



RESEARCH PAPER

Levels of Teachers' Understanding about the Concept of Curriculum Adaptations made for Students with Moderate Physical Impairment Studying at the Primary Level in Punjab

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ABSTRACT

Students with Moderate Physical Impairment (MPI) like other students with Specific Educational Needs (SENs) utilize adaptations in order to access the Single National Curriculum (SNC) in Punjab. All over the world, teachers use this didactical pedagogical strategy that impact student's school success and the improvement of their learning. Curriculum adaptations mean what, how and when to teach as well as what and how to be evaluated. In this study, researchers used a quantitative research approach and employed a descriptive research design. A well-known survey method was adopted with a self-made checklist to collect data from purposively selected 167 Junior Special Education Teachers (JSETs). The value of the Coefficient Alpha was .844. The survey focused on to measure the levels of teachers' understandings about the concept of curriculum adaptations and to explore which type of adaptations most preferably used by the teachers. To analyse the data, descriptive and inferential statistics were used. The results of this study described that teachers have 'moderate' levels of understandings about the concept of accommodations and 'mild' levels of understandings about the concept of modifications. These outcomes specifically suggest that majority teachers remain unclear to differentiate between modifications and accommodations. This study recommends that teachers need to enhance their skills through professional training to adapt and implement the curriculum in the classrooms.

KEYWORDS Curriculum Adaptations, Physical Impairment, Primary Level, Punjab, Teachers' Understanding

Introduction

The nature of today's classrooms is more diversified and inclusive, never than before. Today, teachers are expected to adapt the curriculum according to the individual needs of students with disabilities. These students can access the regular curriculum with the help of adaptations and modifications. Teachers must have an understanding about the concepts of accommodations and modifications to implement curriculum adaptations. Instructional and evaluation strategies known as adaptations are developed specifically to meet the needs of a student in order to help him or her to achieve the objectives of the subject or course and show mastery of the material. In essence, curriculum adaptations consider as a "best teaching tool" in special education.

The Individuals with Disabilities Education Improvement Act (IDEIA, 2004), followed by, No Child Left Behind (NCLB, 2001), and the Individuals with Disabilities Education Act (IDEA, 1997), have made it mandatory for schools to give students with Specific Educational Needs (SENs) equal access to regular curriculum. The prime objective of these legal bindings are to promote the learning outcomes of all students including students with SENs. Turnbull and Turnbull (2001), claimed that, the emphasis of the most

recent amendments is on the provision of accommodations and adjustments. In order to accommodate students with disabilities, teachers have the ability to modify their instructional strategies in accordance with the requirements of IDEA and NCLB (Karger, 2005; Simpson, 2005; Wagner, 2002).

There is no doubt that access to regular curriculum provides equality among students with and without disabilities, however, it is also undeniable that students have different family backgrounds, varying in their abilities, and different in their mental approach (Lee, Wehmeyer, Soukup, & Palmer, 2010). It is unjustifiable to treat them in same manners because, they have variations in their interests, abilities and mental capacities. It would be possible if some students achieve success without adaptations, while other students may never succeed in their academics (Lawrence-Brown, 2004). Resultantly, to access the regular curriculum students with SENs require curriculum adaptations, and modifications.

According to Hemmingsson, Borell, and Gustavsson (2003), students with mild physical disabilities need adaptations in the curriculum to access the general education curriculum. Without adaptations, some students might never face challenges, while others might never succeed. For a child with different abilities, NCLB emphasize that reasonable modifications and accommodations required (Wright, 2005). The process of adapting the curriculum, or the content, to give students with and without disabilities equal access to privileges and academic success, is known as curriculum adaptation (Pent, 2015).

