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An Investigation of the Perceptions of Multigrade Teachers Related to Technological Skills at Elementary Level

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Abstract

The main purpose of the quantitative study was to investigate technological skills of multi grade teachers at elementary level. Objectives of the study were to investigate the perceptions of multi-grade teachers at elementary level regarding technological skills and to compare the perceptions of technological skills of male and female multi-grade teachers. Number of fifty-six elementary schools of union councils of district Swabi was the population of the study, among these the researcher selected 10 union councils having both male and female primary school teachers attended multigrade training related to technological skills during the session 2023-2024. Therefore Seventy-two male primary schools teachers and sixty-one female primary school teachers were randomly selected by using online sample calculator. The research tool was valid as it was more accurate and authentic results having face validity and concurrent validity. Cronbach's Alpha .666 reliability of the pilot test was found which was accepted in the field of social sciences. Data was collected and analysed by using SPSS 21. The findings of study revealed that the use of technology was better impact on multi grade teaching furthermore technology is helpful for all grade levels they teach in multi grade system and its mean was 1.96. Results revealed that both male and female primary school teachers (PST) were the identical perceptions related to technological skills in the multi-grade teaching. Additionally, empirical research on the usage of technology during multigrade at the elementary level was suggested for future researchers in order to obtain more accurate results.

Keywords: Technological skills, Multi-Grade Teachers, Elementary Level and Empirical Research

Introduction

According to Little (2006) that there is lack of understanding among investigators and experts about concept of multi grade teaching. It is not a strict and specific task to make agreement. There was argument that in most primary or Elementary school circle there is a one-year level at even much specific a school daily. It is said to be a single level teaching. This may be comparison with the classroom in which one instructor teaches a level structure of students accordingly. According to Khan (2010) said, "Pakistan is one of the bulkiest populated territories in the world." More than half of the population is living in rustical regions. Among those majority is uneducated and not aware of the importance of education. So, they do not send their children to schools to get education. In Pakistan the total education setting fundamental requirements are missing like basic training of instructors, lack of teacher's duty and lack of library, scientific & computer laboratories etc, which are the basic requirements for Pakistani multi-level system. The allocation of funds for education department by the government of Pakistan is very low; Even 2% of the total GPD of Pakistan is spent on elementary education. Aminu, (2014) says that the multi-level teaching is students focused in a learner set up in which pupils learn across one or two grades, which are taught by the same instructor at the same condition. Zhao et al. (2002) stated that the multi grade instructor's competence is related to his technological skills and his capability of using technology and skills correctly and integrate it into teaching and learning in the class. The ability is related to his pedagogical views about the technology and skills to investigate by utilizing them in multi-level teaching at elementary level. Butler and Selborn (2002) argued that technological skills are possible if the technological tools are

reliable. Multi grade teachers can use the technological methods for assessment. As Khan (2008) stated that the most important technological skills are the tools in manipulating the future planning of multi grade teaching and learning within the educational situation. Ferrero (2003) argues that classifying the shortcomings of multi grade teaching technological skills competency are the most critical factors. As (Valli & Hawley, 2002; Habib et al., 2025) state, teacher's development appears to be a strategy that could expose the challenges to change or to develop new technological skills. Multi grade instructors may be delivered with technological skills to develop comprehension of the information and skills relate to the students.

Objectives of research

The paper was based on the following research objectives;

1. To investigate the perceptions of multi-grade teachers at elementary level regarding technological skills at primary level
2. To compare the Perceptions of technological skills of male and female multi-grade teachers.

Research Questions

1. The paper was based on the following research questions
2. What are the perceptions of multi-grade teachers at elementary level regarding technological skills at primary level?
3. What is the difference between the Perceptions of technological skills of male and female multi-grade teachers?

Statement of the problem

According to the vision of 2025 the teachers and students should be capable to use the technological skills in the teaching and learning process (Sulaiman and Ismail (2020). Therefore, (Minaz, Habib & Baig, 2024; Minaz, Baig & Ali 2024) suggested that efforts for the application of technological skills in teaching and learning are essential to prepare the 21st century generation for better learning and understanding. According to (Naparan & Alinsug 2021). Multigrade teaching is the teaching methodology in which a single teacher tolerates the burden of overwork load along with all the responsibilities of the administrative and academic tasks along with the use of advanced technological tools. Thus the study aim was to investigate the perceptions regarding the technological skills of multi grade teachers at elementary level.

