturing or completing students' assignments for them. Actively encourages students to participate in the sessions.
4. Prepares handouts, informal quizzes, and other learning aids for SI sessions as needed.
5. Attends all SI leader training sessions and meetings with assigned instructor, campus SI Coordinator, and other SI leaders.
6. Maintains a variety of records as required such as time sheets, attendance records, and SI session plans, and submits the records to the SI coordinator in a timely manner.
7. Performs other work as required.

Supplemental Instruction Leader

Page 2

KNOWLEDGE, SKILLS, AND ABILITIES:

- ◇ Knowledge of relevant subject matter in the targeted course.
- ◇ Knowledge of student access to Banner and Blackboard.
- ◇ Skill in using Microsoft Office, e-mail and other relevant forms of technology.
- ◇ Skill in organization and time management.
- ◇ Skill in recording and compiling data accurately.
- ◇ Ability to facilitate an SI session by incorporating appropriate classroom management and collaborative learning techniques.
- ◇ Ability to communicate effectively, both orally and in writing.
- ◇ Ability to learn and apply effective student success strategies.
- ◇ Ability to maintain a professional demeanor at all times.
- ◇ Ability to maintain confidentiality.
- ◇ Ability to relate to a diverse population in a multicultural environment.

MINIMUM QUALIFICATIONS:

- ◇ Earned grade of B+ or higher in the targeted course with faculty recommendation.
- ◇ Enrollment as a Delaware Tech student.



TPT New Hire Process Guidelines

Effective Monday, September 14, 2015, all applications and required documentation have to be submitted via the People Admin System. No applications or required documentation will be accepted in person or by email for any position.

As soon as the Department/Hiring Manager (D/HM) is ready to post a position, he/she will need to notify the HR Specialist II by email with the details of the posting. Once the position is posted the D/HM can check back with the HR Specialist II in a few weeks regarding qualified candidates.

If the D/HM has already identified a candidate for a particular position, the HR Specialist II will post the position internally and provide the D/HM a link for the candidate to apply privately.

After prescreening for minimum qualifications and transcript credentials, the HR Specialist II will send application materials (including the Candidate Interview Record/AA-4) electronically to the D/HM for review and possible interview.

D/HMs should communicate to the HR Specialist II which candidates they decide to interview and recommend for hire. Only one copy of the application shall be printed for reference during the actual interview. Said copy of the application should be attached to the AA-4. HR Specialist II will send rejection email to remaining applicants.

Once the D/HM and DDA identify the candidate for hire, they must complete and sign the AA-4 and send to HR Specialist II with a prospective hire date.

D/HMs should communicate with the Sr. HR Tech confirming start dates of the contract so that the new hire is starting on the exact date that the contract begins.

The D/HMs will continue to manage the contract part of the hiring process. The contract should be initiated at the time the D/HMs makes the decision to hire the candidate since it takes time to get all necessary signatures.

If necessary, the HR Specialist II will notify 2nd round rejected applicants via email. The HR Specialist II will forward the complete application, resumes, unofficial transcripts and any other hiring documentation to the Sr. HR Tech/HR Tech for processing and to conduct employment verifications.

The new hire packet and the request for social security card, ID and a voided check can be mailed by the HR Tech to the new hire if time permits. The D/HM will need to communicate to the new hire that s/he will need to call and make an onboarding appointment with the HR Tech to verify the completed new hire packet and to collect all hiring documents.

Job Posting Request Form

Requested by:	<u>Curtis Line</u>	Department:	<u>Instruction</u>
<u>Position Specific Information</u>			
Position Title:	<u>Supplemental Instruction Leader</u>	Course(s):	<u>Science and Math</u>
Hours:	<u>10 hours per week</u>	Specialization:	<u>n/a</u>
Notes:	<hr/>		
<input type="checkbox"/>	Special wording / job description requested	Posting Request Date:	<u>June 20, 2017</u>
<p>If special skills/abilities/ minimum qualifications are requested that are not on the standard position description, please detail request here: (Please note: Any special requests may have to be approved at a Collegewide level and may cause posting delays.)</p>			

<u>Opening / Closing Information</u>	
*All postings will close after 6 months. A new request form must be completed to repost.	
<input checked="" type="radio"/>	Leave posting open ended*
<input type="radio"/>	Close on specific date _____
	Comments: _____
REMINDERS:	
<ul style="list-style-type: none">• All adjunct instructor applicants will be required to submit unofficial transcripts with their application. Official transcripts are required upon hire.• No paper applications should be accepted for any position.• All applicant pools will be pre-screened for minimums, and forwarded for interview/selection.	
Please email the completed form to Tamesha Broughton at tthrough1@dtcc.edu.	
If you have any questions, please contact the George Human Resources office at ext. 5469	

Signature Required Curtis Line Digitally signed by Curtis Line
DN: cn=Curtis Line, o=Delaware Tech, ou,
email=clinej@dtcc.edu, c=US
Date: 2017.06.13 19:07:14 -0400

NAME: _____

POSITION TITLE: _____ DEPT/UNIT: _____

EDUCATION: _____

YRS OF RELATED WORK EXPERIENCE: _____

OTHER RELATED TRAINING: _____

INTERVIEW 1 - Selection Committee DATE: _____

Interviewers: _____

Comments and Recommendations: _____

This candidate is / is not recommended for the position. (circle one)

Name (printed) Name (signature) Date

INTERVIEW 2 - Campus Director & Dean/Director/Administrator* DATE: _____

**(Collegewide VP and/or Campus Assist VP, at Campus Director's discretion)*

Interviewers: _____

Comments and Recommendations: _____

This candidate is / is not hired for the position. (circle one) OR

This candidate is / is not recommended for the position (use when advancing to the President). (circle one)

Name (printed) Name (signature) Date

INTERVIEW 3 - College President DATE: _____

Comments (*Optional*): _____

This candidate is / is not hired for the position. (circle one)

Name (printed) Name (signature) Date

AA-4 042115 created

**Delaware Technical & Community College
Student Worker Statement of Confidentiality**

As a Student employee of Delaware Technical & Community College, I understand that I have the responsibility and duty to protect the privacy of students, including former students. I recognize that at any time I may be made aware of private information pertaining to a student. I understand that any and all information that I obtain, see, observe, hear or become aware of by any means is considered confidential. I further understand that the unauthorized release of such information, whether to parties internal or external to the College, is strictly prohibited and may lead to dismissal from my position on the first offense.

As a Delaware Tech Student employee, I also understand that there are legal prohibitions to the dissemination of student information to others, including the Family Educational Rights and Privacy Act of 1974 (sometimes referred to as FERPA or the Buckley Amendment.)

If I am in doubt about a request for information, I understand that it is my responsibility to discuss the request with my supervisor prior to a decision to release the information.

My signature denotes that I have read and understood this Statement of Confidentiality and that I agree to consider all information that I become aware of as a Delaware Tech Student employee as strictly confidential, the unauthorized release of which may lead to dismissal on the first offense.

Signature of Employee: _____ **Date:** _____

Student ID: _____

Signature of Supervisor: _____ **Date:** _____

SI Leader Interview Questions

1. What interests you the most about the SI Leader position?
2. What qualities and characteristics should a successful SI leader have? (not including good grades)
3. Tell us about your experience in working with and in a group.

Reflection

Many people may not view these connections to human resources as relevant or challenging, but this process is probably the most arduous of all SI coordinator responsibilities. I have had no professional experience in an HR department and I was ignorant about the policies and procedures; I had to learn about them as I went through it, there was no possibility of learning about how to do everything ahead of time. This really challenged me because I am the type of person who likes to learn and plan ahead of time, and then implement the practice at the appropriate time. Sometimes it is important to one's professional growth to step out of their comfort zone and complete tasks that are foreign and can be frustrating.

The leadership challenges were many, including communicating with multiple HR representatives, working with the SI committee to create the new position and our hiring protocol, coordinating dates and locations for the interviews, and ensuring that the bi-weekly timesheets were correct and turned in on time. To begin, each SI coordinator had to communicate with their respective HR office to find out how to go about creating the SI leader position. This necessitated good communication skills and patience, because it required emails, phone calls, and face to face meetings and it was not always easy to get a fast response from different HR representatives. Then, the coordinators had to come together to discuss the HR policies at each campus and work to create an aligned method of hiring new SI leaders. Working with so many different people of diverse backgrounds and experiences was extremely challenging and was

not without its disagreements or frustrations, but I persevered and was able to help get the class spec created and the job posted.

Another difficulty was the policy requiring the applications to be checked by HR first, then transferred electronically to the SI coordinator. Occasionally I would be waiting for an application but the applicant left out something, such as a faculty contact, so HR would not forward it. This required me to contact the applicant, explain the problem, and have them re-submit their application. In addition, the electronic system for managing and viewing the applications was unlike any other system I have ever worked with before, so I had to learn to navigate that on my own as well.

Once the applications were received and checked, I then had to take on the job of contacting the applicants to schedule interviews. This required a lot of coordination because I had to find times that worked for the schedules of the two interviewers (usually another SI coordinator) and the applicant. Sometimes I would need to recruit a different college representative to interview with me because an SI coordinator was not available. Then, after a time was mutually agreed upon, I would need to contact the Dean of Instruction's office to schedule a room for the interview to take place in. This part of the process also required strong communication skills as well as attention to detail. Conducting interviews is enjoyable, I get to get a feel for different people's personalities and discuss with colleagues about who we think is the best fit for the position. Making these decisions and getting different people to agree on a candidate can be difficult, critical thinking and compromise is the key.

Managing employees is a huge undertaking and is something that I have never done before in my entire job history. Not only does this enhance my communication and leadership skills, but it improves who I am as a person because it forces me to be understanding to the needs of individuals while at the same time making tough decisions for the needs of the program. The challenge of working with HR and being a supervisor is an ongoing process that never really goes away. During the semester I have to make sure that accurate timesheets are being turned in to me on time, and then I have to deliver them to HR on time. Since DTCC is a two-year community college, we have a very high turnover rate in our SI leaders, so the job position is constantly having to be re-posted and new applicants are interviewed at the beginning of every semester. Then communicating with the new hires to make sure they fill out all their paperwork and do everything that HR requires of them takes a lot of time, time that is not always available.

This all supports one of my major recommendations for DTCC's SI program – the need for a full time SI coordinator at each campus and a college wide SI coordinator to support each campus coordinator in their duties. The managerial responsibilities alone are too much for a full time faculty member or a college employee who already has a lot of other responsibilities. A dedicated employee whose only role is that of SI coordinator is the best way to ensure that the program gets all of the attention and support that it needs in order to be highly successful.

Appendix G

ARTIFACT 6: TRAINING SI LEADERS

Evidence of Leadership: Training SI Leaders

Introduction

Effective training is a critical piece of a successful supplemental instruction (SI) program. The new program supervisors (SI coordinators) need to go through a formal training process, especially if they want their program to obtain national certification. After the coordinators are trained, it is essential that the new student employees hired to be SI leaders are appropriately trained. Training for an SI program, especially a brand-new program like the one created at Delaware Technical Community College (DTCC), does not end after just one to several days of training, but continues for the life of the program. Because the SI leaders facilitate SI sessions two to four times a week, the bulk of their training focuses on the planning and implementation of those sessions. SI leaders are given a lesson plan template and 56 learning strategy cards at their first training session; the lesson plan template is to be used to plan each SI session, and the learning strategies are to be incorporated into their sessions at appropriate times. In addition, training incorporates good classroom management skills and major elements of SI which are appropriate use of wait time, redirecting questions, and checking for understanding.

Once I was hired as the new SI coordinator for DTCC's Wilmington campus, I was instructed to research what I could about SI prior to my official training at University of Missouri-Kansas City (UMKC), the location of the International Center for Supplemental Instruction, from March 21-23, 2016. My employer paid for all of the travel expenses, registration fees, and materials for this training, a strong indication

that DTCC is investing in my leadership. It is meaningful when an institution like DTCC pays for its employees to travel and learn new skills; therefore, the college's administration must consider me a leader. It was at this training that I learned how SI programs are normally set-up and administered, how SI sessions should be delivered, and the responsibilities bestowed upon both the SI coordinators and SI leaders.

I obtained more national training when I attended the 8th Annual Regional Conference on Supplemental Instruction at Texas A&M University. This training occurred from May 23-26, 2017, and is another example of how DTCC is investing in my leadership and management abilities. The administration shares my desire to have an effective SI program in order to improve course grades in classes with high fail rates and to improve student success.

A majority of the training at UMKC and the conference at Texas A&M was spent on learning how to better train and more effectively manage the SI leaders. One of the most important lessons that I learned from the conference in Texas was the need for continued training through the semester for the SI leaders, not just one to two days of training at the beginning of the semester. Again, SI leaders are the students who are hired through an application and interview process to run the SI sessions and help the students in the course learn the material more efficiently. Most of the time, SI leaders are students who have taken the course within the last one to two years, obtained at least a B in the class, and have good communication and leadership skills. As the SI coordinator for the Wilmington campus, a great deal of responsibility falls on me to plan, organize, and administer the training for SI leaders.

The first SI leader training that I hosted with the other SI coordinators was on August 11, 2016, in Dover. I spent a lot of time developing important training activities for this group of new SI leaders college wide, including a four corners ice breaker activity, an introduction to SI PowerPoint, a discussion about some essential elements of SI, a demonstration of what a jigsaw activity is, and finally a mock SI session to serve as an example of best practices when conducting a session. All of this planning and implementation speaks to my leadership role as an SI coordinator and my ability to lead the other coordinators and the SI leaders from all four campus locations. The second day of new leader training was on August 12, 2016, and was held at each individual campus location. This was a decision that I introduced to the other coordinators because I felt it was a good opportunity for the SI coordinator to work with just their campus's SI leaders, since a strong, professional relationship is necessary among group members to make the SI program successful. As the leader of this new program, I organized and ran this all-day training session which included an ice breaker, practice for the SI leaders' first-day speeches, and SI session planning based on a lecture that I delivered via YouTube. Moreover, I covered the logistics of conducting SI sessions, discussion of scenarios that can come up during a session (ex. unruly or disinterested students), and the nuts and bolts of administrative duties such as taking attendance and filling out paperwork. I also took the initiative of inviting the math and science department chairs, the assistant dean, and dean of instruction to observe this training.

There was a brief training held between semesters on January 5, 2017, in Dover. This training was interesting for two reasons. First, it allowed us to have some returning leaders and some new leaders meet each other and work together. This was an effective way to illustrate the major tenants of SI – collaboration and teamwork. The returning leaders were able to present basic information about SI to the new leaders, tell some stories about their experiences, and give advice about what to expect and how to deal with certain situations. The professional relationships that the leaders developed at this training were crucial to their success throughout the semester. Second, it was particularly interesting for me because I had agreed to be the SI coordinator for both the Wilmington and Stanton campuses for the upcoming semester since Stanton’s coordinator was going out on maternity leave. I accepted this leadership challenge because I was logically the person to run both programs, rather than trying to train a new coordinator between semesters, and I did not want the program at Stanton to end or fall behind.

The fall semester of 2017 largely saw a new crop of students taking on the role of SI leader, especially at my campus. As a result, the coordinators decided to host a training similar to the one done in the prior year, with some modifications. The first leadership challenge for this training was that the coordinator from the Dover campus had retired over the summer, so she was not present for the training. I led the SI committee in reorganizing the training agenda so that the parts that the now retired coordinator played would be filled by one of the three of us who remained. We also decided to use the revised version of the PowerPoint developed for the previous

training session because we thought it was concise yet pertinent and would not take as much time away from the more important collaborative aspects of the training. I made the leadership decision to host the second day of training for half a day, rather than a full day, based on what I learned from the fall 2016 training. Half a day was sufficient to cover everything that needed to be covered, while giving the leaders more responsibility to cover other material on their own and ask questions if they did not understand something that was assigned to them.

It is also worth mentioning here that I organized transportation for all of the SI leaders from Stanton and Wilmington to Dover for all three training days scheduled at that campus. I had to get myself registered with the state of Delaware fleet system, reserve a vehicle, and drive the SI leaders from the northern Delaware campuses to Dover. The fact that I took the initiative to get this done and accepted the responsibility of something so important speaks to my leadership role in DTCC's SI program.