Adaptation is a vital component in the field of education; it is a central process in the provision of access to regular curriculum. It is the matter of concern if the curriculum is used blindly or without adaptation in the classroom (Ben-Peretz, 2011). According to a study by Rogan (2004), only a very small percentage of teachers actually develop their own instructional materials. Regardless of their weaknesses and strengths, students with disabilities follow the same curriculum (Azeem, & Omar, 2019). In this case, it is the duty of each member of the teaching and administrative staff to meet their needs and deliver a successful education (Moon, Brighton, & Tomlinson, 2020; Tomlinson, 2014). Similar to this, Rieser (2012), comes to the conclusion that some of the most significant barriers to delivering high-quality education in Pakistan include the rigidity of the curriculum, a lack of resource teachers in classrooms, and a lack of experts to help assess the needs of children with disabilities.

High expectations from the special education teachers were the part of prior research work, to meet the necessities of a diverse array of students. Legal bindings such as IDEA (2004), and NCLB (2001), stressed that teachers have the skills to modify the curriculum and provide accommodations so that students with different abilities have access to regular curriculum. However, number of teachers found it difficult to modify the curriculum, so they frequently implement simple accommodations (Lee, Wehmeyer, Soukup, & Palmer, 2010). Without proper support and guidance, teachers are unable to design instructions and implement the adapted curriculum as per the needs of students with SENs.

The primary objective of the current study was to measure the teacher's levels of understandings about the concept of curriculum adaptations, and find out which kind of adaptation was most frequently used in the classroom. Additionally, the need for this study arose because the researchers after reviewing the literature limited studies have been found who capture the attention of students with moderate physical impairment in relation to adaptations. Furthermore, very little is known how to adapt the curriculum for students with moderate physical impairment. This study is necessary because of the complexities around the terms accommodations and modifications. There hasn't been much research work carried out in Pakistan on curriculum adaptations specifically created for students

with mild physical impairments. The literature on curriculum adaptations has hardly ever discussed students with moderate physical impairment.

Literature Review

The idea of curriculum adaptation is not a brand-new development in the field of education at the international level. Educational researchers have been using the phrase "curriculum adaptation" for many years. It was first used to describe the process of modifying the study programme for low-income, young, and immigrant students (Wrightstone, Parke, & Bressler, 1944). So far, the work has been done on curriculum adaptation, just in the Western countries (Joyce, Harrison, & Gitomer, 2020; Kaitlyn & Kelly, 2019; Kettler, 2015); African countries (Saziso & Chimhenga, 2021; Mosia & Phasha, 2017), and to some extent in few Asian countries (Mede & Yalein, 2019; Wan, 2016).

Review of the previous research studies reveal that the Kindergarten curriculum is considered to be more flexible in terms of its structure and content, whereas the primary school curriculum is very structured and essentially the same across all schools because it is based on common textbooks. (Strogilos, Avramidis, Voulagka, & Tragulia, 2020). Without adapting the curriculum teachers struggle to provide a quality education to Students with Disabilities (SWDs). In the Greek context, Strogilos et al. (2015), identified limited curriculum adaptations for SWDs. According to Snell (2013), Kurth and Keegan (2014), Vlachou and Fyssa (2016), noted low frequency in adapting the curriculum in early childhood classrooms, they observed teachers were adapting the curriculum in only 10 out of the 52 classrooms for SWDs.

According to various research studies, Hong Kong teachers face difficulties and challenges in providing accommodations (Ng & Rao, 2008). The teacher must be ready with a variety of strategies to meet the diverse needs of all students in the classroom due to its diversity (Grace, & Gravestock, 2008). Special education teacher must possess the necessary abilities and techniques to educate students with different abilities, interests and needs. It is the responsibility of the teachers to adapt the curriculum to meet the requirements of the IEP (Thompson, 2005). In a well-known study by (Uygun, & Yelken, 2021), highlighted that despite of the extensive literature described the reasons why teachers do not like to adapt the materials and content, there is need to give attention by investigating the patterns and reasons for curriculum adaptations.

