

## Supplemental Instruction: The Dynamics of Effective Implementation in Accounting Education

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**Abstract:** In this empirical paper, I discuss the challenges of implementing Supplemental Instruction (SI) sessions effectively in accounting education within Economic and Management Science (EMS) courses. Senior students in SI sessions assist undergraduate students enrolled in modules considered high-risk through peer learning. However, SI leaders face challenges in implementing SI effectively in their accounting classes. The paper is framed within the Critical Emancipatory Research theory, which advocates principles and values of social justice, respect, equity, freedom, peace, and hope. Participatory action research was employed in this study to collect data, and a thematic approach was used to analyse the data. A WhatsApp group was created to facilitate group conversations for data generation. Participants in this study included five (5) Accounting SI leaders ranging from first to third year, as accounting is considered a high-risk module among the three courses within Economic and Management Science. The study found a lack of student attendance and participation, resource constraints, and insufficient SI leader effectiveness, all of

which impact the successful implementation of SI sessions. In light of these findings, the study suggests establishing proper support systems and strategies to encourage student attendance.

**Keywords:** Supplemental instruction, economic and management science, undergraduate students, implementation, accounting education.

## 1. Introduction

Supplemental Instruction (SI) is a peer-led academic support programme in which SI Leaders assist students in developing study habits, note-taking strategies, and facilitating test preparation (Holland et al., 2020). Implementing the peer-learning model in high-risk modules is a vital strategy for higher education institutions aiming to promote student success. Peers are among the most significant influences supporting student retention and persistence (Cofer, 2023). The SI programme focuses on content knowledge of the subject matter, study skills, and time management. Although research has shown the SI programme to be a tool that enhances students' academic performance, challenges persist in implementing this valuable programme. SI Leaders are not fully trained, and other supporting resources for the full implementation of the SI programme are still lacking.

The study conducted in South Africa by Adebola et al. (2020) found that inadequate planning and lack of collaborative engagement were major challenges in training and retraining SI personnel. On the other hand, Mokhampanyane (2021) argues that the challenges hindering the effective implementation of SI include inadequate content knowledge of the SI Leaders, timetable clashes, lack of timely feedback, and incompetence in leading others. Some researchers, such as Hong et al. (2023), noted that the issue of traditional peer support seems to be hindered by low student participation rates during the sessions. They also pointed out that the low pass rate is affected by the challenging material of the accounting course content and the online setting. This study discusses the challenges that SI Leaders face in their daily work as facilitators of peer learning.

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The study conducted by Mutanda et al. (2023) highlighted the educational challenges of SI sessions during the pandemic, noting that the emergence of COVID-19 worsened the situation for at-risk students in higher education. The implementation of e-learning in high-risk core modules posed serious challenges for at-risk students, thereby negatively affecting pass rates and throughput. Sletvold et al. (2021) found that another challenge discouraging and frustrating students with SI sessions is when the SI Leaders do not respond to students' questions. Conversely, the study by Durante et al. (2022) demonstrated that those who regularly attended the sessions benefited most from their participation and were significantly underrepresented in the institution and the course. They further recommended that Supplemental Instruction (SI) and other collaborative learning programmes consider whether they aim to enhance equity in performance and academic success outcomes among students from diverse backgrounds.

According to Zvoch et al. (2023), SI programmes are primarily designed to provide students with a structured opportunity to engage further with course material outside of scheduled class lectures. They also indicated that SI programmes were previously delivered in a face-to-face classroom setting; however, this has shifted due to advancements in technology. Hizer et al. (2017) argue that distance-based learning technologies have been introduced to offer programme providers and users the potential for added flexibility. Occasionally, students have unrealistic expectations of SI Leaders, not considering that these Leaders are students just like them. These are some of the challenges that negatively impact the implementation of SI sessions, as the institution wants the sessions to be conducted in person, yet there is a limitation in terms of available space. Venues are not readily available for SI sessions.

