

# EFFECTIVENESS OF AI-BASED INTERVENTIONS IN ENHANCING SOCIAL AND EMOTIONAL COMPETENCIES OF B.ED. STUDENTS: A QUALITATIVE INQUIRY

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DOI: <https://doi.org/10.5281/zenodo.18080849>

## Keywords

## Article History

Received: 01 November 2025

Accepted: 15 December 2025

Published: 29 December 2025

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## Abstract

Social and emotional competencies (SEC), which include self-awareness, self-regulation, social awareness, relationship abilities, and responsible decision-making, are essential for effective instruction and overall wellness. This research intends to investigate the experiences of B.Ed. students regarding AI-driven interventions for the improvement of SEC. A qualitative research approach was implemented, using detailed interviews and focus groups with a selected sample of 25 B.Ed. students involved in an AI-enhanced SEC program. Thematic analysis was employed to examine the detailed, descriptive data collected, concentrating on common themes, patterns, and personal narratives to achieve a profound comprehension of their lived experiences. The results suggest that AI solutions present significant advantages in creating individualized, low-anxiety settings for developing SEC skills, including emotional regulation and stress management. The research finds that AI-driven interventions can efficiently enhance the growth of B.Ed. students' SEC, mainly serving as an individualized and additional practice resource. Subsequent studies should undertake longitudinal research to evaluate lasting effects and examine optimal strategies for harmonizing AI efficiency with the essential requirement for genuine human interaction in teacher training.

## 1. INTRODUCTION

The Artificial intelligence in andragogy is switching the way social and psychological skills are being progressed, it is also applied for those who would be future educators, Nsouli said, B.Ed. students need Social and Emotional Learning (SEL and Community Engagement (CE. students, because it is the basis of successful teaching, classroom control and engrossment of a student (Sethi & Jain, 2024). AI-enabled interventions, such as chat-bots, adaptive learning platforms and emotionally intelligent virtual

assistants provide personalized support, feedback in real-time allowing the practicing of social scenario is safe from harm (Lin & Chen 2024, Sethi & Jain 2024). Research has also shown that these techniques can improve students' emotional well-being, motivation and academic achievement (Nafees et al., 2025; Kumari & Pandey, 2025). Although, difficulties continue, small substructure may suppress innovation and give rise to emotional disruption because of unprejudiced nature of

Artificial intelligence (Lin & Chen, 2024). Anxiety about secrecy and the requirement of the human remain enormous (Henriksen et al. Despite these limitations, the promise of AI in facilitating SEL integrated into teacher education is significant and further qualitative investigation for richer insights should be pursued.

**Statement of the Problem**

Regardless of the utilization of AI permitted intercessions is assist of SEL for educators, there is a lack in qualitative studies dependent on its influence on B.Ed. social and emotional competency learners. Nevertheless, the bounded thoughts into learner journeys and situational difficulties to AI utilization in social and emotional learning is a skipped chance foe how these application could be superior influence for instructor in training (Lin & Chen, 2024; Sethi & Jain, 2024).

**Research Objectives**

1. To identify the impact of AI-based interference on the social and emotional capabilities of B.Ed. learners.
2. To recognize the experiences and thoughts of B.Ed. learners related to AI-operate SEL appliances.
3. To determine difficulties and finest practices in performance AI-based SEL interventions instructor education.
- 4.

**Research Questions**

1. How do B.Ed. learners get the influence of AI-based interference on their social and emotional accomplishment?
2. What are the experiences of B.Ed. learners utilizing AI-based SEL appliances?
3. What are some difficulties and options that come up when applying AI-based social and emotional studying interventions into teacher education?

**LITERATURE REVIEW**

The latest studies have shown the come out options and difficulties linked with the applying of AI in SEL. Few characteristics that have been talked include customized review, interacting policies, and help for emotional prosperity (Lin & Chen, 2024; Nafees et al., 2025; Kumari & Pandey, 2025).

Further clearly, instructors and learners connected positive attitudes toward the capabilities of AI in encouraging innovation and enhancing learning representation as elaborated by Lin & Chen (2024). Other fears shown added emotional non-addition, showing anxiety, and the rather unbiased concerns of AI.

Ethics, culture, and judgement should be considered in applying the program of interventions (Henriksen et al., 2025; Sethi & Jain, 2024). The best conveyance track for higher education to develop social and emotional learning (SEL) is from Artificial intelligence (AI) additionally, scholars quarrel that the intervention would permit customized, flexible emotionally fragile surroundings often inaugurate wanting in traditional education AI-based interventions appear effective of allocating studying environments answerable to the sentiments of students. A point absent in persuading teacher-centered ways of teaching. SEL shapes a straight of substructure for instructor education since it educates future instructors in classroom management skills linked to togetherness and bring out learner feedback.