Significance of the study

The study identifies the perceptions of multi grade teaching and investigates technological skills of multi grade teachers at elementary level, therefore the research study is significant for professional training related to multi-grade teaching, curriculum of multigrade teaching and policy makers to plan, implement and to upgrade theoretical implication of the multigrade teaching at elementary level.

Theoretical Framework

According to Tarnopolsky, (2012) constructivism theories pupils design multiple information rather than just engaging in learning activities. According to Minaz, Tabassum and Idris (2017) learners developed their own representations in the skills and absorbed new creative skills in to their prior knowledge while they see the world and think back on previous knowledge (Vygotsky, 2018). According to Minaz, Tabassum, & Idris (2017) that Constructivists learning theories hold that students developed in the new knowledge on their own can use it to increase on whatever they already know and have practical skills. The pupils and teachers act as implementers by offering relevant and stimulating resources. This concept delivers considerable support to mature learning style. Constructivist learning theories on thinking show the online teachers' performances of instruction provide each pupil the related technological skills as a facilitator having an eye on creating a safe, productive, and positive learning atmosphere. As (Tarnopolsky, 2012; Pillay, & James, 2014; Ahmad et al., 2021; Villatte, 2022) argued that multi grade teaching is a constructivist methodology which use technology to prove and enhance traditional teaching by technological skills for multi grade schools having diverse levels of adoption. Finally, this approach is descriptive rather than a pedagogy or knowledge. According to Villatte, (2022) the blended learning is not deliberate to use technological skills to interpret the views of teachers. Such learning applies technology skills to enhance their abilities.

Conceptual Framework of the Study

Perceptions of Technological Skills	Multi Grade Teachers (PST)	Primary School Teachers (Male and Female)

Conceptual Framework

The diagram revealed the constructivist Tarnopolsky (2012) conceptual framework of the research study framework provide perceptions of male and female primary school teachers related to the technological skills of multi grade teachers at elementary level

Literature review

According to Minaz, Baig and Ali, (2024) the proposed skill provision may be provided to multi grade instructors with technological skills for assimilation in elementary level (Khambari et al., 2009; Rodden, 2010). As Tsolakidis, et al. (2005) discussed the general essentials with multi-level instructors in Europe; newly engaged instructors of multi-grade schools of elementary stage who rarely get nationally prepared orientation conferences on such unique kind of institution they further discussed deficiency of proper practice of technological skills at the elementary level. Finally, the academic necessities in elementary schools are affected; instructors lack the knowledge about teaching in the multi grade students. According to Idris, Minaz and Khan, (2022) the situation was discussed the 21st century multi grade teachers with dynamic positions and multiple technological skills used in the classroom at elementary level. They assist the knowledgeable teachers of the nation. According to Berry, 2007) in rustical sectors, multi-grade level of learning and pedagogical method is favored such as the shortage of teaching faculty in the zones of the province of Punjab. Due to the tenacity the students going to these regions are unable to merge schools in other rural zones. Angela (2004) argued that multi-grade method of learning is selected as a top pedagogical technique in rustical regions where the population growth is low compared to other zones. Such as on single or double instructors are engaged to teach the whole the elementary levels. In the private sector schools have vast statistics of pupils separate in diverse regions for their learning; there multi-grade teaching approach is practiced. Several instructors were concentrating to teach through the multi-level although few of the faculty staffs were focused to teach with the help of multi-level teaching. Single classroom were developed for classes in distribution of the same stage in every area. Instructor might be responsible to display sixty pupils in a one class. Due to lack of reasonable training and assets, it is irrational to anticipate teachers to realize a lot (Mansoor, 2011).