The literature on the supplemental instruction sessions by Allen et al. (2021) examined the impact on SI attendance, grades, pass rates, and retention of over 4,000 university students. Their findings revealed that through SI sessions and attendance, percentage grade increases of up to 10.4% were associated with a full semester of SI attendance, with the highest attendance rates noted among males who previously were not engaging in the SI interventions. The pass rate improved by 10% for those who attended SI sessions. Attending the sessions appears to produce positive results. To demonstrate that the intervention is effective, "many colleges and universities seek to promote student success through targeted strategies for individuals or groups of students who are believed to have a higher risk of attrition" (Bowman et al., 2021: 205). They further noted that other studies focused on outcomes associated with SI and that those studies had methodological limitations. They are currently examining the same phenomenon from the perspective of "examining the effects of SI using doubly robust propensity score analyses with 12,641 observations from 21 courses across 2 semesters" (Bowman et al., 2021: 205). The findings showed that the strongest relationships were often observed for underrepresented racial minority students and students who attended at least five SI sessions. This model also indicated that the underrepresentation of racial minorities shows that full attendance remains a challenge.

While the above studies have contributed to understanding the challenges in effectively implementing SI sessions at the university, none have focused on the challenges that SI Leaders experience in implementing supplemental instruction sessions effectively. This study is unique because the SI programme is known to be the only course used in the first year; however, at the institution where the study was conducted, the SI programme is employed up to the third-year level. Other studies focus on the final improvement of grades (Jimenez, 2018) and student success in high-risk courses. However, the experiences of the SI Leaders have not been emphasised, which is why this study focuses on the challenges that SI Leaders encounter during daily sessions. All Leaders are given the chance to share their perspectives, as in other studies, SI Leaders did not participate in addressing their challenges. Instead, information was gathered from them, and researchers made decisions based on the data collected. SI Leaders share their views on how these challenges can be resolved. The application of critical emancipatory theory, together with participatory action research,

enables participants to become problem solvers in terms of their challenges. Through participation, participants are transformed and empowered by becoming part of the solutions. All text should adhere to the following format: 1.0 line spacing, justified alignment, and size-10 font in Book Antiqua. In this section, authors should elucidate the specific issue being studied, its relationship to existing literature, its distinctive aspects, and its anticipated contribution to the discipline. Any arguments or discussions must be firmly anchored in evidence derived from a comprehensive literature review. The intended purpose or need for the research should be lucidly articulated and supported by prior scholarly findings. Conclude the Introduction by explicitly stating the research objectives, either as questions or hypotheses. Employ subheadings within this section if necessary. In the case of subheadings, the following applies.

## **2. Theoretical Framework**

This study is grounded in Critical Emancipatory Research theory (CER), which is based on values such as emancipation, transformation, and social justice. These values are essential for creating the conditions necessary to empower Supplemental Instructional leaders to confront the lived realities, including the challenges of implementing instructional sessions effectively. CER aims to empower participants to devise solutions to their problems (Mahlomaholo, 2013; Nkoane, 2013). The agenda of CER is to critique and challenge, to transform and empower; it is oriented towards social justice and enhances the principles of democracy (Roldan & Kervin, 2019). CER assumes that power relations are exercised, transferred, and practised through language and communication (Fornari & Fonseca, 2020). The theory focuses on improving the lives of marginalised people by empowering them and giving them ownership of the solutions to their problems (Mahlomaholo, 2013). Its mandate is to change oppressive structures so that the oppressed can recognise their oppression and emancipate themselves (Dube & Hlalele, 2018; Ndaba & Dube, 2021; Noel, 2016).

In this study, participants, through the lens of CER, can identify the challenges they face and suggest ways to make the programme effective and beneficial for all stakeholders. By analysing potential solutions to the challenges they encounter as SI leaders, participants can articulate their insights. Through the application of the theory, they identified the obstacles facing them as SI leaders and, through discussions, proposed strategies to overcome these challenges. The theory provides a powerful framework for understanding and addressing the root causes of SI leaders' difficulties in conducting the SI sessions effectively and efficiently in accounting.

