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Technological Integration in Assessment Practices for Inclusive Education in Primary Schools

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Abstract

The study focused on investigating the technological integration in assessment practices for inclusive education in primary schools. Quantitative cross-sectional survey design was used to carry out the study. The sample of the study was 176 teachers teaching at primary level in FGEIs (C/G) Multan region. Stratified random sampling was used to select the study's sample. The data was gathered using a questionnaire that was self-designed and validated. Frequency counts, percentages, one-sample t-tests, independent samples t-tests, and analysis of variance (ANOVA) were used to examine the collected data. Adaptive learning technologies can enhance inclusivity in assessment at primary level significantly. Additionally, the study found significant differences in teachers' perceptions regarding the use of technological tools in inclusive assessment and impact of adaptive learning technologies on inclusivity in assessment, based on gender i.e. male and female. However, there was no significant difference among teachers' perception on the base of professional qualification, academic qualifications and teaching experience. The study revealed that teachers use the technological tools in inclusive assessment.

Keywords: *Assessment, Inclusive education, Primary level, Technological Integration*

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Introduction

New ways to learn and get an education are possible because of quick advances in technology like computers and the internet. As we move into the digital age, new technologies are changing how institutions are run and organized. This change also had an effect on schooling. It is important for teachers to deal with the problems that these developments bring about in order to prepare pupils to be good citizens. Recent changes to education have made it clear that all kids need to be included in regular classrooms and that the way teachers teach needs to be changed to meet the needs of each child. From the point of view of social justice and equality, inclusion is putting kids with special educational needs into regular schools and making sure they are involved in all parts of school life and socializing with other kids (Karagianni & Drigas, 2023).

An inclusion system is a set of rules, policies, and actions that work together to create an environment where everyone feels valued, respected, and supported. You can set up inclusion systems in a lot of different places, such schools, businesses, and neighborhoods. The idea is to ensure every teacher regardless of their origin and abilities is given equal opportunity to get involved, assist others and emerge successfully. Educators are supposed to be aware of what the inclusion system is and how it is significant in education. This involves not only having an idea of how the education system can assist all children with schoolwork and appropriate behavior so that they can take part and excel (Keles et al., 2024).

Inclusive education considers the peculiarities of every student and ensures that none of them is left behind or never learns and succeeds. It realizes that all children are capable of learning and all children are diverse in their areas of interest, learning capacities and learning requirements (UNESCO, 2024). According to UNESCO (2019), efficient education systems are supposed to be accessible to all individuals and should have the capacity to be non-discriminatory by removing the obstacles with regard to hindering all learners to be engaged as well as succeed, by acknowledging various needs, skills and attributes, and by eradicating any form of discrimination in the learning space. Providing equal educational opportunities for all learners, including those with special needs, is the goal of inclusive education (Buenao-barreno, 2024). A number of postulates form the basis of the framework. One of these is that, in today's society, a person's inherent value is independent of their abilities or accomplishments. Another is that students with disabilities or special educational needs should be welcomed into the classroom (Shmeleva & Litovchenko, 2022).

Inclusive education is the concurrent teaching of the students with and without disabilities in one classroom, which presents multiple benefits to all students. The number of benefits that inclusion education embraces is relatively high: service in forming meaningful friendships and relationships accessible to peers with varied abilities, ability to get access to the overall curriculum, and the chance to take advantage of peer role models in terms of academic skills. It creates a larger understanding and tolerance of differences, encourages respect among all students, and makes more demands of everyone, thus creating an atmosphere of high achievement. Also, it motivates school personnel to work in conjunction, such as principled teachers, special education teachers, and called support personnel (Demchenko et al., 2021).

To summarize, inclusion is the process of eradicating exclusionary practices from a society through changing the mindset, values, and beliefs of its members. Inclusive education will serve as a driving force when it comes to achieving objectives. According to Sharma et al. (2021), inclusive education encompasses a wide range of practices that aim to integrate students with learning disabilities and typically developing classmates in a single classroom setting. Any student, regardless of their background or ability, should be able to participate fully in class at an inclusive learning environment. Every student deserves access to equitable educational opportunities that value diversity, encourage participation without barriers, and take into account individual differences in learning styles and requirements (Ghosh et al., 2022).

