Journal of Applied Linguistics and TESOL (JALT)
Vol. 7 No. 4 (2024)

Exploring Literacy skills among Trainee Teachers and their effect on their Academic Achievement

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Abstract
Teachers with well-developed literacy skills are positioned to transition to new education paradigms and to meet the existing students' different educational demands. It therefore fills this gap by generating a body of knowledge on the relationships between literacy skills, academic performance, and preparedness to teach among trainee teachers. Literacy skills play a vital role in shaping the academic success and teaching effectiveness of trainee teachers. Therefore, the present study was aimed to determine effect of literacy skills on academic achievement of trainee teachers. The study was quantitative and correlation in nature. The population of the study was comprised of trainee teachers of undergraduate programs of Teacher Education Department/Institutions of all the universities of the Punjab. Propionate stratified sampling technique was used to collect data form 300 trainee teachers of undergraduate programs of education department/teacher education institutions of six public sector universities of the Punjab province. After detailed literature review, researchers developed a questionnaire to collect data from respondents. The study revealed significant differences in information literacy, technology literacy, and overall literacy skills, indicating that male trainee teachers had higher proficiency in these areas. The study also found significant differences in literacy skills were identified among trainee teachers from different universities, with Government College University (GC) Faisalabad outperforming others in all literacy categories, including media literacy, information literacy, technology literacy, and overall literacy skills. It was concluded that there was a moderate positive relationship between literacy skills and academic achievement. This indicates that trainee teachers with better literacy skills tend to perform better academically. Finally, it was recommended that educators must engage in ongoing professional development to keep abreast of the latest trends and tools in media, information, and technology literacy. Offering regular workshops, webinars, and collaborative opportunities for practicing teachers can facilitate lifelong learning and improve their competencies in these essential areas.

1. Introduction
In present era, need of literacy skills has been increased ever before due to; the increased and competing pace in the twenty-first century as well as enhanced technology. Literacy is not just the ability to read and write; it encompasses a range of competencies, including digital literacy, critical thinking, and communication skills (UNESCO, 2023). For trainee teachers, possessing strong literacy skills is critical, as they are not only responsible for their own academic success but also for shaping the literacy development of future generations. Research suggests that teachers' literacy skills significantly influence their ability to deliver content effectively and engage students in meaningful learning experiences (García & Wei, 2022). Pakistan's educational system faces several challenges, including low literacy rates, limited access to digital resources, and traditional teaching methods that often emphasize rote learning over critical thinking and literacy development (Ashraf & Rarieya, 2020). As Pakistan aims to align its educational practices with global standards, there is a growing recognition of the need to improve literacy skills among trainee teachers to enhance their academic performance and their ability to foster these skills in their future students (Government of Pakistan, 2022).

Literacy skills refers to traditional definitions of reading and writing, as well as digital, critical, and communication skills (Leu et al., 2022). These skills are important in the learning process to foster academic success because they help trainee teachers acquire, filter, analyze, and apply knowledge as they teach (OECD, 2022). So, literacy skills are major determinants of the academic

success of trainee teachers because they help in building knowledge and participating in the learning process (Wertsch, 2020). As, technology literacy skills play an increasingly pivotal role in the lives of people, and it is visualized that digital technological literacy skills will become an operational demand for people's workplace, social, and even personal lives" (Ghayyur & Mirza, 2021, p. 227).

In the context of teacher education, literacy skill is growingly acknowledged as a critical determinant of learning outcomes. Trainee teacher who is well prepared to understand academic content, plan and design instructional activities, and apply reflection on practice to enhance his or her practice as a teachers (Darling-Hammond, 2021). In teacher education, literacies include not only but also the ability to read and write digital media, problem solve and think critically and reflectively. These skills should enable trainee teachers to handle their coursework as well as apply the knowledge shown in theoretical lessons to practical classroom work. As teacher education tries to reflect learner-centered and competency orientation in its programs, there is a need for grounding in literacy skills (Mahmood, 2021). Due to the strong correlation both, literacy skills and achievements, as well as literacy skills and the ability to teach effectively, there is a rising agreement to emphasize the development of literacy for teachers in teacher education programs. Today, to prepare teachers with the necessary skills and tools, many teacher education programs offer particular courses and workshops on reading comprehending, writing, digital, and critical literacy (Leu et al., 2022).

What Are Literacy Skills?

Literacy skills therefore can be described as the skills which allow one to work with printed and spoken language to communicate and understand information in one or several contexts. Literacy in the past was about reading and writing only but in the modern world being the knowledge economy, any skills related to reading and writing, computer literacy, media literacy, and most importantly critical thinking are also considered forms of literacy (Gee, 2022). Literacy instead is ineradicable for learning since it helps people read, learn, analyze, and acquire information in distinct media types (Leu et al., 2022).

Literacy skills in the context of teacher education do not only encompass the most basic functions of reading and writing. The literacy skills required by trainee teachers, cover features to analyze content in the pedagogical field, reflective process, and utilization of digital Tal in teaching and learning processes (Ashraf & Rarieya, 2020). These skills are important in determining teachers' performance because they are a foundation for developing lesson plans, implementations, and assessments of students' performances.