The above research indicates that, in the larger SEL substructure, AI assists enhance abilities like self-recognition and managing own self and relationships with others by offering at once review as social condition implement practicing can be complete in a secure, manageable surrounding as a storage to learning stuffs. This assertion is strengthened by Lin and Chen (2024) observed findings of AI Apps for Education and learning innovation and academic sentiment. Sentimental states-as well as inflame innovation-during flexible, engaging learning experiences

Significantly, it should be observed that this study covers both learner and instructor point of views: whereas learners liked the customized and sentimental assist that AI can give, Instructors advised technology should not be influenced so that we teachers keep compassion and instructional stability. These two opinions are linked in B.Ed. programs where future teachers are taught how to blend AI into their instructional application. Nafees et al. (2025) and Kumari and Pandey (2025) quoted that AI can better and support the sentimental comfort of learners by innovating incredible

educational accomplishment through customized knowledge gained.

The AI gadgets created learners more self-recognized about sentiments, hence helping that these kind of technologies can be utilizing in an inducement in the expansion of SEL.

Nevertheless, Henriksen et al. (2025) notify that there are some AI can be dangerous, not innovation touch, and sentimentally excluded as a consequence of their abstract nature. There are also some worries about ethics, such as privacy and the hidden bias in algorithm and the risk that machines may take over the human touch we really need.

### **AI and the Foundations of Social-Emotional Learning (SEL)**

Social-Emotional Learning (SEL) is growing as a part of teacher training. It has many skills like self-recognition, self-management, relationship skills and responsible decision making. These skills are crucial for B.Ed. learners who, wants to improve their own sentiments, can develop emotional intelligence for their future classrooms (Sethi & Jain, 2024). Standard pedagogical tend to utilize reflection, role-play, and group collaboration as one path by which to enhance SEL behaviors. However, they cannot be used on a large scale, luckily, AI explores various ways to overcome these limitations. AI-supported tools such as chat bots, able to adjust learning systems and sentimentally intelligent virtual helpers can give real-time review, customized help and minimal risk practices for drilling social situations (Lin & Chen, 2024). These solutions are linked with constructive learning theory, which focuses active involvement and insight, and can scaffold SEL capabilities more good than static student-based methods.

### **AI and Emotional Regulation**

These are usually appropriate for B.Ed. learners, because they are mostly under stressed due to heavy workload of educational and teacher training. AI gadgets are very helpful in instant helping, customized support, boosting traditional counseling services and provide learners and to find direction for the emotional demands and profession.

### **AI and Creativity in Educational Contexts**

The relationship between creativity and SEL is a close one, as creativity involves openness, flexibility, and emotional investment. Lin and Chen (2024) learned that the use of AI-integrated applications promoted creativity through triggering positive academic emotions and offering adaptive learning activities. Students expressed being more motivated and engaged, but teachers stressed on the need to strike a balance between AI and human-centric pedagogy. According to Deckker and Sumanasekara (2025) Emotional AI can influence motivation among student and retention, especially when incorporated within reflective learning contexts. These results indicate that AI can potentially facilitate emotional regulation, as well as enhance creativity, an important competency for pre-service teachers.

### **AI and Creativity in Educational Contexts**

The innovation and SEL is interdependent, as innovation contains honesty, adjustability, engagement. Lin and Chen (2024) studied that the utilization of AI applications enhanced innovation through provoking incredible emotions and providing responsive studying tasks. Learners feel more interacted and innovative, but instructors forced on the moderation usage of AI. According to Deckker and Sumanasekara (2025) Emotional AI can impacts excitement in learners. When infused with in critical learning contexts. These outcomes shows that AI can make easier emotional requirements, as well as develops innovation, a crucial capability for pre-service teachers.

### **AI and Empathy Development**

Empathy is a base for social and emotional learning (SEL) skills that make educators to understand learner's sentiments, know their behavior, and assist them to handle it, and enhance their self-management. Artificial Intelligence: Virtual simulations and emotionally intelligent Chatbots can explore to apply the empathy in a safe and secure surrounding. Zahra et al. (2025) AI Models for emotional intelligence and empathy in architectural study, noting to the holistic aspects of AI plan to enhance empathy. Palmquist et al. (2025) says, to enhance social-emotional ability in AI learning as a

preparation of teacher to assist them and provide direction both the technological and the emotional aspects of teaching. This perspective focuses the need of B.Ed. started to implement AI gadgets not just as technical need but also as empathy and emotional intelligence systems.