Researchers have come up with diverse tools and solutions to quantify technological integration, and the notion itself has varied. Researchers in the field agree, as shown in the previous discussion (Duran, 2022; Consoli et al., 2023), that surveys promoting technology integration evaluations should incorporate both the frequency and quality of technology usage into teaching methods. The term "Technological Integration" (TI) has a precise definition according to the ERIC thesaurus. By altering course offerings and campus infrastructure, technological resources like the Internet and computer systems are becoming more embedded in the classroom (Education Resources Information Center, 2022).

One of the most important resources for implementing instructional differentiation, enhancing learning processes, and creating inclusive classrooms is educational technology. According to Merzon et al. (2022), digital educational technologies present instructors and students with considerable opportunity to enhance technical skills, particularly within the context of inclusive education. According to González and Estrella (2023), a teacher can be considered technologically competent if they are

able to comprehend, manage, and make use of digital environments for the purpose of knowledge production and dissemination.

Through the use of educational software, students are able to participate in a dynamic learning environment that is rich in varied information and real-life scenarios. Such an approach motivates the students to be active participants in their learning process and puts them at the liberty of shaping their learning process to satisfy their unique needs. In addition, Demetriou (2023) said that technology enables children to be more attentive, to be more involved, and to learn more. Bernones-Yaulema and Buenaono-Barreno (2023) noted that technology plays an instrumental role in the development of skills that students could use as technology encourages learning, socialization, play, and collaboration. The students are also shown to be interested both in the digital media and those activities taking place in the real-world, implying a necessity to achieve a balance between the two. To guarantee access and engagement in the digital age and creation of digital literacies, introduction of digital technology at an early age should be considered. According to Desideri et al. (2023), technology is crucial in inclusive education, particularly for students with impairments.

Rationale for the Study

Inclusive education is aimed at ensuring that every student regardless of the nature of his or her abilities and limitations has an equal access to quality education. When it comes to primary schools, it is highly essential to introduce an inclusive environment which can satisfy the needs of every student and promote the social cohesiveness. However, these various goals are not usually addressed by standard means of testing which demonstrates how significant it is to develop new methods of doing things.

Various fields such as education have transformed by the virtue of technology at a very rapid rate. The implementation of technology in assessment can assist the students who have special needs to learn the material in a more specific manner, to be more interested within the work they have, and to more easily learn the material. Through digital tools, instructors can obtain instant feedback and acquire additional information regarding the progress of every child.

Modern forms of testing may be discriminative as these tend to be biased towards a specific group of learners as per the learning style. The application of technology in the classroom allows an educator to employ a broader set of assessment tools such as adaptive testing, assessments where interaction occurs, and multimedia project tasks. These measures

are able to accommodate the various learning styles and strengths and this provides a better indication of what the students are capable of.

Teachers play a very crucial role in the functioning of inclusive education. Technology in assessment can also give teachers increased control i.e. they have the tools to find it easier to collect, analyze and report data. This can, in its turn, assist teachers in designing lessons and enhancing the classroom tactics that would be personalized to the requirements of each student.

Applying technology in exams allows you to acquire valuable data related to the student performance levels over time. You could view this data to identify patterns, gaps and areas of requirement. When data is used properly, people can make sound decisions and ensure that correct actions are undertaken at the appropriate moment. Technology is beneficial in making communication between teachers, parents, and other parties that interact with children easier. The results and strategic plans of the tests can be easier shared over digital platforms, and hence, the students will be connected with others to learn and develop. Using technology in tests can also help pupils grow socially and emotionally. Tests that are interactive and game-like can lower stress and boost motivation, making the classroom a more welcoming place that encourages all students to take part. This study on how technology is used in assessments for inclusive education in primary schools is very important for figuring out how to better help students with different needs. The study intends to help create better ways to test students that not only respect but also celebrate diversity in the classroom. This will help make the education system more open to everyone.

