Georgia Educational Researcher

Volume 11 | Issue 1 Article 5

6-30-2014

Utilizing Tutors in the Classroom: An Extension of Supplemental Instruction to Increase Student Performance and Retention

Evelyn Doman

Utilizing Tutors in the Classroom: An Extension of Supplemental Instruction to Increase Student Performance and Retention

Abstract
Supplemental Instruction (SI) has widely been used in university classrooms around the world. However, many obstacles face SI – including low student attendance, lack of faculty support, and recognition of today's online generation. This research helps to fill the gap in SI by posing to solve the problems mentioned above by extending SI into the classroom with the assistance of tutors. In response to the growing number of students and lack of space and instructors to accommodate the exploding enrollment, an initiative called "Tutors in the Classroom (TIC)" was started at a 4-year liberal arts college near Atlanta. TIC involved placing professional tutors, who were part-time and full-time employees of the on-campus tutoring labs and writing centers, into pre-college courses for matriculated students in English, Reading, English for Academic Purposes, and mathematics. Results of the now 2-year program show that not only are students' skills enhanced, but that retention levels and average GPA's have also increased. Grants have been awarded for the TIC program, and now attempts with adapting the program for students of English as a Foreign Language (EFL) in a university in Macau, China are underway. TIC has been recommended as an extension of Supplemental Instruction to develop students' higher-order thinking skills as well.

Keywords
English as a Foreign Language (EFL), Supplemental Instruction, tutoring

Utilizing Tutors in the Classroom: An Extension of Supplemental Instruction to Increase Student Performance and Retention

Evelyn Doman
University of Macau
Macau, China

Abstract: Supplemental Instruction (SI) has widely been used in university classrooms around the world. However, many obstacles face SI – including low student attendance, lack of faculty support, and recognition of today's online generation. This research helps to fill the gap in SI by posing to solve the problems mentioned above by extending SI into the classroom with the assistance of tutors. In response to the growing number of students and lack of space and instructors to accommodate the exploding enrollment, an initiative called "Tutors in the Classroom (TIC)" was started at a 4-year liberal arts college near Atlanta. TIC involved placing professional tutors, who were part-time and full-time employees of the on-campus tutoring labs and writing centers, into pre-college courses for matriculated students in English, Reading, English for Academic Purposes, and mathematics. Results of the now 2-year program show that not only are students' skills enhanced, but that retention levels and average GPA's have also increased. Grants have been awarded for the TIC program, and now attempts with adapting the program for students of English as a Foreign Language (EFL) in a university in Macau, China are underway. TIC has been recommended as an extension of Supplemental Instruction to develop students' higher-order thinking skills as well.

Keywords: English as a Foreign Language (EFL), Supplemental Instruction, tutoring

Utilizing Tutors in the Classroom: An Extension of Supplemental Instruction to Increase Student Performance and Retention

In the 21st century, concepts such as active learning, collaborative learning, group work, interactive classrooms, and student engagement dominate the new education paradigm. Classrooms are transforming themselves from "teacher-centered" to "learner-centered." The increased emphasis on student learning is welcomed by teachers of all disciplines. Developing students' higher-order thinking skills is crucial in the learning process, if students are to become aware of analyzing, synthesizing and evaluating problems (Bloom, 1956).

Promoting the higher-order thinking skills is not as easy as it might seem, though, particular in the context of this research where much of K-12 learning is done through rote memorization. Regurgitating information is a skill that Chinese students excel in, and even in the new education paradigm of learner-centered, it is hard to break this habit for many of them. One way to help students to move away from this habit is to train them to think on their own. While it may be difficult to do in large classes, peer-led, cooperative learning setting such as those that exist in Supplemental Instruction (SI) might be beneficial.

Supplemental Instruction allows learners to activate the prior knowledge they have and to build upon it in collaboration with their peers. In the ESL/EFL classroom, such activities might include group discussion, pair work, problem solving, role play, debate, or collaborative writing. Traditional Supplemental Instruction involves a peer attending the regular class and then offering small group workshops after class. In the model of Supplemental Instruction presented in the current project, Supplemental Instruction has been defined in an extended format to include instruction by peers within the classroom itself, alongside the classroom teacher.

DOI: 10.20429/ger.2014.110105

The current research is thus vital in that it helps to fill in the gap in the literature with using tutors in the classroom at the university level and how tutors can be used to promote higher-order thinking skills in order to have students succeed in their university lives. This study will be the first to show how utilizing tutors in the classroom has beneficial effects on students' grade point average (GPA) and retention. In addition, this study will show students' satisfaction with the TIC program, measured in the format of questionnaires that students completed at the end of two semesters. By defining TIC as an extension of SI, this paper hopes to address how the limitations of SI can be bridged with the addition of a TIC program. Conclusions of the study point to the successes of TIC especially with students who are deemed at-risk.

Literature Review

Supplemental Instruction has proven to be effective in improving student learning in numerous institutes around the world. McCarthy, Smuts & Cosser (1997) undertook an investigation into the effectiveness of SI in an engineering course at a university in Johannesburg. At an attempt to isolate the effect of SI on performance, the researchers observed less obvious variables such as students' interest in the course, personality types, and the attractiveness of the course. By assuming that all students enrolled in their courses could be grouped into one of three groups based on their admission ratings and levels of university preparedness, they found that students in the SI group scored consistently higher than those in the non-SI group (75.8% vs. 70.7% in the top group; 59.7% vs. 52.1% in the middle group; 52.5% vs. 45.3% in the bottom group). The conclusions made by McCarthy, Smuts & Cosser (1997) showed that SI was beneficial and that interventions such as SI tend to provide students with positive learning experiences.