Examples of Training

- Detailed outline of training agenda for August 11 and 12, 2016
- Student copy of training agenda for August 11 and 12, 2016
- The PowerPoint (that I took the lead in developing) for the training on August 11, 2016
- Training agenda for January 5, 2017
- Revised PowerPoint for the training on January 5, 2017

- Detailed outline of the training agenda for August 10 and 11, 2017
- Student copy of training agenda for August 10, 2017
- Student copy of training agenda for August 11, 2017
- Training agenda that I developed for continued training during the fall 2017 semester

Supplemental Instruction: Student Leader Training

Attire: Casual and Appropriate

DAY ONE: Thursday August 11, 2016

ETB 742 (Dover Campus) Education and Technology Building Second Floor

9:00-9:30 – Continental breakfast, create a name tent (papers and markers - Laurretta)

9:30-10:30 – Room is in large group set-up

- Welcome from Coordinators (provide background) about 10 minutes
- Four Corners Ice Breaker (Curtis will organize) about 15 minutes
- Introductions from students (name, program, where are you from/High School, Math/Bio, fun fact) about 35 minutes

10:30-12:00 – Introduction to SI PowerPoint

12:00-12:45 – Lunch

12:45-1:45 – Essential Elements of SI (pg 8, 9) (leaders will be told to take notes)

- Jill items 1 and 2. **Think-pair-share** for 2
- Curtis items 3 and 4. **Clusters** for 3
- Laurretta items 5, 6, and 7 **One minute paper**
- Lauren items 8 and 9 **Outline**

1:45-2:15 – Three techniques of effective SI sessions (pg. 32 – 37 and pg. 34 – 40 in leader manual). **Jigsaw**

2:15-2:30 – Break

2:30-2:45 – Mock Lecture YouTube Shawn Achor: The happy secret to better work

<https://www.youtube.com/watch?v=fLJsdqxnZb0>

2:45-3:15 – Mock SI Session (provide copies of completed plan for leaders in folder)

- Attendance - Jill
- Agenda - Jill
- **Vocabulary Development** – Jill
- **Identify the “Big Idea”** – Curtis
- **Affinity Grouping** – Lauren
- **Informal Quiz** - Laretta

3:15-3:30 – Assign 1st day speeches (pg. 28 – 30 in leader manual)

3:30 - Adjourn

DAY TWO: Friday August 12, 2016

Respective Campus

8:30-9:00 – Continental breakfast

9:00-9:15 – Ice Breaker

9:30-9:50 – First Day Speeches (possibly meet the instructor)

9:50-10:00 – Debrief speeches

10:00-10:30 – BIO and MAT videos (Curtis and Lauren)

BIO https://www.youtube.com/watch?v=YsDqGFJ_weM

MAT http://mediaplayer.pearsoncmg.com/assets/martingay_mgba7e_sl_04_01

(from minutes 9:44 - 20:50)

10:30-11:30 – SI session planning (pg. 46 - 53 in leader manual, print copies of pg. 47 for folder)

11:30-12:15 – Lunch

12:15-12:20 – Rearrange room for SI sessions

12:20-1:50 – SI sessions (with opening, main activity, close about 15 minutes and 5 minutes of debrief with observation records (pg. 43 print own copies for each leader to fill out for each session (for 4 leaders, 12 copies)) conducted by other leaders)

1:50 - 2:00 – First SI session (ice breaker, textbook resources, syllabus, time management)

2:00 – 3:00 – SI session scenarios (pg. 14 in leader manual numbers 3, 5, 6, 7 if time; pg. 16 all; pg 33 in Learning to Train SI leaders situations 1, 2, 3, 8, and 10 then reference pg. 32 in leader manual to leaders to review in their own time)

3:00-4:00 – Nuts and Bolts

Marketing and attendance strategies (pg. 43 – 44 in leader manual)

Professionalism (pg. 57 in leader manual)

Appropriate dress

Appropriate language

Appropriate emails

Setting expectations (pg. 18 – 21 in leader manual)

Accommodations

Academic Services

Paperwork

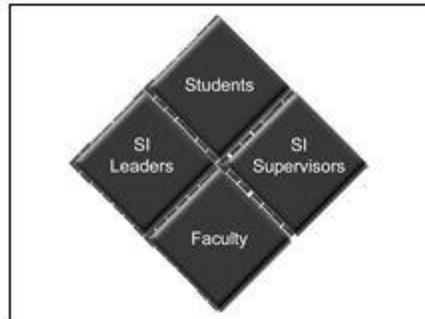
timesheets

confidentiality (pg. 55 – 56 in leader manual, print copies for
folder)

attendance form (pg. 46 in leader manual)

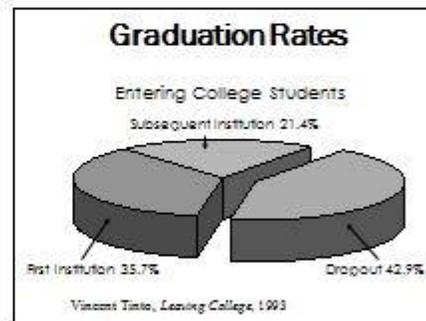
Scheduling meeting with coordinators, questions

4:00 – Adjourn



Why is SI here today?

- Facilitate learning
- Improve graduation and retention rates
- Almost half of college freshmen will not go on to graduate



Success Rates

Students who attend SI sessions earn higher grades and academic success

- Lower rates of F, W, and U grades
- Attendees at two-year institutions on average earned a letter grade higher (from 1.2 to 2.86 GPA)

Based on UMKC Data

What is Supplemental Instruction?

Supplemental Instruction

- Began at UMKC in 1973
- Created by a graduate student in the School of Education, Deanna Martin
- Initially used to support minority students in the health sciences
- Began serving several schools at UMKC
- Adopted by many colleges and universities throughout the world

Supplemental Instruction (SI)

- Organized group study time facilitated by a near peer.



Instructional Paradigm

- ✓ Learning is instructor-centered
- ✓ Learning is cumulative and linear
- ✓ Knowledge is stored and delivered



The Learning Paradigm

- ✓ Learning is student-centered
- ✓ Learning is active and messy, even uncomfortable
- ✓ Knowledge is constructed



Discovering Connections

To be truly educated means going beyond the isolated facts, putting learning in a larger context and, above all, it means discovering the connectedness of things

- Paul Boyer

SI Leaders

... help students put things together.

The SI session revolves around **student-to-student** interaction and cooperative learning.



Students who study in groups learn two and a half times more than those who study alone if the groups stay on task.

- Johnson and Johnson

SI Components

- Student-facilitated review sessions
- Target courses, not students
- Welcome all enrolled students
- Ensure voluntary and anonymous participation at regularly scheduled sessions

SI Components

- Utilize trained, student facilitators
- Faculty supported
- Content and study skills are integrated
- Rich area for research and publications

Supplemental Instruction Leaders

- ✓ Begin services the first week of classes
- ✓ Attend class with the students
- ✓ Provide regularly scheduled sessions outside of class
- ✓ Organize class material to ensure conceptual understanding
- ✓ Receive additional support from SI Coordinators and others



What is your goal as an SI leader?

- ✓ Help students discover the connections between and within concepts.
- ✓ Encourage students to work together, using each other as resources.
- ✓ Organize strategies that facilitate active processing of conceptual material.
- ✓ Encourage students to take responsibility for their own learning.
- ✓ Break the dependency cycle.

The Dependency Cycle

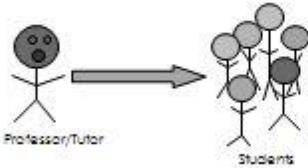
The dependency cycle leads to students who are:

- Passive
- Silent
- Give up



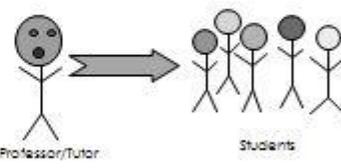
Passiveness

- Tell them (lecture, assign reading).



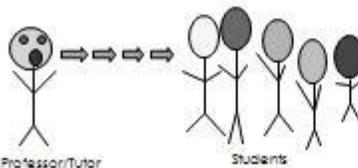
Silence

- Tell them again.



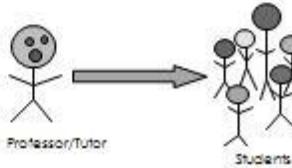
Failed Processes

- Tell them more slowly.



Break the Dependency Cycle

- Tell them.



Break the Dependency Cycle

- Get them to tell each other.

The diagram shows three student icons (two with sad faces, one with a neutral face) and one S Leader icon (a stick figure with a neutral face). Arrows point from each student to the S Leader, indicating that all students depend on the leader for information.

Break the Dependency Cycle

- Get them to tell you again.

The diagram shows three student icons and one S Leader icon. Arrows point from each student to the S Leader, and also from each student to the other two students, indicating that students now depend on each other as well as the leader.

Break the dependency cycle

- ✓ In breaking the dependency cycle, you make students responsible for their own learning.
- ✓ This empowers students during the SI session, in the classroom, and for their future.

Inside the Sessions

Construct Own Knowledge

Through a process of

- Social Interaction
- Exploration
- Application
- Integration

The photographs show students engaged in group work and discussion in a classroom environment.

Cooperative Learning

- ✓ Students rely on each other
- ✓ Each is required to contribute
- ✓ Together they must make decisions and resolve conflict
- ✓ The group reflects on its efficiency, ways to improve

The photograph shows three students (two women and one man) sitting around a table, looking at a document and discussing it.

Inside the SI Session

- ✓ Student-to-student processing of material
- ✓ Leader facilitates and organizes time

Inside the SI Session

- ⊘ Not tutoring
- ⊘ Not re-lecturing



Successful SI Programs

- ✓ Faculty support
- ✓ Class attendance—leaders
- ✓ Training that includes modeled strategies and simulated sessions
- ✓ Supervision
- ✓ Regularly scheduled sessions
- ✓ Sessions that incorporate course content and learning strategies
- ✓ Data collection and evaluation

Successful SI Leaders

- ✓ Attend class
- ✓ Hold regular sessions twice a week
- ✓ Plan collaborative activities based on the most difficult content
- ✓ Encourage students to discover the material themselves
- ✓ Help students understand how to approach their discipline

You are not alone:  Your support team.



Other SI Leaders



SI Leader



SI Coordinator

Faculty



What do you expect to gain from your experience as an SI Leader?

Benefits for SI Leaders



- ✓ Gain leadership skills
- ✓ Learn how to manage a classroom
- ✓ Understand content more thoroughly

- ✓ Earn personalized recommendations
- ✓ Find more post-graduate study and employment opportunities

Benefits for SI Leaders

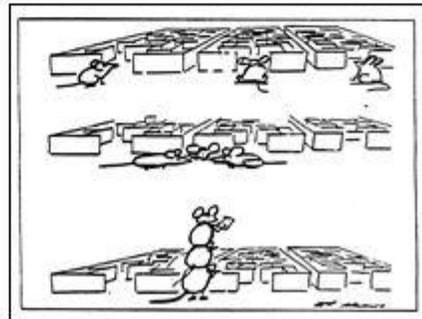
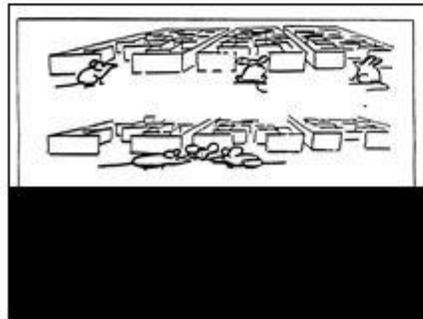
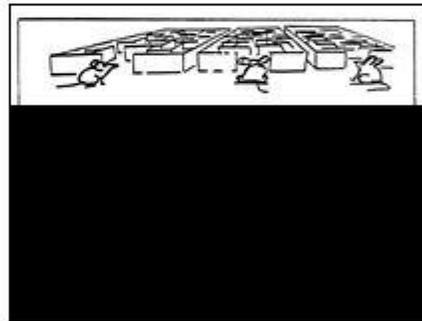
- ✓ Be a part of higher education.
- ✓ Contribute to the education of our citizenry.



- ✓ Help students believe that they can learn anything given enough resources, time on task, and positive reinforcement.
- ✓ Empower Students!

SI Is Worldwide

- Faculty and staff from 3500+ institutions have been trained
- 30 countries have SI programs
- Each semester, approx. 750,000 students participate in SI at 1500+ institutions worldwide

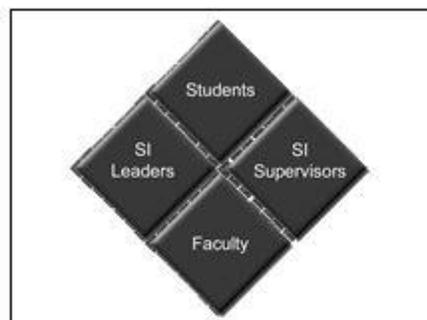


Supplemental Instruction: Student Leader Training

Thursday, January 5th, 2017

ETB 742 (Dover Campus) Education and Technology Building Second Floor

- | | |
|-------------|---|
| 8:30-9:00 | Continental Breakfast |
| 9:00-10:00 | Welcome & Introductions |
| 10:00-10:15 | Nuts and Bolts |
| 10:15-11:00 | Returning Leaders - Planning Time
New Leaders - Nuts and Bolts (continued) |
| 11:00-12:00 | Introduction to SI/Three Essential Elements of SI |
| 12:00-12:30 | Lunch |
| 12:30-1:00 | Mock Lectures |
| 1:00-1:30 | Plan SI sessions |
| 1:30-1:45 | Break |
| 1:45-3:15 | Conduct SI Sessions |
| 3:15-3:45 | SI Session Scenarios |
| 3:45-4:00 | Wrap-up/Adjourn |



Why is SI here today?

Success Rates

Students who attend SI sessions earn higher grades and academic success

- Lower rates of F, W, and U grades
- Attendees at two-year institutions on average earned a letter grade higher (from 1.2 to 2.86 GPA)

Based on UMKC Data

What is Supplemental Instruction?

Supplemental Instruction (SI)

- Began at UMKC in 1973
- Organized group study time facilitated by a near peer.

The SI session revolves around **student-to-student** interaction and cooperative learning.

Students who study in groups learn two and a half times more than those who study alone if the groups stay on task.

- Johnson and Johnson

SI Components

- Student-facilitated review sessions
- Target courses, not students
- Welcome all enrolled students
- Ensure voluntary and anonymous participation at regularly scheduled sessions

SI Components

- Utilize trained, student facilitators
- Faculty supported
- Content and study skills are integrated

Supplemental Instruction Leaders

- ✓ Begin services the first week of classes
- ✓ Attend class with the students
- ✓ Provide regularly scheduled sessions outside of class
- ✓ Organize class material to ensure conceptual understanding
- ✓ Receive additional support from SI Coordinators and others



What is your goal as an SI leader?

- ✓ Help students discover the connections between and within concepts.
- ✓ Encourage students to work together, using each other as resources.
- ✓ Organize strategies that facilitate active processing of conceptual material.
- ✓ Encourage students to take responsibility for their own learning.
- ✓ Break the dependency cycle.

The Dependency Cycle

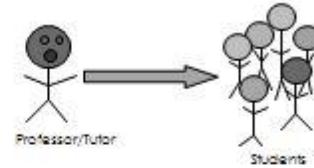
The dependency cycle leads to students who are:

- Passive
- Silent
- Give up



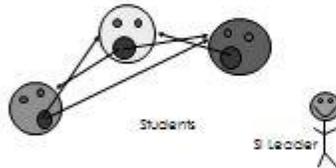
Passiveness

- Tell them (lecture, assign reading).



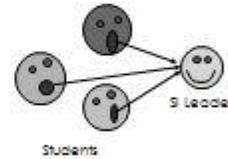
Break the Dependency Cycle

- Get them to tell each other.



Break the Dependency Cycle

- Get them to tell you again.



Break the dependency cycle

- ✓ In breaking the dependency cycle, you make students responsible for their own learning.
- ✓ This empowers students during the SI session, in the classroom, and for their future.

Inside the
Sessions

Cooperative Learning

- ✓ Students rely on each other
- ✓ Each is required to contribute
- ✓ Together they must make decisions and resolve conflict
- ✓ The group reflects on its efficiency, ways to improve



Inside the SI Session

- ✓ Students construct own knowledge
- ✓ Student-to-student processing of material
- ✓ Leader facilitates and organizes time

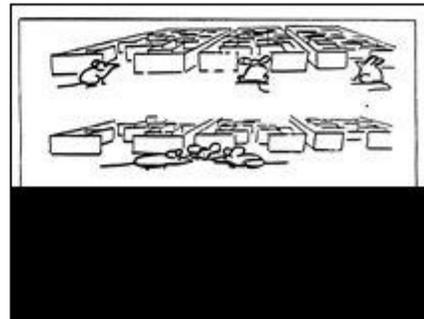
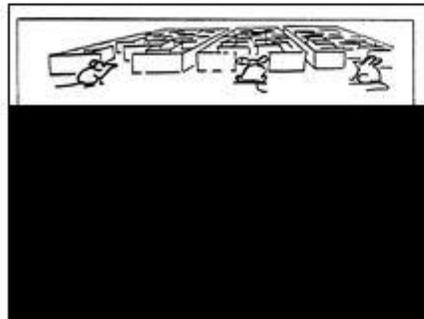
Inside the SI Session

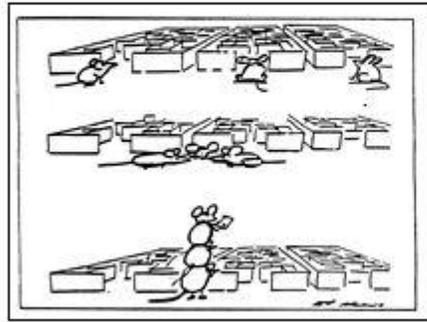
- ⊖ Not tutoring
- ⊖ Not re-lecturing



Successful SI Leaders

- ✓ Attend class
- ✓ Hold regular sessions twice a week
- ✓ Plan collaborative activities based on the most difficult content
- ✓ Encourage students to discover the material themselves
- ✓ Help students understand how to approach their discipline





Supplemental Instruction: Student Leader Training

Attire: Casual and Appropriate

DAY ONE: Thursday August 10, 2017

Terry Building – room 233

8:30-9:15 – Continental breakfast, create a name tent (papers and markers - Jill)

9:15-10:30 – Room is in large group set-up

- Welcome from Coordinators (provide background) about 10 minutes
- Four Corners Ice Breaker (Curtis will organize) about 15 minutes
- Introductions from students (name, program, where are you from/High School,
- Math/Bio, fun fact) about 25 minutes

10:30-12:00 – Introduction to SI PowerPoint & Ideas/Stories from Returning Leaders

- 1-10 - Jill
- 11-17- Lauren
- 18-25- Curtis

Coordinators will discuss former SI leader activities and mention

Blackboard

group (bring the materials)

Discuss first SI session

12:00-1:00 – Lunch

1:00-2:00 – Essential Elements of SI (pg 8, 9) (leaders will be told to take notes)

- Jill items 1-3. **Think-pair-share** for 2
- Curtis items 4-6. **One minute paper** - pick one element
- Lauren items 7-9 **Outline**

2:00-2:15 – Break

2:15-2:45 – Three techniques of effective SI sessions (pg. 32 – 37 and pg. 34 – 40 in leader

manual). **Jigsaw and then share**

2:45-3:15 – Mock Lectures in BIO and MAT

3:15-3:30 – Brainstorming ideas for Mock SI Sessions

3:30 - Assign first day speeches (pg. 28 – 30 in leader manual) & Adjourn

Supplemental Instruction (SI) Leader Training

Thursday, August 10th, 2017

Delaware Tech Dover Campus – Terry Building room 233

8:30-9:15 Continental Breakfast

9:15-10:30 Introductions and Ice Breaker

10:30-12:00 Introduction to SI and Tips from Returning Leaders

12:00-1:00 Lunch

1:00-2:00 Essential Elements of SI

2:00-2:15	Break
2:15-2:45	Three Techniques of Effective SI Sessions
2:45-3:30	Mock Lectures and Brainstorming for Mock SI Sessions
3:30	Adjourn

Supplemental Instruction (SI) Leader Training

Friday, August 11th, 2017

Delaware Tech George Campus – room SE 313

8:30-9:00	Arrive and Welcome
9:00-9:30	First Day Speeches
9:30-11:00	Plan and Conduct Mock SI sessions
11:00-12:00	Nuts and Bolts
12:00-12:30	SI Session scenarios & Questions
12:30	Adjourn

SI Leader Training Agenda

September 22, 2017

Buy Pizza for lunch

Collect paperwork – attendance sheets, planning sheets, timesheets

Give my updates on how things are going

Allow leaders to give their own updates, what's working and not working well

Discuss ideas, brainstorm ways to improve sessions/program

Revisit learning strategy cards

Student leadership conference – Oct. 27 in Dover

SI Session Scenarios – “what would you do?”