Research Objectives

1. To investigate the teachers' perspective about the usage of technological tools in supporting inclusive assessment practices in primary education.
2. To examine the teachers' insights regarding the impact of integration of adaptive learning technologies in assessment practices to enhance inclusivity for students with diverse learning needs in primary schools
3. To ascertain the difference among teachers' insights on the base of demographics i.e. gender, academic qualification, professional qualification and teaching experience

Research Questions

1. How do teachers perceive the usage of technological tools in supporting inclusive assessment practices in primary education?
2. To what extent does the integration of adaptive learning technologies in assessment practices enhance inclusivity for students with diverse learning needs in primary schools as per teachers' insights?
3. Is there any difference among teachers' insights on the base of demographics i.e. gender, academic qualification, professional qualification and teaching experience?

Literature Review

Educators need to develop pedagogical practices that recognize and value each student's uniqueness in order to create inclusive classroom environments; this goes beyond simple administrative improvements. In the classroom, this encourages students to work together and learn through "critical creation" (Fernandez, 2021).

Lynch et al. (2024) conduct a systematic evaluation that looks at how primary schools in low- and middle-income countries use instructional technology to help students with disabilities. This study highlights the lack of research on different types of disabilities, with a particular focus on sensory impairments in special education. To develop technological solutions that meet the needs of all students with disabilities, it is essential to do research that is both inclusive and participatory. This study should focus on intersectional issues, such as gender and geographic location.

In their systematic review, Toto et al. (2024) examine how new technology have impacted inclusive education. The views and the activities of teachers concerning the innovative pedagogical models that the latest technologies, such as AI, AR, and AST have to offer, are addressed in the given research. The results indicate that the technologies have the great potential to enhance inclusion of learning and enable easier and lot more enjoyable experience of all the students including those with any disability to be able to learn and do well in classrooms. These technologies evolve, and the increasing number of publications related to them proves that the research in concrete areas has to be developed.

To improve their knowledge of how to involve the minority students in the inclusive education programs in China, Colombia, and the US, Salas-Pilco et al. (2022) amalgamated the information based on 27 research articles and the following subjects related to AI and the new technology. The results indicate that the learning process will be more accessible and suitable due to improved participation by students with

different sociocultural backgrounds as a result of the improvement of technology. One of the challenges they will have to achieve involves inadequate funding, and they will also need to properly prepare the teachers. The results reveal the need to choose the views of educators when establishing an inclusive practice, the significance of focusing on future technology and the requirement to consider the scope of minority groups when exploring in a future research work.

As Hero (2019) states, the incorporation of technology in the field of education can provide new horizons of teaching and learning. In addition to the social studies field, it opened a window of the possibility that learning experiences could be more active, participative and effective. It belongs to a bigger trend, which states that the use of technology in the classroom needs to be supported by the equipment that facilitates better learning results and the improvement of teaching overall. That is why in their attempts to promote their education strategies in the classroom, teachers representing all layers of the population are implementing technology. The academic results in classes improved and teacher efficiency increased exponentially because of using technology in the educational process.

Wallace-Spurgin (2020) measured students' cognitive processes and investigated the interaction of the technology. To enhance influence on the cognitive thinking of students and academic achievements of students, Wallace-Spurgin pointed out the challenges facing school districts in the process of employing effective technological gadgets. To transform assessment, course design, pedagogy, and teaching practices, we need not only to work with doctoral learners in groups: it is also necessary to collaborate with other professionals in teams.

Jakubek (2023) notes that these are one of the primary benefits of utilizing technology in the classroom to enable a teacher to personalize the education process and gauge the progress by adjusting to individual needs of students. The variety of authentic resources made available by technological advancements that facilitated the development and execution of a lesson plan further contributed to the sense of agency. When educators began incorporating technology into the classroom without first carefully considering how it might impact student learning, issues started to emerge.