Similar findings were echoed in Etter, Burmeister, & Elder (2000) who investigated the connection between SI and student performance and retention. Students participating in SI accounting classes at 21 universities and colleges were compared against their classmates who did not take advantage of SI, and findings included SI students as having higher average course grades and lower withdrawal rates than their counterparts. Data from 132 courses showed that SI grades were 0.1-0.3 points higher than non-SI grades, while the percentages of withdrawing from college averaged at approximately 10% for SI students as compared to 20% for non-SI students (Etter, Burmeister, & Elder, 2000).

Harding (2012) investigated the effects of SI on nursing students. By observing over a longitudinal period 45 students in the program, Harding found that SI did appear to have immediate impact on student success, with grades improved for the SI group and retention rates increased. The findings were also expressed in the student evaluations where 53.3% of students stated that "having structured time to work through practice test questions was beneficial in assisting them improve their approach to testing and the ability to evaluate and critically apply needed knowledge" (p. 29).

According to Blanc, DeBuhr, and Martin (1983), supplemental instruction has been proven to break the attrition cycle by having students perform better and retain longer in college. In a study of the effects of SI at a large university in the Midwest, Blanc, DeBuhr, and Martin found that supplemental instruction helps to increase student competency in study skills as well as higher-order thinking skills which are necessary for success in academic studies. The researchers measured student performance and retention rates between SI and non-SI groups and found that the SI groups had significantly higher average GPA's than the non-SI groups, fewer D and F grades and withdrawals, and higher retention levels for the next academic year.

DOI: 10.20429/ger.2014.110105

Findings such as those above support SI. However, Supplemental Instruction faces a variety of obstacles, such as in getting students to attend SI sessions, where many only attend before an examination. Because SI is linked to individual courses which have a high fail or drop-out rate, it does not give special considerations to the types of students enrolled (McGuire, 2006). By not addressing weaker students, SI sessions tend to be dominated by the traditionally more successful student types along with those students who are more motivated to get a good score in the class. An extended model of SI would include programs such as Tutors in the Classroom, allowing tutors to work individually with students who may not be as prepared for university students as others and who need individualized instruction, but may not be motivated enough to seek out support outside of class.

Likewise, a second problem that exists with SI is that many faculty members do not encourage SI attendance as much as they should. Without faculty support or pressure on students who are performing poorly to attend SI sessions, students may get discouraged and drop out of the course or allow themselves to continue the downward spiral without seeking intervention. Bringing intervention into the classroom itself through TIC will solve this problem. In short, introducing an extended version of SI in the form of Tutors in the Classroom (TIC) helps to reduce the number of challenges for SI, as students can get individualized instruction within the classroom itself, without having to stay after class or to attend additional sessions. Immediate support, alongside the classroom teacher, is available in TIC for all learner types, including those who might not be motivated to succeed as much as others.

Since there is currently no research available about TIC, especially as a strong form of Supplemental Instruction, the current study offers quasi-experimental data into this new field. Data will help to support future implementations of TIC across other university campuses.

Methodology

Place of Research

The place of research is a 4-year public liberal arts college near Atlanta, Georgia. As an open-access institution, students come from more at-risk, disadvantaged populations than students at other four-year institutions. These students need more assistance and support in completing their programs of study and achieving their educational goals (Kaufman & Cox, 2012).

The placement test at the university is the COMPASS exam for native speakers of English (NSs) and the ESL COMPASS exam for non-native speakers of English (NNSs). Based on the results of the COMPASS tests, students are placed in either the freshmen required English and Algebra (or higher) college-level courses or in pre-college courses, such as English, EAP, math or reading, which are offered by the office of Student Success Programs. The students who place into pre-college courses represent 30-40% of the entire incoming freshmen population each year at this college (Kaufman & Cox, 2012).

Students enrolled in Student Success courses have to complete each Student Success requirement with a grade of "C" or better in order to advance to the regular college-level courses. Student Success courses are pre-requisites to most other courses, particularly since most college-level courses require a heavy reading and writing component, which students in Student Success reading, English or EAP have yet to master. Students in these courses, therefore, require the most help in overcoming the difficulties that they have in bridging the gap between what they should have learned in high school and what they need to know for college. What they need most are study skills and development of their higher-order thinking skills (Doman, 2010).

DOI: 10.20429/ger.2014.110105

Traditionally, the students in Student Success courses at the university are the most at-risk (Doman, 2010). They suffer tremendous setbacks leading to failure in their courses, which often results in higher drop-out rates. Between the years 2008-2010, retention levels for Student Success students were 15-20% lower than students who placed into the college freshmen level courses, such as Introduction to Algebra (Math 1111) and English Composition (ENGLISH 1101) (Kaufman & Cox, 2012). Therefore, a solution had to be found which would help to boost retention rates and to increase students' performance in these courses.

