Role of Educational Technologies in Students' Affective Learning at Secondary School Level

Saima Abbas[1] and Jam Muhammad Zafar[2]

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Abstract

The study titled "Role of Educational Technologies on Students' Affective Learning at the Secondary School Level." The primary objective was to assess how these technologies influence students' emotional and attitudinal development in educational settings. A quantitative, survey-based research design was adopted, involving a total of 400 participants comprising 80 secondary school teachers and 320 secondary school students. The sample size was determined based on L.R. Gay's sampling chart. Data was gathered through a structured questionnaire consisting of three parts: Part 1 focused on demographic information, Part 2 included closed-ended questions, and Part 3 comprised open-ended questions. To ensure the accuracy and reliability of the instruments, a pilot study was conducted, expert feedback was solicited, and Cronbach's Alpha was used to assess the internal consistency of the questionnaire. The data was analysed using SPSS version 24, employing statistical techniques such as frequency distributions, percentage analysis, means, standard deviations, and other relevant methods. The overall findings revealed that both secondary school teachers and students largely agreed on the importance of educational technologies in supporting students' affective learning. The average response score was 3.57 with a standard deviation of 1.321. The study concluded that educational technologies enable students and teachers to access resources such as online dictionaries and encyclopedias, communicate more effectively, search for assigned topics, retrieve information quickly, gain a deeper understanding, relate learning to real-world contexts, enhance knowledge, and develop teaching and learning materials.

Keywords: Technology, Affective Learning, Active Participation, Higher Thinking Level.

Introduction

Educational technology encompasses a wide range of tools beyond personal computers, including videoconferencing systems, interactive digital TV, electronic whiteboards, and digital cameras (Zafar & Ullah, 2020; Mohiman, Ullah, & Zafar, 2024; Saleem et al., 2025). It is essential to consider the emotional and social aspects of learning when developing educational technologies, and insights from developmental psychology play a crucial role in addressing these factors (Zafar, Zahid, & Zahid, 2023; Sadaf et al., 2024; Shaheen et al., 2025). The importance of considering affective and social issues in learning technologies prompts us to examine how these issues have been addressed in developmental psychology. Many prominent learning theories in educational

[1]*M.Phil. Scholar, Department of Education, National College of Business Administration and Economic (NCBAE) Lahore, Sub-campus Rahim Yar Khan. Email: misba.rashid@gmail.com*
[2]*Assistant Professor, Department of Education, Khwaja Fareed University of Engineering and Information Technology (KFUEIT) Rahim Yar Khan, Pakistan Email: dr.zafar@kfueit.edu.pk*

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technology originate from developmental psychology, particularly constructivism (Shakir et al., 2011; Yousaf et al., 2021; Hassan et al., 2024; Shehbaz et al., 2025).

The integration of educational technologies has been shown to boost student motivation and participation in academic activities significantly. For example, Ahmad, Iqbal and Rao (2023) observed that blended learning environments positively influenced students by enhancing their intrinsic motivation, academic confidence, and overall academic performance. Complementing this, Zafar and Akhtar's (2023) systematic review revealed that digital learning tools, such as mobile apps and interactive learning platforms, contributed to heightened student engagement. These technologies not only encouraged active participation but also deepened students' emotional investment in the learning process (Akram et al., 2022; Naz & Zafar, 2023; Ahmad et al., 2025).

Every category of technology has a unique role to play in facilitating learning. For instance, database and spreadsheet software can improve organisational skills, while word processing and email can enhance communication skills. Modelling tools are frequently helpful for enhancing students' comprehension of science and math (Rao et al., 2023; Naz et al., 2024). By providing students with a range of options, such as those described by Lone et al. (2011), Shakir et al. (2012), Bhutto et al. (2023), and Fatima et al. (2024), experts think that technology can enhance learning.

Practising regularly and progressively working with more challenging content

- Utilising diverse sources of information and learning through various methods and format
- Using visualisation techniques to understand intricate ideas;
- Interacting with data through experiential learning and obtaining prompt feedback.
- Organising data, tackling challenges, and developing sophisticated outputs using digital tools such as spreadsheets, databases, and word processing software.

Supporters also highlight the advantages for educators. Technology enables teachers to tailor lessons and assessments to meet individual student needs, enhances instructional planning with more authentic and relevant resources, and broadens the scope of information available for student research and learning (Anjum et al., 2022; Rasheed et al., 2024; Saleem et al., 2024; Rasheed, Sadaf & Abbas, 2024; Maitlo, Shah & Ahmed, 2024).