Research in the field of inclusive education and technology has shown remarkable growth in recent years. In their discussion of the post-COVID-19 educational landscape, Haleem et al. (2022) focus on the influence of digital technology. While they do touch on the potential benefits of individual growth and increased participation, they also highlight the

challenges that remain in the areas of fairness, educator preparation, and efficient integration. According to Chambers's (2020) analysis of ATs, these devices and services help students with functional diversity participate more fully in society, have easier access to course materials, and increase the volume of their abilities.

In their 2022 study, Salas-Pilco et al. primarily addressed the pros and cons of incorporating AI and other new technologies into inclusive settings. Concerning technical, pedagogical, and cultural factors, they identified both the advantages—such as students' improved performance and a growing interest in STEM/STEAM fields—and the disadvantages. With a view on democratizing knowledge, increasing equity, and decreasing social marginalization, Reyes and Prado (2020) examine the role of ICT in inclusive primary education. They emphasized the significance of well-crafted rules, enough training for educators, and a clear delineation between inclusion and integration. A paradigm change in the importance of technology's presence should be prioritized based on its effects on learning, and multidimensional methods are necessary to evaluate technology's impact on the classroom, says Lai (2022). Many view the evaluation of students' progress through the use of technology in the classroom as a difficult and controversial task (Muller & Wulf, 2020).

The many dimensions of educational technology literature include but are not limited to learning, affective elements, behaviors, design, pedagogy, presence/community, and institutional venue. Some of these aspects might become the subject of the future research, though, as demonstrated in the works of the past (Lai & Bower, 2019).

Lai et al. (2022) determined the level of acceptability of the technology by means of the PIU and PD of usability in their research. The question of the impact of technology integration on the performance of teachers, their pedagogical preferences, work satisfaction, dedication and acceptance requires the study. Tang (2020) added that beliefs of people on the possibility of technology to positively change the level of job performance were highly dependent on their degree of performance expectancy (PE).

Consistent with this view, Jung and Lee, in a given study (2020), focus on the significance of people having good expectations concerning technology use.

In order to understand the acceptance of technology more deeply, main factors considered in this model are hedonic motivation, value of pricing, and the habit. It is referred to as the Unified Theory of Acceptance and use of Technology (UTAUT). Granić and Marangunić (2019) and

Scherer et al. (2019) point out that a problem was to choose the model that would properly present the concept of technology adoption in terms of the teacher education and its professional development, along with considering the contextual factors that impacted the results.

Adzanku et al. (2022) are studies concentrating on evaluation tactics of teachers in inclusive classrooms. Judging by the results, the majority of educators did not tend to adopt special needs of students through the right tools since they did not have those adequate to them. The study reached a conclusion that the training programs curricula on identification and assessment of persons with disabilities were not sufficient and adequate (Adewumi & Mosito, 2019). The research reported that positive attitudes towards students with disabilities and inclusive education accompany an increased quantity of professional development opportunities offered to the teachers. The professional development activities of teachers should include conferences, seminars, lectures, mentoring, supervision, peer assessment, self- evaluations, participation in educational projects and in-service teacher training.

Pillai and Devamanokari (2023) investigated academic assessment measures of general teachers in inclusive schools when it comes to children with special needs. The findings in the study indicated that there is a need to have more detailed forms of assessment since general education teachers were met with challenges as they administered written and oral assessment to the students with special needs in an inclusive environment. Diversity-valued teaching methods are needed to ensure an inclusive classroom learning environment among different students. Technological innovations in education make it possible to achieve improvements in the classroom performance, efficiency of teachers as well as the quality of inclusive education. Such issues as insufficiency of resources and necessity of educating teachers are not disappearing. Students with functional diversity must have access to assistive technology in order to fully participate in the classroom. Having thorough instruments to evaluate the effect of technology on education is crucial, with an emphasis on the results achieved by students' education rather than its mere existence. While it's helpful for special education teachers to receive in-service training, thorough assessments are necessary to ensure that all students have access to quality education.

Research Design

The purpose of this research was to examine how inclusive education assessment procedures in primary schools make use of technology. This

research was primarily descriptive in nature. This study therefore made use of a quantitative survey design.