Fall 2010 saw a huge increase in the incoming student population. Total enrollment rose from 3,900 students to over 6,000 students in one semester. Freshmen accounted for nearly half of this number. There were not enough faculty members to teach additional classes in order to meet the enrollment demands, nor was there sufficient classroom space to open more sections of classes. The only apparent option was to raise the cap sizes of all freshmen level courses, most particularly the Student Success courses. As caps were raised from 18 to 22-25, another problem was created: a high student-faculty ratio.

Since it would have been extremely difficult for one teacher to meet the needs of each student in a class of 22-25, it was suggested that tutors be utilized to assist in the classrooms. Not only would this approach help to provide students with another resource in the classroom, but it was also supposed that an additional hand would help to relieve the duties of the classroom teachers as well. Thus, the Tutors in the Classroom (TIC) initiative was created.

Launching the Program

The Tutors in the Classroom (TIC) program was launched in August, 2010. Tutors involved in the TIC initiative were assigned to individual Student Success pre-college classes in reading, English, mathematics and EAP based on time availabilities. Although the original goal

was to assign a tutor to every Student Success course, that proved to be unfeasible due to staffing limitations. There were not enough tutors available to place one into each section of the courses. Teachers were not allowed to choose their tutors, nor were tutors allowed to choose the teachers they worked with. After assignments were posted, teachers and tutors were encouraged to reach out to each other to plan for the academic year which was starting in just a few weeks.

Student Success Programs hosted an initial training meeting and social for all of the teacher and tutor participants. Training consisted of the following: the *do's* and *don'ts* of TIC, suggested ways to get the tutor involved, and a question and answer session. Commitment to the goals of TIC was required of both parties. By implementing TIC as an instructional strategy, teachers would then be able to individualize instruction and allow students the opportunity to become more actively engaged in learning.

Individual counseling occurred for 7 weeks until the mid-term period in October, 2010 when a second training session was held to address the problems with the program. Mid-term training was a sharing event in which a lively discussion regarding the successes and short-comings of the program was held. Tutors and teachers worked together in finding solutions to their problems. Less successful teams met with the researcher to consider solutions and to reaffirm their shared objectives for the second half of the semester.

The purpose of this research was to determine if TIC was an asset to Student Success programs. As funding to continue the program would be required in the future, producing data in support of or against the program was crucial. This study examines the impacts of Tutoring in the Classroom on student achievement and retention, as these are two ways in which the success or failure of the program can be measured. Finally, it measures student satisfaction with the

DOI: 10.20429/ger.2014.110105

program through questionnaires administered to students enrolled in TIC classes. The following research questions were posed:

1. What is the impact of Tutors in the Classroom on the GPA's of students enrolled in pre-college English, EAP, reading and math classes?
2. What impact does Tutors in the Classroom have on student retention?
3. Are students satisfied with the Tutors in the Classroom program?

Participants

A total of 1246 students, 14 tutors, and 22 teachers participated in this study in Fall, 2010. Students came from a diverse background of traditional college-aged students who came directly to college from high school (65%), non-traditional students who were returning or coming to college for the first time for over 10 years since graduating high school (17%), and students who were coming to college or returning to college 1-9 years since graduating from high school (18%) (Doman, 2010).

Based on the results of the COMPASS placement test, students with scores under 80 who considered themselves to be native speakers of English placed into either English 98 or 99 depending on their scores and written essay results. Those with scores of 74 or under on the reading portion of the test were placed into Reading 98. Non-native speakers of English with low scores were placed into one of several English for Academic Purposes (EAP) courses. Native and non-native speakers of English with math test scores 36 and under were placed into Math 99.

Table 1

Summary of Classes in Study, Fall 2010

Content Area	**Course Name**	**# of Experimental Groups**	**# of Students in Experimental Group**	**# of Control Groups**	**# of Students in Control Group**
English	ENG98	7	92	4	82
	ENG99	4	89	4	98
EAP	EAP 81	2	31	2	32
	EAP 91	2	34	2	34
Reading	READ 98	2	50	6	138
Mathematics	MATH99	14	335	10	231
TOTAL		**31**	**631**	**28**	**615**

**Note: Tutors qualified to work in the EAP or Reading classes were limited, in comparison to those who felt comfortable working in the English or mathematics courses.*

In Table 1, we see that 631 students were enrolled in the experimental classes, while 615 students were enrolled in the control classes. The experimental groups were composed of teacher-tutor duos, while the control groups did not have a tutor assigned to them. It should be noted that some students were placed into more than one experimental group. For example, there were students who were required to take courses in Student Success math, reading and English. These students may have been in three different courses with a tutor or in a

DOI: 10.20429/ger.2014.110105

combination of experimental and control classes. The same could be said of many of the 615 students enrolled in the classes which were taught by one teacher (no tutor). There were no statistically significant differences between the students enrolled in the experimental classes and those enrolled in the control classes in terms of their SAT scores and high school GPAs.

Of the 14 tutors who volunteered for this project, 2 were full time and 10 were part-time professional tutors employed by the tutoring labs on campus. Teachers who participated in this project included 20 full-time and 2 part-time instructors at the university. Some instructors hosted more than one section with a tutor, while others had no tutors in any of their classes. Classes in the Student Success program are 4 credits and meet for 2 hours a day, twice a week. Each semester runs for 16 weeks.

Tutor and teacher data was also collected, but the findings from that data will be reported in a paper to follow. This paper will focus on only the student data that was collected.