After reviewing the bulk of literature, shared characteristics' were found among the teachers' in order to adapt the curriculum. In a study of Mzizi (2014), reported that mostly teachers do not change the curriculum according to the needs of students. Similarly, Scanlon and Baker (2012), explained that teachers' have no idea about the concept of curriculum adaptations. Additionally, a prior study of (Fletcher, Bos, & Johnson, 1999), highlighted that teachers are often ready or have the capacity to provide only those adaptations that do not disturb the daily routine of the classroom, resultantly, they provide accommodations for whole classroom. Subsequently, a study by (Saziso, Chimhenga, & Mpofu, 2021), recommended that it is necessary to adapt the curriculum so that SWDs can more easily access it, teachers need to know how to tailor the instructions. Findings of a study by (Galano, 2012; Rice, 2006), depicts a frequently cited problem is a lack of training on how to implement accommodations and modifications effectively.

A study by Moats (2014), revealed that number of countries in the world, where standards of teachers qualification lower than any other profession. Teachers who have poor grip on their subject, unskilled and have no experience of teaching are expected to teach a challenging curriculum in a diverse class. A study by Rogan (2004), found that few teachers actually make their own instructional materials and adapt the curriculum as opposed to majority of teachers are reluctant to be creative. Similarly, in Botswana, a study conducted by Molosiwa and Mangope (2011), argued that teachers did not willing or able to

provide adapted curriculum to meet the individuality of the students with SENs in an inclusive classroom. Parallel to this, Mukhopadhyay (2013), identified that Botswana teachers lacked the necessary skills, they were unable to modify the curriculum to meet the needs of the diverse students in their classes. Furthermore, Mangope et al. (2012), asserted that teachers' provision of adaptations in the classroom frequently tended to be incidental, inconsistent, and unplanned.

Evidence from both research and practice indicates that students with physical disabilities are seen as less problematic (Lezak, Howieson, & Loring, 2004). However, no curriculum adaptations have been made for these students to date, despite it is the responsibility of the special education teachers to meet the needs of a diverse group of students. However, there is a lack of knowledge regarding modifying the curriculum for students with different abilities. In light of earlier research on curriculum adaptations, the researchers identified gaps in the literature and decided to conduct this study to fill those gaps.

Material and Method

Descriptive research design under the quantitative research approach was employed in this study to measure the levels of teacher's understanding about the concept of curriculum adaptations made for students with MPI of grade five. Researchers choose this design because the intention of this study was to measure the teachers expressed understanding about curriculum adaptation, and to explore which type of adaptation most preferably used by the teachers. A well-known survey method was also used in this study for data collection, because it requires little teamwork effort (Best & Kahn, 2016).

Population

Population means a group of people who shared common characteristics and targeted to draw a sample from it, in a research project (Liamputtong, 2013). In this study, target population were the Junior Special Education Teachers (JSETs), of students with MPI studying at the primary level in Punjab.

Sample and Sampling Technique

As mentioned above, this study is quantitative in nature and addressing the issue by collecting numerical data. In order to increase the validity of the data, the researchers include all the Junior Special Education Teachers of students with MPI studying at the primary level in Punjab. To minimise sampling error, the researchers tend to involve the entire population. Total population sampling is a sub-type of purposive sampling in which the entire population of interest (i.e., a group whose all members share a particular characteristic) is examined (Crossman, 2019; Thomas, 2022). It works best in situations where the size of population is manageable. Following table 1 depicts the demographical information of respondents.