Population & Sample of the Study

All primary school teachers in Federal Government Educational Institutions (Cantt/Garrison) [FGEIs (C/G)] Multan Region were included in the study's population. FGEIs (C/G) of Multan Region were in four districts i.e. Multan, Khanewal, Jhang and Okara.

Probability stratified random sampling is very effective when dealing with a diverse population of various districts since it ensures representative sampling and also increases the accuracy of statistics since the population is divided into significant subgroups. The technique allows the researcher to select the samples systematically in the different strata making sure that the minor or extreme subgroups are sufficiently represented. Stratified random sampling has several significant advantages when it comes to working with heterogeneous populations: it reduces the difference within groups and helps a researcher to study the relationship between subpopulations (Djennad & Djellouli, 2025).

Indicatively, Parsaeian et al. (2020) has demonstrated that stratified sampling is capable of increasing sampling efficiency up to 1.7 times as compared to basic random sampling. Moreover, Pyrczak and Tcherni-Buzzeo (2018) noted that stratification increases the sample representativeness, particularly in a situation where geographic or demographic heterogeneity exists in the population.

The population comprised in diverse districts, therefore the researchers used a probability stratified random sampling method to choose their study's sample. Using Yamane's formula (1967), which is defined as $n = N / (1 + Ne^2)$, the research sample of 176 primary school teachers was selected.

Data Collection

A self-designed and -validated questionnaire was used to gather data. Opinions from experts and pilot tests confirmed the reliability of the scale. Twenty educators participated in the study's pilot phase, during which data was gathered. Using the Chronbach alpha test, we were able to determine that the scale was reliable (r=.81). Researchers distributed Google forms, used WhatsApp and email to disseminate information, and visited schools to gather data.

Data Analysis Techniques

The data was analyzed using descriptive statistics (frequency and percentage) and inferential statistics (one sample t. test, independent samples t. test, and ANOVA).

Results

Table 1

Demographic Information of the Sample Participants (N=176)

Demographic Variables		Participants	
		Frequency	%age
Gender	Male	87	49.4
	Female	89	50.6
Academic Qualification	BA/BSc	47	26.7
	BS/MA/MSc	101	57.3
	MS/MPhil	28	15.9
Professional Qualification	B.Ed	101	57.3
	M.Ed/MA(Edu)	75	42.7
Teaching Experience	0-5 Years	22	12.5
	6-10 Years	63	35.8
	11-15 Years	77	43.8
	16-Above Years	14	8.0

Table 1 presents the demographic information of the sample participants. The data indicates that 49.4% of the participants were male, while 50.6% were female. In a similar vein, 26.7% of the sample teachers classified their academic qualifications as BA/BSc, 57.3% as BS/MA/MSc, and 15.9% as MS/M.Phil. The participants classified their professional qualifications 57.3% as B.Ed. and42.7% as M.Ed./MA (Edu).While 12.5% teachers have 0-5 years teaching experience, 35.8% have 6-10 years, 43.8% have 11-15 years and 8% have 16-above teaching experience.

Table 2
One Sample t. test

Variable	N	Mean	Std. Dev	*t*	Df	Sig.
Perceptions of Teachers regarding Usage of Technological Tools in Inclusive Assessment	176	3.7153	.51851	95.061	175	.000

Table 2 demonstrates the results of one sample *t.* test regarding perceptions of teachers regarding technological tools in inclusive assessment. It shows significant and positive perception (M=3.71, SD=.51, t.=95.061 and Sig.= .000<.05) of teachers regarding usage of technological tools in inclusive assessment.

Table 3
One Sample t. test

Variable	N	Mean	Std. Dev	*t*	df	Sig.
The Impact of Adaptive Learning Technologies on Inclusivity in Assessment	176	3.8466	.57945	88.068	175	.000

Table 3 demonstrates the results of one sample *t.* test regarding insights of teachers regarding the impact of adaptive learning technologies on inclusivity in assessment. It shows significant perception (M=3.84, SD=.57, t.=88.068 and Sig.= .000<.05) of teachers regarding the impact of adaptive learning technologies on inclusivity in assessment.