Student not participating or acting like they don't want to be there

One student wants to take over the whole session to get their questions
in/answered

A student from a different section wants to join the SI session (they are in the
session in front of the other students from the class)

*Questions you should ask first – who is their instructor? how did they
find out about SI? Did a student/friend invite them?

Computational thinking – a method of problem solving involving 1) decomposition, 2)
pattern recognition, 3) abstraction, and 4) algorithm design

Team building exercise: drawing a picture blindfolded, scavenger hunt, or Pictionary

Examples of Planning

List of Learning Strategies

Study Techniques

Note cards
Predict next lecture topic
Outline chapter
Marking textbook
Incomplete outline
Cornell note taking
Note review
Predict test questions
Identify the big idea
Summarize the lecture

Problem Solving

Structured problem solving
Post exam survey
Peer lessons
Grab bag
Paired think aloud
Boardwork model
Summarize a procedure
Send a problem
First line only
Super tic-tac-toe

Group Collaboration

Group survey
Think-pair-share
Divide and conquer
Jigsaw
Learning cells
Clusters
Turn to a partner
Assigned discussion leader

Organizational Visuals

Vocabulary development
Visuals
Time line
Double time line
K-W-L
Affinity grouping
Hierarchies
Venn diagram
Matrices
Concept mapping
Think aloud

Review Techniques

Around the world
Verbal volleyball
One-minute paper
Informal quiz
Make and take a practice test
3:2:1
Reciprocal questioning
Memory
Jeopardy
Taboo
Two lies and a truth

SI Leader Tips

Questioning techniques
Planning extended review sessions
Conducting sessions
SI session planning
3 before me
Assess the session

Lesson Plan Template:

PLANNING THE SI SESSION

Session Date & Day of Week _____ SI Leader _____

Course _____ Course Instructor _____

Objective: What are the one or two most difficult concepts that the students need to work on today?

Beginning reminders:

1. Arrange seats in a circle
2. Hand out *Participation Log*
3. Set agenda with group
4. Remember to relax and be flexible!

Content to cover:	Processes to use*:

*Possible processes to use: Informal Quiz, Matrix, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Text Review (Divide and Conquer), Visual Organizers

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:

Lesson Plan Samples from SI Leaders:

PLANNING THE SI SESSION

Session Date & Day of Week 21 Aug 17 (W) 23 Aug 17 (W) SI Leader
 Course BIO120 Course I

Objective: What are the one or two most difficult concepts that the students need to work on today?
1st session of semester - no course content; meet & greet

Beginning reminders:

1. Arrange seats in a circle
2. Hand out *Participation Log*
3. Set agenda with group
4. Remember to relax and be flexible!

Content to cover:	Processes to use*:
Ice Breaker	Name Major Interesting fact/story Intro
Required Materials	Discuss available options for cheaper course materials
Lab set-up	Sign up for mastering A&P
SI program	Possibly only Q&A during semester, where directly answer student's Qs

*Possible processes to use: Informal Quiz, Matrix, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Text Review (Divide and Conquer), Visual Organizers

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:

more people from section 405 attended; they seemed eager to start the material and surprisingly stayed the entire session.

PLANNING THE SI SESSION

Session Date & Day of Week (Sep 17 (W)) SI Leader

Course BIO 120-405/406 Course

Objective: What are the one or two most difficult concepts that the students need to work on today?

Protein synthesis

Beginning reminders:

1. Arrange seats in a circle
2. Hand out *Participation Log*
3. Set agenda with group
4. Remember to relax and be flexible!

Content to cover:	Processes to use*:
Ice Breaker	Line up by DOB, count off 4 to split into groups
Review	Make/Take a Quiz ↳ 3-5 Q's
Protein synthesis	YouTube
Closing	1-minute paper
	(Meditation) - if time permits

*Possible processes to use: Informal Quiz, Matrix, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Text Review (Divide and Conquer), Visual Organizers

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:

Activities ended faster than expected and students ended up reviewing on their own or in pairs.
No interest in meditation

PLANNING THE SI SESSION

Session Date & Day of Week 4 Oct 17 (W) SI Leader
 Course BIO120-405/406 Course

Objective: What are the one or two most difficult concepts that the students need to work on today?
Just processing new material - most likely action potential (covered in worksheet)

Beginning reminders:

1. Arrange seats in a circle
2. Hand out *Participation Log*
3. Set agenda with group
4. Remember to relax and be flexible!

Content to cover:	Processes to use*:
Notes Review 10-15 min	Review new lecture material & discuss
CNS vs PNS	List differences on board
Fundamentals of Nervous system	Worksheet
Check for understanding	Kahoot .it

*Possible processes to use: Informal Quiz, Matrix, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Text Review (Divide and Conquer), Visual Organizers

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:

Quiet as usual, not sure they like reviewing notes, since they all looked eager to work.

PLANNING THE SI SESSION

Session Date & Day of Week Wed 11/23 PM SI Leader
Mon 11/25 AM

Course _____ Course Instructor _____

Objective: What are the one or two most difficult concepts that the students need to work on today?

Eye Anatomy - structure + function, vision & reception
Smell + taste

Beginning reminders:

1. Arrange seats in a circle
2. Hand out *Participation Log*
3. Set agenda with group
4. Remember to relax and be flexible!

Content to cover:	Processes to use*:
Eye anatomy	picture labeling
Vision & reception	Eye experiment, detection of color & objects
KWL - Intro	
Smell + taste	timeline

*Possible processes to use: Informal Quiz, Matrix, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Text Review (Divide and Conquer), Visual Organizers

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:

PLANNING THE SI SESSION

Session Date & Day of Week TUES AC 2/28 THURS BC 3/2 SI Leader
 Course BIO 120 Course In

Objective: What are the one or two most difficult concepts that the students need to work on today?
Muscle anatomy

- Beginning reminders:**
1. Arrange seats in a circle
 2. Hand out *Participation Log*
 3. Set agenda with group
 4. Remember to relax and be flexible!

TUES AC ONLY
 THURS BC ONLY

Content to cover:	Processes to use*:
connective Actions - special ID	create a quizlet
Body locations	Anatomy.tv with worksheet create a quizlet
Microscopic skeletal muscle - subcellular anatomy	Visuals - build a muscle myofibril + filament worksheet
Nervous Tissue	Worksheet review - sorta kw

*Possible processes to use: Informal Quiz, Matrix, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Text Review (Divide and Conquer), Visual Organizers

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:

PLANNING THE SI SESSION

Session Date & Day of Week Tuesday 4/11 SI Leader
 Course BIO 120 Course II

Objective: What are the one or two most difficult concepts that the students need to work on today?

TEST REVIEW

Beginning reminders:

1. Arrange seats in a circle
2. Hand out *Participation Log*
3. Set agenda with group
4. Remember to relax and be flexible!

Content to cover:	Processes to use*:
Hearing pathway	Students in a line timeline worksheet
Test Review	Notes & ladders
	Jeopardy
	Use predicted test questions for spin wheel.

*Possible processes to use: Informal Quiz, Matrix, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Text Review (Divide and Conquer), Visual Organizers

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:

PLANNING THE SI SESSION

Session Date & Day of Week 01/24/17 SI Leader
 Course Mat 20-408 Course Ins

Objective: What are the one or two most difficult concepts that the students need to work on today?

Skills to solve word problems.

Beginning reminders:

1. Arrange seats in a circle
2. Hand out *Participation Log*
3. Set agenda with group
4. Remember to relax and be flexible!

Content to cover:	Processes to use*:
Review The Formulas For 2.5	Note card
Solve word problems	Board work model
Worksheet 2.7-2.8	
Informal Quiz.	

*Possible processes to use: Informal Quiz, Matrix, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Text Review (Divide and Conquer), Visual Organizers

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:

I only have one student, we went over the Formulas again, and we did problem solving. Example then an Informal quiz at the end of the session.

PLANNING THE SI SESSION

Session Date & Day of Week 02/09/17 SI Leader

Course Math 20-408 Course Instructor

Objective: What are the one or two most difficult concepts that the students need to work on today?

writing an equation line in a slope intercept
form or standard form, decide if the lines are || or \perp .
neither.

Beginning reminders:

1. Arrange seats in a circle
2. Hand out *Participation Log*
3. Set agenda with group
4. Remember to relax and be flexible!

Content to cover:	Process to use*:
Chapter 3	Informal Quiz.
Test Review	Divide and Conquer.

*Possible processes to use: Informal Quiz, Matrix, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Text Review (Divide and Conquer), Visual Organizers

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:

We went through the review for the test, then they
had an informal quiz.

PLANNING THE SI SESSION

Session Date & Day of Week 03/07/17 SI Leader

Course Math 020-408 Course Instructor

Objective: What are the one or two most difficult concepts that the students need to work on today?

skills in adding, subtracting, multiplying and
Dividing polynomials.

Beginning reminders:

1. Arrange seats in a circle
2. Hand out *Participation Log*
3. Set agenda with group
4. Remember to relax and be flexible!

Content to cover:	Process to use*:
Chapter 5	Informal Quiz.
Exponents Formulas.	One minute writing

*Possible processes to use: Informal Quiz, Matrix, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Text Review (Divide and Conquer), Visual Organizers

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:

I had 2 students they seemed confused with

The material, I tried to help them. Hope they will
pass their Test.

Reflection

I see now that the quality of training can really make or break a new SI program. I felt only somewhat prepared after the three-day training at UMKC, mostly due to the apathy of the trainers. They did not seem interested in or passionate about helping us discover ways to make our SI programs successful; they just went through the manuals and covered the basics of how to run a program. The other attendees at the training were much more knowledgeable and helpful, as many of them were in charge of previously-established SI programs. Lindsey Randolph from Texas A&M University was especially well-informed and willing to share ideas and best practices. I learned a lot from Lindsey, and I was grateful for her help.

Planning the first SI leader training was a lot of work, but it was rewarding. Since DTCC did not have an existing SI program and the SI coordinators had never planned such a training, we really needed to think outside the box and work together to create an effective training program. Using materials from the UMKC manuals and drawing from past professional development experiences, I led the SI committee in organizing the training agenda for August 11 and 12, 2016. I particularly enjoyed leading the first ice breaker activity called four corners, which helped the new SI leaders learn some interesting facts about each other and helped bring the group together. I helped create an effective first day of training for these new employees; it was fruitful, and it gave the SI committee a strong foundation to build upon in future trainings.

The second day of training at the Wilmington campus was successful as well, and it was gratifying being able to demonstrate my leadership skills to the department chairs of math and science and the assistant dean of instruction. I had invited them to the training to observe the SI leaders practice their first-day speeches and to give them some background information about how the SI program was to operate. They spoke highly of the new SI leaders and of my ability to manage this new initiative. My first foray into becoming an effective SI coordinator was a success, but it also revealed areas I needed to improve.

A unique problem-solving opportunity occurred at the beginning of the spring 2017 semester: I found out that some SI leaders would not be returning; therefore, new SI leaders had to be hired immediately. In addition, once the Stanton SI coordinator left on maternity leave, I knew that I would be taking over as the coordinator for the Stanton campus. The first way that I solved this problem was transferring one of my BIO120 SI leaders at Wilmington to Stanton in order to fill the vacant MAT020 SI leader position. Then I had to contact other faculty for recommendations for additional applicants. Once I received recommendations, I contacted candidates, interviewed them, and hired new student leaders. Again I arranged transportation from Wilmington and Stanton to go to Dover for training with all SI leaders, new and returning. The SI committee worked together to revise our training agenda and PowerPoint, while at the same time utilizing the returning leaders to help train the new leaders. This collaboration highlights one of the major aspects of SI, and I believe that the new

leaders realized the importance of teamwork and communication in the DTCC SI program.

At the close of the spring semester, I attended the SI conference at Texas A&M University, an opportunity that I came to value highly. The focus of the conference was working more effectively as a team and with SI leaders; I learned so much about being a more effective leader for an SI program from this experience, and I brought those ideas back to DTCC. The topics that were most instrumental in bringing about positive change to the program were technologies for more effective data collection and analysis, gamification in SI sessions, accountability and professional development for coordinators and leaders, recruitment of attendees, SI session observations, strategic evaluation of SI leaders, and the importance of ongoing and in-depth SI leader training throughout the school year. I met many effective leaders in the world of SI and developed lasting professional relationships with a few of them. This experience greatly enhanced my own leadership skills and gave me the opportunity to share knowledge with others at DTCC.

The program experienced big transitions at the beginning of the fall 2017 semester; many of the previous SI leaders had graduated or left the program to pursue other endeavors, so most of the leaders were new. It was expected that I would need to recruit, interview, hire, and train new leaders, so I was confident and prepared. As mentioned, the SI coordinator from the Dover campus retired, so she was not present for the training session we hosted on August 10, 2017. I took the initiative to reorganize the leader training session so that it would work with three people instead

of four; I took on many of the Dover coordinator's responsibilities. Both trainings, with college-wide leaders on the 10th and just the leaders from Wilmington on the 11th, helped set the expectations of the program, as well as provide some tips and ideas for running successful SI sessions.

Utilizing an idea that I obtained from the Texas A&M conference, I organized a training on September 22, 2017, during the semester, for the three Wilmington leaders. I took care of purchasing refreshments, scheduling a room, and developing some activities to enhance the effectiveness of their role as SI leader. I also gave them ample opportunity to discuss with the group any challenges, conflicts, or success stories that they wanted to share. This idea was well-received by the leaders and the other SI coordinators; in fact, the other coordinators planned similar mid-semester trainings with their leaders based on my model. I was proud that I was able to enact a positive change in the program through my experiences at the conference and through my own leadership. This whole process of training new DTCC employees who want to help other students succeed and be more confident in themselves has been very gratifying. I help the SI leaders be more effective in their roles, while at the same time, they make me a better manager and leader for the program and for the institution as a whole.

References

International Center for Supplemental Instruction. (2014). Supervisor Manual for Supplemental Instruction: Kansas City, MO. The Curators of the University of Missouri.

Appendix H

ARTIFACT 7: DATA ANALYSIS PLAN

**Problem-Based Data Analysis Plan:
The Effects of Supplemental Instruction on Student Success**

Problem Motivating This Investigation

There are several courses at Delaware Technical Community College (DTCC) with high fail rates and high attrition rates, represented by F (fail), W (withdraw), and U (unofficial withdraw) grades. The courses need to be challenging and robust in order for our students to meet certain objectives and expectations as well as for programs to meet their accreditation standards. However, the difficulty of these courses can lead to students dropping out or failing the class. When this happens, it is not unusual for students to take longer to graduate or even leave the college altogether. The faculty and administration of DTCC want students to be successful in their course work, meet their academic goals, and graduate in a reasonable amount of time.

In an effort to reach these goals and help solve the problem of low pass rates, each DTCC campus will be piloting a program in Supplemental Instruction (SI) in the 2016-2017 school year. This new initiative will consist of two sections of Elementary Algebra (MAT020) and two sections of Anatomy and Physiology I (BIO120) being embedded with two to four SI sessions per week. The SI sessions will consist of various learning strategies, test reviews, study skills, and note-taking skills. The sessions will be led by a trained near-peer who has previously been successful in the course, the SI leader. The hope, and ultimate goal of this new program, is to see increases in student grades and decreases in F/W/U rates for the students who attend SI.