Literacy Skills as a Component of 21st Century Skills

Thus, 21st-century skills means those skills and competencies that are required for humans in the contemporary, fast-growing world. Among such knowledge necessary to solve problems, literacy skills are prominent, included in the set with critical thinking, teaming, communicating, and innovating (OECD, 2022). For instance, the skill of digital literacy has become an essential need in the 21st learning process as well as in the world of work. Digital literacy embraces the likelihood to operate inside and across digital media environments proficiently, to sift and judge content in

digital media environments and to use the tools afforded by digital media environments for the creation of understanding, solutions to difficulties, and conversations (Leu et al., 2022).

In twenty first century, literacy skills work together with other Academic competencies of the 21st century. For example, critical literacy which falls under the broader category of literacies entails an evaluation of the texts to discover prejudice, presuppositions, and standpoints. This skill is important in training the faculties to help the trainee teachers develop the ability to set and model analytical thinking in students/ learners (Janks, 2020). Digital literacy prepares teachers with the ability to include technology in their classrooms to improve both the facet of their teaching and the learning process of the students (García & Wei, 2022).
Studies show there is a need to train teachers on 21st-century competencies in order to prepare students for the market needs. The study found that trainee teachers with great literacy skills improve the formation of the context for critical thinking, problem-solving and innovation in learners. Hence, literacy skill facilitates times such skills in academic performance of teachers themselves and 21st-century skills in their learning students.

Introduction to Literacy Skills in Teacher Education

Literacy skills are basic and not only for students but for the teachers as well especially students awaiting their teaching practice. Cinquetti et al.'s (2022) literature review supports the idea that literacy today is a complex of different competencies including, digital, media, critical and financial literacy in the 21st century. These skills prove vital for trainee teachers as they work through their school programs as well as their academic preparation for teachers. Information skills have been defined as having a crucial role in their success in teacher education programs as well as in the subjects that they teach in a classroom. Studies have shown that adequate literacy keeps the academic success of trainee teachers high because they are in a position to understand and act on educational content through reasoning (García, 2021).

This is especially important in Pakistan where the educational problems include low literacy levels and a dearth in resources that are needed in teacher education. Khan (2022) also points out that trainee teachers whose literacy skills are high are likely to excel academically, and they are confident in their teaching abilities. Literacy skills also enable trainee teachers to practice reflection, an important professionalism embraced in their professional development because of its capacity to enable the assessment of the effectiveness of used teaching strategies (Schön, 2022).

A Literacy skill is important to teacher education programs as it is a core component of teaching and learning in all fields. Literacy skills remain important to the trainee teachers' success not only academically, but as educators as well since literacy influences their performance in the classroom (Darling-Hammond, 2021). Teaching literacy, amongst other things, helps trainee teachers to appreciate educational content, research, and articulate ideas effectively both in writing and in speech. These competencies can help learn both the pedagogical theories and develop lesson plans, as well as assess the students' work. However, one of the challenges facing teacher educators is how to ensure that trainee teachers have the necessary combination of required skills and pedagogical knowledge to effectively use today's technologies in the classroom and continue to adapt to emerging technologies (Ajmal et al., 2011, p. 169).

Learning outcomes that reflect academic success are not the only competence that is imperative in promoting inclusion and equity of students. High literacy competency helps the teachers to explain and provide individual attention to the students based on the learning ability of the students and come up with strategies for overcoming students who have low literacy (Ashraf & Rarieya, 2020). Hence, regardless of the expansion of literacy skills a significant contribution as to the outcomes of trainee teachers and as to their capacity to contribute to the enhancement of students' learning outcomes.

Literacy Skills and Teaching Skills

Teaching skills therefore refers to the actual ways employed by teachers to enhance the achievement of programmed objectives or course goals. Print literacy is a prerequisite of teaching literacy since it allows teachers to communicate, plan, and evaluate their teaching activities and those of the students. For example, for creating lesson plans, especially for designing the task, as well as making evaluation measures and giving feedback to learners, a teacher ought to possess adequate reading and writing competencies. Moreover, foundational literacy skills such as oral language are crucial in class interactions since teachers have to teach, facilitate, and discuss with the learners (Schön, 2022).

Aslam & Amin (2021) have also focused on the correlation of literacy skills and the teaching skills of trainee teachers in Pakistan. The survey carried out in the study also provided an understanding that trainee teachers with better literacy competencies were more competent in their learning delivery as they could develop good lessons that would be content-effective as well as pedagogy-engaging. In addition, there was significant evidence found relating digital literacy skills to the ability to develop teaching skills as digital expertise enhances the ability of the teacher to utilize technological applications to make teaching and learning more interactive, learner learner-centered.

Literacy Skills and Academic Achievement

The relationship between literacy skills and academic achievement is evidenced by scholarly works. An increasing number of works points to the fact that the students, including the trainee teachers, who exhibit better literacy skills perform better on academic tests (OECD, 2022). This is mainly the case since literacy skills, especially reading and critical thinking skills; help learners to appreciate and approach educational information actively (Greenhow & Lewin, 2023). According to Greenhow and Lewin (2023), academic achievement increases by the extent to which teacher education programs emphasize literacy skills.