Table 4
Independent Samples t. test (Gender Wise Differences)

Variable	Cat	N	Mean	Std. Dev	*t*	df	Sig.
Perceptions of Teachers regarding Usage Technological Tools in Inclusive Assessment	Male	87	3.6253	.47476	2.306	174	.022
	Female	89	3.8034	.54636			

Table 4 demonstrates the results of independent samples *t.* test regarding gender wise difference among perceptions of teachers regarding technological tools in inclusive assessment. It shows significant difference (Sig.= .022<.05) between male and female teachers' perception regarding usage of technological tools in inclusive assessment.

Table 5

Independent Sample t. test (Gender Wise Differences)

Variable	Cat	N	Mean	Std. Dev	*t*	df	Sig.
The Impact of Adaptive Learning Technologies on Inclusivity in Assessment	Male	87	3.9977	.40519	3.531	174	.001
	Female	89	3.6989	.68016			

Table 5 demonstrates the results of independent samples *t.* test regarding difference in perceptions of teachers about the impact of adaptive learning technologies on inclusivity in assessment. It shows significant difference (Sig.= .001<.05) between male and female teachers' perception regarding the impact of adaptive learning technologies on inclusivity in assessment.

Table 6

Independent Sample t. test (Professional Qualification Wise Differences)

Variable	Cat	N	Mean	Std. Dev	*t*	df	Sig.
Perceptions of Teachers regarding Technological Tools in Inclusive Assessment	B.Ed	88	3.6807	.53945	.886	174	.377
	M.Ed/MA (Edu)	88	3.7500	.49735			

Table 6 demonstrates the results of independent samples *t.* test regarding professional qualification wise difference among perceptions of teachers regarding usage of technological tools in inclusive assessment. It shows no significant difference (Sig.= .377>.05) between B.Ed and M.Ed. teachers' perception regarding usage of technological tools in inclusive assessment.

Table 7
Independent Sample t. test (Professional Qualification Wise Difference)

Variable	Cat	N	Mean	Std. Dev	*t*	df	Sig.
The Impact of Adaptive Learning Technologies on Inclusivity in Assessment	B.Ed	88	3.9080	.52702	1.40	174	.161
	M.Ed/MA (Edu)	88	3.7852	.62451			

Table 7 demonstrates the results of independent samples *t.* test regarding difference in perceptions of teachers about the impact of adaptive learning technologies on inclusivity in assessment on the base of professional qualification. It shows no significant difference (Sig.= .161>.05) between B.Ed and M.Ed. teachers' perception regarding the impact of adaptive learning technologies on inclusivity in assessment.

Table 8
One Way ANOVA (Academic Qualification Wise Difference)

Variables		Sum of Squares	df	Mean Square	F	Sig
Usage of Technological Tools in Inclusive Assessment	Between Groups	2.678	3	.893	3.460	.018
	Within Groups	44.371	172	.258		
	Total	47.049	175			
The Impact of Adaptive Learning Technologies on Inclusivity in Assessment	Between Groups	1.475	3	.492	1.476	.223
	Within Groups	57.283	172	.333		
	Total	58.758	175			

Table 8 demonstrates the results of one way ANOVA regarding difference in perceptions of teachers about the usage of technological tools in inclusive assessment and the impact of adaptive learning technologies on inclusivity in assessment on the base of academic qualification. It shows significant difference (Sig.= .018<.05) among teachers having different qualifications i.e. BA/BSc, BS/MA/MSc and MS/MPhil regarding usage of technological tools in inclusive assessment. However, there is no significant difference (Sig.= .223>.05) among teachers having different qualifications i.e. BA/BSc, BS/MA/MSc and MS/MPhil regarding the

impact of adaptive learning technologies on inclusivity in assessment.