Data Collection

The objective of this study was to examine the effects of a new program called Tutors in the Classroom. Data were collected from students, teachers and tutors in 31 sections of undergraduate pre-college courses in the experimental groups. The control group consisted of 28 classes which were taught by a single instructor; no tutor was assigned to those sections.

The faculty members and tutors involved in the experimental group used a collaborative method for designing and delivering the curriculum across the various sections of each class. They frequently met with their tutors to determine the learning outcomes and the roles that each person would play in the execution of the lesson. The sections were designed with common lesson plans and consistent methodologies for assessing and grading the students. Rubrics were created and shared among all the section teachers. Small groups were made up of students who

needed re-teaching, enrichment, special projects or make-up work, and work that often is explored in Supplemental Instruction activities could be addressed in the classroom with the help of the tutor.

A large amount of data were collected over the course of the Fall, 2010 semester via surveys, observations, interviews, grade books, and university data banks. Student achievement, satisfaction and attitudes were measured as part of a larger, ongoing study. For purposes of this study, GPA's were investigated in the short term and retention levels were measured in the long term. Data for the current study was taken from student self-reported data via demographic questionnaires as well as from the university data bank. Collecting data from the university required comparing the students enrolled in the experimental sections and control sections and selecting only the data from matching student identification numbers for the research. Several reports had to be run in order to determine the exact information for students who were enrolled in multiple Student Success courses. Students' satisfaction with the Tutors in the Classroom program was measured via questionnaires administered at the end of two semesters, Fall 2010 and Spring 2011.

To measure student satisfaction with TIC, data were collected from questionnaires administered to students enrolled in 20 individual courses over two academic terms, Fall 2010 and Spring 2011. This yielded 30 courses in the experimental group with at total enrollment of 529 students. We excluded information from students who withdrew prior to the end of the semester, which reduced the sample of students to 424. The questionnaires were approved by the Ethics Committee of the college. The questions were designed specifically for this program and were based on previous survey literature. The surveys were distributed to students by individual teachers.

DOI: 10.20429/ger.2014.110105

Results

Data Analysis

Data to measure student performance and retention were collected from students enrolled in 59 sections of Student Success courses in one academic semester. This yielded 31 courses in the experimental group and 28 courses in the control group with a total enrollment of 1246 students (some students could have been in multiple classes). The researcher excluded information from students who withdrew prior to the end of the semester, which reduced the original sample of students from 1503 to 1246.

In order to isolate the impact of the tutoring program, the set of control variables should be comprised of as many of the conditioning measures of a student's academic characteristics as possible. This is information which can be obtained from the university's student database. Therefore, the following information was at first gathered.

Table 2

Data Coding Procedure

Type of Data	**Code for Data**
Student ID	Numbered 1-1246
Class Status	Semester in university: 1,2,3,4
Name of Class	1=English
	2=EAP
	3=Reading
	4=Mathematics
Class Type	0=Control
	1=Experimental
COMPASS Score	1=High
	2=Average
	3=Low
Race	1=Minority
	2=Caucasian
Gender	1=Male
	2=Female
Age	1=18-20
	2=20-28
	3=Over 28

DOI: 10.20429/ger.2014.110105

As we see in Table 2, independent variables were set for student ID, class status (semester in university), name of class (reading, English, EAP or math), class type (control or experimental), COMPASS entrance score, race, gender and age (George & Mallery, 2007).

Using the data from the university data base, exact matching was used to reduce the impact of imbalance between the experimental groups and the control groups. The sample was matched on all variables in Table 3. The multivariate imbalance measure was 1.4002341 before the matching process and 1.2673729 afterward. This means that the imbalance was reduced approximately 10%. As much as possible, each individual student was matched to another student identical to them in terms of age, gender, race, and COMPASS scores.

Table 3

Descriptive Statistics of Variables for Experimental and Control Groups

	Group	**Numbers**	**Mean**	**Std. Deviation**	**Std. Error**
HS_GPA	Experimental	588	2.7768	0.51143	0.2430
	Control	571	2.7084	0.47403	0.04240
SAT_Verb	Experimental	276	494.25	85.542	4.989
	Control	252	486.59	84.000	8.806
SAT_Math	Experimental	276	507.96	80.093	4.671
	Control	252	494.40	89.891	9.428

In Table 3 an ANOVA (Analysis of Variance) procedure was used to analyze student data in order to try to find statistically significant differences within the groups based on further factors of high school cumulative GPA's (although some students did not graduate from high school and came in with GED's), SAT verbal scores, and SAT math scores. As we can see, the

experimental and control groups were similar in that the high school GPAs were similar (2.77 and 2.70), SAT verbal scores were similar (494 and 486) and SAT math scores were similar (507 and 494).

Table 4

Significance of Individual Variables for Experimental and Control Groups

	t	df	Sig. (2-tailed)
HS_GPA	1.342	566	**0.180**
SAT_Verb	0.729	383	**0.454**
SAT_Math	1.370	383	**0.171**

**Less than or equal to 0.05 is considered significant*

Next, we look at Table 4 at the high school GPA's, SAT verbal scores, and SAT math scores of every student who participated in the research, both in the experimental groups and in the control groups. We try to find other factors which may contribute to college semester grades. In Table 4 the t-values are not significant since they are greater than 0.05 where Alpha was set. Also, we have Sig (2-tailed) values which are greater than 0.05. Next, we have to examine r and p values to see if there are statistically significant correlations between the variables of semester GPA's and the high school GPA's and SAT scores.