Key Questions to Investigate

1. Are the exam scores of SI attendees different from the scores of non-attendees?
2. Are there differences between the final grades of SI attendees and non-attendees?
3. Are there differences in the pass rates of SI attendees when compared to non-attendees?
4. How do the final grades compare between students who attended ten or more SI sessions and students who attended fewer than ten SI sessions?
5. Are there differences in the pass rates of the sections that had SI attached to them versus sections of the same course with the same instructor, but without SI attached.
6. Does utilization of the SI sessions differ by gender?

Data Set: Variables and Cases

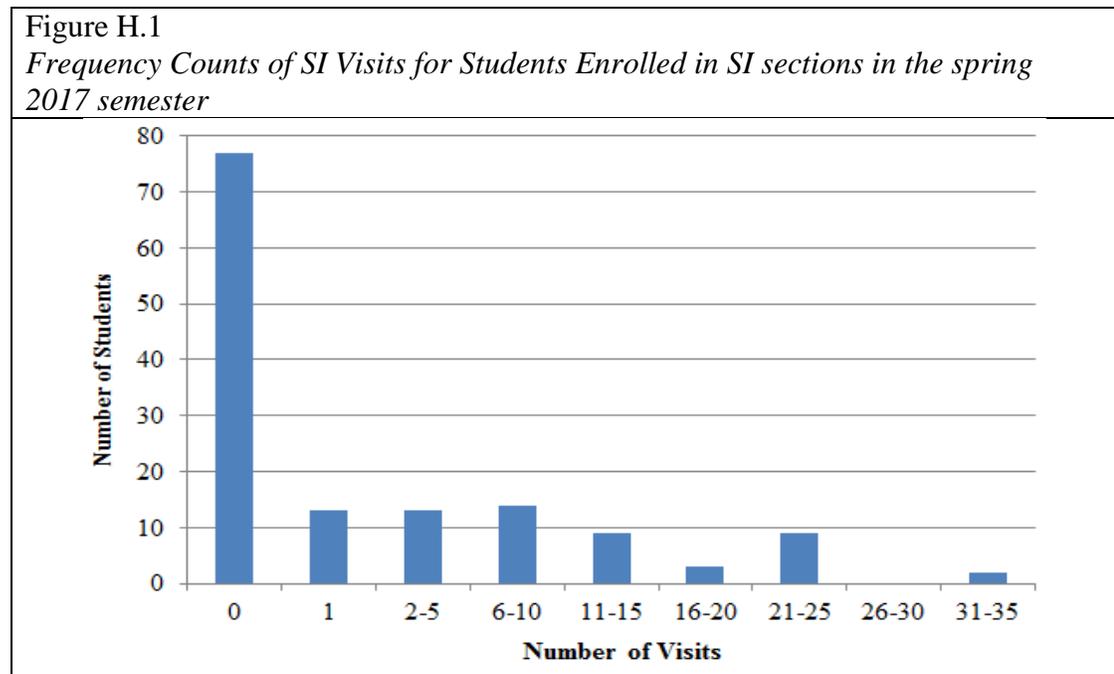
Course grades will be the quantitative way in which the SI program's effects on student success will be gauged. The courses are identified by section number: BIO120-501, BIO120-502, MAT020-501, and MAT020-504 were all courses held at the Stanton campus and BIO120-407, BIO120-408, MAT020-406, and MAT020-408 were all housed at the Wilmington campus. Attendance in the SI sessions is crucial to record, the SI leader will collect attendance at every SI session in which students print their name and indicate their time in and time out. This attendance data will be

submitted at the end of each week to me and I will record it on an Excel spreadsheet. I will use the attendance data to compare the grades of the students in the SI sections as well as determine the attendance rates of males and females. Using another spreadsheet, I will record the exam grades for each of the SI course sections and calculate their respective averages. Then, I will separate the students into SI attendees and non-attendees, an SI attendee is a student who came to at least one SI session during the semester (International Center for Supplemental Instruction, 2016). I will also examine the number of F/W/U grades in all course sections and report those results as well, in order to determine SI's effects on pass rates. Finally, I will also collect grades from non-SI sections of the same course with the same instructor, to compare the pass rates of those courses.

Table H.1 <i>Explanation of Variables</i>	
Exam Average	The average of all students' exam scores only
Class Average	The average of all students' final grades BIO120 final grades = 75% lecture (exams), 20% lab, 5% formative assessments MAT020 final grades = 80% exams, 10% homework, 5% quizzes, 5% classroom activities
SI Average	The average of the SI attendees' exam scores or final grades
Non-SI Average	The average of the non-attendees' exam scores or final grades
Pass rate	The percentage of students who received an A, B, or C grade

Results

Using the spreadsheets described above and formulas entered into Excel, data were obtained based on student SI session attendance and the grades that they received. Figure H.1 shows the frequency counts of SI visits for all students in the eight SI sections.



In order to get a more accurate picture of the SI attendance in BIO120 and MAT020, the number of session visits per week were tabulated and are presented in Figure H.2 and Figure H.3. The attendance in most BIO120 SI sections seems to peak every two weeks (Figure H.2), which probably corresponds to the exam schedule; most BIO120 instructors give an exam every two weeks. Attendance in MAT020 SI is much lower and appears to be more sporadic (Figure H.3), but could also peak right

before an exam is given. Table H.2 shows the averages of the exam grades for students who attended SI versus students who did not attend at all during the spring 2017 semester at the Wilmington and Stanton campuses.

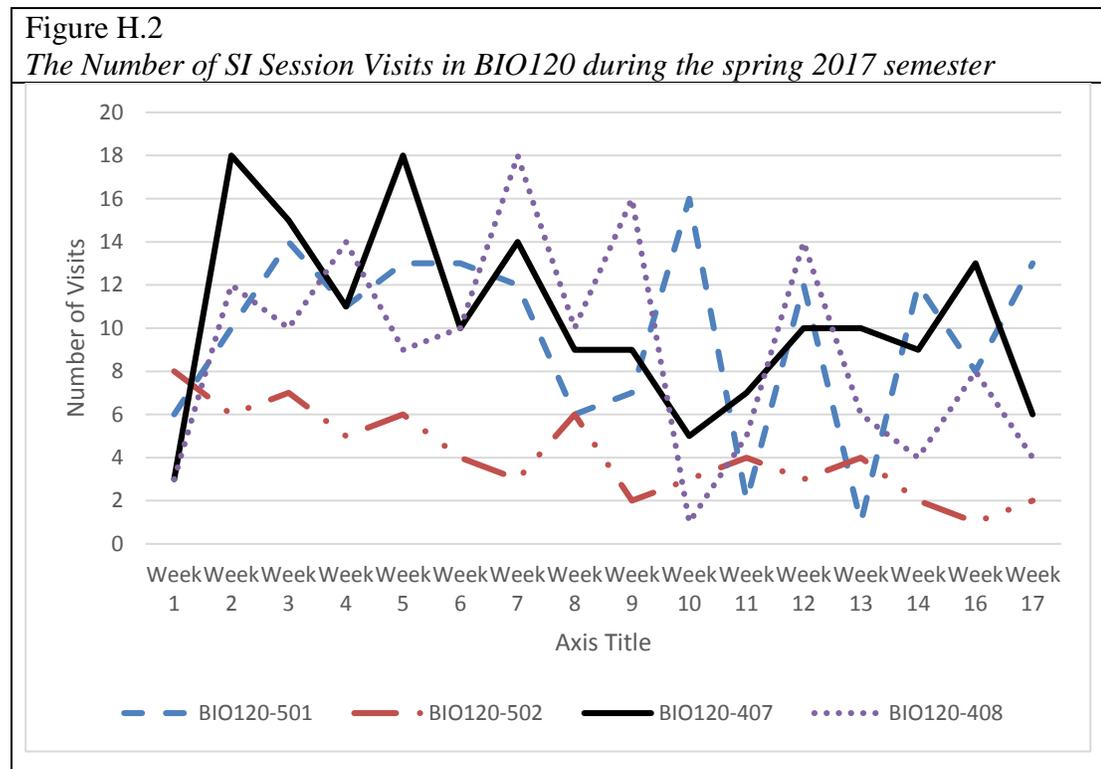


Figure H.3

The Number of SI Session Visits in MAT020 during the spring 2017 semester

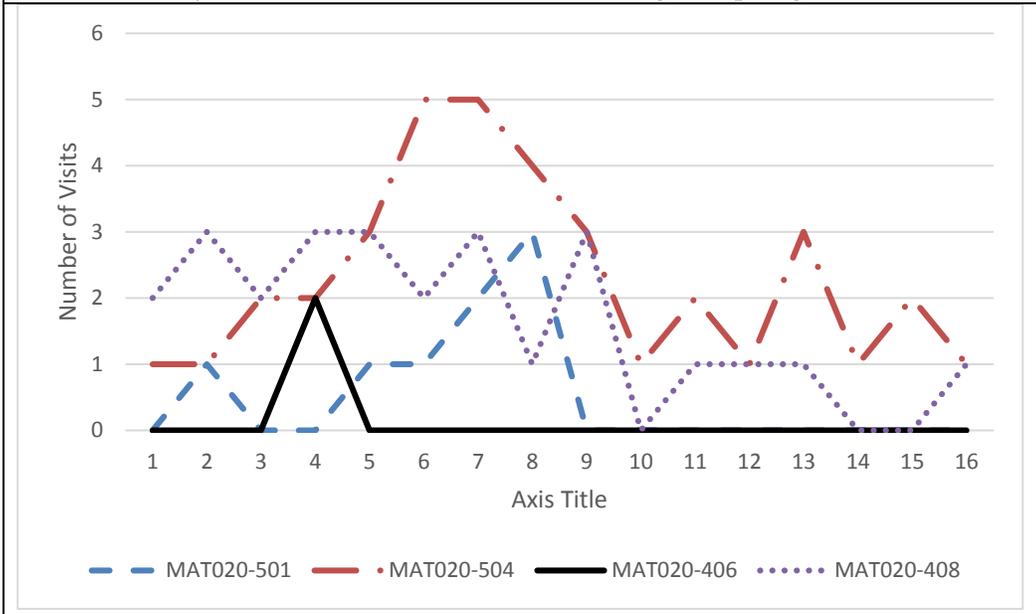


Table H.2

*Exam averages of SI attendees vs. non-attendees: BIO120 and MAT020 at the Stanton and Wilmington campuses of DTCC during the spring 2017 semester**

	<u>Exam Average</u>	<u>SI Average</u>	<u>Non-SI Average</u>	<u>Difference</u>
BIO120-501	78.0	82.1	74.7	7.4
BIO120-502	73.8	81.8	71.4	10.4
BIO120-407	89.2	92.4	86.0	6.4
BIO120-408	80.5	83.4	73.4	10.0
MAT020-504	74.5	72.9	76.4	-3.5
MAT020-408	70.0	74.5	81.5	-7.0

*MAT020-501 and MAT020-406 are not included due to extremely low attendance

Clearly, the students who attended SI in BIO120 received higher exam averages than the students who did not attend SI; the differences are noted in Table H.2. MAT020-501 and MAT020-406 have been omitted from the table due to the extremely low attendance in the sessions. The data in Table H.2 also show that the SI attendee's in

MAT020 scored lower on their exam averages than non-attendees. Although the exam average counts the most towards the final course grade in BIO120 and MAT020, it does not paint the full picture because other coursework gets added into the final grade (Table H.1).

Table H.3 shows the averages of the final course grades for students who attended SI versus students who did not attend.

Table H.3 <i>Final course grades of SI attendees vs. non-attendees: BIO120 and MAT020 at the Stanton and Wilmington campuses of DTCC during the spring 2017 semester</i>				
	<u>Class</u> <u>Average</u>	<u>SI Average</u>	<u>Non-SI</u> <u>Average</u>	<u>Difference</u>
BIO120-501	81.6 (n=15)	82.4 (n=10)	79.9 (n=5)	2.5
BIO120-502	77.0 (n=13)	74.9 (n=8)	80.3 (n=5)	-5.4
BIO120-407	88.3 (n=15)	92.9 (n=12)	69.6 (n=3)	23.3
BIO120-408	83.7 (n=15)	84.7 (n=13)	77.0 (n=2)	7.7
MAT020-501	66.5 (n=15)	67.5 (n=4)	66.1 (n=11)	1.4
MAT020-504	65.9 (n=15)	69.3 (n=6)	63.7 (n=9)	5.6
MAT020-406	61.2 (n=15)	84.6 (n=2)	56.9 (n=13)	27.7
MAT020-408	66.6 (n=15)	79.7 (n=3)	64.4 (n=12)	15.3

Even though the SI sessions are geared mostly towards helping students learn to study the material from lecture and to hopefully perform better on their exams, there are fringe benefits to being a student in the SI program. For this reason, it is best to compare the final course grades of SI attendees to non-attendees. Table H.3 shows that attendees in three out of four sections of BIO120 had a higher final course average than non-attendees, BIO120-407 being by far the largest disparity between the groups.

All four sections of MAT020 had a higher SI average than the non-SI average (Table H.3), with MAT020-406 having the biggest difference, however SI attendance was much lower in the MAT020 sections and therefore the SI average is based on only two to five students.

Table H.4 presents similar information as Table H.3, but comparing students' grades who came to ten or more SI sessions versus students who attended fewer than ten sessions. Dividing the groups up, as Table H.4 illustrates, is one way of examining whether SI contributed to improving course performance.

Table H.4 <i>Final course grades of students who attended ten or more SI sessions vs. students who attended less than ten sessions at the Stanton and Wilmington campuses of DTCC during the spring 2017 semester*</i>			
	<u>Average of students who attended 10 or more SI sessions</u>	<u>Average of students who attended less than 10 SI sessions</u>	<u>Difference</u>
BIO120-501	86.6 (n=7)	77.2 (n=8)	9.4
BIO120-502	83.7 (n=4)	74.0 (n=9)	9.7
BIO120-407	96.7 (n=5)	83.9 (n=10)	12.8
BIO120-408	86.0 (n=6)	82.2 (n=9)	3.8
MAT020-504	61.2 (n=1)	65.6 (n=14)	-4.4
MAT020-408	85.0 (n=1)	65.1 (n=14)	19.9

*There were no students who attended ten or more SI sessions in MAT020-501 and MAT020-406

One should only consider the data for BIO120 since the grades for MAT020 are based off of only one student coming to more than ten sessions for each section. Table H.4 indicates that there could possibly be a strong connection between attending SI sessions regularly and getting better grades.

Figure H.4 shows the scatterplot of the number of SI session visits and the final grades of the students, trend line, and correlation. The correlation shows a statistically significant positive relationship between SI visits and final grades. It is significant, although not a strong correlation (.7 or above would be considered strong). This is, perhaps, because there is a fairly large number of students who have high final grades with zero SI participation. It is reasonable to assume these successful students have high aptitude and strong study habits, and so they would not benefit very much from attending SI sessions. The trend line formula shows a slope of .98, which indicates, on average, for every SI visit, the final grade average goes up by about one point.

Figure H.4
Correlation, Trend line, and Scatterplot: Number of SI Visits and Final Grade (n = 140)

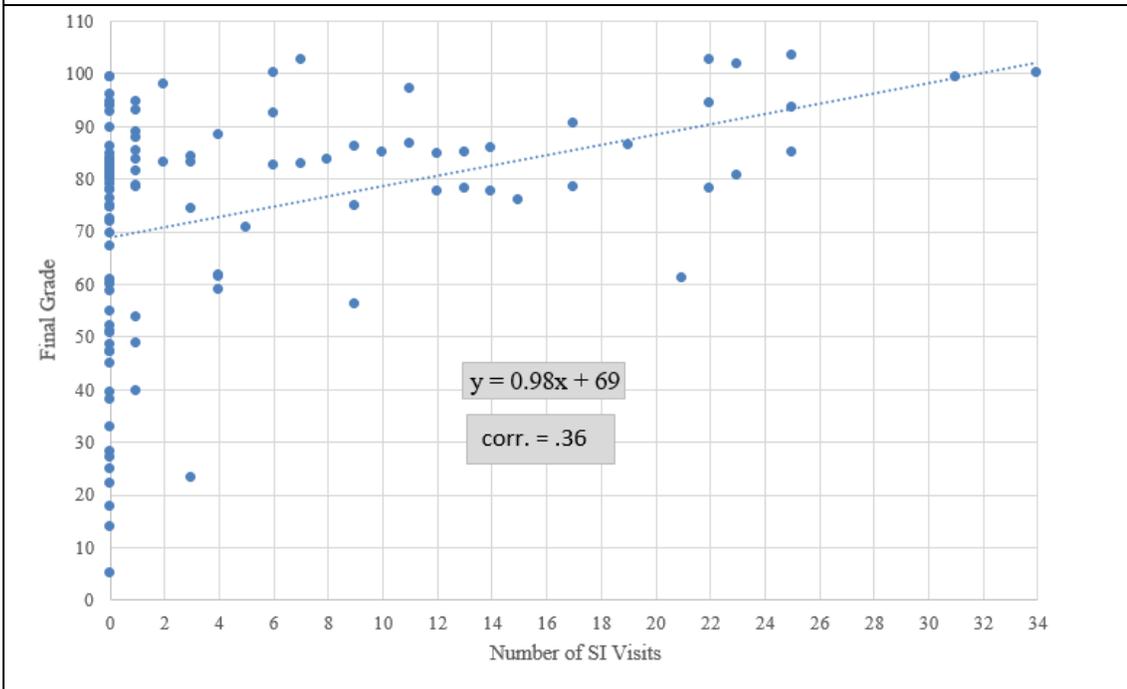


Table H.5 <i>The Number of Passing Grades, F/W/U grades, and the Pass Rates of the SI attendees vs. the non-attendees during the spring 2017 semester</i>						
	<u>SI Attendees</u>			<u>Non-attendees</u>		
	Passing grade	F/W/U	Pass rate	Passing grade	F/W/U	Pass rate
BIO120-501	7	3	70.0	3	2	60.0
BIO120-502	4	5	44.4	3	4	42.9
BIO120-407	11	4	73.3	2	3	40.0
BIO120-408	11	2	84.6	1	3	25.0
MAT020-501	2	2	50.0	6	8	42.9
MAT020-504	4	2	66.7	5	6	45.5
MAT020-406	2	0	100.0	4	11	26.7
MAT020-408	1	3	25.0	6	9	40.0

The low attendance in MAT020 in general probably make such a comparison invalid, although it is worth noting that three out of four sections did have higher pass rates in the SI attendees. The more telling results are for the BIO120 sections, where all SI attendees' pass rates are higher, especially in the two Wilmington sections.