The literature reviewed by Darling-Hammond (2021) pointed out that most trainee teachers with enhanced literacy skills, especially in reading and writing, recorded sound performance in their teacher education. The students themselves wrote reflectively, better understood the content of the complex pedagogical texts, and critically analyzed the educational theories contributing to their success during the academic year. The study also noted that the emerging educational environment requires high levels of literacy, and digital literacy in the first place. According to the findings of Khan (2022), the trainee teachers of Pakistan who were more literacy skilled, especially in reading and writing had better academic performances as compared to others. In writing the study emphasized on literacy competence in reading pedagogical text, integrating contents, and evaluating educational theories. Studies show that critical thinking, teamwork, communication, and digital literacy improve educators' academic performance (Ghayyur et al., 2024, p. 2). Similarly, Mahmood (2021) pointed out that the applicant's high literacy skills help overcome

academic demands for teacher education programs because they can analyze and apply the information obtained in their academic practice.

Statement of the problem

Teaching literacy as one of the modes of learning has grown more important in recent years, especially in teacher education. Literacy in education encompasses all subject areas since students require proper literacy skills to reason with to understand what they are learning, discuss it, and even explain it to other people in a proper way. In the case of trainee teachers, literacy skills enhances not only their performance in class but more importantly the roles they are prepared for as teachers in an increasingly digital world. Teachers are encouraged to incorporate these skills into teaching practice, and those capable of doing this well are characterized by enhanced teaching competencies and academic performance (García & Wei, 2022). Therefore, the present study was aimed to explore literacy skills among trainee teachers their effect on their academic achievement.

Objectives of the Study

1. To find out the level of acquisition of literacy skills (media literacy, information literacy, digital literacy) among trainee teachers.
2. To determine the effect of literacy skills on the academic achievement of trainee teachers.

Research Questions

1. What is the current level of acquisition of literacy skills (media literacy, information literacy, digital literacy) among trainee teachers?
2. Is there a significant relationship between literacy skills and academic achievement among trainee teachers?

2. Research Methodology

2.1 Research Design

The study was designed to find out effect of 21st century skills trainee teachers on their academic achievement. The study was quantitative and correlation in nature.

2.2 Participants

The population of the study was comprised of trainee teachers of undergraduate and graduate programs of Teacher Education Department/Institutions of all the universities of the Punjab. Multistage sampling technique was employed to collect data. At first stage, 6 public sector universities were selected randomly from 38 public sector universities of the Punjab. At second stage, Propionate stratified sampling technique was used to collect data form 300 trainee teachers of undergraduate programs of education department as recommended, it is the "process of selecting a random sample from subgroups or strata into which a population has been subdivided". Fraenkal, Wallen and Hyun (2012) also suggested stratified sampling random sampling is "a process in which a certain subgroups, or strata, are selected for sample in the same proportion as they exist in the population. Therefore, 50% trainee teachers of final semester of BS Education/B.Ed Hons. (Undergraduate programs) and M.A Education (graduate programs) were selected through non-propionate sampling technique from the respective selected universities.

2.3 Research Instrument

After detailed literature review, researchers developed a questionnaire. Questionnaire contained 2 parts. First part of the questionnaire was comprised of demographic information and second part contained group of three literacy skills including media literacy, information literacy, and technology literacy. Second part of the questionnaire was graded by using 7 point scale including1 NR: Not really 2 TME: To a Minor Extent 3 TME: To a moderate extent 4 TGE: To a great extent 5 TVGE: To a very great extent. For validation of the instrument, first of all peer consultation was

sought and different changes were made to improve the instruments. Then opinion of five experts in field of teacher education was sought for the validation of the instrument. After incorporating suggestions of these experts, the instrument was pilot tested on 60 trainee teachers of Institute of Education, University of Sargodha that were further excluded from the sample. The Cronbach's Alpha for seventy items was 0.93 that showed very high reliability of the research instrument.

2.4 Data Analysis

Data were collected through survey method and self-approach from teacher educators of five public sector universities of Punjab province. Data was analyzed by using Statistical Package for the Social Sciences (SPSS) version 23. The analysis includes both descriptive and inferential analysis.

3. Results

3. Results

The findings are stated according to the sections in the questionnaire and some inferential analysis.

Table 1
Demographic information of Trainee Teachers

Sr. No.	Variables	Category	F(n)	Percentage %
3	Program of Study	MA Education	103	34.45
		BS Education	88	29.43
		B.Ed Hons	107	35.79
4	Class Status	Regular	258	86.29
		Self Support	41	13.71
5	Gender	Male	63	21.07
		Female	236	78.93
6	Residence	Urban	211	70.57
		Rural	88	29.43
7	Name of University	University of Sargodha (SU), Sargodha	48	16.05
		Punjab University (PU), Lahore	50	16.72
		University Of Education (UE), Lahore	50	16.72
		Lahore Women Collage University (LWCU), Lahore	49	16.39
		University of Gujrat (UG),Gujrat	52	17.39
		Government College University (GCU), Faisalabad	50	16.72

Table 1 shows that out of 300 trainee teachers sample the number of trainee teachers from M.A were 103 (34.45) the trainee teachers from B.S were 88(29.43) and the trainee teachers from B.ED