- Become proficient in digital skills necessary for a future career;
- enhance their ability to think critically, solve problems, and communicate;
- Work effectively together with classmates;
- Take part in real-world, experiential learning activities; and
- Real-time input is beneficial

Affective learning plays a crucial role in secondary education by promoting students' emotional and social development. The use of educational technologies has become increasingly popular in supporting this type of learning, helping to improve students' emotional intelligence, engagement, and overall well-being. Affective learning refers to the domain of education that targets students' emotional development, attitudes, motivation, and values (Ahmad, Cheema & Farhat, 2023; Cheema et al., 2023; Maitlo et al., 2024; Soomro et al., 2025). It involves fostering learners' interest in subject matter, boosting their confidence, and eliciting meaningful emotional engagement during the learning process. This dimension of learning plays a crucial role in how students approach their studies, persevere through challenges, and perform academically (Ramzan et al., 2023; Arshad et al., 2024). Within the secondary school setting, strengthening affective outcomes is directly linked to better educational achievements and the holistic development of students.

- Mindfulness apps (Calm, Headspace) for emotional regulation.

- SEL platforms (CASEL, SELweb) for self-awareness and relationships.
- VR experiences for empathy and perspective.
- Gamified platforms (Classcraft, ClassDojo) for positive behaviors.
- Online counseling platforms/chatbots for mental health.

These tools foster emotional intelligence, self-awareness, and social skills.

Advantages of Educational Technologies in Affective Learning

- *Better emotional regulation:* Educational technologies can assist students in managing their emotions, increasing self-awareness, and nurturing emotional intelligence.
- *Boosted engagement:* Interactive tools and multimedia resources can enhance student participation and motivation, fostering a more positive emotional connection to the learning process.
- *Customized learning experiences:* Educational technologies enable personalized learning opportunities, helping students engage in ways that cater to their unique emotional and educational needs.

Limitations and Critical Considerations

While the educational benefits of technology integration are well-documented, certain drawbacks must be acknowledged, particularly concerning students' emotional health. Prolonged exposure to screens has been associated with issues such as increased stress levels and reduced attention spans. A recent critique by *The Times* (2025) cautioned against an overdependence on educational technologies, suggesting it could lead to superficial engagement and impair the development of essential face-to-face communication skills. Therefore, educators need to strike a balance between digital tools and traditional instructional approaches to safeguard students' emotional and social well-being.

- *Digital Distractions:* The use of educational technologies can sometimes lead to distractions, reducing students' focus and engagement.
- *Equity and Access:* Not every student has equal access to the necessary educational technologies, creating a digital divide.
- *Data Privacy and Security:* The collection and storage of student data related to affective learning raises concerns about privacy and security.

Research Methodology

“The research methodology is the procedure which researchers use to gather data for resolving problems of investigation” (Ahmad et al., 2022, p.524). The study employed a survey and descriptive methodology. Quantitative approaches were adopted in conjunction with the explanatory technique. This method is considered more suitable to comprehensively assess the role of educational technologies in students’ affective learning. The target population included SSTs and secondary students from public and private sector secondary schools in Tehsil SDK. A stratified random sample of 400 respondents comprising 80 secondary school teachers, 320 students of secondary classes was selected to ensure representation across academic ranks (L.R. Gay in his book Educational Research). Quantitative data were collected via structured questionnaires. Expert opinion was used to ensure the questionnaire's validity, and Cronbach's Alpha in SPSS-24 was used to determine the questionnaire's reliability.

Data Analysis

Table 1: Use of Smart phone

RPS	Stat.	Responses						SD	Mean
		SDA	DA	UD	A	SA	Total		
Item.1	F	79	65	47	148	61	400	1.387	3.12
	%	19	16	12	37	15	100		
Item.2	F	66	66	51	129	88	400	1.400	3.27
	%	17	16	13	32	22	100		
Item.3	F	22	35	45	149	149	400	1.152	3.92
	%	6	9	11	37	37	100		
Item.4	F	24	40	58	125	153	400	1.205	3.86
	%	6	10	15	31	38	100		
Item.5	F	55	36	45	130	134	400	1.383	3.63
	%	14	9	11	33	33	100		
Item.6	F	42	33	35	141	149	400	1.304	3.81
	%	11	8	9	35	37	100		
Item.7	F	63	52	69	104	112	400	1.416	3.38
	%	16	13	17	26	28	100		
Total	F	50	47	50	132	121	400	1.321	3.57
	%	13	11	13	33	30	100		

Table 1 illustrates that according to data about. The degree of agreement as shown in Item.1 reveals that, 52% (37%+15%) of participant agreed with the statement that smart phone is used to manage and complete homework and 35% (19+16%) of the respondents disagreed with the statement teacher as to the point of disagreement and 12% of the respondents was the undecided group. The mean score of 3.12 and SD of 1.387 contributed to the statement.

Item.2 demonstrates that the level of agreement was established as 54% (32%+22%) of the respondents were agreed that smart phone is helpful for collaboration with class mates (responding, organizing) and 33% (17%+16%) respondents were disagreed with the statement, and 13% of the respondents we were undecided with the statement. The mean score of 3.27 with a standard deviation of 1.400 contributed to the statement.

