Understanding Student Motivation towards Traditional and Online Supplemental Instruction

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Authors Note

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Abstract

A qualitative study was conducted to understand why students are and are not attending traditional and online Supplemental Instruction (SI/OSI) sessions. A brief literature review covers the topic of Supplemental Instruction, online Supplemental Instruction, the role of student leaders (SIL), student motivation, and the learning community of practice. In addition, the SIL's role as a motivational and detracting factor are reviewed and how existing SIL training can be further enhanced for future SI and OSI sessions. Qualitative themes for student motivational factors include perceived notions of SI session value, relevancy, and accessibility were suggested. Student and SIL perceptions of SI sessions as a learning community of practice emerge as a motivational factor and inform future directions for SIL training. Detracting factors that emerged in this study included: student perceptions of not needing help, the availability of scheduled sessions, and the preference for students as SILs. Future research recommendations and conclusions are offered based on the findings.

Keywords: supplemental instruction, SI, online, online supplemental instruction, OSI, motivation, SIL, community, student-leader, peer-leaders,

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The University of Missouri-Kansas City, International Center for Supplemental Instruction (UMKC-ICSI) (2018) describes SI as a non-remedial, academic support program that uses peer-supported group sessions to support student needs in traditionally difficult courses. SI is a free service for students provided by colleges and universities which supports student grades, retention and graduation rates (UMKC-ICSI, 2018). In the 40-year history of this program, SI has been identified as a successful academic support program (Eller and Milacci, 2017; Jimenez, 2018; Arendale 1994; Blanc, DeBuhr, & Martin, 1983). Moreover, studies focused on the success of SI have shown that students who attend SI perform better academically than their counterparts who do not attend SI sessions (Jimenez, 2018; Tsui 2007; Congos & Schoeps, 1998, Congos et al., 1997).

Despite the success attributed to SI, not all students attend and take advantage of this free academic support program. Spaniol-Matthews, Letourneau, and Rice (2016) note that SI may not serve the needs of every learner (p. 20). For example, commuter students tend to be on campus for a limited amount of time due to other personal commitments and responsibilities, including family and jobs (Spaniol-Mathews, Letourneau, & Rice, 2016; Regalado and Smale, 2015; Newbold, Mehta and Forbus, 2011). Commuter student enrollment in higher education has continued to grow over the last four decades (Spaniol-Mathews et al., 2015). In order to address the needs of this population, alternative methods and strategies will need to be considered.

Some higher education institutions have implemented alternative versions of SI, expanding their offerings to support the needs of all students. One such example is Online Supplemental Instruction (OSI). OSI takes the concept of traditional SI and utilizes a computer-

mediated platform, such as Blackboard Collaborate, Zoom, or Citrix Go to Meeting, to conduct SI sessions via synchronous live events (Jimenez, 2018; Spaniol-Matthews et al., 2016; Cook, 2015). Hanson and Gadbury-Amyot, (2016) note that OSI is offered in addition to traditional in-person SI sessions providing students with options to attend sessions while on- or off-campus.

Even when both traditional SI and OSI sessions are offered, not all students attend these free academic support sessions. What factors are motivating students to attend or not attend SI/OSI sessions? Understanding the motivation behind why students attend and not attend SI/OSI sessions will help universities create SI programs to best meet student needs. To understand this phenomenon, New Jersey City University conducted a qualitative study to understand why students are and are not attending SI/OSI sessions. The study was conducted during the Summer and Fall 2018 semesters. Qualitative data was collected to understand SI/OSI's impact towards student motivation, retention and student success.

Regardless of whether Supplemental Instruction is offered in the traditional in-person format or as a synchronous online session, SI offers students the means to get help on a topic without the stigma of remediation. SI focuses on the traditionally difficult topics and not on the student. (Jimenez, 2018; UMKC-ICSI, 2018; Arendale, 1994). SI Leaders do not reteach course topics during SI sessions. Active learning strategies are used to get students to work together and discover answers based on their understanding and collective discussions (Ueckert and Gess-Newsome, 2008).

Motivation

One aspect of this study was to understand student motivation for attending SI/OSI sessions. Spector (2016) describes motivation as the level of willingness and interest that one shows to commit time and resources to accomplish a goal. Hoffman (2015) states that

individuals hold beliefs about themselves that inform the direction and intensity of motivation.