Hons were 107 (35.79). Table 1 indicates that out of 300 trainee teachers sample the number of regular trainee teachers were 258 (86.29) and the number of self-support trainee teachers were 41 (13.71). Table 1 indicates that out of 300 trainee teachers, female students dominate the sample, making up 78.93% of the total, compared to 21.07% male students. This highlights a gender imbalance, indicating that the teaching profession in this context is more popular among females. Respondents were asked to provide their residential information that either they are from urban area or rural area. Majority of the trainee teachers come from urban areas (70.57%), while only 29.43% are from rural areas. This suggests that urban areas have a stronger representation in teacher education programs, possibly due to better access to higher education institutions. Table 1 indicates that the trainee teachers from university of Sargodha, Sargodha were 48 (16.05%) the trainee teachers from University of Punjab, Lahore were 50 (16.72%) the trainee teachers from University of Education, Lahore were 50 (16.72%) the trainee teachers from Lahore Women College University, Lahore were 49(16.39%) the trainee teachers from University of Gujrat, Gujrat were 52 (17.39%) and the trainee teachers from Government College University, Faisalabad were 50 (16.72%).

Table 2

Statement	To a moderate extent + To a great extent	%	Mean	SD	Interpretation
1. Effective Use of Media and Technology for Communication	167	55.85	3.59	1.15	To a moderate extent
2. Understanding the Role of Messages in Media	178	59.53	3.53	1.15	To a moderate extent
3. Media's Influence on Shaping Public Opinion	173	57.86	3.57	1.15	To a moderate extent
4. Exploring Various Media Tools for Information	169	56.52	2.95	1.17	To a Minor Extent
5. Utilizing a Variety of Media Tools	184	61.54	2.93	1.16	To a Minor Extent

Exploring media literacy among trainee teachers

Table 1 shows that, statements including 1,2, and 3 had mean scores more than 3.5 that means majority of the prospective teachers could effectively use media and technology to communicate with others to a moderate extent (f=167(55.85%), m=3.59), many of prospective teachers could use of the messages in media to a moderate extent (f=178(59.53%), m=3.53), most of them could know that media is useful in providing direction to the people's opinion to a moderate extent (f=173(57.86%), m=3.57. While statements including 4 and 5 represents that some of the prospective teachers could explore different media tools (newspaper, TV, websites, online video streaming websites etc.) to get information (f=169(56.52%)m=2.95) and some of the prospective teachers could use a diversity of media tools (f=184 (61.54%), m=3.33) to a minor extent.

Table 3

Exploring information literacy among trainee teachers

Statement	To a moderate extent + To a great extent	%	Mean	SD	Interpretation
6. Collecting and Organizing Information with Technological Tools	183	61.20	3.28	1.19	To a moderate extent
7. Analyzing Information Using Technology	201	67.22	3.63	2.56	To a moderate extent
8. Sharing and Updating Information on Social Networks	177	59.20	2.65	1.12	To a minor extent
9. Analyzing Information Before Sharing	171	57.19	2.87	1.10	To a minor extent
10. Importance of Information in Decision-Making	166	55.52	3.27	1.09	To a moderate extent
11. Ensuring Relevance and Accuracy of Information	183	61.20	3.38	1.08	To a moderate extent

Table 3 shows that, statements including 6,7,10,11 had mean scores more than 3.0 that means majority of the prospective teachers could use technological tools to collect and organize information to a moderate extent (f=183(61.20%), m=3.28), many of prospective teachers could use technological tools to analyze information to a moderate extent (f=201(67.22%), m=3.63), many of the prospective teachers could consider information very important in decision making to a moderate extent(f=166(55.52), m=3.30), and most of them could ensure information to be relevant and correct to a moderate extent (f=183(61.20), m=3.68). While, statements including 8 and 9 had mean score less than 3.0 that means most of them could use social networks for sharing and updating information on any topic to a minor extent (f=177(59.20%), m=2.65 and many of prospective teachers could analyze information before sharing with others to a minor extent (f=171(57.19%), m=2.27).

Table 4

Exploring technology literacy among trainee teachers

Statement	To a moderate extent + To a great extent	%	Mean	SD	Interpretation
12. Ensuring Relevance and Accuracy of Information	192	64.21	3.67	1.02	To a moderate extent
13. Selecting Appropriate Technology Resources for Tasks	171	57.19	3.40	1.14	To a moderate extent
14. Evaluating the Credibility and Relevance of Online Resources	175	58.53	3.66	1.10	To a moderate extent
15. Investigating Information Using Technology	158	52.84	3.54	1.20	To a moderate extent
16. Sharing Information with Teachers Through Technology	187	62.54	3.54	1.10	To a moderate extent

17. Supporting Teamwork and Collaboration with Technology	178	59.53	2.77	1.12	To a minor extent
18. Engaging with Experts and Communities Through Technology	190	63.55	1.82	1.06	Not really
19. Using Technology to Track Work on Extended Assignments	167	55.85	2.58	1.16	To a minor extent
20. Using technology for self-instruction	187	62.54	3.58	1.12	To a moderate extent

