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Triggering Social-Emotional and Ethical Learning: A Case Study in a PBL Course

Angelina S. Philip, Navneet Kaur, Sahana Murthy, Sridhar Iyer
angiesphilip@gmail.com, navigr892@gmail.com, sahanamurthy@iitb.ac.in, sri@iitb.ac.in
Indian Institute of Technology, Bombay

Abstract: Social-emotional learning (SEL) plays a significant role in enhancing student wellbeing, interpersonal relationships and academic achievement. While numerous SEL frameworks aim to cultivate social and emotional skills across various contexts, their practical implementation in real educational settings, especially at higher-education levels, remains largely unrealized. This paper presents a case study of a graduate level project-based course on instructional design wherein students created a website aimed at sensitizing a university community to the challenges faced by persons with disabilities. Employing the Social, Emotional, and Ethical (SEE) framework as the analytical lens, this study examines how specific course elements guided students through three distinct levels of SEE learning components. The paper contributes towards advancing discussions on integrating social, emotional and ethical learning into classroom experiences, and offers practical implications for designing for SEE learning, particularly within the PBL model.

Introduction

Recent educational research recognizes that learning goes beyond cognitive dimensions to encompass crucial social and emotional facets (Isohätälä et al., 2018). Social and emotional learning becomes instrumental in helping individuals to understand and regulate emotions, foster empathy, and refine interpersonal skills (Burroughs & Barkauskas, 2017). Therefore, social-emotional learning (SEL) competencies have become imperative for acquiring knowledge and attitudes required for personal growth and for engaged and responsible participation in society (Cohen, 2006). However, traditional academic settings have predominantly prioritized cognitive skills, often overlooking the development of social and emotional learning. This imbalance underscores the need to revise educational approaches and emphasize the integral role of SEL.

Guiding frameworks like CASEL (CASEL, 2013) and Social Emotional and Ethical Learning (SEE) (CCSCBE, 2019) emphasize the need to cultivate social and emotional skills in different contexts. However, while these models provide theoretical foundations for understanding SEL related competencies, their practical implementation and integration into real educational settings has yet to be fully realized. While certain initiatives have recently begun implementing individualized SEL interventions for young children (Taylor et al., 2017), we argue that social and emotional learning can thrive more when integrated within disciplinary learning. This becomes increasingly crucial at higher education levels, where including standalone SEL courses or lessons might not be feasible, yet are highly needed within the curriculum.

In order to make such integration seamless, the pedagogical approach must encompass aspects like collaboration, context-specific application of skills, and experience of real-world problem-solving. Additionally, the contexts that are community focused and service oriented are proved to be beneficial (Ruso 2012). One of the promising methods of making such integration possible is through Project-Based Learning (PBL) courses. PBL provides an immersive and hands-on experience, allowing individuals to actively exercise social and emotional skills in practical settings and in this way, offer opportunities for deep, experiential learning (Krauss & Boss, 2013). Thus, embedding SEE principles into projects with tangible societal impact has potential to foster a deeper understanding and application of socio-emotional and ethical competencies.

In this paper, we present a case study from a postgraduate level Instructional System Design course, structured as a PBL approach. The learning goal of the course was to understand instructional design concepts, theories and models, and apply instructional design practices in the creation of a website to build awareness about persons with disabilities. In this course, students actively participated in the development of a tangible solution to address the sensitive issue of promoting awareness and inclusion about persons with disabilities within a higher-education technical institute in India.

We investigate the research question: *How did various course elements in a PBL course guide students through the different levels of Social Emotional and Ethical learning competencies?* We draw upon the SEE framework (CCSCBE, 2019) as the foundation of our investigation. SEE framework builds upon previous SEL literature with additional focus on components like compassion and awareness of interconnectedness and systems thinking. We selected the SEE framework for analysis because it uniquely emphasizes ethical dimensions

alongside social and emotional aspects, particularly crucial for sensitive community-oriented projects, as illustrated in this paper. Furthermore, it provides a pedagogical model that illustrates how SEE learning can evolve and is applicable for learners across varied age groups.

The objective of the paper is to contribute to the discourse on integrating Social Emotional and Ethical learning into authentic classroom experiences, especially in courses structured as project-based learning.