Motivation can be both intrinsic and extrinsic. Intrinsic motivation is the desire to do something one enjoys or sees value in doing (George Washington University, 2012). Extrinsic motivation is the desire to something that one must do to achieve a goal or complete a task (George Washington University, 2012). Therefore, understanding what motivates students to attend SI/OSI sessions and the beliefs which can help, or hinder motivation became a topic of interest.

Community

Learning occurs in these SI sessions via social interactions among a community of learners (Jimenez, 2018). Some would call this community of learners a community of practice. Wenger-Traynor and Wenger-Traynor (2011) define communities of practice as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (para 1). Students in academic support programs could be described as members of a community of practice since they are enhancing their understanding of a given topic. Love (2012) notes how higher education has been utilizing such learning communities to support student learning and improve student experiences in and out of the classroom. The student-to-student engagement and learning afforded by SI/OSI can be another avenue to explore as a student motivator. Specifically, the formation of a community of practice can help SILs to hone their skills while also supporting student participants' efforts towards a legitimate peripheral participation in the community (Lave and Wenger, 1991).

Methodology

The purpose of this qualitative study is to understand why students are and are not attending SI/OSI sessions and retention impact that may be realized via attendance of SI/OSI

sessions. STEM students who have had the opportunity to attend SI/OSI during the Fall 2017, Spring 2018 and Summer 2018 sessions were invited to participate in focus groups. To understand this phenomenon, qualitative data was collected to understand SI/OSI's impact towards student retention and student success.

There are three research questions that were addressed in this study.

RQ1: What factors impact student motivation to attend SI/OSI sessions?

RQ2: Is there a link between the student leader and the student's success in a course?

RQ3: Is there a link between student leader perceptions about their SI Sessions and student motivation?

During the study period of the fall 2017, spring 2018 or summer 2018 semesters, 140 students were eligible to attend SI sessions and to participate in this study. These students are adults, both male and female. The students' major area of study included chemistry, biology and undeclared. Students who were enrolled in SI/OSI during those three semesters were sent an email invitation to participate in the study. Only students that chose to opt in the study were contacted beyond the initial invitation.

Qualitative Data Collection

Qualitative data was collected from individual student SI participants through in-person interviews and one focus group (N=13). The goal of these efforts was to understand student perceptions of SI and what factors motivate students to attend SI sessions. A separate qualitative focus group was conducted for the student SI leaders who led previous SI sessions (N=17). The goal of this focus group was to understand SI Leader perceptions of the SI program, student motivations for attending and not attending SI sessions, and what impedes or supports their ability to lead traditional and online SI sessions. The researchers then transcribed the responses

and coded the data.

Research Findings

RQ1: What factors impact student motivation to attend SI/OSI sessions?

For RQ1, SI Student participants were asked to consider what factors support or detract from their motivation to attend SI sessions. Using NVivo, the focus group/interview responses were analyzed to determine the core themes that emerged from questions about student motivation. The top three themes that emerged in terms of motivating students to attend SI/OSI were success, the SIL, and the perceived value.

In terms of success, students look at SI as a tool that supports their ability to achieve their academic goals. SI sessions are seen as a welcoming place and as a means to doing better in their coursework (See Table 1). Overall, the notion that SI will help, support, and guide them to better understand the material and do well in their classes is a key motivator to attend SI.

Table 1: Key Motivating Themes - SI - Success

Theme	Quote
Success	Student A noted that "SI helps me to do better in my class and it helps me to really understand the class topics." Student B noted that "SI is welcoming place and I go when I need to and know that I will do better on my next quiz or exam." Student C noted that "As a chemistry student, I go to every SI session I can, since it will help me as part of my studying."

However, not all students see SI as being relevant or needed for their success. Some of the students felt that they only needed to go to an SI/OSI session when they needed help (i.e., failed a quiz or were lost on a topic) (See table 2). This is contrast to the chemistry students that participated in the study who felt that they need to attend as many sessions as possible to succeed. Attending SI may be seen a necessity for those students who want to raise their course grade versus something that they often attend.

Table 2: Key Detracting Themes – SI – Didn't Need the Help

Theme	Quote
Didn't need the help	Student F and J: "I only go when I need to. If I am doing bad in a class, I know that I can go to SI and move up my grade." Student A: I try to go to as many as I can, but if it is a week where I feel that I have it, then I don't go to SI.

In addition, some students felt that there were not enough sessions that were scheduled to meet their scheduled needs. Although SI sessions are seen by many as a means towards course success, some students may feel that there are not enough sessions offered, or that they may not be scheduled at the most convenient times for their respective schedules. For those students who do not feel that there are enough sessions available, the see OSI as a potential option., while other students would rather have more traditional SI sessions offered.