Table 4 presents that, statements including 12,13,14,15, 16 and 20 had mean scores more than 3.0 that means majority of the trainee teachers could select appropriate technology instruments or resources for completing a task to a moderate extent (f=192(64.21%), m=3.67), many of prospective teachers could evaluate the credibility and relevance of online resources with study topics to a moderate extent (f=171(57.19%), m=3.40), most of them could use technology to investigate information (e.g., websites, databases, spreadsheets, graphic programs, etc.) to a moderate extent (f=175(58.53%), m=3.66), many of prospective teachers could use technology to share information with their teachers (e.g., E-mail, WhatsApp, blogs etc.) to a moderate extent(f=158(52.84%)m=3.54), and many of them use technology for self-instruction (YouTube, Teacher Tube, Tutorial or Learning Websites) (f=187(62.54), m=3.58). While statements including 17, 18 and 19 had mean score less than 3.0 that means many of the prospective teachers could use technology to support team work or collaboration with their fellows (e.g., shared work to a moderate extent(f=187(62.54) m=2.77) to a minor extent, majority of them use technology to interact directly with experts or members of local/global communities to a very less extent (f=178(59.53), m=1.82), many of prospective teachers used technology to keep track of their work on extended tasks or assignments to moderate extent (f=190(63.55), m=2.58 to a minor extent)

Table 5

Mean difference of literacy skills of trainee teachers with respect to their gender

Variables	Gender	N	Mean	Std. Deviation	Std. Error Mean	T	P
Media Literacy	male	63	18.21	3.823	.482	1.495	.136
	female	236	17.34	4.634	.269		
Information Literacy	male	63	22.65	4.207	.579	2.156	.032
	female	236	21.20	4.1088	.312		
Technology Literacy	male	63	29.81	5.702	.718	2.625	.009
	female	236	27.75	5.488	.357		
Literacy Skills	Male	63	89.73	14.651	1.821	2.599	.010
	Female	236	83.95	15.991	1.041		

Table 5 presents the mean differences in literacy skills of trainee teachers based on their gender (male vs. female). The results reveal significant differences in information literacy (t = 2.156, p =

0.032), technology literacy (t = 2.625, p = 0.009), and overall literacy skills (t = 2.599, p = 0.010) between male and female trainee teachers. However, there are no significant differences in media literacy (t = 1.495, p = 0.136).

In terms of mean scores, male trainee teachers demonstrated higher levels of information literacy (M = 22.65) compared to female trainee teachers (M = 21.20). This suggests that male trainees are more proficient in accessing and utilizing information effectively. Furthermore, in technology literacy, male trainee teachers again outperformed their female counterparts, with mean scores of 29.81 and 27.75, respectively. This indicates that male trainee teachers possess greater skills n using technology and digital tools for teaching purposes.

Additionally, the overall literacy skills of male trainee teachers were significantly higher (M = 89.73) than those of female trainee teachers (M = 83.95). This finding suggests that male trainee teachers are better equipped with the comprehensive skills necessary for effective literacy education.

Table 6

Mean difference of literacy skills of trainee teachers with respect to their residence

Variables	Residence	N	Mean	Std. Deviation	Std. Error Mean	T	P
Media Literacy	urban	211	17.66	4.647	.285	.877	.381
	rural	88	17.20	3.916	.417		
Information Literacy	urban	211	21.77	4.1001	.324	1.502	.134
	rural	88	20.86	4.1025	.525		
Technology Literacy	urban	211	28.50	5.571	.383	1.506	.133
	rural	88	27.43	5.589	.596		
Literacy Skills	Urban	211	86.01	15.815	1.089	1.427	.155
	Rural	88	84.65	15.782	1.682		

Table 6 presents the mean differences in literacy skills of trainee teachers based on their residence (urban vs. rural). The results indicate that there are no statistically significant differences in any of the literacy skills assessed, including media literacy (t = 0.877, p = 0.381), information literacy (t = 1.502, p = 0.134), technology literacy (t = 1.506, p = 0.133), and overall literacy skills (t = 1.427, p = 0.155) between urban and rural trainee teachers.

In terms of mean scores, urban trainee teachers reported slightly higher media literacy (M = 17.66) compared to their rural counterparts (M = 17.20). For information literacy, urban trainee teachers also exhibited a higher mean score (M = 21.77) than rural teachers (M = 20.86). Similarly, technology literacy scores were higher for urban trainee teachers (M = 28.50) compared to rural trainee teachers (M = 27.43). Overall literacy skills showed a comparable trend, with urban teachers (M = 86.01) performing slightly better than rural teachers (M = 84.65). However, the differences were not statistically significant, suggesting that residence does not have a substantial impact on the literacy skills of trainee teachers.

Table 7

Mean difference of literacy skills of trainee teachers with respect to their class status

Variables	Class Status	N	Mean	Std. Deviation	Std. Mean Error	T	P
Media Literacy	Regular	258	17.48	4.064	.253	-.513	.608
	self-support	41	17.83	4.222	.658		
Information Literacy	Regular	258	21.61	4.199	.292	.975	.330
	self-support	41	20.83	5.315	.830		
Technology Literacy	Regular	258	28.21	5.494	.342	.166	.868
	self-support	41	28.05	6.221	.972		
Literacy Skills	Regular	258	85.31	15.437	.961	.380	.704
	Self-Support	41	84.69	18.317	2.861		

Table 7 highlights the mean differences in literacy skills among trainee teachers based on their class status (regular vs. self-support). The findings demonstrate that there are no significant differences in any of the assessed literacy skills, including media literacy (t = -0.513, p = 0.608), information literacy (t = 0.975, p = 0.330), technology literacy (t = 0.166, p = 0.868), and overall literacy skills (t = 0.380, p = 0.704) between regular and self-support trainee teachers.