Multi grade teaching methodology and classroom approach

According to Ludwig (2004) multi grade approach was named after Maria Montessori, a doctrine and of policy pedagogy and which there was a development of instructive design and theories about learning hundred years ago. As Mulyran-Kyne, (2007) argued that in Multi grade classroom it is essential to give students their own textbook because it is considered to give equal opportunity to students to integrate the course and syllabus both energetically and effectively. The schools in the territory of Pakistan at present time rank first for multi grade teaching surrounding and condition. As a result, a teacher urgently handles amazing and unusual grade influencing the classroom acquiring battle-based lifestyle evenly by perception and classing determination. As for straight forward and exertive learning is concerned the teacher must be safe and must protect all achievable approaches related to learning capacity of the students Minaz, Habib and Baig, (2024). The main responsibility of a teacher is to connect his pupils in learning bustle without the loss of their time. Interestingly, the pupils who drop out are gratified to complex thought to Sharpen due their capacity. Argument of Beukes, (2006) states that the condition of the administration and management of the classroom approach for trainer and the syllabus itself such as data for instruction, and community connection have been same as vital and having central place for the multi grade teacher practice setting and program. He makes it essential and gives attention to practice briefly. It is an attempt by the member of education because how well an elementary school teacher can do the same action of multi grade teaching with confidence and how well the staff members can make them professionally efficient. We trust the view that teachers who are trained can give better production and performance. As Anaya karmani Husain (2013) argued that an approach that has immediate effect must be keenly implemented to produce sudden and strong increase in student's participation in schooling and training of the teachers to perfect multi grade conditions. The multi-level schooling is having the meaning of ensuring the instructors to control small village, and this is possible if teachers are professionally trained to teach multi grade classes and give assistance in producing clear lesson plan and multi grade stage outline schedule.

Methodology

The study method adopted for research study was quantitative type of study with data collection,

analyzing the statistical data and generalize it on the bases of that the statistical number on the comprehensive and large population. The research study was descriptive and numerically quantitative research was adopted (Creswell, 2009).

Population

According to Creswell, (2014) the total population signifies the completion of the whole data, which keeps common characteristics of significance. Swabi has fifty-six Union councils having total number of four hundred fifty-six primary schools. Therefore research the population of the study was selected two hundred fifty male and two hundred six female multi grade elementary schools. The respondents were further ensured that they were the part of multigrade teaching at elementary level.

Sample of the study

A sample is the number of people selected from high population with achievements of having the information about the population as a whole Ferree, (2018). The researcher selected 10 union councils having both male and female primary schools teachers attended the training related to technological skills in multigrade teaching during the session 2023-2024. Therefore Seventy-two male primary schools teachers and sixty-one female primary schools teachers were selected for research purpose the multigrade teachers were randomly selected by using online sample calculator.

Research Tool

Questionnaire was developed for collection of data after studying the related literature review and the questionnaire was limited to investigate the perceptions of multigrade male and female teachers related to technological skills at elementary level.

Validity and Reliability

The research tool is valid as it is more accurate and authentic results having face validity and concurrent validity. Its main purpose was reliability. It was not part of the sample SPSS. 21-version reliability Cronach's Alpha was found.

Pilot test was conducted for the purpose of reliability, which was taken from those teachers who were not the part of the sample of the research study. Collected data was further calculated by using Cronbach's Alpha. The Cronbach's Alpha .666 which was accepted in the field of social science (Creswell, 2009).

Table1

Perception of multi-grade teachers related to (Technological skills in multi-grade Teaching)

Use of Technology in multi-grade Teaching	N	SA	A	UD	DA	SDA	Mean	**Total Mean**
I always use Technology for better impact on multi-grade teaching is a challenging task for teachers		22.6%	42.9%	18.8%	10.5%	5.3%	2.33	
I prefer to have a good understanding of the technology helpful for all grade levels they teach in multi grade system		35.3%	42.1%	16.5%	3.0%	3.0%	1.96	
I am aware of the importance of technology in multi grade teaching		27.8%	48.1%	16.5%	6.8%	0.8%	2.05	
I always use creative instructional methodology for multi-grade teaching		39.8%	46.6%	8.3%	3.8%	1.5%	1.80	
I always prefer Technology to overcome problems during multi-grade instruction		25.6%	51.1%	16.5%	4.5%	2.3%	2.07	
I encourage other teachers to use technology in the classroom		34.6%	33.8%	21.8%	7.5%	2.3%	2.09	
I always attend the workshops and training related technological competency during multi grade teaching	**133**	30.8%	36.8%	17.3%	10.5%	4.5%	2.21	**14.51**