Table 3: Key Detracting Themes - SI

Theme	Quote
Scheduling Conflicts	Student A said, "I want more SI sessions offered." Student B said, "I work and try to attend when I can." Student H and I: "Online could offer another alternative for SI sessions." Student J: "SI sessions I attended were for Biology. I needed SI for Chemistry, but there were no sessions available when I could attend in the evening."

The second theme that emerged in terms of student motivation was the SIL. The SIL not only sets the tone for the sessions, but they can be an extrinsic motivational factor for SI students (See Table 4). When describing students' experiences with their SILs, the following words emerged from the data: knowledgeable, helpful, friendly, and grateful. Students in the sample felt that their SILs were indeed knowledgeable, friendly, and helpful; this in turn affected their belief and trust in being able to ask questions and admit that they did not know something. The SIL was a confidant and peer who could more succinctly and simply explain key concepts.

Table 4: Key Motivating Themes - SI – The SIL

Theme	Quote
The SIL	Student B said: "My SIL emailed us and encouraged us to come. He also helped us think about the biology content in simple and easy to understand ways." Student D said that "I felt safe with my SIL, in that I could ask questions and admit that I was lost." Student E said that "the SILs demeanor was super important in motivating me to come back to SI. Not once did I feel like I was being talked down to or made to feel dumb because of my questions." Student H: "The instructor made a huge impact on my decision to attend."

The word gratitude emerged on how the students felt about their SIL. They were grateful that the SIL helped them do better and in some cases, fill in the gaps of knowledge that would not have easily been addressed in a regular classroom. They felt that they were lucky to have the SIL that they had who showed compassion and understanding towards their lack of knowledge and understanding. These factors highlight the role of the SIL and that their engagement with their SI students makes a fundamental impact towards student motivation.

When asked if a student could be replaced with a professor in the role of an SIL, 16 out of 17 student participants felt very strongly that the SIL should be a student rather than a professor. The reasons for not wanting a SIL to be a professor ranged from intimidation, lack of trust on the student's part, and the perception that the non-student would not be able to relate to their experiences as students learning the subject matter. A student as an SIL was seemed as a more favorable and desirable preference by the attending students.

Table 5: Key Detracting Themes - SI

Theme	Quote
The SIL	Student A said: "I would not attend a session if it were with a instructor that was leading SI sessions. Student B said, "A student can relate and make it easier for me to

	understand the material. I don't want someone giving me technical answers that confuse me even more." Student G said that "The student leader gets use and relates to what we are going through. An instructor may not relate to us as easily as a student leader." Student F: however, noted that the SIL needs to be someone who is willing to help and does not keep cancelling sessions. We ended up not having any further sessions."

Finally, the third theme that emerged from the focus groups was their perceived value of the SI sessions (See Table 6). Students felt the importance of connecting their coursework to their major. The closer the course and course work (i.e. quizzes) were related to their major, the greater the level of importance. This perceived value supported students' intrinsic motivation to attend the SI sessions. Conversely, the perceived value and motivation decreased when dealing with SI session related to a course that was not relevant to their major.

Table 6: Key Motivating Themes - SI – Perceived Value

Theme	Quote
Perceived Value	Student A said: Biology is my major. I have to pass and do well. Getting anything less than a B is not acceptable. I have to do well. SI helps me to do just that." Student F said that "SI sessions help me pass my course which helps me get one step closer to achieving a degree in Biology." Student H said that "I am willing to go the extra mile towards my major. If a course is not in my major then I may do enough to pass, but I am making sure that I pass all of my bio related classes."

RQ2: Is there a link between the student leader and the student's success in a course?

In RQ2, both student participants and SILs were asked questions to determine if a link exists between the SIL and the student's success in a course. Students that attend SI and the SILs that lead the sessions feel that there is a mutual benefit to both parties when it comes to success. The SIL gets deeper knowledge and benefits from leading SI sessions. The students benefit from getting the knowledge and strategies needed to pass their course (See Table 7).