Specifically, the mean scores indicate that self-support trainee teachers showed slightly higher media literacy (M = 17.83) compared to regular trainee teachers (M = 17.48). In information literacy, regular trainee teachers had a mean score of 21.61, while self-support teachers had a slightly lower mean score of 20.83. The technology literacy means were also very close, with regular trainee teachers at M = 28.21 and self-support teachers at M = 28.05. Regarding overall literacy skills, regular trainee teachers had a mean of 85.31, while self-support teachers had a mean of 84.69. Despite these variations in mean scores, the lack of statistically significant differences indicates that class status does not significantly influence the literacy skills of trainee teachers.

Table 8

Mean difference of literacy skills of trainee teachers with respect to their universities

	SU (N=48)		PU (N=48)		UE (N=48)		LWCU (N=48)		UG(N=48)		GC(N=48)					
Variables	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	Df	Mean Square	F	Sig.
Media Literacy	16.2	4.20	18.06	3.94	18.02	4.184	16.39	4.015	17.23	3.557	19.16	3.678	293.00	61.74	3.89	0.00
													5.00	15.87		

Information Literacy	21	4.108	21.48	4.22	22.30	4.26	19.71	5.32	21.33	4.19	24.21	4.20	293.00	69.68	4.17	0.01
													5.000	22.03		
Technology Literacy	27.3	5.973	28.500	6.011	28.94	5.20	26.350	5.011	28.120	5.249	29.800	5.64	293.00	72.897	2.39	0.04
													5.00	30.513		
Literacy Skills	81.4	16.780	85.90	16.672	88.08	16.02	79.286	14.1083	84.1008	13.914	91.280	14.24	293.00	0.000	3.94	0.00
														0.000		

Table 8 presents the mean differences in literacy skills of trainee teachers across various universities, specifically University of Sargodha (SU), University of the Punjab (PU), University of Education (UE), Lahore Women College University (LWCU), University of Gujrat (UG), and Government College University (GC), Faisalabad. The analysis encompasses four categories of literacy skills: Media Literacy, Information Literacy, Technology Literacy, and overall Literacy Skills. The results indicate significant differences in all assessed literacy skills. For Media Literacy, the F-value is 3.89 with a p-value of 0.00, which is less than the significance level of 0.05. The mean scores reveal that prospective teachers from GC University, Faisalabad, achieved the highest mean score (M = 19.16, SD = 3.678), indicating superior media literacy compared to their peers from other universities.

In terms of Information Literacy, the analysis yields an F-value of 4.17 and a p-value of 0.01, suggesting statistically significant differences among the universities. GC University again demonstrates the highest mean (M = 24.21, SD = 4.20), highlighting the advanced information literacy skills of its trainee teachers compared to those from other institutions.The Technology Literacy scores also reflect significant differences, with an F-value of 2.39 and a p-value of 0.04. The mean score for GC University (M = 29.80, SD = 5.64) is again the highest, indicating that these trainee teachers are particularly proficient in using technology effectively.

Finally, in the overall Literacy Skills assessment, there is a significant difference with an F-value of 3.94 and a p-value of 0.00. The highest mean score is recorded for trainee teachers at GC University (M = 91.28, SD = 14.24), suggesting that they possess the most comprehensive literacy skills among the groups studied.

Table 9

Effect of 21st Century Skills of trainee teachers on their academic achievement

		Literacy Skills	Academic Achievement
Literacy Skills	Pearson Correlation	1	0.57

	sig. (2-tailed)		0.001
	N	299	299
Academic Achievement	Pearson Correlation	0.57	1
	sig. (2-tailed)	0.001	
	N	299	299

Table 9 exhibits a significant moderate positive effect of literacy skills on the academic achievement of trainee teachers as ($r = 0.57$, $p = 0.000 < 0.001$). This suggests that as trainee teachers' literacy skills improve, their academic achievement tends to increase. The significance value ($p = 0.001$) is less than 0.05, which indicates that this relationship is statistically significant.

4. Findings

1. The majority of trainee teachers demonstrated moderate proficiency in media literacy. The mean scores for statements assessing effective media use, understanding media messages, and recognizing media's influence on public opinion were above 3.5, indicating a solid understanding and application of media tools. However, there was a notable lack of exploration and utilization of various media tools, as indicated by mean scores below 3.0 for exploring different media tools and utilizing a variety of media tools.
2. Trainee teachers displayed moderate information literacy skills, particularly in collecting and organizing information using technology (M = 3.28) and analyzing information (M = 3.63). The importance of information in decision-making was recognized, but sharing and analyzing information before dissemination were areas needing improvement, with mean scores falling below 3.0.
3. Most trainee teachers exhibited moderate levels of technology literacy, particularly in selecting appropriate technology resources (M = 3.40) and evaluating online resources (M = 3.66). However, they showed lower proficiency in using technology for collaboration and engaging with communities, as evidenced by mean scores below 3.0 in these areas.
4. There were significant differences in information literacy (M = 22.65 for males vs. M = 21.20 for females), technology literacy (M = 29.81 for males vs. M = 27.75 for females), and overall literacy skills (M = 89.73 for males vs. M = 83.95 for females), indicating that male trainee teachers tend to possess higher proficiency in these areas.
5. No significant differences in literacy skills were observed between urban and rural trainee teachers, though urban teachers generally had higher mean scores across all literacy domains.
6. Similar to residence, class status (regular vs. self-support) showed no significant differences in literacy skills, indicating comparable proficiency levels among trainee teachers regardless of their class enrollment type.
7. Significant differences in literacy skills were identified among trainee teachers from different universities, with Government College University (GC) Faisalabad outperforming others in all literacy categories, including media literacy (M = 19.16), information literacy (M = 24.21), technology literacy (M = 29.80), and overall literacy skills (M = 91.28).
8. The Pearson correlation reveals a moderate positive relationship between literacy skills and academic achievement ($r = 0.57$, $p = 0.001$). This indicates that trainee teachers with better literacy skills tend to perform better academically.

