

Changing Roles for Changing Times: Social Media and the Evolution of the Supplemental Instructor

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Abstract

The supplemental instruction (SI) model has come a long way from being just peer-assisted study sessions to improve student retention and success. Students now have 24-7 access to handouts, professional tutoring, and group collaboration outlets; several of these services are offered via social media sites. How well these outlets are incorporated into the classroom is now a key component of what makes an SI session successful. With the advent of these innovations, the limits to what an SI can provide to his/her students are far less, including (but not limited to): video lectures, practice exams, and promotion of group collaboration among students. Through the use of platforms including Facebook, Twitter, Piapp, and Slack, the SI session can be held almost exclusively online and provide just as much if not more benefit to the students involved.

Background

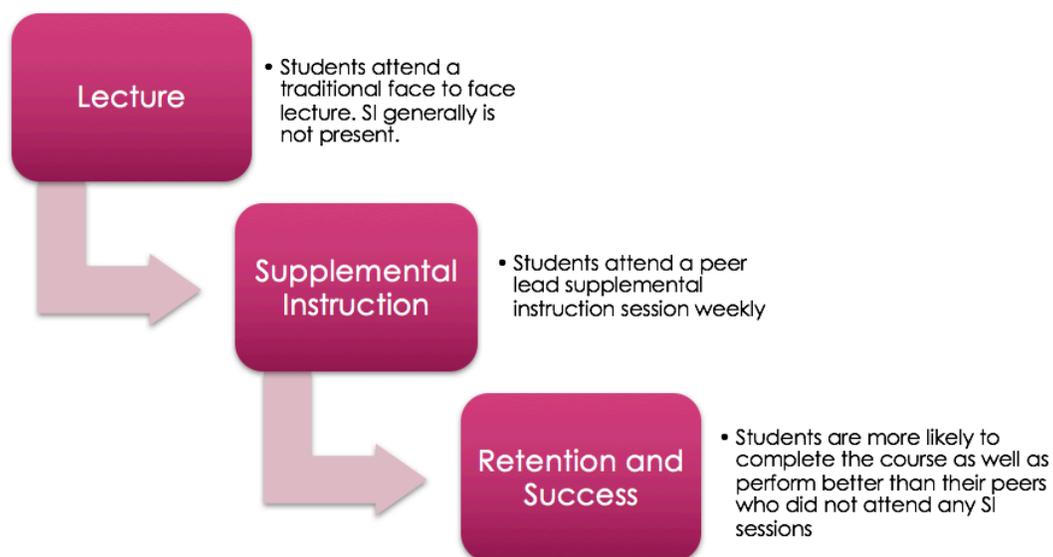
Throughout this paper there are references to a few chemistry classrooms. The first being the traditional classroom where the students attend all of their lectures in person, they complete homework on their own time, and examinations are given during the lecture time slot. A Hybrid class is split, fifty percent online and fifty percent in person. The students are expected to watch video lectures on their own time and complete homework assignments online. The face-to-face time is reserved for group quizzes and activities to emphasize key points in the material. Exams are provided in the college testing center for a set number of days. The last class mentioned is the Blended class where the only time students are expected to come to campus is to take the examinations which are offered for a set number of days in the testing center.

While the models we are presenting were accomplished through the use of a professional tutor (hired through the college, having taken at least four semesters of chemistry and passing a pre-hire examination) we believe the models can be successful under different circumstances. Peer Learning Facilitators who are being compensated for their time and are at least two semesters removed from the course they are assisting have the potential to successfully handle both the tutoring and mentoring aspect of the models provided.

Traditional Supplemental Instruction Model

Supplemental instruction (SI) is an academic support model developed by Dr. Deanna Martin at The University of Kansas City (UMKC) in 1973. The traditional model uses peer-assisted study sessions to improve student retention and success within targeted historically difficult courses (UMKC, 2016). Students will attend a traditional face to face lecture where the SI leader is not present. After the lecture students have the option of attending a weekly or biweekly SI session where they can ask questions on that week's material. It has been demonstrated by UMKC that