Table H.6 <i>The Pass Rates of the SI Sections vs. the Pass Rates of the non-SI sections of the Same Course with the Same Instructor</i>		
	Spring 2016 (no SI)	Spring 2017 (SI)
BIO120-501	80.0	66.7
BIO120-502	58.3	43.8
BIO120-407	64.3	65
BIO120-408	87.5	70.6

The next analysis compares the pass rates of the entire SI sections (attendees and non-attendees) with the pass rates of the same course, taught by the same instructor, but during a previous semester without SI attached at all. Table H.6

represents these findings and shows that only one section from spring 2017 with SI had a higher pass rate than the spring 2016 non-SI section. This analysis was done in order to further the notion that SI has benefits for all of the students, not just the regular SI session attendees. According to the available data, it appears that SI did not have overall benefits for most of the BIO120 sections, however more research will need to be conducted over several semesters to try to determine what effects SI may have on the overall course sections. In addition, there are usually differences in student population of different sections in different semesters, therefore differences in student learning and aptitude.

The final analysis performed on the SI attendance and grade data was to breakdown the numbers by gender and examine it for differences. Table H.7 contains the attendance information based on the gender of the students and Table H.8 shows the results of an independent samples T-test to compare gender between final grades and higher attendance in SI sessions. Some points of interest from Table H.7 are that there were more than twice the number of females enrolled in the eight SI sections than males and females attended more sessions than males, especially in the eight to 15 number of visits.

Table H.7 <i>SI Participation by Gender: Frequency Counts and Percentages</i>								
<u>Frequency Distribution of Females' and Males' SI Visits</u>								
Gender	0	1 to 3	4 to 7	8 to 11	12 to 15	16 to 22	23 to 34	Total
F	52	13	9	8	7	4	6	99
M	25	7	3	2	0	3	1	41
Total	77	20	12	10	7	7	7	140
<u>Relative Frequency Distributions (%) of Females' and Males' Visits</u>								
Gender	0	1 to 3	4 to 7	8 to 11	12 to 15	16 to 22	23 to 34	Total
F	52.5	13.1	9.1	8.1	7.1	4.0	6.1	100.0
M	61.0	17.1	7.3	4.9	0.0	7.3	2.4	100.0
Total	55.0	14.3	8.6	7.1	5.0	5.0	5.0	100.0

Table H.8 <i>Final Grade and SI Utilization Comparisons: Independent Samples T-test of Males versus Females</i>			
Variable	Female Mean & (SD)	Male Mean & (SD)	P value
Final Grade	76.4 (20.7) n=80	68.7 (23.4) n=35	.08
# SI visits	4.8 (7.8) n=99	3.3 (6.6) n=41	.30

The T-test shows that the difference between the two groups (F vs. M) are not statistically significant, although the difference in female vs. male final grades in SI attendees is very close to being significant. It is possible that females benefit more from attending SI sessions than their male counterparts, however the results of this study are somewhat inconclusive regarding that difference. Females did certainly utilize SI more than the male students did during this particular semester.

Conclusions and Discussion

This quantitative study is just a snapshot of the larger picture of DTCC's SI program. The Stanton campus saw an overall attendance rate of 44% and the Wilmington campus had a total attendance rate of 47% during the spring 2017 semester. These numbers are deemed successful by the International Center for Supplemental Instruction at University of Missouri-Kansas City (UMKC). However, when separated by subject, BIO120 had a 61% and a 76% attendance rate at the Stanton and Wilmington campuses respectively, while MAT020 at Stanton was 29% and at Wilmington it was 17%. It would seem, therefore, that SI is much more applicable to being attached to courses in Anatomy and Physiology, rather than courses in developmental Math. All of the BIO120 attendees scored between 6.4 to 10.4 points higher on average on their exams than non-attendees (Table H.2) and most received higher final grades (Table H.3). The numbers for MAT020 are not as comparable due to the low attendance, however all MAT020 SI attendees did receive higher final grades on average. One should conclude that SI is probably not a useful pairing with MAT020 and should therefore be redirected towards a different course in order to not waste resources.

Attaching SI to BIO120 does seem to be highly successful, based on a number of key factors. For one, the pass rates of the students who attended SI vs. the students who did not attend were higher, some very much so, upwards between two to three times higher (Table H.5). In order to gain a deeper understanding about the effects SI had on student success, I decided to divide the students into two new groups, those

who attended ten SI sessions or more and those who attended less than ten sessions during the semester. During my SI coordinator training, I learned that UMKC considers between eight to ten sessions to be the most helpful for the students, any less or any more do not seem to make a big difference (International Center for Supplemental Instruction, 2016); this is the reason I decided to divide up the students in this way. The BIO120 students who attended ten or more SI sessions during the semester received between 3.8 to 12.8 points higher on average on their final course grades (Table H.4). This is as even better indication that SI helps students be more successful academically in BIO120.

In addition, there is a positive correlation between the number of SI visits and final course grade (Figure H.4), and although it is not a strong correlation, it is still statistically significant. The data indicate that on average each SI visit helps the final grade go up by about one point (Figure H.4); this is interesting because data provided by UMKC usually indicates that SI helps students get between half to a full letter grade higher in their class (International Center for Supplemental Instruction, 2016). Most colleges and universities have a ten-point grade scale, and so, if one was to attend ten SI sessions, then their grade would theoretically go up ten points and hence the difference of a letter grade. It became evident early on that SI, even though it targets difficult courses and not struggling students, serves two main populations of students. The first group are the students who, without the help and benefits of SI, would have failed the course and the second group are the students who would have passed without the aid of SI, but who received a higher grade than they would have

otherwise (an A instead of a B, for example). Two groups of students not served well by the SI program would be the high achieving students who would have received an A in the course with or without SI or those who, no matter the amount of intervention, would not be able to pass the course. This is worth mentioning because it is very possible that the students who never attended SI but received high final course grades could be artificially lowering the correlation. It is also possible that some people from the latter two groups may have attended SI and skewed the results one way or another, there's just really no way of knowing all of this information.

Based on these data analyses, I would declare the pilot SI program at DTCC a success in BIO120 – Anatomy and Physiology I and not successful in MAT020 – Elementary Algebra. There appears to be a strong connection between attending SI sessions and being highly successful in BIO120, based on the final grade and pass rate data. There also seems to be benefits for all students enrolled in an SI course, even for those who do not attend the sessions. The SI leader serves as a model student during lectures, showing students the importance of showing up on time, paying attention, and taking notes. SI leaders could also answer questions and guide students (i.e. non-attendees) towards help before or after class. It is also possible that female students reap greater benefits by attending SI more regularly. Even though some of the numbers for MAT020 seem to indicate SI benefitted the students, the attendance was so low it is not possible to generalize the results. However, a few individual students definitely benefitted by attending SI regularly (Table H.3), with one student in particular performing much better than the class average (Table H.4). My

recommendation is that the SI program be continued in BIO120 and discontinued in MAT020, resources could probably be better spent supporting a different course.

References

International Center for Supplemental Instruction. (2016). Training materials for new supplemental instruction coordinators: Kansas City, MO. The Curators of the University of Missouri.

Appendix I

ARTIFACT 8: SI SESSION EFFECTIVENESS

Overview

Supplemental instruction (SI) sessions are held two to four times per week and are conducted by SI leaders, student employees hired by the SI coordinator. The SI program at Delaware Tech was created to help students succeed in Elementary Algebra (MAT020) and Anatomy & Physiology I (BIO120), two courses deemed by the college's administration as having lower than acceptable pass rates. Once hired, the SI leaders participate in a two-day training session that prepares them for their responsibilities in their new position and instructs them on the type of activities they will be planning in their sessions.

SI sessions are not tutoring, re-teaching, or re-lecturing; these sessions are designed around the students and around the tenants of SI – wait time, redirecting questions, and checking for understanding (International Center for Supplemental Instruction, 2014). Wait time is the deliberate practice of waiting 30-60 seconds after a student asks a question and after a student gives an answer, doing this give the students opportunities to think about and ponder the question or answer. Redirecting questions is similar to the Socratic method, when a student asks the SI leader a question, the SI leader is to answer that question with a redirecting question or ask the group if anyone knows the answer or where to find the answer. This practice is in place in order to break the dependency the students have on others to give them the answer and to encourage them to find the answer themselves. SI leaders are forbidden from saying to the students “does everyone understand?” or “ok, does everyone get it?” this relates to the third pillar of SI sessions – checking for understanding. SI

leaders are supposed to actually check for understanding using informal quizzes, online tools, or polls. SI leaders plan activities for two to ten students since attendance is voluntary, therefore it is never known how many students are going to show up for each session. All of the activities in the sessions are supposed to encourage students to help each other learn and delve into the material deeper, cooperative and active learning drive this process.

Purpose of Evaluation and Evaluation Question

The purpose of this evaluation is to determine how effective my leadership is in guiding the success of the SI sessions. The SI program has several planned outcomes and different means of defining success for those outcomes, this is an evaluation of the SI sessions based on my observations in my capacity as SI coordinator. The findings will be used to improve and enhance the program so that it will be more successful in reaching its goals. The question that I plan to answer in this evaluation is how effective are the SI sessions in meeting the expectations of the program as outlined in the UMKC training materials? As the coordinator of this program, I should have done an effective job at training the SI leaders and preparing them to conduct effective SI sessions. Ideally, the better the SI leader is at delivering the learning activities and study materials, the more effective the sessions will be at preparing students for their exams.

Methodology

The variable being examined in this evaluation is the quality of the SI sessions, which depend greatly on the SI leader's ability to plan lessons, prepare and implement learning activities, and reflect on their performance. The sessions also depend on student attendance and attentiveness, the quality/size of the classroom, and the content being covered. Student satisfaction is very important to the SI program as well; if students are not happy with the program's ability to help them learn and improve their grades, then they will not continue to attend and the program will most likely cease to exist.

To that end, I had to create an evaluation plan to answer the question concerning the effectiveness of the SI sessions. I decided to utilize my observations of the SI sessions to answer this question. Approximately once a week, I observed an SI session held by the two SI leaders for BIO120; these observations depended on my availability and were therefore not always for the entire hour of the session. I did not observe the MAT020 sessions very often and therefore did not include any information from those sessions. The math course had very low SI attendance across the campuses and when students would attend it would usually only be one. Since the SI leaders were also experienced math tutors, I felt it was unnecessary to observe one on one sessions since it would be more like tutoring and less like SI, which has an important group collaboration component.

I recorded my observations of the SI sessions on a form provided by UMKC and I will use these documents to analyze the effectiveness of the SI sessions. By

analyzing these sessions based on satisfactory aspects and aspects that need discussion, I will be able to improve the quality of the SI sessions by discussing the findings with SI leaders, help them plan and execute sessions more effectively, and plan better future trainings. One of my biggest leadership roles in the SI program is to monitor the SI leaders, observe their sessions, and discuss with them their successes and their areas in need of improvement. Everything during this pilot program has been a learning experience and it is my responsibility to guide these student employees in honing their abilities as SI leaders.

In addition, I added the number of satisfactory and needs discussion aspects from the same observation forms for both BIO120 leaders at Stanton and Wilmington. The totals for each aspect was put into an Excel spreadsheet and graphs created to show each SI leader's strengths and weaknesses in running the sessions throughout the semester. This information will be used to help the SI leaders improve the effectiveness of their sessions by identifying the aspects they need to refine, how to enhance their delivery of learning strategies, and show the leaders their strengths that they can build upon.

Sample

The sample depends greatly on the number of students who attended the SI sessions. Since the program is not mandatory, students are free to attend whenever they want in order to receive the benefits of SI. There are between 16-20 students per section and eight sections total that have SI attached to them. The sections at

Wilmington are BIO120-407, BIO120-408, MAT020-406, and MAT020-408. The sections at Stanton are BIO120-501, BIO120-502, MAT020-501, and MAT020-504. From this sample of 135 students, very few attended SI from MAT020 and about 40-60% attended SI from BIO120. Therefore, the sample of students from those courses who attended SI during the spring 2017 semester was $n = 59$, which is based almost solely on BIO120 SI attendance.

The SI sections were not identified on the college's banner system; therefore, the students were not aware that they were signing up for SI until the first day of class. The coordinators decided this would be best in order to create a random sample of students and because trying to list the sections on banner would be problematic. As a result, the students enrolled in the SI sections are a good sample of typical Delaware Tech students, diverse in age, major, race, and educational background. Setting it up this way only created a few scheduling conflicts with the students' other classes and the SI sessions, but for the most part did not negatively affect the program.

Instruments

The instrument that was used to collect data is the observation form used by the SI coordinator to assess the effectiveness of the SI sessions. This observation form was provided by UMKC in the SI training materials that they produce for administrators of SI programs. A copy of the observation form is shown at the end of this artifact.

Data Collection Procedures

In order to answer the process question, weekly observations of the SI sessions are performed using the SI session observation form. The SI coordinator attends one session per SI leader every week and stays anywhere from 20-60 minutes depending on the coordinator's schedule. The boxes on the observation form are checked off based on satisfactory aspects or improvement aspects (need for discussion). Additionally, there is a section for comments which the SI coordinator can use if something especially important happens during the SI session that they wish to discuss (e.g. an especially successful activity, good or bad student behaviors, or mistakes during the covering of content). Once leaving the session, the SI coordinator saves each completed observation form to be discussed later.

Data Analysis Procedures

Once the observation form has been completed by the SI coordinator, it is placed in the SI leader's file until the next meeting. The SI coordinator meets with each SI leader once a week to discuss the findings from the observation form, as well as other items such as lesson planning, filling out their bi-weekly timesheet, scheduling problems, or other issues about SI that week. During the meetings, I go through the observation form with the SI leader to discuss the successes of the session as well as the things that need improvement. While discussing my observations, I remind the SI leaders of the program's expectations for the SI sessions and how those relate to the overall program goals. Often times I will give advice to the SI leaders

about how to improve their sessions as well as praise them for a job well done during the session.

The goal of this analysis is to improve the planning process for the SI sessions and to enhance their effectiveness in improving the students' understanding of the course material. In order to analyze these data for the purposes of this evaluation, I went back to the observation forms in each BIO120 SI leader's file and put them in chronological order. Then, I recorded the date and the number of satisfactory boxes checked and the number of need for discussion boxes checked. I counted the number of each for every observation that I made and then I converted that to a percentage because the total number of boxes checked would differ occasionally. The reason for that is because some of the boxes referred to the sessions starting or ending on time, appropriate introductions and closures, etc. and I wouldn't always stay for the entire SI session to observe.

For the second analysis, I used the same observation forms and tabulated the number of satisfactory checks and needs discussion checks throughout the semester by assigning satisfactory as "1" and needs discussion as "0". Then, I ordered them by number and I created a bar graph to represent all of the aspects in order to determine each SI leader's strengths and weaknesses for the entire semester.

Results

The results of the observation form analysis are presented in Figures I.1 and I.2. The results of the second analysis are shown in Figures I.3 and I.4. The Stanton

campus SI session observations had an average of 12 out of a possible 18 satisfactory aspects and the Wilmington campus had an average of 13 out of 18. Keeping in mind that not all boxes would have been checked, depending on the timing of the observation. The Stanton campus SI sessions maintained between 71-100% satisfactory rate except for a reduction during late February and early March. The Wilmington campus sessions had a similar drop about the same time, but usually maintained between 83-100% throughout the semester.