Theoretical framework: Social Emotional and Ethical (SEE) earning

The SEE learning framework builds upon the established groundwork of Social and Emotional Learning (SEL) and builds upon competency sets outlined by CASEL (Collaborative for Academic, Social and Emotional Learning) like self and social awareness, self-management, relationship skills, and responsible decision making (CASEL. 2013). The SEE framework introduces additional important components that emphasize on attention, ethical values such as compassion, facilitation of emotional exploration, self-regulation, and reflective practices, and an increased awareness of interdependence and systems thinking (CCSBE, 2019, Pg 10-12).

SEE competencies within the framework are organized into three fundamental dimensions: Awareness, Compassion, and Engagement. These dimensions are further delineated across three domains: Personal, Social, and Systems. Table 1 shows all the nine components integrated into the framework, while highlighting various competencies referred to as "enduring capabilities" embedded within each component. These enduring capabilities form the skills and knowledge that learners can develop corresponding to respective SEE domain and dimension. Additionally, the SEE framework outlines a pedagogical model designed to assist learners in achieving proficiency across various learning competencies. This model targets students' progression through three levels namely (i) *Required Knowledge* which refers to acquiring knowledge related to SEE competencies (ii) *Critical Insights* which refers to realization of acquired knowledge on a personal level, and (iii) *Embodied Understanding* which targets deep internalization of knowledge.

Table 1

The nine components and corresponding enduring capabilities in the SEE framework (CCSBE, 2019)

		Dimensions		
		Awareness	**Compassion**	**Engagement**
Domains	**Personal**	**Attention & Self-Awareness** • Attending to Our Body and Sensations • Attending to Emotions • Map of the Mind	**Self-Compassion** • Understanding Emotions in Context • Self-Acceptance	**Self-Regulation** • Balancing the Body • Cognitive and Impulse Control • Navigating Emotions
	Social	**Interpersonal Awareness** • Attending to Our Social Reality • Attending to Our Shared Reality with Others • Appreciating Diversity and Difference	**Compassion for Others** • Understanding Others' Feelings and Emotions in Context • Appreciating and Cultivating Kindness and Compassion • Appreciating and Cultivating Other Ethical Dispositions	**Relationship Skills** • Empathic Listening • Skillful Communication • Helping Others • Conflict Transformation
	Systems	**Appreciating Interdependence** • Understanding Interdependent Systems • Individuals within a Systems Context	**Recognizing Common Humanity** • Appreciating the Fundamental Equality of All • Appreciating How Systems Affect Well-Being	**Community & Global Engagement** • Exploring One's Potential for Effecting Positive Change in Community and World • Engaging in Communal and Global Solutions

In this paper, we employ this SEE framework as an analytical lens to identify SEE competencies from students' reflections and interactions during two course sessions where SEE learning prominently occurred. We employ the pedagogical model in the framework to understand how specific course elements guide students through the three levels of SEE understanding.

Course design and implementation

The Instructional Systems Design course was conducted at a prominent technical university in a large metropolitan city in India. This course was part of the Educational Technology postgraduate program. The course followed six key features of project-based learning (Krajcik & Shin, 2014). The *learning goal* of the course aimed to understand and implement instructional system design processes and associated methodologies for solving a meaningful real-world problem which is service-oriented and has a community focus. For this purpose, the *driving question* focused on how to sensitize an university-level community to the challenges and needs of persons with disability (PwD). The *tangible artifact* to be created was a website that contains a self-paced program for creating awareness about persons with disabilities, their challenges and potential solutions to address them. *Collaboration* was an

integral aspect of this course. The class was divided into four groups, each focusing on a specific type of disability: locomotor disability, visual impairment, ADHD, and Autism. The group work was facilitated through break out rooms during the sessions, followed by formative feedback to each group by other members of the class. The groups then integrated their work on each of these disabilities into a single website collaboratively to complete the project. Students utilized various *technology tools* like H5P, Canva and Animaker for creating interactive videos and content for the website. They also used platforms like Google Docs and chat groups for continuous effective communication and for sharing and critiquing ideas. Learners engaged in *Scientific Practices* of conducting inquiry, analyzing the problem, and generating and refining ideas through a series of classes that combined both conceptual knowledge acquisition and project design aspects.

During course sessions, learners engaged in domain specific content such as instruction design models and simultaneously in the project development tasks. The sessions included instruction on technical concepts, interactions with counsellors from a renowned NGO working on PwD called *Ummeed* (Ummeed, 2023), creating and curating content, obtaining feedback from involved stakeholders and iteratively refining the website design.