### **AI and Academic Emotions**

AI is also linked with sentiments, motivation and performance anxiety. Kumari and Pandey (2025) stated that a massive development in learner motivation and emotional satisfaction. Lin and Chen (2024) quoted that learners got positive sentiments such as excitement and amusement to work with AI gadgets. However, few of them also practiced stress because of performance observing. These outcomes shows the uncertain impacts of AI on educational emotions.

### **Challenges and Ethical Concerns**

In spite of options, difficulties persist. Henriksen et al. (2025) caution that AI apps may enforce framework, hinder innovation and lead to de customized of the system of moviemaking. Also pointed out about privacy concerns and danger of machine. It substituting human empathy responses. Kimora & Pikhart (2025) discuss that even though AI has able to facilitate educational well-being, its nonappearance may harm real sentimental bonding. Zhai et al. (2025) says the learner practice of the AI in higher education for mental health, and lastly that the gadgets have the capability to be useful but require to be applied in ways that appreciate rather than involve to stress or anxiety. Nayak (2025) highlights the requirements for ethical job, aids teacher training with support of responsible utilization of AI.

### **Global Perspectives on AI and SEL**

Worldwide research says that AI tools in SEL. In North America, AI-driven SEL tools are helpful to develop emotional and social skills in students as a whole (Elearning Industry, 2025). AI works wonder for the students to get scholarship and the innovation life in Europe (Klimova & Pikhart, 2025). AI based websites are doing great for emotional regulation and stability among university students (Vioul & Sallantin, 1986). These global

perspectives shows the worldwide application of the AI and for SEL and a requirement for cultural localization. For B.Ed. software in Pakistan, AI tools will require to be personalized to the local context and link with cultural values and academic preference.

### **Toward Balanced Integration in Teacher Education**

Holistically, these learnings elaborate the capability and difficulties of utilizing AI for SEL. First, AI assistance can deliver personalized emotional care, enhance interaction, and stimulate innovation. However, problems about de-customized, ethical concerns, and cultural suitability are major. This moderate usage of AI gadgets to instructor education, but must not deny the human based values that support emotional enhancement to affectively achieved. For B.Ed. learners this moderation is importance: our pre-service instructors require to not only nurture their own SEL capabilities but also study how to use the skills and cultivate them in their future classrooms.

### **Theoretical framework**

This work is founded on two associated theories: the Social-Emotional Learning (SEL) framework and Bandura's Social Cognitive Theory. According to CASEL, the SEL framework guides five linked core capabilities that B.Ed. learner should learn to be productive teachers: self-recognition, self-control, social understanding, interpersonal skills, and wise choices (Sethi & Jain, 2024). Between these capabilities, versatile learning systems and emotionally intelligent chatbots typically help to providing the customized review on a single person's emotional state while imitating classroom circumstances within a secure surrounding (Lin & Chen, 2024).

Bandura's Social Cognitive Theory further constructs this theory by showing the paths which students get emotional and social skills through studying self-confidence, and mutual effect (Bandura, 1986). AI gadgets experience such rules by showing emotive acts, helping emotional control with review in real time, in active environments, students feelings influence the system and the system, and the system also influences their feelings". These two theories also provide a suitable background opposed a deep

examination of how AI based assistance may develop the social and emotional abilities of B.Ed. learners should be based in a well-considered implementation of technological creativity with human centered pedagogy.

### METHODOLOGY

#### Research Strategy

This study conducted qualitative research, semi-structured interviews, and emphasis group discussions with consciously chosen B.Ed. students. Structure and main idea were outlined from the perspectives of the involved people. Used different methods and discussed with different people to make sure accuracy as well as clarity was closely noticed during the overall procedure of this study.

#### Research Design

The study used a qualitative method to explore how people think and feel. Qualitative research by understanding people deeply by listening to their experience and interpreting their meaning describes clearly such experiences, point of views, and difficulties of B.Ed. learners as they replied to AI-based involvement boosting social-emotional studying. Qualitative exploration allows strong understanding into the ways in which learners may start to develop purpose around such concepts as self-control, empathy, and self-recognition with the gadgets given by AI; qualitative data would not be so full of real-life meaning. That is why searching in nature and includes the emerging of detailed explanations instead of testing already existing elements.