5. Conclusions & Discussions

Trainee teachers exhibit a moderate level of proficiency in media, information, and technology literacy, but there is a need for improvement, particularly in the exploration and effective use of diverse media tools. Buckingham (2003) emphasized the necessity of developing critical media literacy skills to navigate the complex media landscape effectively. Eisenberg et al. (2004) also stated that information literacy is a key component of good instruction and is iterative. Selwyn, (2011) opined that it is not just the technical know-how but the knowledge of how to use the technology appropriately concerning collaboration in the educational domain.

Information literacy and Technology literact identified a significant difference between the male and female trainee teachers. This also implies that sex-specific approaches could be required to improve the capacities of the women trainees. This is in line with literature raised herein and elsewhere indicating that gender differences may predict technology and literacy habits (Sang et al., 2013). The study revealed significant differences in learning skills and literacy skills between male and female trainee teachers. Male trainee teachers had higher learning skills and literacy skills than their female counterparts" (Ghayyur et al., 2024). It may be crucial to close these gaps through specially designed training and mentorship to have an appropriate strategy to balance the literacy skill deficiency for the gender, disabled, and ethnic minority learners.

Large differences in literacy skills in learning at different universities demonstrate that institutional quality plays a valuable role in improving these essential skills. Thus, such institutions should be examined further to establish a range of implementable strategies that were in place at GC University, Faisalabad. Such variability underscores the need for institutional factors and or resources in the promotion of literacy skills as brought out by Zhang et al., (2020). To build up the mentioned literacy competencies, universities need to improve their curricula and resources to prepare future educators.

That there was no variation in results showing literacy skills based on residence and class position therefore means that any training programs aimed at promoting literacy might prove just as effective with all these groups. While urban trainee teachers scored slightly higher in all the identified areas of literacy, no substantial variation implies that residence could also be inconsequential in integrating one into literacy skills. Regarding the prediction of class status it was found that both the class groupings write at par with each other this is supported by the findings of other studies showing that the contextual factors do not determine the educational outcomes (Dron et al., 2012).

In sharing, analyzing, and using technology collaboratively we find that results are significantly lower, indicating that there are key areas of improvement in teacher training programs. There is a need to provide more training and resources in these areas to ensure that through training of trainee teachers meets modern learning environments.

As anticipated, the findings of this study corroborate with previous research stressing on literacy competencies as the determinant of academic success. Prior studies have established that literacy is a compound academic skill that has a cross-over influence on learning processes across different subjects, and that it determines the student’s propensity to understand and master course content (National Reading Panel, 2000; Snow, 2010).

Recommendations

1. Media literacy can and should be fostered in educational facilities, and workable programs should encompass critical evaluation of media materials. Teacher candidates should receive

courses and workshops on evaluating the contents of media messages, the nature of media effects, and different applications of media tools in teacher education programs.

2. Due to this fact, TEIs should organize specific training to enhance trainee teachers' information literacy. These sessions might cover topics such as how to find information, determine the reliability of the information that has been found, and different aspects of appropriate uses of the information. It is, therefore, useful to incorporate practical assignments in the course which directly demand from students these skills.
3. School-based technology training and professional development courses ought to enforce collective integration approaches. Since teamwork and community projects require facilitation through technology, trainee teachers get to learn how best to use these technologies for communication purposes.
4. 4. Thus, to rectify the mentioned gender differences in literacy skills, universities should implement and offer mentorship and special assistance for female trainees. The author identified that increasing female students' involvement in technology activities and creating an appropriate environment can play an important role in controlling the technology and information gap.
5. Since the results pertain to the disparities in literacy skills based on the sample of universities, institutions should analyze and improve the literacy processes according to the student's needs. Training and resources are more effective if they are fit to trainees' preferences and demands.
6. Educators need to be aware of development trends and applications of media, information, and technology literacy, which automatically implies continued professional development. Developing workshops, webinars, and teamwork opportunities implying using modern resources for practicing teachers might help them become better and continue their professional development in these important aspects.
7. Teacher Education Institutions should create capacity for research and feedback mechanisms to determine the efficiency of literacy programs often. Moreover, experience shows that getting some information from the trainees about their experience can help to optimize the existing program and improve it.
8. Media and technology organizations should be encouraged to develop collaboration and partnership with teacher education institutions to provide trainees with access to resources, training, and real-world experiences for betterment of their literacy skills. Collaborative initiatives, such as internships or guest lectures, can further enrich their learning.
9. The enhancement of robust literacy skills among trainee teachers is crucial to demonstrate and impart these skills to their students. The moderate positive correlation suggests that improvements in literacy skills could lead to enhanced academic performance, which, in turn, may influence their effectiveness as educators.