Methodology

Participants and data collection

A total of twenty-two students attended the course. There was one primary instructor who orchestrated class discussions and two teaching assistants to handle logistics for organizing group discussions and activities. A total of 10 sessions were conducted over a period of 4 months where each session comprised 3 hours of in-class time. Each session was video-recorded, and students' post-session reflections were documented in a designated Google document. Of these, 5 hours of video data from two sessions and 117 entries in the reflection document pertaining to these two sessions were considered for in-depth analysis. These three course components, namely - a sensitization session conducted at the onset of the product design process, post-class reflection writing exercises, and a final project presentation session played a central role in triggering SEE learning. Table 2 provides a description of these components and the specific course elements within them.

Table 2

Course Elements of Focus for SEE Learning Analysis

1.	**Sensitization session:** The objective of this session was to sensitize students about the challenges faced by PwD, foster an understanding of their disabilities, and gather foundational knowledge in this field.
1.1.	**Role play activities**: In the roleplay activity, participants were divided into groups with six members each and were given specific instructions for performing the roleplay. One member of the group acted as a person with a disability who had the intention of taking a test, while others took on the role of sensory stimuli that affect the person with disabilities like vigorous movements. Students were then asked to share their experiences. The activity aimed at building empathy and raising awareness about PwD and initiated discussions to explore varied perspectives in the class.
1.2.	**Knowledge sharing by counsellors**: Roleplay activities were followed by a knowledge-sharing session on learning disabilities by two counsellors from a reputed NGO working for people with disabilities. These experts highlighted the prevalence of such disabilities in India. One talked about challenges faced by students with learning disabilities, while the other talked about inclusion. The discussions were interactive in nature and were accompanied by small slide-based activities and examples providing practical insight into these challenges.
1.3.	**Panel discussion**: After the knowledge-sharing session, a panel discussion was held where three differently-abled students from other institutions joined the session online. They recounted experiences from their youth, reflected on how others perceived them, expressed their ongoing challenges and the kinds of support that are beneficial to them.
2.	**Final project presentation session:** This was the culmination of the course after project completion. During this session, the students demonstrated the designed website. All participants shared their significant learnings and key insights gleaned from the course sessions and during the process of developing the website.
3.	**Post-session reflections**: Learners in the course were asked to document their reflections about their learnings after each session in a shared Google document. They were encouraged to observe their learning process across different aspects, for example: understanding of technical concepts, learnings from interactions with peers and instructors. Students shared insights they gained from participating in class activities and discussions, and also reflected on SEE related experiences. They were asked to adopt both a learner's and an instructional designer's perspective, and reflect on how their interactions inform their

actions and decisions for the project. Although not mandatory, all students voluntarily engaged in detailed post-session reflections. The objective of this writing exercise was to facilitate continuous student reflection on their course learnings and to serve as a feedback mechanism benefiting both the instructor and students in ensuring effective instruction and aiding project progress.

Data analysis

We use Case Study method (Yin, 2009) to understand how social, emotional, and ethical elements are incorporated into the course. The case study methodology is particularly apt as it offers a rich, context-specific analysis of specialized course elements that contributed to the implementation of SEE learning aspects, providing a nuanced understanding of the practical intricacies of infusing SEE perspectives into a curriculum that involves solving a sensitive real-world problem. Initial examination of learners' course reflections revealed that they were engaging in social-emotional learning competencies, specifically in two sessions, namely the Sensitization session and Final project presentation session. Therefore, we chose these two sessions as our cases for analysis. We then employed the Content Analysis (Mayring, 2004) method to systematically analyze learners' written post-session reflections of these sessions. Our unit of analysis is a set of sentences which correspond to a specific course element within each student's entry for one session. We used the SEE framework, and applied codes related to the dimension and the domain, and the relevant enduring capability (Table 3).

Table 3

Sample Student Reflections and Codes Using the SEE Framework

Student Reflections	SEE components (Codes)
We need to feel their pain first then try to find the solutions for disabled people. That activity (role play) helped us to feel their real pain in day-to-day life, specially in classroom with children of varied diversity.	*Self-compassion: understanding emotions in context* (Dimension: Compassion and Domain: Personal)
The activity was very difficult for me to perform (although I was just rubbing the listener's neck and not being the listener herself).	*Attending to Emotions* (Dimension: Awareness and Domain: Personal)

We then delved deeper by referencing video data of the two sessions to investigate our research question. We took an inductive and interpretive approach to analyze how the course elements guided learners through three levels of learning mentioned in the SEE framework namely – Received Knowledge, Critical Insights and Embodied Understanding. First, the interactions corresponding to chosen sessions were transcribed using the InqScribe tool. Two researchers performed descriptive coding to analyze the video data along with post-reflection data. During the analysis, attention was paid to aspects such as - how the course elements map to the pedagogical model in the SEE framework, what SEE experiences do students express or display in their verbal interactions, and which aspects of the course elements trigger these experiences. This was followed by collaborative discussions to resolve conflicts and refine understanding of students' SEE learnings.