## **3. Materials and Methods**

The paper is rooted in the transformative paradigm; it employs a qualitative study design and Participatory Action Research (PAR). This approach incorporates the perspectives of the co-researchers (participants) striving for sustainable solutions to the challenges at hand. It is characterised by collaboration and active participation among researchers and the community under study, emphasising that the marginalised should be engaged (Motsoeneng, 2023). In participatory research, community members are actively involved throughout the research process (Wallerstein et al., 2017), from identifying research questions to collecting and analysing data and disseminating the findings. PAR is well-suited to educational research because it engages those affected by the issues, allowing individuals to take ownership of their strategies for identifying problems and creating solutions. Participatory research is particularly pertinent to the study topic, as it enables a deeper and more nuanced understanding of the experiences and perspectives of the university community. It also allows participants to express their concerns and contribute to the research process, ensuring their views are neither overlooked nor misrepresented. This is especially important in South Africa, where power dynamics and inequality are prominent (Cowan et al., 2022). PAR enables SI leaders to critique, problematise, and claim their condition, ultimately empowering them to overcome it (Glassman & Erdem, 2014). This approach in research uncovers the causes of social inequalities and, therefore, the solutions needed to alleviate the identified problems (Williams & Brydon-Miller, 2004).

To implement PAR and gather data for this research, purposive sampling was employed with all SI leaders for Economic and Management Sciences (EMS). The team consisted of all five members for the focus group discussions. All participants are SI leaders responsible for the accounting section from the formation of EMS. To collect qualitative data, a WhatsApp discussion group was created. Since COVID-19, researchers have discovered more tools available for data collection. WhatsApp is valued for its convenience and speed, allowing participants to engage from their comfort zones. For this study, the WhatsApp group discussion was created for convenience and proved effective, allowing participants to convene at later time slots while completing their daily duties. The research took place at the university where the study was conducted. The SI leaders comprised two from the first-year students' group, two from the second-year student group, and one from the third-year student group. The participants were deemed relevant to the study, as they encountered the SI sessions daily and had firsthand experiences as SI leaders. Data was collected over three weeks via WhatsApp focus group discussions. The participants responded to two research questions: (1) What challenges are faced in implementing Supplemental Instruction (SI) sessions effectively? and (2) How can these challenges be mitigated? The study adheres to all ethical clearance principles, requiring participants to sign consent forms indicating they can withdraw from the study at any time if they feel uncomfortable. Pseudonyms were used to protect participants' identities.

This study employed the Law et al. (2003) model for data analysis, which involves seven steps. In the first step of the research, the collected data from the focus group was read repeatedly to obtain the essence of the dynamics of effective implementation of Supplemental Instruction in accounting sessions. In the second step, I drew a preliminary list of themes from the collected data. Through reading and rereading in step one, major issues and themes began to emerge, and I started to arrange them according to the study's research questions. In step three, I checked the themes to ensure they reflected the responses given by the participants during data generation and aligned with the study's research questions. In step four, the themes were linked to quotations, and notes were connected to several scholarly views. Step five involved checking the categories of the themes to interpret them. While interpreting the data, I remained mindful of the study's research questions. From the sixth step, the tool was designed to identify patterns in the data. During this process, the patterns in the data were determined. The final step involved interpreting the data and deriving meaning from it.

From the data analysis process, the themes that became subheadings were identified. To conduct a member check to verify whether everything had been analysed according to participant contributions, I arranged another WhatsApp focus group meeting where everyone reviewed the data after it had been analysed. The member checking was done on the presentation of the gleaned themes. These verification and validation processes ensure that the themes align with the focus group discussions (Birt et al., 2016), ensuring that data was not misrepresented and that everything was conducted according to best research practices. The section below presents the study's research findings and the themes that emerged from the data.

## **4. Discussion of Findings**

This section addresses the presentation and discussion of the study's findings based on participants' responses to the first research question. The research question is as follows: What challenges are faced in implementing Supplemental Instruction (SI) sessions effectively? Below is the heading for the first question and the themes emerging from the research question.

### **4.1 The challenges of implementing supplemental instruction sessions effectively**

Based on the data collected, the challenges of implementing supplemental instruction sessions include a lack of attendance and participation, resource constraints, and the ineffectiveness of SI leader training.