Based on Item.3, the level of agreement based on respondents, 74% (37 %+37 %) agreed that smart phone is used for quick accessibility of information (Receiving, valuing) and 15% (9%+ 6 %) tended to disagree with the statement and 11 % of the respondents explained that they were undecided with the statement. The mean score of 3.92 and a standard deviation of 1.152 contributed to the statement.

Item 4 illustrates that respondents were very much agreed in 69 % (31 %+38 %)with the statement that smart phone is used to enhance vocabulary, (Receiving, valuing) and 16 % (10%+6 %) respondents showed disagreement with the statement, and 15 %of the total respondents were undecided about the same. The statement was supported by standard deviation 3.86 and the mean score 1.205.

As shown in Item.5, the degree of agreement was 66% (33%+33%) of respondents agreed with the fact that smart phone is used To assist for practical (motivation) and 23% (14 % +9%) of the respondents were found to disagree with the statement and 11% of the respondents were undecided with the statement. The standard deviation 1.383 and standard score 3.63 upheld the assertion.

The rate of agreement was 72% (35% +37%) of the participants agreed to the statement that smart phone is used to access course resources, and 19% (11% +8%) of the responses were disagreed

with the statement and 9 %of the respondents were undecided about the statement as shown in item.6. The statement was supported by standard deviation 1.304 and the mean score 3.81.
As shown in Item.7, the degree of agreement was 54% (26%+28%) of respondents agreed with the fact that smart phone is used for effective communication (Responding**)** and 29% (16% +13%) of the respondents were found to disagree with the statement and 17% of the respondents were undecided with the statement. The standard deviation 1.416 and standard score 3.38 upheld the assertion.

Findings

Findings of the study showed that

- *Item 1:* The results indicate that 37% of participants agreed, while 16% disagreed and 19% strongly disagreed, with 12% remaining unsure. Combining agreement percentages (37% + 15%), 52% of respondents supported the survey question, yielding a mean score of 3.12 and a S.D of 1.387.
- *Item 2:* Data shows that 32% agreed, 16% disagreed, and 17% strongly disagreed, while 13% were uncertain. In total, 54% (32% + 22%) endorsed the question, with a mean of 3.27 and a standard deviation of 1.400.
- *Item 3:* Among respondents, 37% agreed, 9% disagreed, and 6% strongly disagreed, with 11% undecided. Overall, 74% were in favor, reflected by a mean of 3.92 and S.D of 1.152.
- *Item 4:* Seventy-five percent of participants agreed, while 10% disagreed and 6% strongly disagreed, with 15% uncertain. The combined agreement rate was 69% (31% + 38%), accompanied by a mean of 3.86 and a standard deviation of 1.205.
- *Item 5:* The findings reveal that 33% agreed, 9% disagreed, and 14% strongly disagreed, while 11% were unsure. Cumulatively, 66% (33% + 33%) supported the statement, with a mean score of 3.375 and a S.D of 1.030.
- *Item 6:* According to the data, 35% agreed, 8% disagreed, and 11% strongly disagreed, with 9% unsure. Overall, 72% (37% + 35%) expressed agreement, with a mean of 3.81 and a S.D of 1.304.
- *Item 7:* Results show that 26% agreed, 13% disagreed, and 16% strongly disagreed, while 17% were undecided. A total of 54% (26% + 28%) accepted the statement, with a mean of 3.38 and a S.D of 1.416.

Discussion

The study confirmed that majority of teachers and secondary students frequently utilize educational technologies for a variety of academic and collaborative purposes. These tools are commonly used to complete homework, foster collaboration among classmates, and provide quick access to information. They are regularly employed to enhance vocabulary, assist with practical work and access coursework and study materials.
The initial indication of the study focused on proficiency using educational tools. As per the results, the majority of SSTs and students said that educational technologies enabled them to produce educational materials, enhance their understanding, and engage with real-world scenarios. They frequently use the internet for quick access to information, learning tools, and studying assigned topics. Additionally, students reported using online dictionaries and encyclopedias to help them study, learning more efficiently through the use of educational technology, and understanding materials better when they are used in the classroom by teachers.

Conclusion

The study found that a majority of teachers and secondary students frequently use smart phones for various academic purposes. These include completing homework, collaborating with classmates, accessing information quickly, enhancing vocabulary, receiving practical guidance, and retrieving course materials. Smart phones are also widely used for effective communication.

Recommendations

- *Digital Emotional Intelligence:* Use technology to foster emotional awareness and empathy.
- *Real-Life Simulations:* Engage students in interactive scenarios to build emotional resilience and decision-making skills.
- *Online Collaboration:* Facilitate peer interactions and support networks through digital platforms.
- *Adaptive Learning:* Tailor technology-based learning to individual students' emotional needs.
- *Teacher Support:* Equip educators with training to effectively integrate technology for affective learning.
- *Ongoing Assessment:* Regularly evaluate the effectiveness of technology in promoting students' emotional growth.

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