Findings

This section presents how the course elements guided students through the three levels of SEE learning. The findings are scoped to the dimensions of awareness and compassion in the personal and social domains. We indicate the component or enduring capability (refer to Table 1) that is developed as a result of the course elements.

Received knowledge

The course elements that contributed to the first level of SEE learning were the knowledge shared by the counsellors from the child development centre, the presentation that guided the roleplay activity, and a panel discussion by three differently-abled students (not part of this course).

Knowledge sharing on learning disabilities and inclusion triggered personal awareness and compassion for persons with disabilities (*Awareness-Personal and Compassion-Social*)

The first presentation by the counsellors from the child development centre aided students in acquiring information about learning disabilities in India, which led to the development of 'Attending to emotions' capability. The aspects of the presentation that the facilitator included were elaborations on the challenges faced by students with learning disabilities and short points to remember at the end of the session such as "the disability may be invisible." Students gained this knowledge at a personal level through these instructional strategies by reading, listening and introspecting about their feelings. In doing so, they were able to identify their own feelings

and reflect on the extent of their knowledge about the challenges faced by persons with disabilities based on the points that were presented on the kinds of learning disabilities. For instance, a student reflected that *"After this session, I felt that I had a superficial understanding (previously) about PwD people specially these invisible learning disabilities."*

During this presentation, students were also able to appreciate the benefits of the 'understanding other's feelings and emotions in a context' capability. This was triggered because of the compassionate and kind manner in which the facilitator presented the feelings of persons with learning disabilities in a conventional classroom. For instance, a student reflected, *"I really liked how ma'am gave the presentation, the activity we did and the other examples she gave, [...] very empathetic way of presenting the content [...]."*

In the presentation by the second counsellor, students were able to develop the capability to 'understand other's feelings and emotions in a context.' This facilitator's presentation included aspects that promoted this capability, such as the use of open questions, simple examples and pictorial representations to support the points about inclusion. Open questions such as "What comes to your mind when you hear the word 'inclusion'?" encouraged dialogue and helped students examine how they feel about inclusion. The words that came to their mind during the session included "compassion," "consideration" and "dignity."

Sharing of lived experiences evoked compassion for persons with disabilities *(Compassion-Social)*

The panel discussion on first-person accounts of the challenges faced by persons with disabilities and the support they receive helped students develop compassion for others. Students listened to their stories and tried to 'understand the feelings and emotions of others in a context.' For example, a student reflected that they learnt how the behaviour of persons with disabilities is misunderstood, after one of the panellists shared an instance where their interaction with a girl was misconstrued. The sharing of this experience led the student to recognise the importance of adding "socializing norms" to the website.

Critical insight

The course elements that contributed to this level of SEE learning are the roleplay activity, the presentation by the first counsellor, and the panel discussion by the differently-abled students.

Collaborative roleplay activity developed personal awareness and compassion for persons with learning disabilities (*Awareness-Personal, Compassion-Social*)

The facilitator used learning strategies that were active and participatory. This helped students in developing the 'attending to emotions' capability as they identified the type and intensity of their emotions as they either took on the perspective of a person with a disability, or acted as a factor that affects persons with disabilities or was an observer of their challenges. In doing so, they were able to gain insights from their simulated experiences. For instance, students acting as a person with a disability were not able to read a given text passage. They recognised that they were feeling frustrated and affected by another student who was moving vigorously or a third student who was tapping their body. All these made the task challenging. One student, however, 'attended to their emotions' by arguing that not everyone would feel frustrated in such an activity. The facilitator left the discussion without a resolution. This allowed students to come to their own understanding of how persons with disabilities feel as they learn.