The above table 1 showed Perception related to (Technological skills in multi-grade Teaching) According to table 42.9% primary school teachers agreed while 22.6% strongly agreed with who state that they always use Technology for better impact on multi-grade teaching as challenging task for instructors, 42.1% agreed and 35.3% strongly agreed who I prefer to have a good understanding of the technology helpful for all grade levels they teach in multi grade system, 48.1% agreed and 27.8% strongly agreed who were aware of the importance of technology in multi grade teaching, 46.6% agreed and 39.8% were strongly agree who always use creative instructional methodology for multi-grade teaching, 51.1% agreed and 25.6% strongly agreed who always prefer

Technology to overcome problems during multi-grade instruction 33.8% were agree and 34.6 % were strongly agree that they encourage other teachers to use technology in the classroom and 36.8% were in the positive response while 30.8% were strongly agree that always attend the workshops and training related technological competency during multi grade teaching. The frequency table results showed that multigrade primary school teachers were practice of technological skills during multi-grade teaching and they were the positive opinion regarding the technological skills at elementary level. Total mean of the perceptions was found 14.51.

Table 2

Comparison of the Perceptions of technological skills of male and female multi-grade teachers

Use of Technology	Gender	N	D f	Mean	Std. Deviation	M.D	*T*-value	*P*-value	Cohen's d
in multi grade teaching	Male	72	131	14.17	3.88	.75	1.10	.15	.19
	Female	61		14.92	3.97				

The above table 2 showed Comparison of the Perceptions of technological skills of male and female teachers. According to table both genders were similar perceptions about the use of technological skills in multi-level set up. Results showed that the *p*- value .15 was greater than the 0.05 signified level and the *t*- value was (1.10) low significant difference between the elementary school teachers regarding of the use of technological skills in multi-grade teaching. Therefore, both male and female multigrade primary school teachers were identical perceptions related to the technological skills during multigrade teaching at elementary level.

Mean difference .75 also supports the results (Habib, Minaz & Baig, 2025). Therefore, it was concluded that gender have no expressive impact on the use of technology during the multi-grade teaching.

Findings

1. The findings revealed that the use of technology for the better impact on multi grade teaching is challenging task for teacher and its mean was overall 2.33.
2. It was findings showed that technology is helpful for all grade levels they teach in multi grade system and its mean was 1.96.
3. The results showed the importance of technology in multi grade teaching and its mean was 2.05.
4. The findings illustrated the dynamic instructional methodology for multi grade teaching and its mean was 1.80.
5. The findings revealed that the technology to overcome problems during multi grade instruction and its means was 2.07
6. It was findings showed to encourage other teachers to use technology in the classroom and its mean was 2.09.
7. The findings revealed to attend the workshops and training related technological competencies during multi grade teaching overall and its man was 2.21.
8. Results showed that the *p*- value .15 was greater than the 0.05 signified level and the *t*- value was (1.10) low significant difference between the male and the female elementary school teachers regarding the pedagogical competencies of the use of technology in multi-grade teaching therefore both male and female elementary school teachers were the same level of competencies related to technological skills in the multi-grade teaching.

Conclusions

The Constructivists learning theories state that students with new knowledge of their own can use it to develop practical skills. The pupils and teachers act as implementers by offering relevant and stimulating resources. This concept delivers considerable support to mature learning style. Constructivist learning theories on thinking show the online teachers' performances of instruction which provide each pupil the related technological skills as a facilitator having who has an eye on creating a safe, productive, and positive learning atmosphere Minaz, Tabassum, & Idris (2017). pupils design multiple information rather engaging in learning. Pupils develop their own skills and absorb new creative skills to their prior knowledge while they see the world and think back on their previous knowledge.

Recommendations

It was recommended for more care and accuracy that future research study may be carried out for

absorbing additional elements linked to multi grade teaching, such as the use of technological skills in multi grade instruction at elementary level.

It was further recommended for future researchers that empirical research should be conducted for more accurate results and the use of technology during the multigrade at elementary level.

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