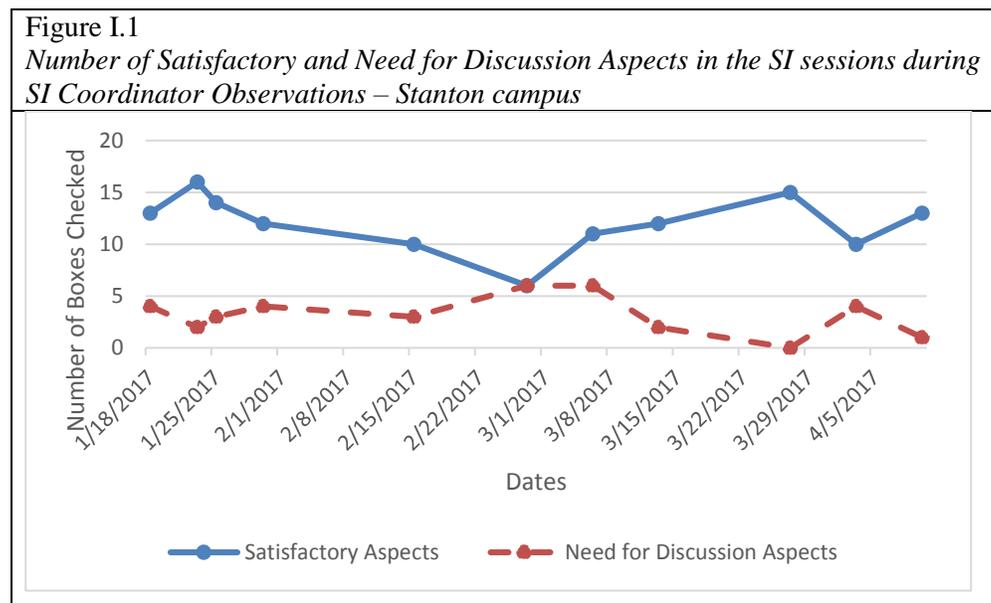


Figure I.2
Number of Satisfactory and Need for Discussion Aspects in the SI sessions during SI Coordinator Observations – Wilmington campus

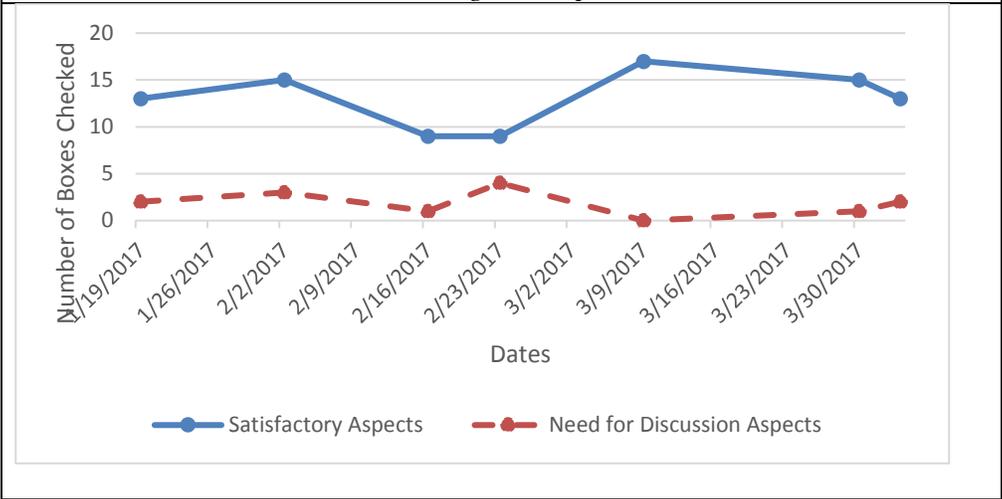
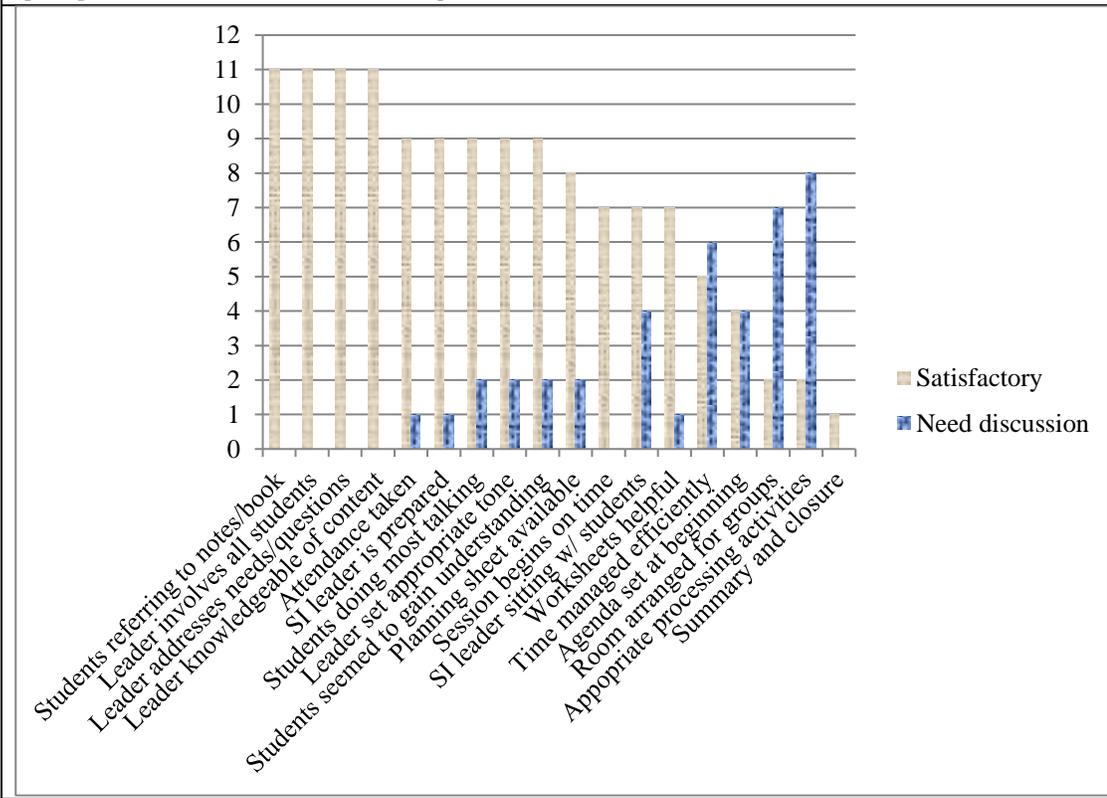


Figure I.3
Total Number of Satisfactory and Need for Discussion Aspects in the SI sessions during spring 2017 semester – Stanton campus



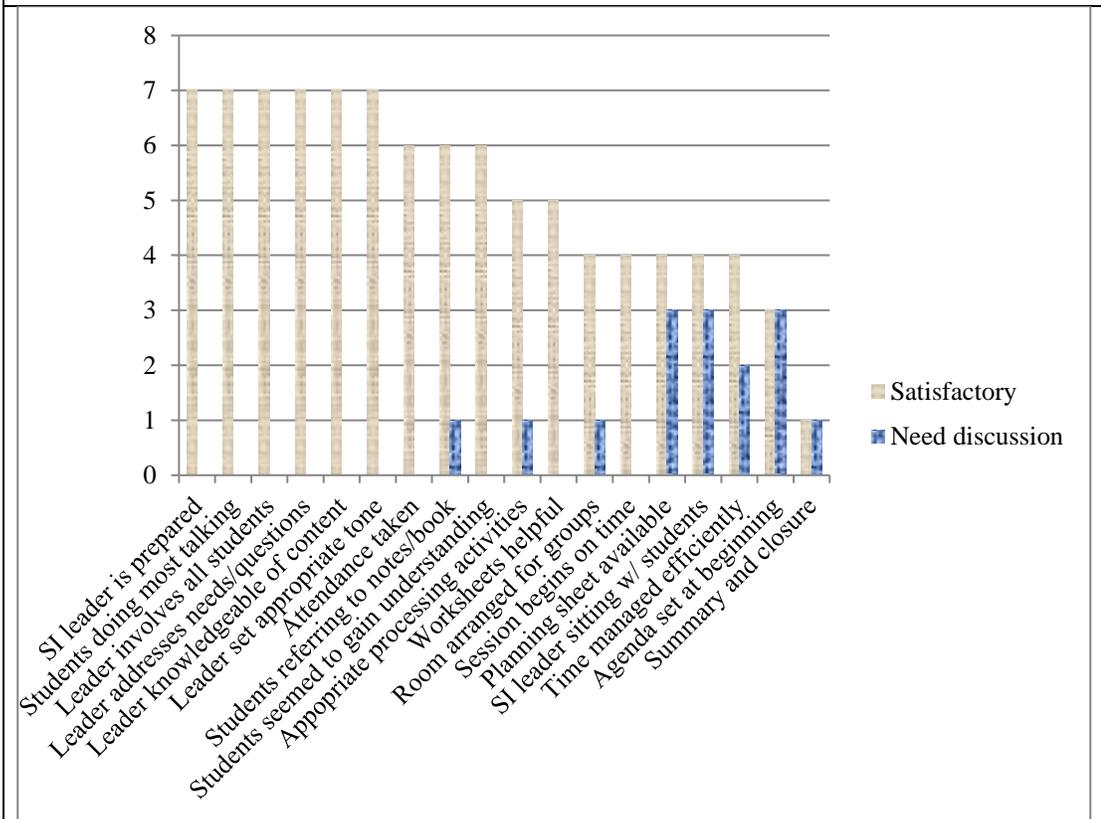
The results of the second analysis show that the SI leader at the Stanton campus struggled the most with time management, arranging the room, and using appropriate processing activities (Figure 3). Her strengths in conducting sessions were having students refer to notes or textbooks, involving all students, addressing the needs and questions of the students, and having good knowledge of the content. For the Wilmington campus SI leader, her strengths were being prepared, having the students do most of the talking, involving all students, addressing the needs and questions of the students, content knowledge, and setting the appropriate tone (Figure 4). This leader struggled the most with having the planning sheet available, sitting with the students, and setting the agenda at the beginning.

Conclusions and Recommendations

In terms of this evaluation question, I conclude that the SI sessions are extremely effective in meeting the expectations of the program. Both SI leaders had high satisfactory ratings throughout the semester. It is worth noting that both SI leaders that were observed were employed in the fall 2016 semester as SI leaders and returned in the spring when these observations were quantified. I believe the experience they gained during the first semester of the program was very valuable and helped them be much more effective in the second semester. Many of the activities and procedures that I saw in my observations were appropriate, well planned, and well executed.

Figure I.4

Total Number of Satisfactory and Need for Discussion Aspects in the SI sessions during spring 2017 semester – Wilmington campus



The reason for the drop is not known, it could possibly be from mid-semester fatigue on the part of the SI leader or from a particularly difficult topic that was being covered in the course at that time. It could very well be the latter because often in BIO120 the most difficult content is covered during the middle of the semester; I know this first hand due to my role as a science faculty member and an instructor of BIO120.

Not all of the SI session aspects on the observation checklist form are equal in terms of session effectiveness. Logistical concerns such as starting on time, arranging

the room, having the planning sheet available, putting the agenda on the board, sitting with the students, and summary/closure are not the biggest issues in terms of effectiveness. It is much more important that the SI leader is prepared, engages all of the students and addresses their needs, has a good amount of content knowledge, and utilizes effective processing activities and time management skills. The main goal of the sessions is to increase the students' success in their course by helping them develop ways of learning the material more effectively through collaboration and self-efficacy.

Providing more support to SI leaders, especially in the middle of the semester, is my main recommendation in answering the evaluation question. The results suggest that the SI leaders need more support in the middle of the semester because there was an obvious drop in the quality of the SI sessions in late February/early March. This support could help minimize some of the stress the leaders may experience and improve the quality of the SI sessions in the middle of the semester. Also, the SI coordinators need to focus on the more important aspects of managing the SI sessions during all SI leader training sessions, while developing better time management skills and more effective utilization of learning strategies in the SI leaders. I would recommend that the SI committee adopt a new observation form when observing SI sessions to better meet the needs of the SI program at DTCC. The new observation form should divide the aspects into categories based on how crucial they are for the session to be successful and be modeled more on a rubric style of assessment; a

sample of such a new observation form that I developed is presented at the end of this artifact.

In my leadership role in the SI program, I would schedule get-togethers/mini-training sessions for the leaders throughout the semester, with special focus on the midpoint time period. These additional trainings and meetings will help the leaders develop more high-level skills in conducting the SI sessions. I will also be more proactive in counseling SI leaders in the middle of the semester, asking them how things are going and how they are feeling physically and mentally. Being an SI leader, especially a new SI leader, can be very busy work and exhausting at times, especially because these students are often taking classes and/or have other jobs.

Another goal I would have for myself is to fit more observations into my schedule and to stay for the entire hour-long session. My schedule does not always allow me to observe sessions often or in their entirety, but that must change in order to service the program more effectively. Finally, I would encourage the other SI coordinators to utilize the new observation form that I developed or something similar in order to improve the quality of the SI sessions. All of these logistical issues and managing them, as well as the needs for mentoring and supporting SI leaders and continuing to work effectively with the SI committee, contribute to my growth as a supervisor and program leader.

References

International Center for Supplemental Instruction. (2014). Supervisor Manual for Supplemental Instruction: Kansas City, MO. The Curators of the University of Missouri.

Instrument

SI OBSERVATION RECORD

SI Leader: _____ Course: _____

Date: _____ Number Attending: _____ Observer: _____

**Satisfactory Need for
 Discussion**

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Room arranged for group work |
| <input type="checkbox"/> | <input type="checkbox"/> | Session begins on time |
| <input type="checkbox"/> | <input type="checkbox"/> | Attendance taken at the beginning of session |
| <input type="checkbox"/> | <input type="checkbox"/> | SI Leader is prepared |
| <input type="checkbox"/> | <input type="checkbox"/> | Planning sheet available |
| <input type="checkbox"/> | <input type="checkbox"/> | Agenda set at beginning of session |
| <input type="checkbox"/> | <input type="checkbox"/> | Students are doing most of the talking |
| <input type="checkbox"/> | <input type="checkbox"/> | SI Leader is sitting/rotating with students |
| <input type="checkbox"/> | <input type="checkbox"/> | Appropriate processing activities used |
| <input type="checkbox"/> | <input type="checkbox"/> | If available, were the worksheets helpful? |
| <input type="checkbox"/> | <input type="checkbox"/> | Students referring to textbooks and notes |
| <input type="checkbox"/> | <input type="checkbox"/> | Leader involves all students |
| <input type="checkbox"/> | <input type="checkbox"/> | Leader addresses students' needs and questions |
| <input type="checkbox"/> | <input type="checkbox"/> | Leader knowledgeable of content material |
| <input type="checkbox"/> | <input type="checkbox"/> | Leader set appropriate tone for session |
| <input type="checkbox"/> | <input type="checkbox"/> | Time managed efficiently during session |
| <input type="checkbox"/> | <input type="checkbox"/> | Summary and closure |
| <input type="checkbox"/> | <input type="checkbox"/> | Students seemed to gain understanding |

Comments:

Additional Data Tables

Table I.1 <i>SI Session Satisfactory and Improvement Aspects based on SI Coordinator Observation Checklist – Stanton campus</i>			
Date	Number of Satisfactory Aspects	Number of Improvement Aspects	Percentage of Satisfactory Aspects*
1/18/17	13	4	76.5
1/23/17	16	2	88.9
1/25/17	14	3	82.4
1/30/17	12	4	75.0
2/15/17	10	3	76.9
2/27/17	6	6	50.0
3/6/17	11	6	64.7
3/13/17	12	2	85.7
3/27/17	15	0	100.0
4/3/17	10	4	71.4
4/10/17	13	1	92.9

*Number of satisfactory aspects divided by the total aspects checked on that day during that observation

Table I.2 <i>SI Session Satisfactory and Improvement Aspects based on SI Coordinator Observation Checklist – George campus</i>			
Date	Number of Satisfactory Aspects	Number of Improvement Aspects	Percentage of Satisfactory Aspects*
1/19/17	13	2	86.7
2/2/17	15	3	83.3
2/16/17	9	1	90.0
2/23/17	9	4	69.0
3/9/17	17	0	100.0
3/30/17	15	1	93.8
4/3/17	13	2	86.7

*Number of satisfactory aspects divided by the total aspects checked on that day during that observation

New Observation Form

	<u>Developing = 1</u>	<u>Proficient = 2</u>	<u>Exemplary = 3</u>
<u>Level A: Logistics</u>			
Session begins on time			
Attendance taken			
Room arranged for group work			
Agenda set at the beginning (written on board)			
Summary and closure at the end			
<u>Level B: Planning</u>			
Planning sheet turned in before session			
Leader is prepared			
Leader is sitting with or among the students			
Appropriate level of content knowledge			
<u>Level C: Execution</u>			
Students are doing most of the discussion			
Leader involves all students			
Leader addresses student needs			
Appropriate worksheets & learning tools used			
Students referring to notes/textbook			
Appropriate learning strategies/processing activities			
Appropriate use of wait time			
Appropriate use of redirecting questions			
Appropriate use of checking for understanding			
Time managed effectively during the session			
Leader set appropriate tone for the session			
Totals			

Appendix J

ARTIFACT 9: SI PROGRAM EFFECTIVENESS

SI Program Effectiveness from the Student Perspective

Overview

There are several ways that the effectiveness of the SI program is going to be measured, both quantitatively and qualitatively. The quantitative analysis will be planned in the data analysis artifact and discussed in the program evaluation artifact. In this artifact, I will be highlighting the qualitative aspects of the SI program at DTCC through the use of satisfaction surveys and focus group interviews conducted with the students who are enrolled in the SI program sections during the spring 2017 semester and fall 2018 semesters. The student satisfaction survey and the focus group interview questions are presented at the end of this artifact. With this analysis, I am seeking to answer the following questions:

- 1) Are the students satisfied with the SI program's ability to help them learn the course material and do better in their class?
- 2) What aspects of the SI sessions did the students like the best and like the least?
- 3) Would students recommend other students attend the SI sessions and why or why not?
- 4) Why did some students not attend the SI sessions at all?
- 5) In what ways could the SI program be improved?