References

Ajmal, M., Rahman, F., Ullah, M. H., Hina, K. B., & Ghayyur, T. (2011). Assessment of usage of information and communication technology among graduates of Allama Iqbal Open University. *International Journal of Humanities and Social Science, 1*(12), 169–173.

Ashraf, D., & Rarieya, J. F. A. (2020). Teachers' professional development through collaborative action research: Pakistani university teachers' perspectives. *Educational Action Research, 28*(4), 603-617. https://doi.org/10.1080/09650792.2020.1724137

Aslam, M., & Amin, S. (2021). Digital literacy and teacher education in Pakistan: The need for policy and practice reform. *Educational Technology & Society, 24*(2), 115-126.

Buckingham, D. (2003). *Media education: Literacy, learning and contemporary culture*. Polity.

Cinquetti, G., Higgins, E., & Parenti, R. (2022). Literacy and digital media in education: A literature review. *Journal of Educational Media, 45*(2), 115-130. https://doi.org/10.1080/135816510.2022.1644320

Darling-Hammond, L. (2021). *The right to learn: A blueprint for creating schools that work*. John Wiley & Sons.

Dron, J., Anderson, T., & Siemens, G. (2012). *Teaching crowds: Learning and social media*. Athabasca University Press.

Eisenberg, M. B., Lowe, C. A., & Spitzer, K. L. (2004). *Information literacy: Essential skills for the information age* (2nd ed.). Libraries Unlimited.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education* (8th ed.). McGraw-Hill.

García, O. (2021). *Translanguaging and bilingual education: From practice to theory*. Palgrave Macmillan.

García, O., & Wei, L. (2022). *Translanguaging and bilingual education: From practice to theory*. Palgrave Macmillan.

Gee, J. P. (2022). *The new literacy studies: From sociolinguistics to digital literacies*. Routledge.

Ghayyur, T. S., & Mirza, N. A. (2021). Exploring TPACK skills of prospective teachers and challenges faced in digital technology integration in Pakistan. *Journal of Development and Social Sciences, 2*(IV), 226-241. https://doi.org/10.47205/jdss.2021(2-IV)19

Ghayyur, T. S., Shamim-ur-Rasul, S., & Parveen, A. (2024). Effect of 21st century skills of trainee teachers and their academic achievement. *Social Science Review Archives, 2*(2), 1–10. Retrieved from https://policyjournalofms.com/index.php/6/article/view/42/69

Government of Pakistan. (2022). *National education policy framework: Literacy and teacher education reform*. Islamabad: Ministry of Education.

Greenhow, C., & Lewin, C. (2023). Digital literacy and learning in the 21st century. *Journal of Education and Learning, 13*(4), 289-305. https://doi.org/10.1080/17439884.2023.1250493

Janks, H. (2020). *Critical literacy: Theories and practices in development*. Routledge.

Khan, S. (2022). Exploring the relationship between literacy skills and academic achievement among trainee teachers in Pakistan. *Journal of Educational Research, 25*(3), 345-360.

Leu, D. J., Kinzer, C. K., Coiro, J., & Cammack, D. (2022). Toward a theory of new literacies emerging from the internet and other information and communication technologies. *Theoretical Models and Processes of Literacy*, *5*(1), 1570-1613.

Mahmood, K. (2021). Teacher education in Pakistan: Literacy skills and academic achievement in the 21st century. *Journal of Educational Change, 19*(3), 219-233.

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4769). National Institute of Child Health and Human Development.

OECD. (2022). *21st-century skills and competencies for new millennium learners in OECD countries*. OECD Publishing. https://doi.org/10.1787/5k8tq5c8e9c5-en

Rahman, T., & Bukhari, R. (2021). The role of literacy skills in the professional development of trainee teachers in Pakistan. *Pakistan Journal of Education, 38*(2), 175-190.

Sang, G., Valcke, M., van Braak, J., & Tondeur, J. (2013). Student teachers' thinking processes and ICT integration: Predictors of prospective teaching behaviors with educational technology. *Computers & Education, 59*(1), 1089-1099. https://doi.org/10.1016/j.compedu.2012.10.006

Schön, D. A. (2022). *The reflective practitioner: How professionals think in action*. Routledge.

Schunk, D. H., & DiBenedetto, M. K. (2020). Social cognitive theory. In *Learning theories: An educational perspective* (8th ed., pp. 137-175). Pearson.

Selwyn, N. (2011). *Education and technology: Key issues and debates*. Bloomsbury Publishing.

Snow, C. E. (2010). *Reading for understanding: Toward an R&D program in reading comprehension*. RAND Corporation.

UNESCO. (2023). *Literacy and education in the digital age: A global perspective*. United Nations Educational, Scientific and Cultural Organization.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Wertsch, J. V. (2020). *Vygotsky and the social formation of mind* (2nd ed.). Harvard University Press.

Zhang, Y., Xu, W., & Xu, D. (2020). Exploring the impact of literacy skills on academic performance: A cross-university study. *Higher Education Quarterly, 74*(3), 324-337. https://doi.org/10.1111/hequ.12275