#### 4.1.1 Lack of attendance and Participation

The lack of attendance and participation refers to students not showing up for their respective sessions and having minimal involvement during the sessions for those who do attend. In this study, the first challenge raised by the participants pertains to students' lack of attendance and participation in their accounting sessions (Moleko et al., 2014), which may be influenced by a lack of motivation, time conflicts, and ignorance. This is what participant SI 4 had to say:

*"For us, it is very challenging as SI leaders because students perceive themselves as doing well in the course. They even say they will pass out of the three courses if they pass two. So, they lack the motivation to attend SI accounting sessions".*

In support of what was said by the first participant, this is an addition that was said by SI 2:

*"My group always said they have clashes with other courses; the sad part is that even those attending are not participating. They will want me to teach them, and they are just quiet. They do not understand the purpose of SI sessions".*

To reiterate the reasons why some of the students are not attending. Below are some of the other things that SI 2 had to say:

*"Some students do not want to be associated with SI sessions; they feel it is shameful to attend intervention programmes at the university; others said it is a disgrace to attend sessions like SI, which is why they are not attending. It is like they are not good enough at the university level".*

Lack of student attendance and participation in SI sessions is a common and critical challenge that SI leaders face, despite the proven benefits and success stories shared by previous students who went through the SI programme, sharing testimonies of how the sessions have improved their academic performance. Eather et al. (2022) argue that, regardless of the improved knowledge that others have acquired from the sessions and the freedom and relationships they have developed, it is important to remember that other students are still not attending. However, sometimes this is due to the conflicting times indicated above or because they do not want to be stigmatised by intervention courses at the university. Others want to be taught and feel they are not getting what they expect from the sessions. Some students see the sessions' relevance and value and feel they can manage independently. However, Hong et al. (2023) believe that effective and carefully designed programmes that provide extra student engagement will achieve desired participation rates and increase student grades and effort.

#### 4.1.2 Ineffectiveness of SI leader training

The second challenge raised by SI leaders was their introspection regarding the services they were providing. The participants indicated that they sometimes feel they are contributing negatively to the programme, as they believe inadequate training has affected its effectiveness. This is what SI 3 had to say:

*"It is difficult to stand before other students and share information. Others are even doubting their knowledge. Other students are just difficult. Being an SI is more difficult than just studying and getting marks".*

In support of what was mentioned by the previous participant, SI 2 highlighted that sometimes they find it difficult to grasp the course material. This is what SI2 had to say:

*"This year there are some topics that are added to the Economic and Management Sciences course that I am not sure about. I attend with my group to the lecture, but I have noticed that it is not easy for me to share it with students".*

SI 5 added: *"It is difficult getting good marks does not mean one can just stand in from the others and facilitate. That requires strong character. For me, it is difficult. I have noticed that I cannot engage students effectively"*.

The SI leader participants indicated that although they performed well in the accounting course from their first to third years, this does not necessarily make them the best facilitators. They highlighted that learning and achieving good marks do not equate to the ability to impart the same knowledge to others. Participants expressed that it would be beneficial to receive basic training in facilitation techniques for engaging in class and sharing information, as well as strategies for handling difficult students. They noted that excelling academically does not automatically equip them with the skills to effectively teach others. The SI leaders also lack subject content knowledge and collaboration during sessions (Mokhampanyane, 2021). Participants reiterated that SI leaders are sometimes not very effective in clarifying content issues. Furthermore, they mentioned that they often find it challenging to create a conducive environment and fully engage other students, especially if they are not well-versed in the content.