The answers to these questions will help me, as a program leader, improve the SI program for the future. The major aim of the program is for the SI sessions to help the students perform better in their course than they would have otherwise without the

benefits of SI. Ideally, SI will provide the students opportunities to learn the course material more effectively and gain more confidence in their study habits and note taking skills. The sessions will help the students prepare for their exams and therefore earn higher grades on them. If all of this happens as planned, then the students should be highly satisfied with the SI program.

Evaluation Design and Sample

In order to answer the questions, I decided to utilize a student satisfaction survey, which contained questions for attendees on one side and non-attendees on the other. Attendees were asked how helpful the SI sessions were to them and what was helpful/not helpful, the grade they expect to earn in the class, the number of sessions they attended, the number of hours spent studying and on homework, comments they might have about the SI leader, and any suggestions about improving future sessions. These questions should be indicative of how satisfied the students are with the SI program's ability to help them do better in their course. Students were asked to rate the level of helpfulness on a scale of one to five, where one was the sessions were not helpful, two the sessions were somewhat helpful, three the sessions were helpful, four the sessions were very helpful, and five the sessions were extremely helpful. The students who found the sessions to be helpful, very helpful, or extremely helpful should be satisfied with the program's ability to help them succeed. The students who found the sessions to be somewhat or not helpful were probably not satisfied with the program. It will also be important to analyze the last two questions to determine which

aspects of the program the students liked and disliked, in an attempt to improve the program.

The non-attendees were first asked on their survey the reason(s) that they did not attend any SI sessions. The answers will be used to determine what percentage of students wanted to attend but were unable to versus those who did not want to attend at all. They were then asked the grade they expect to earn in the course and the number of hours studying and doing homework, just as the attendees were asked. The last questions on the survey asked them if they sought out other academic support such as tutoring, if they had any opinions about the SI leader, and what they would change about the program to get them to attend the sessions. Analyzing this information is crucial to improving the attendance rate of the SI program.

In addition to the survey, I also conducted focus group interviews at the Stanton and Wilmington campuses during the spring of 2017. The focus group interviews were designed to ask more probing questions about the experiences students had in attending the SI sessions. I wanted to gain more insights about what the students thought about the program, and most importantly what they would do to change the program for the better. The interviews were conducted in person on April 26, 2017 at Stanton and on April 27, 2017 at Wilmington; the SI leaders were not present during the focus group interviews to encourage the students to be open and honest with their opinions.

The total number of students surveyed in spring 2017 was $n = 81$, 48 were attendees and 33 were non-attendees. The number of students who participated in the

focus group interview at Stanton was $n = 4$ and the number of students who participated at Wilmington was $n = 11$, all of these students were attendees in the BIO120 SI sessions. The number of students surveyed in fall 2017 was $n = 69$, 23 were attendees and 46 were non-attendees.

Survey and Interview Analysis

The surveys were analyzed by hand and results recorded using an Excel spreadsheet. The spreadsheet was separated by BIO attendees, BIO non-attendees, MAT attendees, and MAT non-attendees. The program experienced a great disparity in attendance between the BIO120 SI sections and MAT020 SI sections, therefore it is my decision to separate the results of the surveys into BIO120 and MAT020 groups. This also makes sense because the courses are very different in content and structure, so it would make sense for the SI sessions to operate very differently as well. SI was not offered in MAT020 at the Wilmington campus in fall 2017 but instead offered in MAT153, therefore the survey data from that section is not included in this analysis. This makes the final count for BIO120 attendees $n = 59$, BIO120 non-attendees $n = 48$, MAT020 attendees $n = 7$, and MAT020 non-attendees $n = 21$.

In addition, I made the decision to aggregate all of the BIO120 survey data even though the instructors and SI leaders differed between campuses and between semesters, because this artifact is assessing the program as a whole and the opinions of students about the program, not individual SI leaders. The information gleaned from the surveys about individual SI leaders will be shared with the leaders during meetings

and trainings and be used to help those respective SI leaders grow and improve their methods of presenting SI to the students.

I tabulated and entered the numerical responses into the spreadsheet and recorded the open-ended answers on the spreadsheet next to the appropriate question number. I created a new spreadsheet to include the overall data from both semesters with BIO120 and MAT020 separated into different sheets tabs. I then examined the comments that the students left on the surveys to find common themes about the SI program and the SI leaders. Finally, I analyzed the responses during the focus group interviews in a very similar way; looking for common statements and overall themes regarding student satisfaction with the program.

Results

Starting with the results of the BIO120 SI attendees, 54 out of 60 responses (one student checked two boxes instead of one) stated that the SI sessions were helpful, very helpful, or extremely helpful, with 28 of those responses choosing extremely helpful (Figure J.1). This shows that the majority of attendees were satisfied with the ability of the sessions to help them understand the material better. Most of the comments that students wrote on this part of the survey said things like the sessions helped them learn and understand the material better and that they appreciated the worksheets and learning games that the leaders developed. In addition, most of the attendees (56.9%) self-reported that they attended six or more sessions (Figure J.2). This indicates satisfaction with the program as well because if the students did not

think it was helping them succeed, they would not have continued coming week after week.

Figure J.1
The Levels of Helpfulness as Reported on the Student Satisfaction Survey by SI Attendees in BIO120 at the Stanton and Wilmington campuses in the 2017 school year

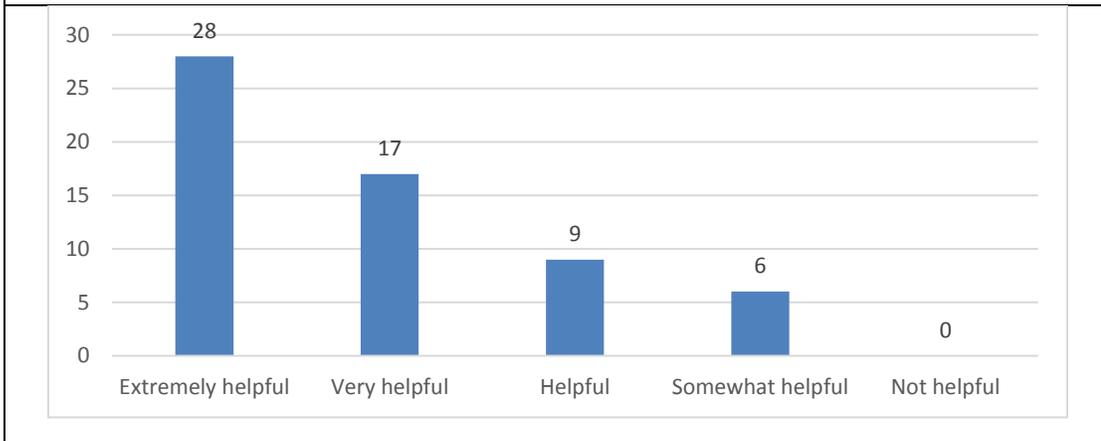


Figure J.2
The Number of BIO120 SI sessions that were Attended based on Student Survey Responses at the Stanton and Wilmington campuses in the 2017 school year

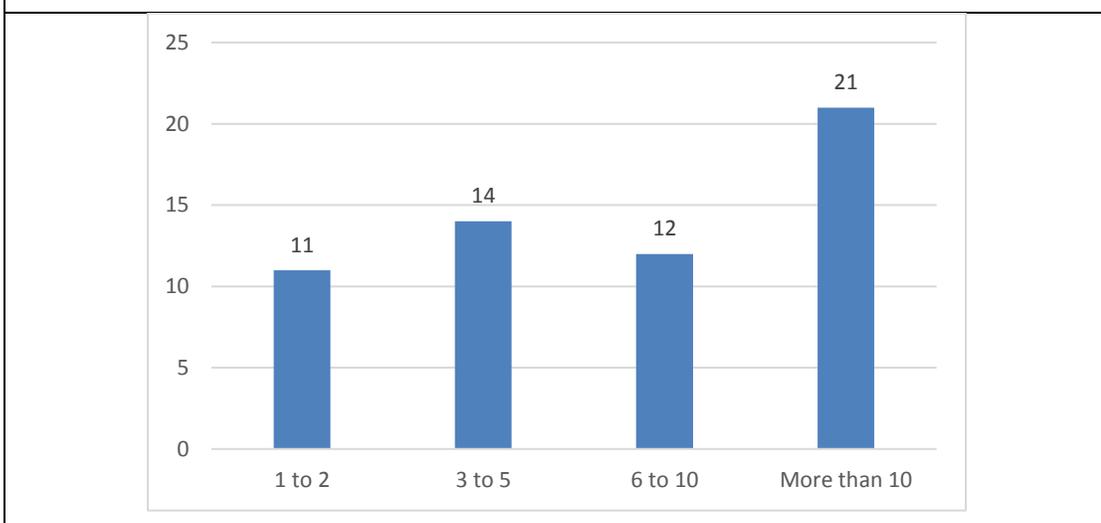
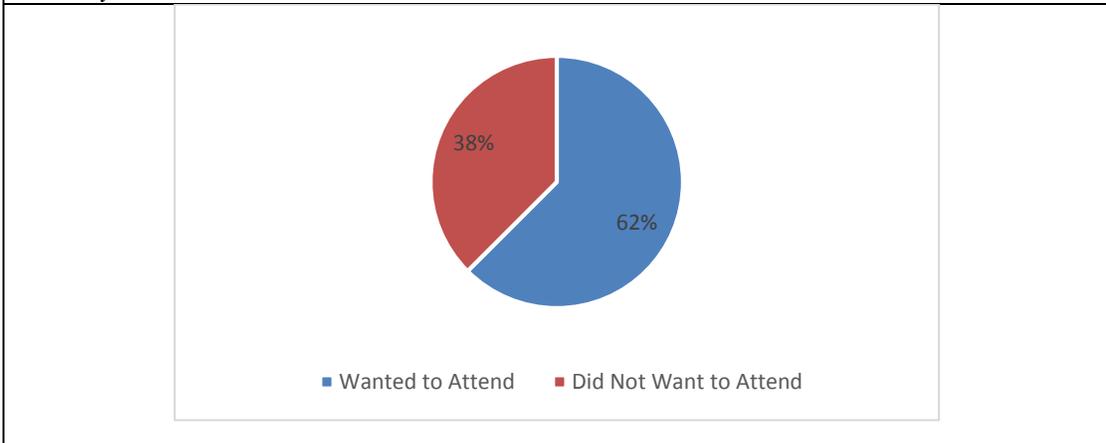


Figure J.3

The Percentage of Students who Wanted to Attend the SI sessions in BIO120 vs. the Students who did Not Want to Attend at the Stanton and Wilmington campuses in the 2017 school year



For the non-attendees in BIO120, 62% of them wanted to attend the sessions but were unable to due to scheduling conflicts (work or other classes) (Figure J.3). For the non-attendees who did not want to attend sessions, the most common reasons were either they already formed an effective study group with peers or they preferred to study alone. Of the non-attendees who were surveyed, 45 out of 48 stated that they did not seek out alternate forms of academic support, such as tutoring; the other three were all in the same section and all stated that they formed a study group on their own.

When comparing attendees to non-attendees, there appeared to be very little difference in expected grades, the number of students who expected an A and a C were almost the same, while more attendees expected a B than non-attendees did (Figure J.4). Finally, comparing reported number of hours spent studying per week, attendees actually indicated that they spent more time studying than the non-attendees did (Figure J.5); this is surprising because SI should help students cut down on the

amount of time they spend studying on their own, however it is possible that they included time spent in SI as study time since that was not made clear on the survey. Homework is not a major portion of the coursework in BIO120 and does not receive a grade, therefore the question about hours spent on homework is not really relevant for BIO120 students.

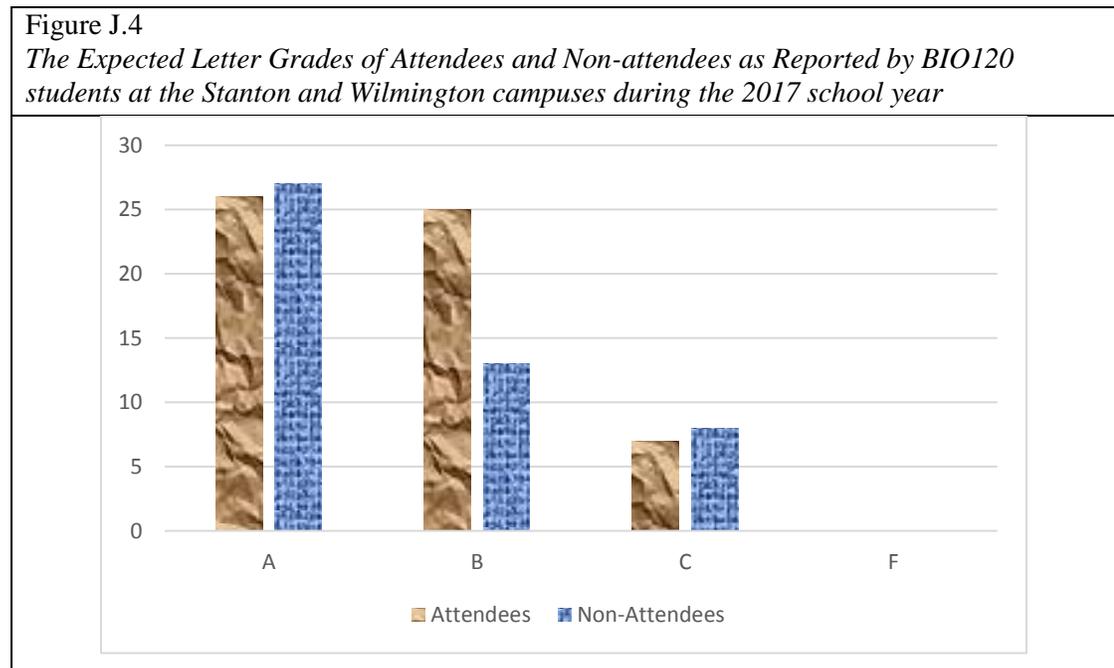
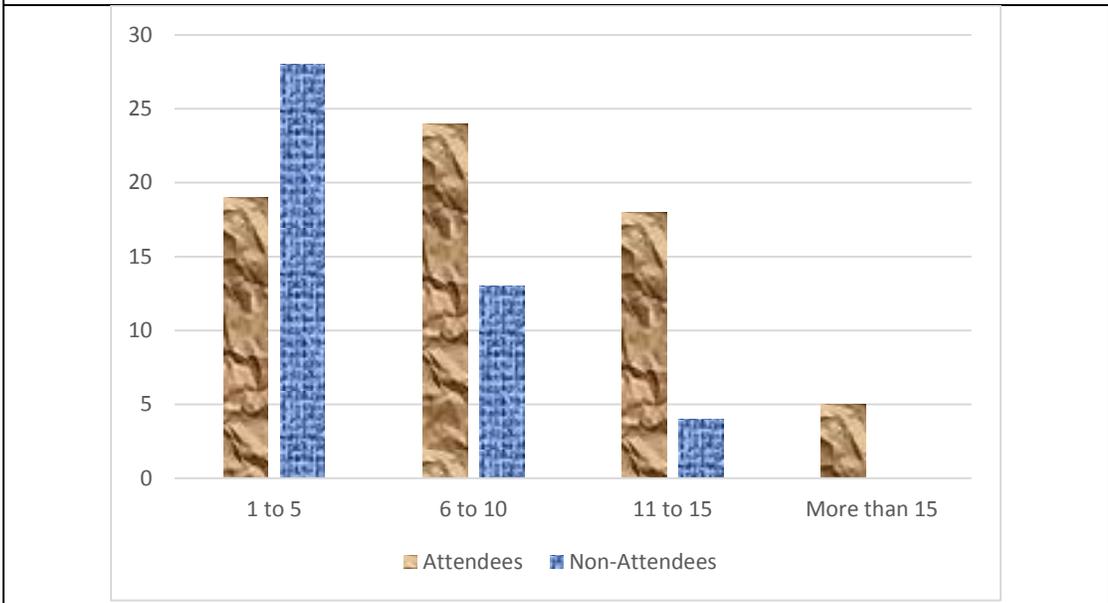


Figure J.5
The Number of Hours spent studying of Attendees and Non-attendees as Reported by BIO120 students at the Stanton and Wilmington campuses during the 2017 school year



Six out of the seven MAT020 attendees who were surveyed indicated that the sessions were helpful, very helpful, or extremely helpful (Figure J.6) and most of the students surveyed indicated that they attended three to five sessions (Figure J.7). Like the BIO120 non-attendees, 62% of the MAT020 non-attendees wanted to attend but could not due to their schedules (Figure J.8). Homework is a much more important component in the MAT020 and it counts as a portion of the students' final grade, it is therefore very surprising that both attendees and non-attendees spent little time on homework, the majority both reported spending four to ten hours on homework a week (Figure J.9). Also surprising, both groups of students spent very little time studying per week, the vast majority only reporting one to five hours (Figure J.10). Six out of the 21 non-attendees surveyed indicated that they sought out other academic

support, such as tutoring; the tutoring services at DTCC do tend to see many more math students than biology students (DTCC, 2017).