DOI: 10.20429/ger.2014.110105

Table 5

Correlation Between HS_GPA at End of Fall, 2010 and Variables

	r	**p**
HS_GPA	0.358	<0.001
SAT_Verb	0.123	0.002
SAT_Math	0.102	0.046

**Less than or equal to 0.05 is considered significant.*

In Table 5 the Pearson's r is close to 0 which means that there is a weak relationship (small effect) between the variables of semester GPA and high school GPA's and SAT math and verbal scores. The variables are, thus, not closely correlated. Next, we look at the p-value which gives the probability or not that the changes in semester GPA happened by chance. The p-value is the probability of obtaining a test statistic at least as extreme as the one that was observed when we assume that the null hypothesis is true. When the p-value is less than 0.05, we can say that the null hypothesis is rejected. Therefore, for the SAT tests and the high school GPA's the p-values were all less than 0.05, which means that the values are significant and that they do have some correlation with the resulting semester GPA's at university.

Table 6

Effect of the Variables

Dependent Variable: Cum_GPA

Source	F	Sig.	**Partial Eta Squared**
Corrected Model	22.398	0.000	**0.198**
Intercept	0.435	0.510	**0.001**
HS_GPA	71.678	0.000	**0.165**
SAT_Verb	0.008	0.929	**0.000**
SAT_Math	0.114	0.073	**0.000**
Experimental	9.298	0.002	**0.025**

Next, we factor in the GPA's of the experimental group in Table 6. Partial eta squared used in ANOVA tells us what proportion of the variance in the dependent semester GPA variable is attributed to the success of the TIC program. Table 6 shows that the effect of the experimental class accounted for 3% of their cumulative GPA's for the semester of Fall, 2010. The effect of their high school GPA would account for 17% of their cumulative semester GPA's (but no significant difference between the treated and control groups, so this cannot account for difference.)

Results show that the high school GPA's did account for a gap in the resulting college semester GPA's (which is supported in literature, ie. Cohn, Cohn, Balch & Bradley, 2003;

DOI: 10.20429/ger.2014.110105

Noble, 1991; Noble & Sawyer, 1987). Since the high school GPA's were higher for the experimental group, it is expected that the college semester GPA's would also be higher for that group. However, having a tutor in the class may also have helped. This study hopes to measure the extent to which TIC led to increases in students' university GPA's.

Effects on Student Retention

Retention was measured by the number of students in the study who completed the Fall, 2010 semester and who registered the following academic year in Fall, 2011. Administration's primary concern is keeping current students enrolled and having them retain through graduation. However, there are a number of factors which influence whether students are willing to persist throughout their college studies. Retention rates are even lower for students in the Student Success program at this college (Kaufman & Cox, 2013).

There are many reasons why a student might want to drop out of college. Many of these reasons are not related to academics, such as problems adjusting to the new environment, lack of commitment, financial problems, incongruence of the college mission and their own personal interests, family problems, employment, being a first-generation college student, having dependents, emotional problems, transportation issues, and so on (Cross, 1998; Dwyer, Hodson & McCloud, 2013; Saret, 2003). Any one of these problems could lead a student to discontinue his studies. However, research has also illustrated that how students perceive their learning environment will greatly determine their abilities to continue their studies (Dwyer, Hodson & McCloud, 2013; Pajares, 1996; Zimmerman, 1996). This is where student support programs can help tremendously in encouraging students to further their studies at the university.

As most of the learners in the research are minority and first-generation students, they may have difficulty in embarking on a college career. It is up to the university to ensure that

students become academically and socially connected (Saret, 2003). As research has illustrated, "Faculty must create learning opportunities that enable students to make those connections" (Saret, 2003, p.2).

The tutor in the classroom provides one additional outlet for the students to have contact with a professional, caring person. "Students who have frequent contact with faculty members in and out of the class during their college years are more satisfied with their educational experiences, are less likely to drop out, and perceive themselves to have learned more than students who have less faculty contact" (Cross, 1998, p.5). The tutor is another person who can contact the student and influence them in many ways. Particularly in developmental courses, a considerable amount of effort must be given to help students be successful in their courses and to transition to college-level courses.

Table 7

One Year Retention Rates (based on registration in Fall, 2011)

Content Area	**Course Type**	**Retention numbers**	**Percentage**
English	Experimental	60	65%
	Control	48	59%
	ENG98 Total	108	62%
	Experimental	63	71%
	Control	61	62%
	ENG99 Total	124	66%
EAP	Experimental	25	81%
	Control	24	75%

DOI: 10.20429/ger.2014.110105

	EAP 81 Total	49	78%
	Experimental	28	82%
	Control	25	74%
	EAP 91 Total	53	78%
Reading	Experimental	30	60%
	Control	61	44%
	READ 98 Total	91	48%
Mathematics	Experimental	246	73%
	Control	142	61%
	MATH99 Total	388	69%
TOTAL	**EXPERIMENTAL**	**452**	**72%**
	CONTROL	**361**	**59%**
	OVERALL	**813**	**65%**

**This table shows the retention rates of enrolled students in Fall, 2010 who enrolled in the following semester, Fall, 2011.*

The results of the one-year retention rates are given in Table 7. There were significant differences in these numbers across the two groups ($F(2,23)=0.005$, $p=0.001$), with Tukey post-hoc Alpha set at 0.05.