#### 4.1.3 Resource constraints

For this study, resource constraints refer to the limitations and restrictions that affect the availability of necessary materials that SI leaders may need to provide the services for which they were recruited effectively. According to Butcher & Hoosen (2012), any resources related to education enable teaching and learning to be effective and beneficial, as well as research materials in both digital and non-digital formats. This includes any materials, tools, and services used to support teaching and learning. Effective use of educational resources enhances students' learning outcomes, increases facilitation productivity, and improves academic performance. Resources could include facilitation venues, as well as financial, human, material, and technological devices they may require. SI 1 commented on how these resource challenges affect the participants:

*"There are not enough venues for SI sessions. We struggle to log on even if we want to do them online."*

In support of what was mentioned by the previous participants, this is what SI 5 had to say:

*"Due to not being included in the main timetable or there are no building blocks reserved for SI sessions. It means we must arrange ourselves during our free periods to check for open venues that we can use for our sessions. Scouting throughout the campus looking for open venues. We will look for open spaces where the SI sessions are not on the main timetable. We struggle to get empty venues when free to provide the service. Venues are the challenge here, especially for some of us who have big groups. Venues here are not completely sufficient"*.

This is another issue that students are raising: the need for more human capital to provide assistance, rather than relying on just one person. Here is what SI 2 has to say:

*"Maybe we could have more people supporting the programme. There is only one person for now; sometimes, she becomes overwhelmed with our challenges. Or maybe we could be provided with technological resources to conduct sessions after hours when students finish their classes. That poses another challenge because others say they do not have Wi-Fi at home. That support would even be able to open doors for our future endeavours"*.

From the above, it is evident that the participants strongly encourage all stakeholders to engage in this significant intervention, in which other students are thriving. Other researchers, such as Bowman and Martinez (2023), have indicated that Supplemental Instruction improves students' grades and retention. This means that through SI interventions, students seem to be continuing their studies, which lessens the dropout rate. Bowman et al. (2023) and Donald et al. (2019b) further reiterated that, from their perspective, peer learning can foster social mobility and employability in new ways, ensuring that universities remain relevant in preparing young people for entry into the labour market. Donald and Ford (2023) argue that peer learning can be integral in reducing the attainment

gap, increasing student retention rates, and overcoming differentials in employment outcomes. Participants further indicated that it would be beneficial for management to recognise that there is space for this valuable intervention. Allen et al. (2021) supported the need for space by showing that the assessment of SI's effectiveness is often confounded by students' ability, achievement, motivation, and demographic characteristics, and is frequently limited by scarce resources. This means that the assessment includes the resources, which are a challenge for them. Below is a discussion of strategies to mitigate those challenges.

## 4.2 Strategies for mitigating the challenges

Based on the data collected, the strategies for mitigating the challenges of implementing supplemental instruction include student engagement and motivation, leader training effectiveness, and improvement of resources.

### 4.2.1 Student engagement and motivation

Skinner et al. (2009) consider student engagement an outcome of a motivational process. Moreover, without engagement, no psychological course fosters learning and development. Dörnyei (2000) observes that students, even those with high levels of self-efficacy, find it challenging to grasp the entirety of the material unless they are actively involved in the learning process. Participation and engagement in class discussions are essential. When Lin (2012) clarified the relationship between academic motivation and student engagement, he regarded academic motivation as a perception and discipline that can positively or negatively impact a person's behaviour. To fulfil the success and purpose of the SI programme, participants believe in encouraging lecturers to motivate more students to engage in this peer-learning intervention. This is supported by Tight (2019), who reiterated that the more a student is engaged in higher learning, the higher the possibility of retention. Participants believed that if this could be emphasised during lecture periods and all students could be motivated to attend, it would improve academic performance and increase interest in attending among the rest of the class. This is further supported by Dogan (2015), who argued that academic self-efficacy and motivation jointly and positively contribute to the prediction of academic performance. This comment was made by SI 4 regarding the encouragement of other students:

*"I would encourage our lecturers and SI coordinators to share best practices of the SI programme and encourage other students who benefited to share their experiences with others on the organised sessions or even during the lectures. Even though their marks have improved since they attended the SI sessions".*

Other participants felt that students could be promised some incentive to motivate them to attend SI sessions. This is how SI3 said.

*"Maybe an incentive for those who attend the session by being given a credit for attending, as a way of encouraging others to attend".*

Here, the participants are encouraging each stakeholder to engage in promoting and sharing the programme's effectiveness with others to motivate them to participate. They are emphasising the benefits of peer-led learning and how SI sessions can enhance understanding of the subject matter. To ensure that this intervention programme is well promoted and can assist other participants, Durante and Caputo (2022) encourage those who have succeeded through the programme to act as ambassadors or champions, sharing their experiences and the knowledge they have gained. Participants further advocate for some form of reward for those who attend, as a means of motivation and recognition.