#### Population and Sampling

The population of this research based on Bachelor of Education (B.Ed.) students enrolled in teacher education programs over public and private universities in Karachi, Pakistan. These learners were chosen because they stand for upcoming teachers at a turning point of professional training where the growth of social and emotional skills are crucial for

- When students get the review on the spot they get emotional support so that their anxiety level reduce and how they learn to control and solve complex problems. Which is very crucial for B.Ed. d learners so that they can handle their

strong classroom experiences. We picked students on purpose who had different genders, study years, and AI experience. This is an additional logical strategy to accomplishing more different perspectives and practices. It fits with qualitative research which looks for deep and rich data, not big number of people. The commitment of the draft was instructed by the rules of fullness by material that interviews and emphasis groups would be conducted up to the point at which new ideas no longer appeared. Regular ways indicates that around 20-30 participants are enough to achieve maximum in qualitative research; this number is sufficient to allow diversity yet little enough not to prevent detailed investigation into a person and group practices.

#### Data Collection and Analysis

The data was conducted through three supporting ways to make sure verification and accuracy

- **Semi-structured interviews:** Person semi-structured interviews with contributor obtained first-hand experience, sentiments, and perspectives of AI-based SEL gadgets.
- **Focus group discussions:** Emphasis group discussions with small circles of learners allowed obtained point of views, group behavior and difficulties to be taken in an organized way.
- **Observations:** Observations were taken out during gatherings in which learners collaborated so that immediate sentimental involvement as well as behavioral replies can be evidence collected.

We documented all the interviews and emphasis groups then transcribe them word-toward and made sure they were accurate.

#### Improvement in Emotional Well-being and Regulation

- Real time chat bot and AI based learning systems reduces learner anxiety and build resilience. And regulate their emotions for students (Alshammari, 2025; Nafees et al., 2025).

classroom challenges in a better way (Kumari & Pandey, 2025).

**Self-Awareness, Empathy**

- Learners have stated that the use of AI has better their way to understand their selves and help social simulations (Sethi & Jain, 2024; Zahra et al., 2025).
- Virtual simulations and sentimental intelligent helps get secure places for point of views in social skills experience that linked with the SEL structure (Palmquist et al., 2025).

**Challenges and Limitations of AI**

- It can reason detachment or even burden regardless of incredible try to do it. (Henriksen et al., 2025; Klimova & Pikhart, 2025)
- Technical issues, privacy concerns and algorithm could not fully solved (Zhai et al., 2025).
- Teachers also stated that AI cannot replace human empathy and take a place on it (Lin & Chen, 2024).

**Motivation, Engagement, and Creativity**

- AI platforms make students motivated and encouraged in learning because AI provide content according to the unique individual needs.
- Students feel positive emotions like curiosity and enjoyment. Teacher stated that if the usage of AI would increase then the creativity would be enhanced in the classrooms.

**Factors of Effective Implementation**

- For the successful implementation of AI; ethics, teacher training and infrastructure are must needed (Nayak, 2025; Henriksen et al., 2025).
- The usage of AI should be according to the academic system and make sure that it should not create the sense of inequality (Sethi & Jain, 2024).
- The hybrid model, where AI and human-centered teaching both work together and it is considered the best educational formula to teach.



**FINDINGS AND RESULTS**

**Findings from Interview-based Qualitative Insights**

**Theme 1: Emotional Support**

**Table 1: Qualitative findings from student interviews on AI-based SEL interventions**

Theme	Illustrative Student Quotes	Interpretation / Meaning
Emotional Support	<i>The chat bot assisted me before my exams to be somehow relaxed.</i>	AI-based gadgets are good as they provide immediate emotional help which reduces stress and enhance emotional support.

Learners persistently quoted that the AI gadgets provide them a sentimental support as well as participants also said in semi-conducted interviews that they feel less stressed when they used chat bot before exams. While emphasis group discussions says adaptive platforms really helps in difficult

circumstances. Observers observed that when learners get feedback or review on the spot they seem more relaxed and comfortable. Outcomes indicates that AI involvement offers emotional support because they help in difficult time.

**Theme 2: Self-Reflection and Self-Regulation**

Theme	Illustrative Student Quotes	Interpretation / Meaning
Self-assessment and self-management	<i>I observed I get irritated easily, but the app assisted me relaxed</i>	<i>Learners become self-recognized and control sentiments through AI review loops.</i>

The participants in the research observed that AI gadgets supported to their emotional self-recognition and emotional control. In interviews, learners said that they have understood things that changed their emotions, emphasis group showed that reflective

prompts from AI structures let them realize that they should change their actions. The reports shows that AI interference has ability to give an individual emotional support.