Table 9
One Way ANOVA (Teaching Experience Wise Difference)

Variables		Sum of Squares	Df	Mean Square	F	Sig
Usage of Technological Tools in Inclusive Assessment	Between Groups	.237	3	.079	.290	.832
	Within Groups	46.812	172	.272		
	Total	47.049	175			
The Impact of Adaptive Learning Technologies on Inclusivity in Assessment	Between Groups	.024	3	.008	.023	.995
	Within Groups	58.734	172	.341		
	Total	58.758	175			

Table 9 demonstrates the results of one way ANOVA regarding difference in perceptions of teachers about the usage of technological tools in inclusive assessment and the impact of adaptive learning technologies on inclusivity in assessment on the base of teaching experience. It shows no significant difference (Sig.= .83>.05, .99>.05) among teachers having different teaching experience years regarding usage of technological tools in inclusive assessment and the impact of adaptive learning technologies on inclusivity in assessment.

Discussion

Teachers' views on the use of technology in inclusive assessment were found to be substantial and positive, according to the study. Also, it reveals that educators have a favorable impression of how adaptive learning technologies affect diversity and inclusion in evaluation. The majority of educators see the integration of technology into inclusive education positively, according to studies (Vega-Gea et al., 2021; Fernández-Batanero & Colmenero-Ruiz, 2016). When it comes to incorporating technology into inclusive practices, specialist educators have a more optimistic outlook (Vega-Gea et al., 2021). Teachers must devote a substantial amount of time and energy to becoming proficient with adaptive learning technology in order to provide students with individualized training that meets their specific needs (Simon & Zeng, 2024). Adoption is hindered by the programs' complexity and the limited chances for professional development (Simon & Zeng, 2024). Technical

requirements for efficient remote education have been highlighted by the COVID-19 pandemic, which has hastened the need for competent online teachers (Winter et al., 2021). Continual technical and institutional support, coupled with sufficient training within teacher education programs, is necessary for the effective integration of ICT and adaptive learning technologies into inclusive classrooms (Simon & Zeng, 2024; Winter et al., 2021).

There are substantial gender variations in how male and female educators view the integration of technology into inclusive assessment, according to the study. Perceptions among educators did not vary significantly according to factors such as years of experience in the field, level of education, or professional certification. The results of previous research on the topic of gender inequalities in teachers' views and use of technology in the classroom have been mixed. While some research suggests that teachers' attitudes towards technology use are initially more positive than those of female teachers, other studies find no significant differences between the sexes when it comes to experience, education level, or subject area (Gorder, 2008; Li, 2016; Teo et al., 2015). Professional development programs can reduce gender gaps because female instructors, as demonstrated by the fact that they exhibited improved integration of technology following training, can be trained to reduce the gaps (Li, 2016). Teo et al. (2015) stated that female non-teachings were more challenged in using technology as compared to their male counterparts. Based on the study of inclusive education, it has been established that the gender of instructors, quantity of work experience, and the level of education do not make any difference in regards to how students feel regarding their inclusion (Sharma et al., 2022). The findings indicate that a complex gender gap exists in the adoption of technology between the teachers and they emphasize the demand of specific professional development opportunities to reduce the gender gap.

Conclusion

The researchers established that the use of technology resource in inclusive assessment was favorably perceived by teachers. Moreover, teachers also assumed that adaptive learning technology helps to make assessment more inclusive at primary level. Additionally, the study revealed significant differences in teachers' perceptions of the use of technological tools in inclusive assessment, based on gender i.e. male and female. However, there was no significant difference among teachers' perception on the base of professional qualification, academic qualifications and teaching experience.

Recommendations

It is recommended to implement the usage of technological tools in inclusive assessment and adaptive learning technologies to enhance inclusivity in assessment practices at primary level to address the diverse needs of students. Moreover, teachers should be provided the opportunities of professional development regarding use of adaptive learning technologies in assessment practices.

Suggestions for Future Studies

The study was delimited to the Federal Educational Institutions (Cantt/Garrison) Multan Region. More studies may be conducted with more large population e.g. all FGEIS (C/G) teachers of Pakistan or in the schools of Punjab school education department. More research may be done with the perceptions of head teachers and other stake holders. Qualitative methods may enhance the scope of the study.

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