The findings suggest the following:

- Students who attended Student Success courses which were taught by a teacher and a tutor were more likely to retain the following academic year. Overall retention for the experimental group was 13% higher than the control group.

- Non-native speakers of English in both the lower level and higher level of EAP were the most likely to retain out of all groups.
- Students enrolled in Reading 98 were the least likely to retain among all groups.
- All experimental groups showed higher retention than the control groups.

By separating all other variables, the increases in retention could be accounted for by the addition of the tutor in the class. If we look carefully at each course, the findings suggest that the Reading 98 course had the most problems with having students retained. An explanation may be that students in this course suffer the most academically, since they are coming in with minimal reading and comprehension skills. It was found that 92% of students in Reading 98 were also in at least one other Student Success course (Doman, 2010). According to conversations with reading instructors, many reported the low abilities of their students – some coming into college at the fourth grade reading level.

English 98 students are 4% less likely to retain than English 99 students. Since English 98 is the lower level English course, students in this course most likely suffer from low achievement similar to those in Reading 98.

EAP students, both in the lower level (81) and higher level (91) classes, are the most likely to retain. This may be explained by the fact that they are non-native speakers (NNS) of English (traditionally labeled "foreign" students, although all have US citizenship or green card status. The university did not offer F1 visas to foreign students at the time of the study).

The overall retention for students who participated in the Tutors in the Classroom program in Fall, 2010 was 72%. This is significant considering that the overall retention for the control classes was only 59%. This suggests that the TIC program does offer students more one-on-one attention, which may contribute to increased motivation and better attitudes towards

DOI: 10.20429/ger.2014.110105

staying in college. However, without additional studies, it is hard to pinpoint the exact reasons why TIC classes were more successful at retaining students than regularly taught Student Success classes.

Effects on students' semester GPA's

This section will offer descriptive and inferential statistics regarding the data that was accumulated during this study regarding students' GPA's.

Table 8

Overall GPA's for the Fall, 2010 Semester

Group	**GPA**	**Standard Error**
Experimental	2.619	0.021
Control	2.113	0.018

Overall GPA's for the semester for participants in the TIC program were higher than those in the control group, as seen in Table 8. There may be many factors that lead to this increased performance. However, as several variables such as SAT scores and high school GPAs were investigated prior to the experiment, it is likely that these variables played a significant role in the increased student performance in the experimental groups. Yet, the differences presented by the experiment are significant as well. The differences can be seen in the performance data of the experimental groups and the control groups in Table 8, with a T-test finding significance between the average GPA's ($p<0.01$).

Student satisfaction with TIC

Students completed a questionnaire asking for feedback on their reaction to having a tutor in the classroom for this program. Students were asked to rate their experience on a scale of 1 (Strongly Disagree) to 4 (Strongly Agree). The findings are reported in Table 9.

Table 9

Cumulative Questionnaire Results from Students (end of term, Fall 2010 and Spring 2011)

Rating	Questions
3.62	1. The classroom relationship between the instructor and tutor has been desirable.
3.48	2. It seems that the tutor and instructor have communicated effectively.
3.71	3. The tutor gets along with students well.
3.70	4. The tutor responds to students needing help as soon as possible.
3.12	5. The tutor assists the instructor with administrative duties, such as calling the role.
3.08	6. The tutor is placed in the classroom so that students can seek help on their own.
3.88	7. The tutor moves freely around the classroom assisting students.
3.22	8. The tutor helps with instruction from time to time.
3.09	9. The tutor and instructor appear to understand one another and share common expectations for the students.
3.75	10. The tutor expresses concepts clearly.
3.89	11. The tutor treats students courteously.
3.76	12. The tutor checks to see that students are understanding the material.
3.75	13. The tutor helps to develop my higher-order thinking skills.
3.45	14. The tutor is prepared for class.

DOI: 10.20429/ger.2014.110105

3.77 15. I feel that I can go to the tutor for help.

3.66 16. The tutor emphasizes critical thinking and problem solving.

2.26 17. I frequently met with the tutor in the Academic Enhancement Center.

3.34 18. I occasionally met with the tutor outside of class.

3.36 19. I consulted the tutor only during class period.

3.86 20. I think the idea of meeting with the tutor in and out of the class is a good one.

2.22 21. Private tutoring was more effective than outside tutoring.

The findings from the questionnaire show that students were satisfied with the TIC program. An average rating of 3.70 and 3.76 were given respectively for the statements "Tutor responds to students needing help as soon as possible" and "The tutor checks to see that students are understanding the material", showing that the tutor was available and willing to help when students were having difficulty and that the tutor helped to facilitate learning. Likewise, 3.88 was given for "The tutor moves freely around the classroom assisting students" again showing that the tutor provided an extra helping hand that would not have normally been available in a regular classroom. Most importantly, an average rating of 3.75 was given for the prompt "The tutor helps to develop my higher-order thinking skills" which was one of the major goals of the program.