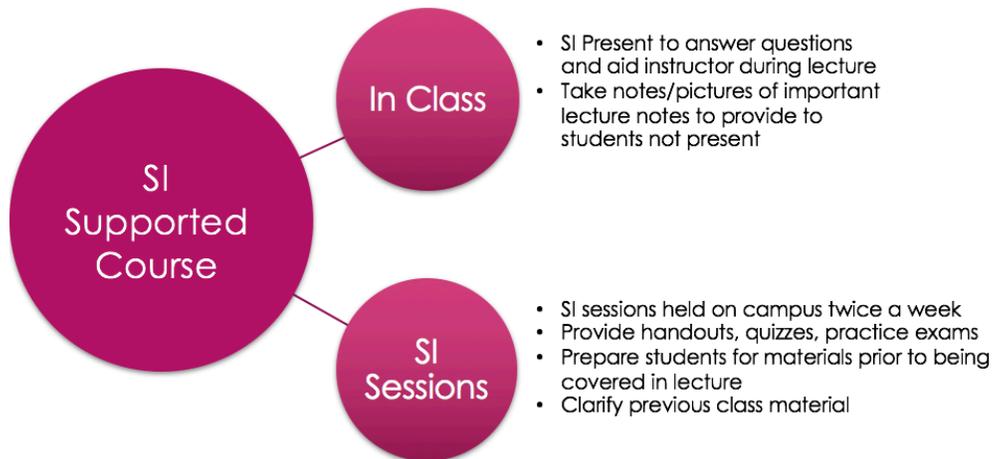
students are more likely to complete the course as well as perform better than their peers who did not attend any SI sessions.



The simplicity of the traditional approach to SI is appealing to many instructors. Selecting a student who successfully completed the course in the past to host the SI sessions is much less time consuming and more cost effective than hiring a professional tutor per class. As a whole the system bridges the gap between the professor and the students. The SI leader is an extension of the professor and can cater their sessions to the course being taught. The drawbacks include an SI leader with limited knowledge beyond the class being supported, and limited depth of the SI sessions outside of simply answering questions. The major issue, which is later address by the Active Learning Model and the Integrated Model, is that there is very little face to face contact with the students during the lecture to encourage them to come to the SI sessions.

The Active Learning Model

The Active Learning Model is an academic support model that utilizes professional-tutors inside and outside of the lecture classroom to improve student retention and success within targeted historically difficult courses. This is accomplished through in class formative learning and post-class instructional sessions. The development of this model arose from addressing the issue of low attendance at the SI sessions. At Central New Mexico Community College, the STEM UP Grant allowed for professional tutors to be present in select STEM courses to interact with the students and encourage their attendance of SI sessions (STEMUP.UNM, 2016).

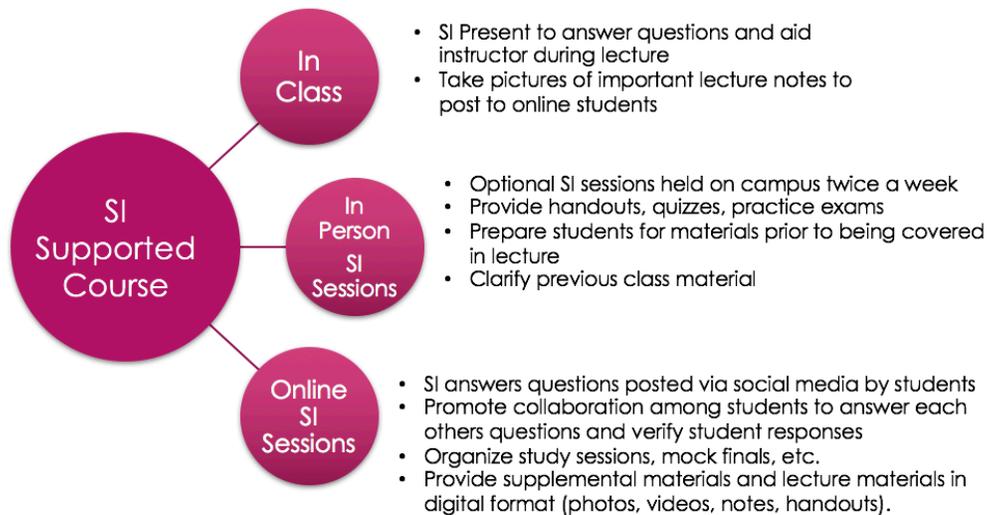


We differ from the traditional model in having the professional tutor present in the classroom. At the discretion of the instructor the tutor can answer questions and participate in group activities. The SI leader was also responsible for collecting any handouts and taking photos of lecture notes for students not present who will later attend an SI session. These sessions were held twice per week, typically one before the lecture time and one after the lecture time to accommodate most student's schedules. SI sessions were structured by the professional tutor but they typically reviewed the previous lecture topics, a practice quiz was provided, questions were answered, and then the new material would be briefly discussed. As I first began to work in a non-traditional classroom my online presence was limited mostly to emailing with students individually as well as posting announcements to blackboard learn. Allowing the SI access to blackboard learn had previously not been explored.