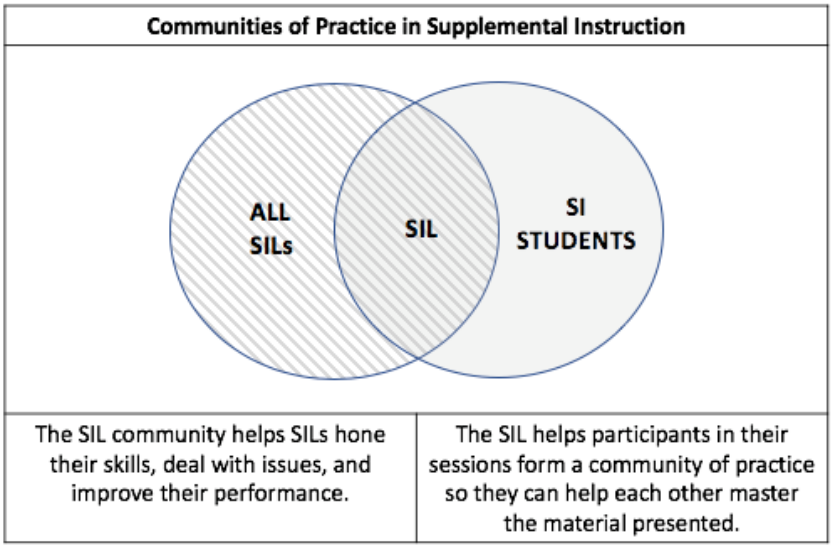
The implication is that both student participants and SILs are benefitting from this relationship. Students do better as a result of SI sessions and the SIL does better as a student in terms of academic achievement towards their major.

Table 7: Key Motivating Themes

Theme	Quote
Mutual Benefit for the Student Participant	Student A: "He introduced things I didn't know, and it helped me." Student B: "They are engaged, and that engagement helps me succeed in my courses."
Mutual Benefit for the SIL	SIL A: "By leading an SIL session, I am able to further my understanding of the material and it helps as I take my other classes." SIL B: "Their success helps me know that I am learning the material and getting more experience in my major."

The other theme that emerged was idea of a community (See table 8). Both SILs and SI students felt that they were a community of learners and that they were able to learn from each other. In a community of practice, the experts (the SIL) continue to hone their skills as both SILs and as students in their respective majors. SILs are also part of their own community of practice where the more experienced SILs help move the novice SILs through legitimate peripheral participation (See Figure 1).

Figure 1: Communities of Practice in Supplemental Instruction



Through the SI sessions, the SILs also support the efforts of the student participants from novice members of the community to a legitimate peripheral participation in the community. Moreover, some of these student participants may be selected to lead their own SIL sessions in future semesters. In short, the communities and sub communities that are formed within the SI program becomes a critical element in the program's overall success.

Table 8: Key Motivating Themes

Community – for Student Participants	Student C: "Yes, I think we are a learning community. I learn from them and they learn from me." Student E: "We are a community of learners and we help each other in SI and outside of SI."
Community – for SILs	SIL B: "We are a learning community. I don't know how you can't learn from each other." SIL D: "We learn from each other and we learn together like a community of learners."

RQ3: Is there a link between SIL perceptions about their SI Sessions and student motivation?

RQ3 focused on SILs, who were asked whether there was a direct link about how they run their sessions and how that effects SI student motivation. The SILs shared their perceptions of what they believe students think about their SI Sessions. SIL A feels that, "students see us as friendly and on an equal footing. There are no distinctions between us and the students. They see us as their peers and not as someone in authority like a teacher." SIL C said that "since we have gone through the class already, we are able to share our past experiences. This gives them the sense that we are empathetic to their frustrations and to their issues."

SILs also saw accessibility and flexibility as being an OSI benefit and challenge by the SILS. OSI could be used to provide more options beyond traditional SI sessions. OSI could provide access to those individuals who may not always attend SI. That flexibility would help

students who normally do not attend via these online sessions. More importantly, many of the active learning strategies that are used in traditional SI sessions (e.g., Fishbowl, and the One Minute Journal) could be replicated in synchronous online learning environments (see Table 9). SILs believe that for qualitative courses, OSI can be a great alternative for student participants.

Table 9: Key Motivating Themes: Online (OSI)

Theme	Quote
Accessibility & Flexibility	SIL D noted "How it offers a flexible option for students who can't come to campus." SIL B: "Online would be a good option for my bio SI students." SIL A: "This would help those who can't attend SI due to their jobs or commuting time."
Digital Access	SIL D and G: "My students do not have good Wi-Fi or computer access. This would be an issue for them." SIL G: "I have student who uses their tablet, but it is slow and crashes a lot. I am not sure how she would attend OSI."
Relevancy/Applicability	SIL D and H: "I can't not imagine how any math-related courses could be done in a collaborative way without resorting back to lecture modes."