### 4.2.2 SI Leader training effectiveness

From here, the participants stated that training is a critical tool that can benefit them as individuals and enhance the profitability of all stakeholders, particularly those for whom the programme is

designed. Donald et al. (2019b) argue that training can address several challenges. The emphasis is on training as the sessions would benefit everyone, improving future employment prospects and motivating students to attend and enjoy their classes (Dekker et al., 2024). SI 2 said:

*"SI leaders must be given training and group facilitation techniques and advised to consult with the lecturer on subject expertise".*

Support from other participants regarding continuous development. SI 2 said:

*"I think it will work if the new SI leaders can be paired with experienced SI leaders. I have seen it has been done in first-year leaders. There were three, and two were experienced, but in my situation, it was like I was just exposed. I was new".*

Comment from SI 5 regarding the training development and motivation for them to do better:

*"If we can be introduced to ongoing training development like in the writing centre, we are given short courses now and then".*

From their discussion, participants are asked to undergo continuous support training to be productive and feel confident in their roles. They are even required to be mentored by those who came before them. They believe that comprehensive training in effective teaching techniques is necessary, even though the programme is not specifically about teaching; however, some students expect to be taught. Therefore, they recommend their own personal training and professional methods for managing group discussions. Supporting the participants' views, White et al. (2023) argue that continuous training would enable quality tutoring and instruction, further fostering student-tutor relationships. Consequently, if these relationships are being developed, students will trust their SI leaders.

#### 4.2.3 Improvement of resources

During the WhatsApp group discussion, participants recommended some resources that could be improved to assist them in working smoothly throughout the program. Participants asked for additional information and an introduction to other resources that could be used to overcome the resource constraints. According to Alcocer et al. (2024), the availability of resources influences students to engage deeply in their work and brings greater success. They are suggesting some form of technological resources. This is what SI 2 had to say:

*"Integration of technology, maybe encouragement on the usage of digital platforms for visual SI sessions to minimise the venue issues, and that would increase the number of sessions we could have per week. We only have one session per week, and some students want to be assisted at least twice a week. Especially those seeing the impact of SI sessions on their results".*

SI 3 is supported by saying:

*"Where possible, make the online resources available. That can help, even by giving quizzes that can make students interested"*

SI 4 is asking for support for this effective intervention. Below is the comment the participant made:

*"I wish the lecturer, together with support staff, volunteers, would take part to see to it that at least we get proper venues for the SI sessions, and can buy into the programme".*

Based on the participants, they are asking for support from all stakeholders to show that the issue of venues is solved. Everyone who finds this intervention effective should encourage management to find ways to allocate venues for programmes such as SI sessions. Further, it is the view that introducing technological resources will engage students. This is supported by Al-Haddad et al. (2024); they argue that since the downfall in 2020, during the pandemic, students have been engaged following the introduction of a Technology-enhanced Supportive Instruction (TSI) model. The TSI model uses Microsoft Excel and intentional interactions between the student and facilitator to help students stay engaged in face-to-face and remote learning.



## 5. Conclusions and Recommendations

The study's findings addressed the following research questions: What challenges are SI leaders facing in effectively implementing SI sessions, and how can these be mitigated? The findings indicate that SI leaders encounter challenges such as low attendance and participation, insufficient effectiveness of SI leaders, and resource constraints. In light of these findings, the study recommends establishing appropriate support systems and strategies to encourage student attendance and enhance retention. It is advised that the institution continue training SI leaders to support and motivate students to attend classes, possibly by introducing quizzes via smartphones and offering credits for attendance.

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**Conflict of Interest:** The author declares no conflict of interest.

**Data Availability:** The data supporting the findings of this study are available from the corresponding author upon reasonable request. Access will be granted to researchers who meet the criteria for data sharing established by the institutional review board or ethics committee.

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