By adding a professional tutor to the classroom, interacting with the students, we have been able to increase SI attendance. The SI sessions are still catered to each professor's teaching style but now the SI leader can assist multiple classes in a single semester. These improvements come at the cost of having to hire a tutor with extensive prior education in the subject. The tutor must also be available to attend the lecture class which can be limiting when looking for a potential SI leader. This model is most successful in a flipped or nontraditional classroom because the interaction of the SI leader with the students is a key element.

The Integrated Model

The Integrated model arose due to the shift towards a non-traditional hybrid or blended classroom where the primary form of communication with the students was online. The need for students to attend class once per week or have the option to take a class entirely online creates a need for supplemental instruction that also caters to this new population of students. It became an academic support model that utilizes professional-tutors inside and outside of the lecture classroom to improve student retention and success within targeted historically difficult courses. The difference is that this is done through in-class formative learning and post-class instructional sessions held both in person and online through the use of social media platforms.



The SI leader is still present in the lecture classroom, if the course is hybrid, to assist with questions, and take pictures of lecture notes and handouts for the online classroom. The optional SI sessions are still held twice per week. Any handouts, quizzes, and practice exams provided were also provided in electronic form to the online course room. Online the SI answers questions posted via social media by students. Ideally promoting collaboration among students to answer each other's questions and verify student responses. Also organizing study sessions, mock finals, etc. can be done online. If multiple sections of the same course were held in different formats, blended and hybrid, these students were combined into the same online classroom. This allowed students who had the benefit of an in-person class session to convey information to the entirely online students.

Many institutions utilize asynchronous communication methods such as blackboard learn. However, these platforms tend to have poorly developed apps, aren't as ADA compatible, users cannot easily post photos or videos and the discussion boards have the potential for too many threads. This results in confusion and loss of information. We chose to steer away from these systems as much as possible in favor of a more user friendly platform. Academically geared apps such as Piapp or Slack allow the students to create accounts separate from their social media persona. The draw of these apps included an individual feed which prevented the loss of student's questions, and promotes student collaboration to solve problems. These apps also provided statistical analysis features for the instructors to track the student's usage. It was very important to find an app that could be accessed by PC as well as various smart devices so that any student could utilize the online information. Another option would be to use Facebook or Twitter. A private Facebook group was used where students had to request to join the group, and they would no longer have access after their semester ended. Many students embraced the idea of having their social media persona now tied into their education. It was also made clear that making a fake Facebook page was always an option in order to keep social media accounts separate from school.

Platforms Geared Towards Varying Levels of Chemistry



Introductory Chemistry

Students main desire was open communication, answering one another's questions, and keeping track of due dates and exams.



General Chemistry I & II

Students best utilized a multifunctional platform to post photos, links, and videos. Students were able to ask and answer questions as well as gain validation by the instructor or SI leader



Organic Chemistry I & II

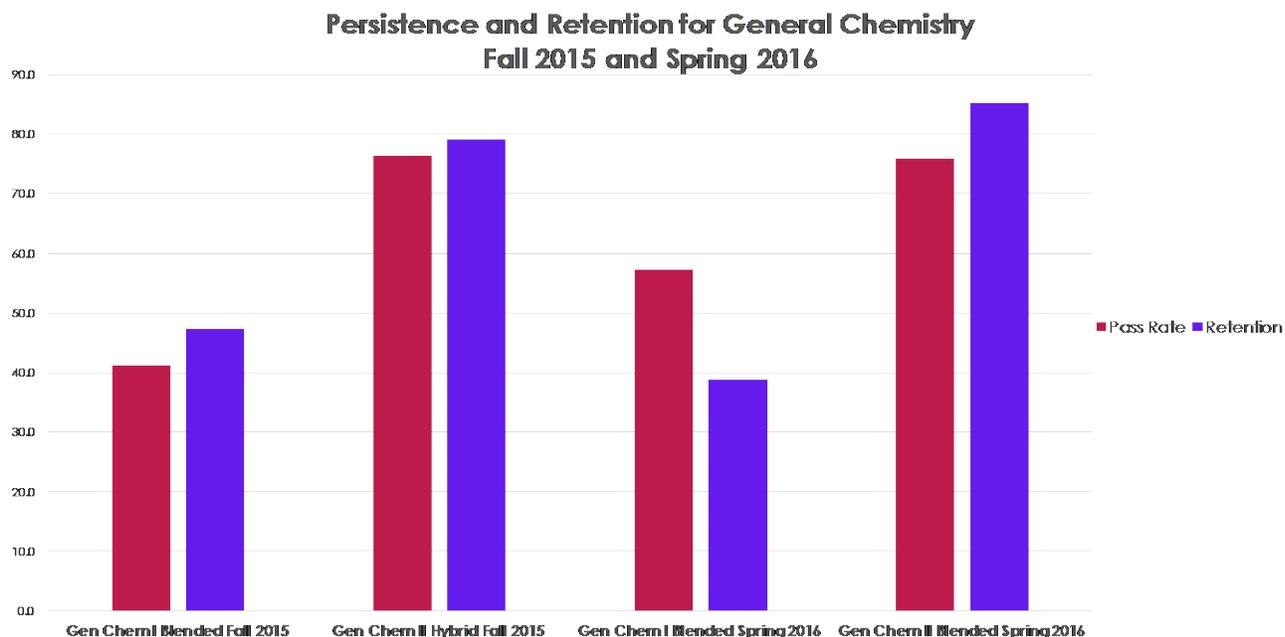
Students main concern seemed to be file sharing for group collaboration on assignments. Less desire for discussion outside of preformed study groups.