Table 1
Characteristics of Surveyed Teachers of Students with MPI in Frequency and Percent

Demographic feature	Category	n(167)	%
Gender	Male	65	38.9
	Female	102	61.1
Age (Year)	Below 25 Year	28	16.8
	25-30 Year	44	26.3
	31-40 Year	61	36.5
	More than 40 Year	34	20.4
Education level	M.A/M.Ed.	105	62.9

	M.Phil.	62	37.1
Teaching experience	Less than 3 Year	51	30.5
	3-5 Year	57	34.1
	6-10 Year	30	18.0
	More than 10 Year	29	17.4
Residential locality	Rural	73	43.7
	Urban	94	56.3
Marital Status	Married	94	56.3
	Unmarried	59	35.3
	Separated/Widowed	14	8.4

Table 1 specifies that males are a lower susceptible gender 38.9% than the women, who accounted for 61.1% of the population. The large part of the cases 36.5% fall under the age group (31-40) year; followed by 26.3% in the (25-30) age group and 16.8% in the below 25 year age group. Only 20.4% of the subjects are in the age group more than 40 years. Results highlight that large proportion 62.9% of the respondents are M.A/M.Ed. degree holder while 37.1% of respondents completed their Mphil level of education. The greater number of teachers 34.1% has the teaching experience of 3-5 year; followed by 30.5% with teaching experience of less than three years. Afterwards, 18.0% participants have the teaching experience of 6-10 years; only 17.4% respondents have the teaching experience of more than 10 years. More than half, 56.3% respondents belong to urban areas; while 43.7% participants be link with rural areas. Over half of the respondents 56.3% are married; come next 35.3% are unmarried; subsequently, 8.4% study subjects have the marital status of separated or widowed.

Instrument

The researchers developed a checklist (TLUCA) for data collection. The main intention to develop this checklist was to examine the Junior Special Education Teachers (JSETs) levels of understanding about the concept of curriculum adaptations. Checklists ensure transparency, structure, and decrease the risk of human error (Gawande, 2011). The (TLUCA) checklist was comprised two sections. The first section contained demographic variable. Second section contained 22 items. The checklist was recorded in score per item: assigning "1" to accommodation, "2" to modification and "3" to both; this score could provide a measurement about the level of understanding of the respondents.

The researchers decided to use checklist because they personally observed that teachers were grappled with curriculum adaptation because they experience lack of knowledge and skills to implement it. Levels of teacher's understanding about the concept of curriculum adaptations were assessed by calculating the mean scores. To analyzing the results, a criteria was defined. The length of the cells was established into five levels; low, mild, moderate, high and extremely high (See Table 2).

Table 2
Criteria for Interpretation of Mean Score for Teacher's Levels of Understanding

S/N	Degree	Score Interval
1	Low	1.00 – 1.80
2	Mild	1.81 – 2.60
3	Moderate	2.61 – 3.40
4	High	3.41 – 4.20
5	Extremely high	4.21 – 5.00

Table 2 assumed that teachers have low levels of understanding with the phenomenon, if the observed mean score falls in the range of 1.00 to 1.80; followed by 1.81-

2.60 mild levels of understanding; further 2.61-3.40 moderate levels of understanding; come next 3.41-4.20 high levels of understanding and after that 4.21-5.00 extremely high. The aforementioned criteria were used by Nychkalo, Lukianova, Bidyuk, Tretko and Skyba (2020), in their study "Didactic Aspects of Teachers' Training for Differentiated Instruction in Modern School Practice in Ukraine".

Procedure

After the development of checklist, and obtaining the required information from the statistical officer of DGSE Punjab, relating to Junior Special Education Teachers (JSETs), the investigators made a decision to collect data from every respondents because of small population. To collect each respondent's data across the Punjab was very pricey, stressful, and require excessive time. Punjab is geographically divided into four regions (PBS, 2017), namely: Balai (Upper Punjab), Markazi (Central Punjab), Gharbi (Western Punjab), and Zayreen (Lower Punjab).

At the time of this study, there were 176 special education schools and centres across Punjab, from where the required data was to be collected. According to the geographical division of Punjab, researchers decided to collect data from one of its region Central Punjab in a personal capacity. The researchers could be obtained more than 50% data from this part of Punjab. To collect rest of the data, researchers decided to hire research assistant due to the large geographical area of the remaining three regions upper, lower, and western Punjab. These research assistants were hired based on their skills in the field of data collection, willingness to comply the instructions precisely, being local, and familiar with language of the respondents. They were given instructions on how to collect data in a brief video. Before starting fieldwork, they go through rigorous telephonically. During the pilot testing of the instruments, the effectiveness of their training was evaluated and improved.