However, although SILs believe that OSI can offer accessibility and flexibility to students, there is clearly a divide between those who think that OSI is appropriate for quantitative courses versus those that don't believe that it is appropriate for quantitative courses. For many of the SI leaders, there is a sense that they would explore the possibility of incorporating OSI, but they don't feel that the technology that we have available would be able to meet the collaborative type of activities involved in quantitative SI sessions. Two Chemistry SILs were asked if they would offer OSI sessions and they replied: "I don't know if you could even do an online session for Chemistry." However, there were three who would be interested in exploring OSI since it would help offer more options to students.

Finally, others were concerned about how to even lead an OSI session. Initially, some of the SILs looked at OSI as asynchronous and not synchronous sessions. SILs felt that

synchronous OSI session could be conducted but struggled to see how OSI could be conducted in a meaningful way as asynchronous sessions. Moreover, SILs could not imagine how math-related courses could be done in a collaborative way without resorting back to lecture modes."

Some SILs felt that WiFi and computer access would be a challenge for them and for some of their students. SILs were also concerned that not all students may use their own computer and may have to go to campus to use a computer from the library, which may not be setup with all of the needed items to engage in active OSI sessions (e.g., audio card, headset, the ability to install third party software). Others felt that "it would not be an issue at all, if they properly planned ahead."

Discussion

Student Participants note how the SIL, the relevancy and the perceived value of a course, and the desire to succeed are motivating factors that can support student success. Students also suggested that the SIL leading the SI sessions can be both a supporting and a detracting factor. The belief in whether help is needed, and the perception of session availability can also be demotivating factors as well. Therefore, criteria for what makes a successful SIL and what impedes SIL success should be identified. Student intrinsic motivation, in terms of their willingness to succeed and their perceived relevance of a course, should also be studied further. Future studies should focus on students who did not attend SI and what motivates and demotivates their attending SI.

The sense of a learning community of practice, and the perceived mutual benefit for the SIL and student impacts student motivation and success. SILs should be encouraged to implement community building strategies in their SI sessions. Moreover, the mutual beneficial beliefs of the SI program toward the student and SIL need to be consistently communicated and

reinforced on an ongoing basis. Institutions should consider further promoting SI Success stories for both SIL and attending students as a means of reinforcing these messages.

Accessibility, flexibility, attitude and the demeanor of the SIL can also have a motivating and demotivating effect on student participants. Giving students more options to attend SI, via OSI or via additional sessions could enhance student perceptions about SI. Teaching SILs to create a positive learning environment could be a motivational factor for students.

Developing effective methods for leading quantitative OSI sessions and addressing student issues of technology access for OSI sessions should be explored. For many of the SI leaders, there is a sense that they would explore the possibility of incorporating online SI, but they don't feel that the technology that we have available would be able to meet the collaborative type of activities involved in quantitative Si sessions. The SILs also see the notion that not all students have equal access to the technology needed to support OSI sessions. Further research is needed to see how online SILs are managing online math classes at other institutions (i.e., TAMUUC) and how access to technology issues are addressed.

Conclusion

Based on the findings from this study, SI continues to be a relevant academic support program that benefits both student participants and SILs. This study showed how student perceptions and value judgements about SI session have an impact towards their motivation. The SIL plays a significant role that impacts the perceived value of SI and student motivation. That means that the current training programs for SILs is and the process used for selecting SILs is working. Student participants see SI as a valuable program which is a testament to how SI sessions are managed. These findings inform how SI programs should be managed and what opportunities there are for maximizing overall value for both SILs and student participants.

Another important element to emerge is the SIL. How the SIL is selected, trained and developed plays an important role in SI. The SILs role goes beyond just possessing subject specific knowledge. The combination of the pedagogical strategies, such as active learning, that is taught at the beginning of the semester and the continuous improvement strategy that is reinforced throughout the semester, hones the skills needed to motivate and support student learning. Moreover, the strategies suggested to create a nurturing and supportive learning environment can be relevant in traditional or OSI sessions.

Despite the understanding of what is motivating or detracting students to attend SI sessions, there is still an opportunity to go deeper what is detracting students from attending SI. Moreover, understanding the ways that OSI can be implemented to support quantitative topics should further be explored. Finally, enhancing SIL training to include more community building and affective classroom strategies should also be explored further.

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