We found success with this model due to the higher level of aid provided by having a professional tutor present in the lecture classroom and the online classroom. The option for face-to-face contact between the students and tutor was key to some students participating in a blended class due to scheduling conflicts. Some would prefer to have an in-person opportunity to ask questions. Providing the course materials and the supplemental handouts in digital format ensured the material reached as many students as possible. The Piapp was able to track how many students downloaded each handout or responded to each question. The drawback to this model would be the added confusion in having too many access points to the classroom. Many universities require the use of Blackboard learn. Adding a supplemental app as well as an online homework platform created some confusion for the students. I was able to alleviate some of the stress by using the social media aspect to remind students of due dates with links to the correct website to complete said assignments.

Case Study

Here we take a deeper look at the implementation of the integrated supplemental instruction model by following a cohort of students through general chemistry I & II during the Fall 2015 and Spring 2016 semesters. Students were in a hybrid general chemistry I course requiring that 50% of the course materials be completed online. Students attended at least one of the two optional SI sessions offered each week. Lastly this cohort actively participated in the online classroom, this semester Piapp was selected, by posting original questions as well as answering each other's questions. The same cohort of students continued on to the second semester of general chemistry together. This course was a blended, 99% online, course. Students still attended at least one of the two **optional** SI sessions offered each week and actively participated in a new online classroom using a private Facebook group.

Of the 36 students who continued from general chemistry I on to general chemistry II (many with the same instructor, and supplemental instructor) 76% passed the course and 85% were retained, including the 4 students who audited the course. These numbers are impressive for a blended course which typically have low retention.



At the end of their second semester these students chose to continue on to take both semesters of organic chemistry together. They have organized their own weekly study sessions, created a google drive to share documents and have retained a tutor to attend their weekly study sessions. This cohort not only attended a study session to better their chemistry skills but also created study skills to utilize throughout their educational careers. By sticking together through multiple semesters the students formed a support system which has allowed them to excel in their coursework. This group has been able to influence one another by sharing study techniques, organizational skills, and networking opportunities and they made efforts to bring new students into the cohort to expand their group as well as they continued on.

The success of these students has led to an ideal two semester general chemistry, or organic chemistry, model. The idea is if students were to begin their general chemistry I semester in a face-to-face or hybrid classroom it would promote success in a blended general chemistry II course. During the first semester students have the opportunity to buy in to the supplemental instruction system, form a relationship with the SI leader and professor, and adapt to using the social media tools of the course. These students are more likely to continue on with another course offering the same assistance.

Future Goals

As teaching continues to embrace flipped classrooms and the integration of social media it is important that the supplemental instruction model follows as well. Improvements to the online classroom through dedicated, user friendly, free apps with integrated data analysis would allow further research into how students are using these tools and how we can better meet their needs. Peer tutoring should be added to the integrated SI model along with the professional tutors to prevent gaps when trained tutors are finished with their studies and are ready to move on from the college. Interested students would be chosen from previous semesters and allowed to shadow the current SI leader to ensure they are fully prepared to take over the role. None of this is possible without gaining support from the college, the faculty and of course the students. It would be wise to begin incorporating the integrated model into established non-traditional classrooms where the instructor has already embraced incorporating a social media aspect. As the support grows the hope would be for the college or university to encourage its faculty to incorporate some or all of these ideas into their curriculum moving forward.

I would like to thank Clarissa Sorensen-Unruh, my incredible mentor who allowed me to be her SI leader for many years and who always supported and encouraged the ideas that made today's presentation possible. I also would like to thank Central New Mexico Community College and the STEM UP grant for providing the opportunity to become a professional tutor and supplemental instruction leader and to be able to influence the programs growth and development.

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