It is also interesting to look at the statements that received the lowest ranking responses, such as "I frequently met with the tutor in the Academic Enhancement Center" (2.26) which shows that students were reluctant to seek assistance outside the class meeting time and in an external environment. This finding supports the hypothesis that TIC is an extension of

Supplemental Instruction and is bridges the gap in what SI cannot do – which is to bring additional support into the classroom itself.

Discussion

The Tutors in the Classroom program offers benefits such as increased retention and improved student performance. In addition, TIC could be used as an extension of Supplemental Instruction to address some of the obstacles which SI currently faces.

As was exhibited in Table 5, high school GPAs, SAT verbal scores, and SAT math scores do have some amount of correlation to how well students perform in university. For the SAT tests and the high school GPA's the p-values were all less than 0.05, which means that the values are significant and that they do have some correlation with the resulting semester GPA's at university. However, it is difficult to pinpoint exactly how much credit should be attributed to high school GPA's and to what extent this correlation is evident and also the extent to which having a tutor in class helped students to perform better. However, there is evidence that TIC does have some role in increasing student performance and in having students retained. We can discuss this more by looking at the research questions again.

What is the impact of Tutors in the Classroom on the GPA's of students enrolled in pre-college English, EAP, reading and math classes?

Numerous factors appears to impact student GPA's, including but not limited to academic career goals, counseling and student motivation (Blanc, DeBuhr & Martin, 1983; Cohn, Cohn, Balch, & Bradley, 2004). However, learning assistance programs can also contribute to increases in GPA's. As programs such as SI and extensions of SI including TIC promote students' higher-order thinking skills, course grades are obviously affected. Students in

DOI: 10.20429/ger.2014.110105

the TIC groups in this study showed significant gains in GPA's as compared to those not in classes which hosted a tutor.

Etter, Burmeister, & Elder (2000) and Harding (2012) had found similar results in that SI led to increases in student GPA's. By viewing TIC a strong form of SI, the current study concurs with their findings.

What impact does Tutors in the Classroom have on student retention?

The data from this study support the conclusion that TIC appears to lead to greater retention. There were significant differences in these numbers across the TIC groups and non-TIC groups ($F(2,23)=0.005$, $p=0.001$), with Tukey post-hoc Alpha set at 0.05. TIC is proactive rather than reactive. Tutors come to the students, rather than having students come to the tutors such as in a SI or tutoring lab environment. Students can work on problems with tutors, develop their study skills, and promote their higher-order thinking skills which are necessary to perform well in university. The shared classroom with the tutor and the teacher provide outlets for students to engage, interact and gain mutual support from many stakeholders. By viewing TIC as an extension of SI, the current findings confirm those found by Blanc, DeBuhr, and Martin (1980) in their assertion that SI promotes retention.

Are students satisfied with the Tutors in the Classroom program?

Students in the experimental groups were satisfied with the TIC program. The tutor was found to respond to student needs, to facilitate learning and to move freely around the classroom, helping the students when they immediately had a question or faced a problem. This data supports McCarthy, Smuts & Cosser (1997) who showed that SI was beneficial and that interventions were welcomed by students who were struggling in class. In a typical SI situation, the student would have had to have waiting to ask a question during the SI session, but with TIC,

the response is immediate – helping to solve one of the obstacles that SI faces. Most students concurred that "The tutor helps to develop my higher-order thinking skills" which will allow them to be successful in their future academic studies as well. Thinking skills are "basic to content mastery" and are prerequisites for students to process unfamiliar content (Blanc, DeBuhr, & Martin, 1983, p. 82).

Conclusions

An experiment was undertaken to measure the effectiveness of a new classroom-based project called Tutors in the Classroom at a medium-sized university outside of Atlanta, Georgia. The results show that TIC was beneficial in having students retained, improving their performance as measured in GPAs and in satisfying students' needs for additional support.

Despite the author's recommendation of the TIC program, there are also limitations that must be addressed when implementing this program as well as when gathering data about the program. These limitations are addresses separately below.

Limitations

Measuring the impact of a student support service is problematic no matter how much evidence is provided. There are a number of statistical processes which complicate the process. The first problem is with data collection.

There are many outside factors which affect student achievement in any classroom situation, including motivation and attitudes (Cohn, Cohn, Balch, & Bradley, 2004). SAT scores and highs school GPA's also affect college GPA's (Noble, 1991). Even with the presence of a tutor in the classroom, it is hard to say how much contact each individual student had with the tutor. In addition, it is obvious that each tutor had different responsibilities in each classroom.

DOI: 10.20429/ger.2014.110105

Therefore, we cannot effectively measure how much contact the students had with the tutors assigned to their classes.

Previous research allows little, if any, direction in solving the problems outlined above, since this type of program is virtually unknown in the tertiary environment. This study contained limitations due to the relatively small number of participants and the short time frame in which the research was conducted. Since the research was conducted at only one university for a specific group of learners, it is hard to make generalizations to all tertiary educational settings. This data were collected from a suburban setting near Atlanta, Georgia. Findings may be different for more urban locations.

Another problem may be in the tool used to measure student satisfaction. Questionnaires and other self-reporting methods are often inaccurate and may not be the best ways of measuring achievement. As in all types of self-reported data, questionnaires are especially sensitive as we have no way to knowing if students are answering truthfully or not. If questionnaires are used, the data should be triangulated with interviews, which were not undertaken during the early stages of TIC.