The activity also helped students develop the capability of 'understanding others feelings and emotions in a context' as they actively participated in groups. This helped them not only understand the perspective of the role they were taking on, but also their group mate's feelings. For instance, one student shared, *"I observed the A member. He knows that there are different obstacles while listening. I too tried to remove the barriers and just concentrate on listening to B who was speaking the sentences. I feel like he felt like no other things were behind him other than B who tried to express the sentences."* As students observed others, enacted the role of a person with a disability or rocked their bodies back and forth, among other sensorial experiences while interacting with one another, learning became personal.

Interactive activities on learning disabilities developed compassion for persons with disabilities *(Compassion-Social)*

As an extension to the roleplay activity, the facilitator made a presentation that included several interactive activities. Students read, discussed and attempted the activities. For example, to carry out the "spatial orientation: reading and decoding" activity, students were asked to read disorganized sentences made up of random letters as quickly as they would read any other sentence. This helped students engage in a participatory way to gain the capability of 'understanding of the feelings and emotions' of persons with a learning disability. A student reflected

that *"Small exercises in the middle like reading the unaligned words made me reflect on how crucial it is to get your content (website in this case) checked with its end users (PwD students themselves) and also in this process understand what are the basics that we are taking for granted, what need to be part of the website content etc."* This learning helped them recognise how important including persons with disabilities' voices is to develop content for sensitization.

Engaging with differently abled students' experiences instilled compassion for persons with disabilities *(Compassion-Social)*

The personal journeys shared by the panellists aided in the development of 'understanding other's feelings and emotions in a context' capability. As the panel shared their personal accounts in a candid manner, students listened, asked questions and engaged in a discussion with the panel, and thus were able to understand their feelings and emotions. Students recognised that their own knowledge is limited and should be informed by persons with disabilities. A student reflected, "*X, Y, Z [panellists] were brave enough to share their struggles with us. They also highlighted what worked for them and what didn't work. This will certainly be helpful while designing the website and creating/curating the training materials."*

During the discussion, the facilitator of the panel discussion asked a few guiding questions that further aided in cultivating the 'understanding other's feelings and emotions in a context' capability. For instance, the facilitator asked, "Would you like to share how the examinations were conducted at your university and how that helped you? Only if you would like to share." Students were able to understand the panellists' feelings in this context and recognised the need to engage with them in certain ways. For instance, a student said that apart from the information that was gained from the panellists, he observed how "peaceful, patient, slow, respectful and active" the facilitator was and the tone that was used. Moreover, the students empathized and felt inspired. This was because of how open the panellists were in conveying their respective journeys with special needs. A student reflected, *"I really appreciate their effort and courage. Their clear and transparent thought process and enthusiasm had actually grabbed my attention. Observing them, listening to them and interacting with them has actually helped me in removing some of my personal pre-notions, and judgements. My personal takeaway is that they are powerful voices and that should be heard. How, when & where we need to figure this out!"*

Collaborative reflections developed an awareness of diversity and difference *(Awareness- Social)*

The instructor continuously engaged with the students by using emoticons, highlighting and comments on the reflection document. In response, students also left comments on his responses, asked questions as well as commented on each other's reflections. These interactions over time allowed students to gain critical insights. A student reflected from the perspective of an instructor about these interactions saying, *"I learned the value of group discussion, in addition to that activity of class reflection in the form of homework [reflection document] also provides discussion between the cohorts and different role (students and teacher hat)."*

Embodied Understanding

The course elements that contributed to this level of SEE learning are the reflection document and the final presentation session.

Reflections evoked awareness and compassion to understand their own emotions about their course learnings *(Awareness-Social)*

The instructor provided a space in the form of a document for reflections after every class, which aided in the development of the 'Appreciating Diversity and Difference' capability. Students freely identified and examined their own thoughts, doubts, challenges, biases and triggers for their feelings with respect to their skills, instructional design content, learnings from each other and understanding of disabilities. Moreover, at the end of the course, they shared that their learnings shaped their interactions with persons with disabilities. For instance, a student reflected, *"During the creation of content I myself became aware of the challenges PwD face. Now I constantly think over this whenever I see a PwD or meet a caregiver of PwD."*

Synchronous reflection session developed an awareness of their own emotions about their course learnings *(Awareness-Personal)*

The instructor asked students to openly share their reflections on the course during the final project presentation session. Students developed the 'attending to emotions' capability by introspecting about their feelings and learnings about the course. One student reflected, "*to be sensitized towards PwD and the creation of empathy that was very personal.*" The instructor also encouraged the students to continue to reflect on their learnings and write papers on the same. The students were also requested to write their reflections together in class on the reflective document. These structured and sustained reflective practices allowed the students to examine and organize their

thoughts, feelings and learnings from the course. For instance, students wrote a paper on their point of view of real-life project-based learning, where they further reflected on the way the course was "boosting our confidence," "deepening our empathy," "broadening our understanding of diverse needs and individuals." In this way, these practices allowed them to explore and internalize their feelings and insights from the course, leading to an embodied understanding of how their own emotions arise within the context of a real-life project for sensitization on special needs.