Figure J.6
The Levels of Helpfulness as Reported on the Student Satisfaction Survey by SI Attendees in MAT020 at the Stanton and Wilmington campuses in the 2017 school year

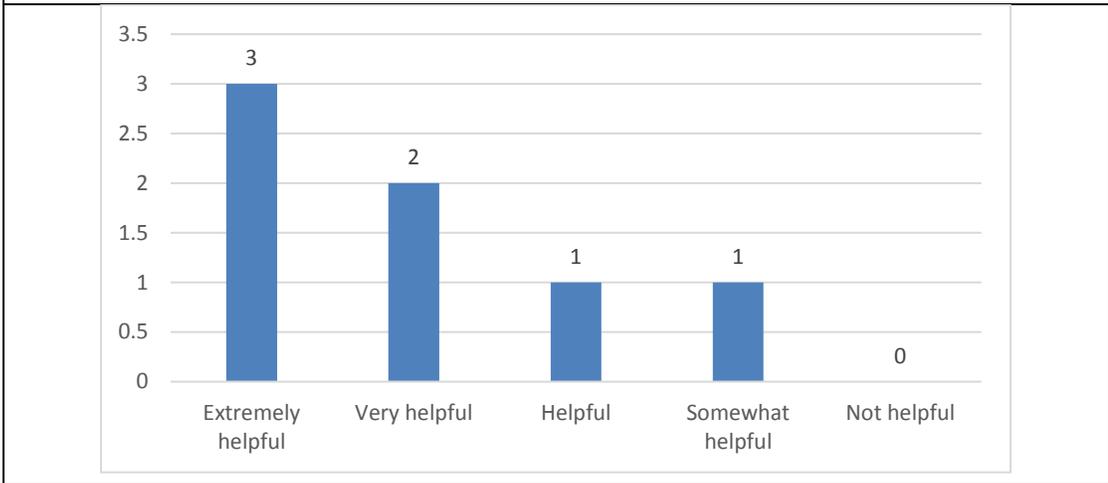


Figure J.7
The Number of MAT020 SI sessions that were Attended based on Student Survey Responses at the Stanton and Wilmington campuses in the 2017 school year

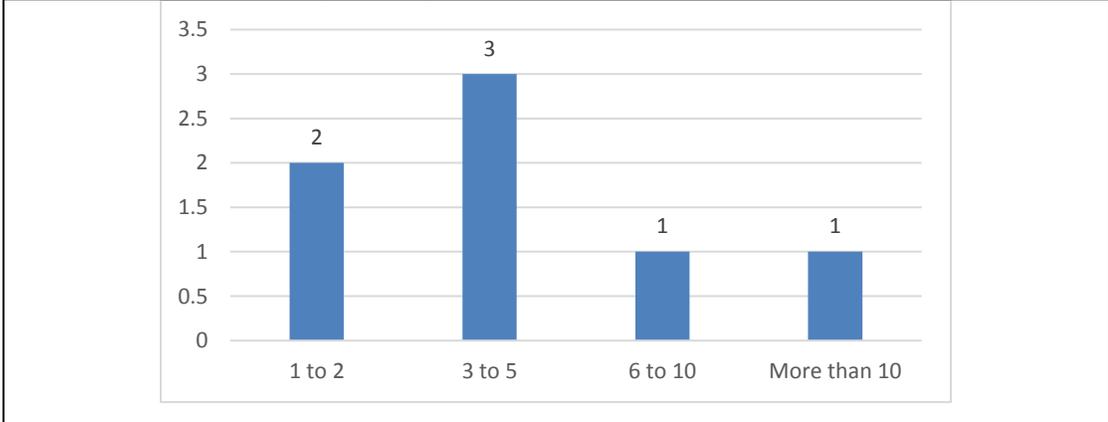


Figure J.8
The Percentage of Students who Wanted to Attend the SI sessions in MAT020 vs. the Students who did Not Want to Attend at the Stanton and Wilmington campuses in the 2017 school year

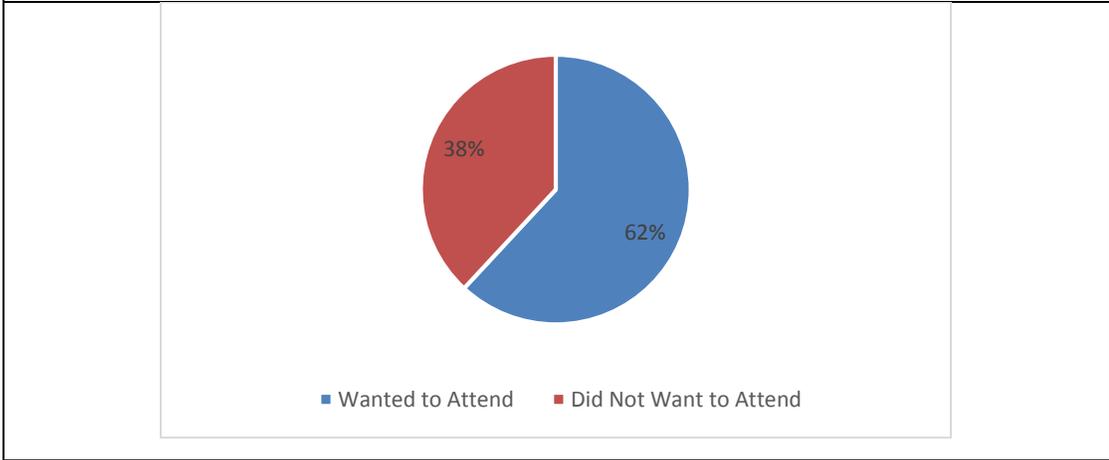


Figure J.9
The Number of Hours spent on homework of Attendees and Non-attendees as Reported by MAT020 students at the Stanton and Wilmington campuses during the 2017 school year

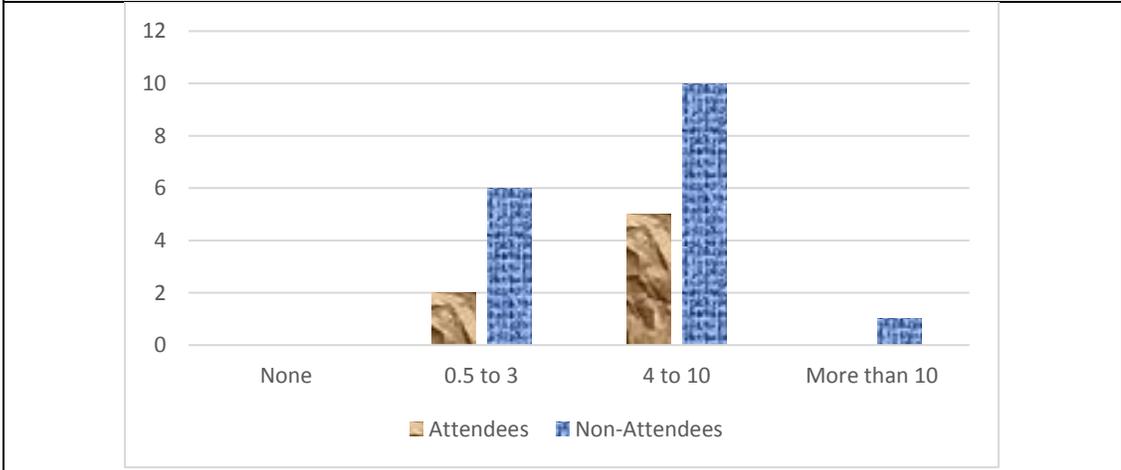
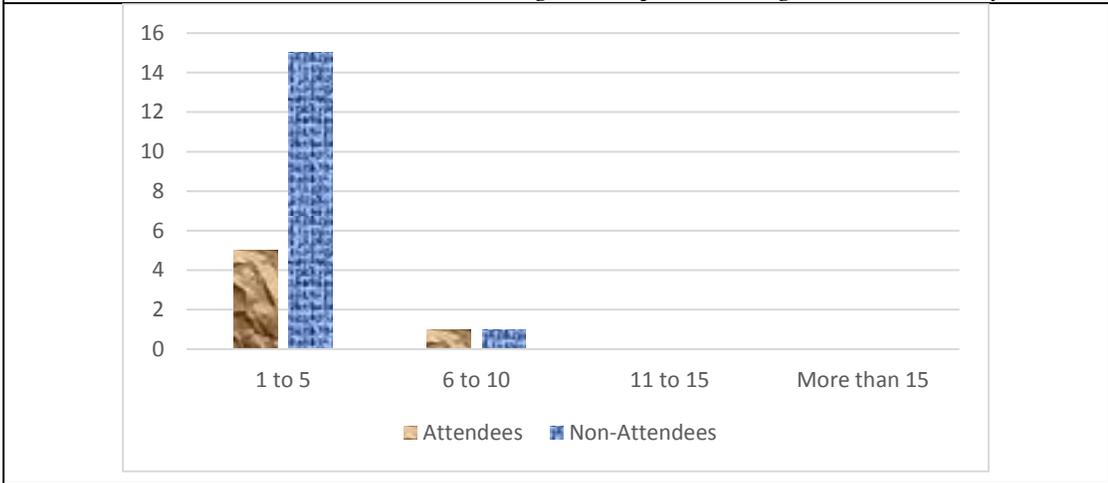


Figure J.10
The Number of Hours spent studying of Attendees and Non-attendees as Reported by MAT020 students at the Stanton and Wilmington campuses during the 2017 school year



The qualitative data paints a similar, but a slightly more positive picture of student satisfaction with the SI program. Throughout the surveys, students had almost all positive comments about the SI leaders, not dependent on attendee-status or subject. The vast majority stated that the SI leaders were helpful, supportive, welcoming, knowledgeable about content, and willing to go the extra mile to help the students understand the material better. Often the students would email their SI leaders to thank them and to tell them that they never would have been able to get the grade that they received without their help; one MAT020 student in particular applauded their SI leader and stated that they never would have passed the course without their help in SI (this student went to an SI session almost every week). Even the non-attendees made comments such as “they [SI leader] seem smart and are always willing to help out” and that they often helped them before/after class with quick questions or issues.

The focus group interviews performed during the spring 2017 semester echo much of the comments left on the student satisfaction surveys. There were four Stanton BIO120 SI attendees present for the focus group interview and 12 Wilmington BIO120 SI attendees present. The focus group interview questions were:

- 1) What have you liked the most about the supplemental instruction program?
- 2) What would you change about the supplemental instruction program?
- 3) How has supplemental instruction benefitted you as a student?
- 4) Would you recommend the SI program to other students? Why or why not?

The Stanton attendees praised the SI leader for being very supportive (personally/emotionally), stated that the SI program has certainly helped them be successful in the course, some even saying that the study skills learned in SI helped them in other non-SI courses. All of the attendees interviewed would recommend the SI program to other students because it is very helpful and motivating. As far as changes to the SI program, one student stated that they would sometimes have a hard time participating when one student dominates the session because they “think they know everything”. Another student said that larger attendance at test review sessions can be frustrating to the regular attendees because the extra attendees are not as knowledgeable of the content and slow the session down or the SI leader could run out of copies for everyone.

The attendees present for the interview in Wilmington were more vocal about praising the work of the SI leader in creating worksheets, learning games, and Quizlet activities for them during the sessions. The comments about how the SI program

benefitted them included statements such as the availability of the sessions and leader, saving on study time, and all 12 students present agreed that it helped them get better grades. Nine out of 12 agreed that the skills learned in SI has helped them in other classes and will probably help them in future classes. All 12 students raised their hand “yes” when I asked if they would recommend the SI program to other students, with one student stating that it helps with making sense out of the lecture notes and another student saying that the SI leader actually found an error on one of the exams, resulting in more points for the entire class. These students really applauded the SI leader on her attention to detail, being attentive but relaxed, and providing a judgment-free zone where they were comfortable enough to ask questions. When asked about what they would change about the SI program, the students said that they would like to have more models and supplied, a dedicated room just for SI (i.e. to store those materials), and more practice tests.

Discussion

The results of the surveys and interviews all indicate that students are very satisfied with the SI program at DTCC. The majority of attendees said on the survey that they considered the SI sessions at least helpful, with many saying extremely helpful. Most of the non-attendees wanted to attend but couldn't due to their schedules, which suggests that the SI program needs to be expanded to have sessions on more days and times to accommodate more students' schedules. Many attendees kept coming week after week in BIO120, these attendance numbers show that SI is

much more applicable in the sciences than in math. I would recommend changing to a different math course or possibly abandoning math altogether in favor of offering SI in other science courses; the SI model just does not seem to serve a large number of students successfully in math, mostly due to lack of attendance.

The surveys and interviews also show that the students appreciated their SI leaders very much, saying over and over again that they were wonderful, smart, and always willing to go that extra mile to help them understand the material and succeed in the course. The SI leaders did an excellent job and were able to reach the students on their level and guide them in methods of studying and collaboration, methods that they will probably remember for a long time. Analyzing the focus group interviews was interesting because the students from the Stanton campus talked more about stress and test anxiety, plus also discussing more about the personal relationship they felt with their SI leader. While at Wilmington, the students were more focused on talking about grades and course content, about how they felt they didn't have to study alone anymore, and were more vocal about their opinions of the program and what they would change in order to improve it. I especially appreciated the mention about a dedicated SI space because that is one of the most important recommendations that the SI committee has for the DTCC administration.

There is certainly room for improvement and for future study of DTCC's SI program. In addition to the dedicated space, we also need to obtain more funding to hire more SI leaders to serve more course sections and offer SI sessions on more days and times. I also plan on leading the SI committee in revising our current student

satisfaction survey in order to focus on the more important aspects (why the students like the program and what they would change) and remove the less important aspects (grade the students expect to receive and number of hours spent on homework). The SI coordinators have access to the actual student grades in order to determine if the program is helping the students perform better, so the students' expected grade really is not helpful in determining their level of satisfaction. In addition, homework is not an important component of the BIO120 curriculum, and since we saw much greater attendance in BIO120 than in MAT020, this part of the survey should be removed.

References

Delaware Technical Community College. (2017). *Tutoring Center Attendance*.

Internal documents received from data analysis and institutional research.

SUPPLEMENTAL INSTRUCTION SURVEY - ATTENDED

Course Name: _____ **Term:** _____

Please fill out only the side of this questionnaire that applies to you.

If you **attended even one SI session**, please fill out this side

1. How helpful were the sessions to you? (1 = not helpful, 2 = somewhat helpful, 3 = extremely helpful, 4 = very helpful, 5 = extremely helpful)
- 1 2 3 4 5

Please comment on what was helpful:

Please comment on what was not helpful:

2. What grade do you expect to earn in this course?
- A B C F

3. How many sessions did you attend?
- 1-2 3-5 6-10 more than 10

4. On average, how many hours do you spend on this course per week?
- Studying: _____ Homework: _____
- _____

5. What comments do you want to share about your SI Leader?

6. Please share any comments on the sessions and/or suggestions for improving future sessions.

7. If you are interested in becoming an SI Leader for this or other courses, please provide us with the following information:

Name:

Phone:

Email:

Course(s): MAT _____ BIO _____

SUPPLEMENTAL INSTRUCTION SURVEY – DID NOT ATTEND

Course Name: _____ **Term:** _____

Please fill out only the side of this questionnaire that applies to you.

If you **DID NOT ATTEND** an SI session, please fill out this side

1. Please indicate the reason(s) you did not attend any sessions.
 - I wanted to but couldn't. The session schedule conflicted with work or other classes.

 - I didn't feel it was necessary.

 - I have been to similar kinds of study sessions for other courses and did not find them helpful.

 - I intended to, but couldn't find the time.

 - Other. Please explain:

2. What grade do you expect to earn in this course?
 A B C F

3. How many hours do you spend on this course per week?
Studying: _____ Homework: _____

4. Did you attend any tutoring, study groups, or other resources not connected with SI for this class? If so, why did you choose this instead of attending SI?

5. What comments do you want to share about your SI Leader?

6. What changes to SI would you recommend that would make you more likely to attend?

Appendix K

IRB APPROVAL



RESEARCH OFFICE

210 Hullihen Hall
University of Delaware
Newark, Delaware 19716-1551
Ph: 302/831-2136
Fax: 302/831-2828

DATE: January 17, 2017

TO: Curtis Line
FROM: University of Delaware IRB

STUDY TITLE: [988883-1] The Effects of Supplemental Instruction on Student Success

SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE: January 17, 2017

REVIEW CATEGORY: Exemption category # (1)

Thank you for your submission of New Project materials for this research study. The University of Delaware IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

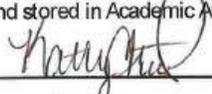
We will put a copy of this correspondence on file in our office. Please remember to notify us if you make any substantial changes to the project.

If you have any questions, please contact Nicole Farnese-McFarlane at (302) 831-1119 or nicolefm@udel.edu. Please include your study title and reference number in all correspondence with this office.

APPROVAL PAGE

Delaware Technical Community College supports thoughtful, valid research designed to benefit the College and its students. However, the College is in no way obligated to approve research requests. Approval will be determined by 1) the study's potential benefit to the College and 2) the human and financial resources available for the level of support requested. Therefore, the decision of the Associate Vice President for Academic Affairs is final and non-appealable. In no instance shall research approval be granted to an individual who is not an employee of Delaware Tech.

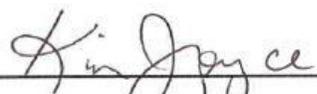
It is the employee's responsibility to move the application through the signature process. Once you obtain the signatures of your Director/ Dean and Campus Director, please allow two weeks for the application to be reviewed by Academic Affairs. Once approved, the employee will be notified via email and a signed PDF of the application will be attached. Hard copies of approved applications will be filed and stored in Academic Affairs, Office of the President.



DEAN/DIRECTOR 2/6/17
DATE



VICE PRESIDENT/CAMPUS DIRECTOR 2/13/17
DATE



ASSOCIATE VICE PRESIDENT FOR ACADEMIC AFFAIRS 2/15/17
DATE

↓
Curtis,
I will need to see and
approve your survey as
well as your focus group
questions before you get
started.

Reviewed
OK.
KJ

Updated September 26, 2013