An additional limitation is that participants only took each class for one semester if they passed and exited out of the course. It would be optimal to observe the same group of learners in a TIC situation for at least one year. Retention should also be recorded over several years and not just the following academic year.

Findings could have also been boosted if the students' course grades for various assignments or quiz/exam grades were also measured. Simply observing semester GPA's may not be a reliable way to measure the benefits of the tutoring program.

Implications for Further Research

Despite the limitation mentioned above, the effectiveness of adding tutors into the classroom is without doubt. We now have evidence of the effectiveness in terms of GPA's and retention rates. Results of questionnaires show that students support TIC and find tutors to be helpful in the classroom as an additional helping hand.

We believe that the findings of this study are reported accurately and will help to encourage other institutions to develop classroom tutoring programs to support their students, particularly those which may be deemed "at risk." As researchers address issues into Supplemental Instruction – particularly related to getting students to attend SI sessions – we hope that TIC programs will be considered as alternatives.

As the researcher of this study moves forward to applying this method to an EFL situation in China, an increased number of students for the study (over 2,500) will be used. In addition, the students will be observed over one entire academic year, instead of one 16-week semester only. Also, the focus will be on one class only – English for Academic Purposes. The tutor will be a peer-tutor, that is, an upper-classmen majoring in English or education who is interested in becoming an English teacher after graduation. Peer tutors will be native speakers of the local language (Cantonese). The tutors will be English or education majors who hope to become teachers once they graduate from college. With the diverse variables in settings and participants between the current research and the future research, it is assumed that the findings will be dramatically different.

DOI: 10.20429/ger.2014.110105

References

Austin, A. E., & Baldwin, R. G. (1991). *Faculty collaboration: Enhancing the quality of scholarship and teaching*. ASHE-ERIC Higher Education Report No. 7. Washington, DC: George Washington University, School of Education and Human Development.

Blanc, R., DeBuhr, L., & Martin, D. (1983). Breaking the attrition cycle. *Journal of Higher Education, 54*(1), 80-90.

Bloom, B. S. (1956). *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain*. New York: David McKay Co Inc.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, N.J.: Lawrence Earlbaum Associates.

Cohn, E., Cohn, S., Balch, D., & Bradley, J. (2004). Determinants of undergraduate GPAs: SAT scores, high-school GPA and high-school rank. *Economics of Education Review, 23*, 577-586.

Cross, P.K. (1998). Why learning communities? Why now? *About Campus,* 4-11.

Doman, E. (2010). *Student Success report Academic Year 2010/11*. Internal document for program. Georgia Gwinnett College.

Dwyer, R., Hodson, R. & McCloud, L. (2013). Gender, debt, and dropping out of college. *Gender and Society, 27*(1), 30-55.

Etter, E.R., Burmeister, S.L, & Elder, R.J. (2000). Improving student performance and retention via Supplemental Instruction. *Journal of Accounting Education, 18,* 355-368.

George, D. & Mallery, P. (2007). *SPSS for Windows: Step by Step* (7th ed.) Boston, MA: Pearson Education, Inc.

Glass, G. V. & Hopkins, K. D. (1996). *Statistical methods in education and psychology* (3rd ed.). Needham Heights, MA: Allyn & Bacon.

Harding, M. (2012). Efficacy of Supplemental Instruction to enhance student success. *Teaching and Learning in Nursing, 7,* 27-31.

Kaufman, D. (2011). GGC maintains impressive retention rates. *Leading Edge Newsletter of Georgia Gwinnett College*, 2-3.

Kaufman, D. & Cox, A. (2012). Georgia Gwinnett College: Promising and practical strategies to increase postsecondary success. White paper on Georgia Gwinnett College.

McCarthy, A., Smuts, B. & Cosser, M. (1997). Assessing the effectiveness of Supplemental Instruction: A critique and a case study. *Studies in Higher Education, 22*(2), 221-231.

McGuire, S.Y. (2006). The impact of Supplemental Instruction on teaching students how to learn. *New Directions for Teaching and Learning, 106*, 3-10.

Noble, J. P. (1991). *Predicting college grades from ACT assessment scores and high school course work and grade information*. Report No. 91-3 (50291930). Iowa City, IA: American College Testing.

Noble, J.P. & Sawyer, R. (1987). *Predicting grades in specific college freshman courses from ACT test scores and self-reported high school grades.* Report No. 87-20 (050287200). Iowa City, IA: American College Testing.

Pajares, F. (1996). Current directions in self-efficacy research. In M. Maehr & P. R. Pintrich (Eds.). *Advances in motivation and achievement*. Volume 10, (pp. 1-49). Greenwich, CT: JAI Press

Saret, L. (2003). Retaining students in classes: Putting theory into everyday practice. Retrieved on August 28, 2012 from

DOI: 10.20429/ger.2014.110105

http://www.oakton.edu/user/1/lsaret/LauraSaretOaktonWebSite/Ways%20Faculty%20Can%20Encourage%20Student%20Retention.htm

Zimmerman, B. J. (1996, April). *Measuring and mismeasuring academic self-efficacy: Dimensions, problems, and misconceptions.* Symposium presented at the meeting of the American Educational Association, New York.

This paper was presented at the Internatioanal Writing Center Association Conference in 2012. Participation in the IWCA Conference, 2012 was made possible thanks to a Conference Grant from the University of Macau.