Discussion

One of the unique characteristics of the SEE framework is its focus on ethics, grounded in the basic human value of "compassion for others" (CCSCEB, 2019). This dimension was frequently explored in this study. The findings showed that compassion can be triggered in PBL courses through embodied activities within service-oriented projects centered around community engagement. The students were guided from the received knowledge to the embodied understanding level when course elements such as subject matter experts (the counsellors in this case), roleplay and reflective practices are included in the course design. These findings are consistent with SEL literature that illustrates how activities like drama gives children opportunities to explore difficult issues and express their emotions (Usakli, 2018) and the way in which routine reflections build greater self-awareness (Brackett, 2019). Our study extends these findings by providing empirical evidence of SEE learning happening in a PBL course in a higher education classroom showing how different course elements allowed for the development of specific SEE dimensions.

The study also offers insights into understanding how SEE learning competencies can be triggered in a Project-Based Learning approach:

1. While the PBL structure inherently supports collaboration and hands-on experiences, the specific context chosen for a project plays a pivotal role in triggering social and emotional learning and delineating the dimensions and domains in which it occurs. For instance, our emphasis on addressing challenges faced by Persons with Disabilities (PwD) was instrumental in activating SEE dimensions, particularly in awareness and compassion at the personal and social level which were of primary significance for the project. Hence, deliberate context selection becomes crucial to precisely align with targeted SEE learning to ensure cultivation of desired social, emotional and ethical skills.
2. Direct experience of an 'other' perspective in the chosen context is important to trigger SEE learning. For example, the role-play during the sensitization session and subsequent reflection activities kept students engaged in SEE learning aspects. The embodied nature of the roleplay activities (Lankoski & Järvelä, 2012) made the often "invisible disabilities" of PwD individuals, "visible" to the students.
3. Periodic reflection on learning, individually and collaboratively, is crucial for SEE learning. For example, the reflection document allowed students to not only understand their own emotions but also learn from each other's understanding. This aligns with pedagogical principles referred to in the SEE Framework (Goleman & Senge, 2014) on encouraging peer dynamics where students help each other learn.
4. Creating resources that are community-focused and service-oriented fosters SEE learning in a sustained manner. For example, the goal of creating a website for spreading awareness about PwD in the community and the sustained activities towards this goal reinforced the SEE learning. This was seen as students reflected on how *"crucial it is to get your content (website in this case) checked with its end users (PwD students themselves)"* and that "*During the creation of content I myself became aware of the challenges PwD face. Now I constantly think over this whenever I see a PwD or meet a caregiver of PwD."*
5. Finally, it is important for the instructor/facilitator to model the SEE aspects for the students. For example, students noted that the patient and respectful demeanor of the facilitator towards the PwD panelists was a factor in shaping their own behavior.

Limitations and future directions

One limitation of this paper is that the case we present lacks coverage of all SEE learning components. While students engaged significantly with specific SEE dimensions, particularly awareness and compassion at the personal and social domains, it lacked emphasis on some of the capabilities that fall under them. Moreover, the systems domain and the engagement dimension were scoped out of the findings. Consequently, this case study may not discuss how these aspects integrate into real project-based courses. Additionally, our analysis focused on specific course elements highlighted in student reflections on SEE learning. We did not analyze student interactions in other sessions. Examining these interactions could offer insights into how SEE learning can be

stimulated across other course elements. This data analysis might also reveal instances where SEE learning wasn't initiated and the underlying reasons for the same.

For future work, research should be conducted to investigate the influence of participants' prior experiences with People with Disabilities to ascertain whether the course elements elicit changes in their SEE learning. More studies need to be conducted that implement different SEL frameworks in PBL courses and iteratively test and refine them. Analyzing more data derived from project-based courses conducted in different contexts will strengthen both theoretical and practical understanding of relevant social and emotional learning components and their integration into academic learning settings.

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