**Theme 3: Empathy & Social Skills**

Theme	Illustrative Student Quotes	Interpretation / Meaning
Empathy & Social Skills	<i>The structure appeared me how my words impacts others.</i>	<i>AI illustrations developed empathy and enhance thinking which leads to social skills.</i>

AI simulations provided learners chances to enhance empathy and interact in point of views revealed by focus group communications. Participants elaborated that role-play setups made them know of how useful their words were. It was also practice model. This

idea exposes the ability of AI-formed SEL interventions to develop social skills through chances to experience to practice social engagement in a secure surroundings.

**Theme 4: Motivation & Engagement**

Theme	Illustrative Student Quotes	Interpretation / Meaning
Motivation & Engagement	<i>I was more encouraged because I got my outcome immediately.</i>	<i>Customized answers develops interest to take a part to the content and the base in the situation of a learning experience.</i>

Learners stated that they were more encouraged and more interacted when AI gadgets were able to give them review timely. Interviews also showed that respondents were more encouraged to complete work. However, AI-based sessions were seen to have

a high learner engagement and passion. For sure, these outcomes says AI can enhance educational encouragement by involving the studying the experience at person's level.

**Theme 5: Issues and Constraints**

Theme	Illustrative Student Quotes	Interpretation / Meaning
Challenges & Limitations	<i>It was sometimes mechanical and as if it couldn't really "see" me.</i>	<i>Students underscore the cold nature of AI and the importance of human compassion.</i>

The participants shows doubts about the AI generated ideas and themes. They stated that sometimes it feels so cold and non-humanize when we get the same feedback again and again. AI

technical errors make a learner lost its interest in doing their task by using AI. These outcomes shows that the AI cannot replace human empathy and the requirement of the instructor.

**Theme 6: Conditions for Implementing**

Theme	Illustrative Student Quotes	Interpretation / Meaning
Conditions for Implementing	Teachers should lead us: how to wield them right."	Successful adaptation will depend on teacher education, ethical protections, and cultural fitting.

They emphasized teacher supervision is very crucial and their supervision is needed for the utilization of AI gadgets. Learners wants clear training for using AI. Although interviews showed that learners are worried about the ethical and security concerns of using AI. It is hard for learners to get fully advantage without suitable instructions. This shows the requirement for infrastructure, training and ethical security for achievable practices.

While AI gadgets gave framework to form sentimental assist. Learners explained an incomparable role for human empathy and teacher's assistance. There were also technical challenges like the errors and approach. These outcomes explained that the AI cannot replace of human activity but only use for extra help. Moreover, AI can be helpful for B.Ed. learner to assist social and emotional needs but only when it is used carefully.

**DISCUSSION**

The research focuses the positivity and difficulties linked with AI-formed SEL interventions for B.Ed. learners. In line with previous studies (Lin & Chen, 2024; Alshammari, 2025; Nafees et al., 2025), the people who were involved noticed the incredible effect of AI gadgets on their sentimental regulations, self-recognition and encouragement through customized teaching and on time assist. Respondents also said that they felt great control over their stress and emphasis on learning when utilizing dynamic system. Meanwhile, there were difficulties. Many participants quoted the loss of personal touch of AI contact, a problem highlighted by Henriksen et al. (2025), Klimova & Pikhart (2025).

**CONCLUSION**

This qualitative results shows that utilization of AI can be beneficial for B.Ed. learners as they can have incredible impact on their social and emotional abilities. By getting the results of interviews, observations and discussions, the research got to know that AI gadgets encouraged the self-regulations emotional awareness, and interaction that develops the SEL framework. However, the lack of human connection from AI causes frustration, stress and anxiety. Lastly, AI should be seen as a support for the human not to replacement. For the teaching training programs utilization of AI has positive impacts.

## IMPLICATIONS AND RECOMMENDATIONS

### Implications for Preparing Teacher

1. Usable AI gadgets can also support for SEL development; it will help B.Ed. learner growth sentimental regulation and compassion tasks.
2. The use of AI in teacher education brings ethical concerns which include the aspect of privacy and revealing bias.
3. B.Ed. learners should be known if the two factors of AI; the enhancement in interaction and at the same time, chance of impersonal behavior.

### Recommendations

1. **Hybrid Model:** Mix AI-based SEL strategies and human-centered teaching to keep sentimental honesty.

2. **Teacher Preparation:** propose ongoing qualified growth for instructor learning on the accountable utilization of AI in SEL learning plans.
3. **Supportive Infrastructure:** Allocate in consistent technological basic facilities to minimize tech relevant stress and make sure balanced approach.
4. **Cultural Adaptation:** Adjust AI-gadgets related to the learning local settings, being culturally sensitive and responding to learner's requirements.
5. **Continuous Evaluation:** According to the given recommendations, apply an ongoing investigation and evaluation of AI plans to find out their consequences on SEL results.