The study's participants were also given the confidence that the information collected would only be used for the purposes of the study and would not be shared with anyone. The information and guidance were provided to the respondents required to complete the checklists. After the process of data collection was completed, version 21 of SPSS was used for the analysis. Both inferential and descriptive statistical methods were used to analyse the data. The researchers closely monitored data collection activities and provided feedback to ensure timely completion. Clearly filled checklists (167) were taken into account, and (2) incompletely filled checklists were discarded.

Results and Discussion

Table 3
Levels of Teacher's Understating about the Concept of Accommodation

Item #	Items reflecting accommodations	M	SD	Levels of Under.
1	Provide additional time for completing a task	3.46	0.92	High
4	Provide hands on activities	2.36	1.14	Mild
6	Break down the assignments into parts	2.82	0.89	Moderate
7	Provide short breaks during a task	2.83	1.03	Moderate
9	Sit where he/she learn best	3.81	0.92	High
10	Highlight or underline key information	3.22	1.07	Moderate
13	Assign peer tutor when necessary	2.30	0.84	Mild
18	Change in response format e.g. written or spoken	2.85	1.16	Moderate
19	Assess student individually or in a small group	2.20	0.81	Mild
20	Read the instructions aloud before a test	2.93	1.07	Moderate
22	Reduce distractions	3.27	1.16	Moderate
	Overall teacher's understating	2.91	0.60	Moderate

Note. M = Mean; SD = Standard Deviation; Under. = Understanding

Table 3 indicates that the levels of teacher's understating about the concept of accommodations. Results clearly depicts that Junior Special Education Teacher's (JSETs) have 'moderate' levels of understanding about the concept of curriculum adaptation. Majority of the teachers have moderate levels of understating to differentiate between accommodation and modification. Only two items shows high levels of understanding; rest of the items exhibits moderate levels of understanding. The means score for individual items were ranged from 2.20 to 3.81. These results give a complete picture of the overall observed means and standard deviations ($M = 2.91, SD = 0.60$), which come under the category of moderate level.

Furthermore, a descriptive analysis was testified to measure the levels of teacher's understanding about the concept of modifications. Here, the results were produced through the teacher's responses reflecting modifications and show off in the form of means and standard deviations (see table 4).

Table 4
Levels of Teacher's Understating about the Concept of Modification

Item #	Items reflecting modifications	<i>M</i>	<i>SD</i>	Levels of Under.
2	Simplify the difficulty level of text material	2.40	0.86	Mild
3	Give alternative books with same content	2.10	1.00	Mild
5	Shorten the length of assignment	2.25	0.94	Mild
8	Provide daily feedback to a student	2.55	1.07	Mild
11	Assign different material than peers	2.60	1.07	Mild
12	Give alternate assignments than peers	2.60	1.07	Mild
14	Assess using a different standard than other students	2.65	1.06	Moderate
15	Change the learning goals according to disability level	2.85	1.02	Moderate
16	Eliminate less critical information and facts	2.40	1.11	Mild
17	Ask different questions than peers	2.55	1.16	Mild
21	Give precise and individual instructions	2.42	1.14	Mild
	Overall teacher's levels of understating	2.48	0.77	Mild

Table 4 point out the levels of teacher's understating about the concept of modification. Results clearly highlight that Junior Special Education Teacher's (JSETs) have 'mild' levels of understanding about the concept of modification. Majority of the teachers remained unclear to differentiate between accommodation and modification. Only two items depicts that teachers have moderate levels of understanding; rest of the items exhibits that teachers have mild levels of understanding. These results give a complete picture of the overall observed means and standard deviations ($M = 2.48, SD = 0.77$), which fall in the range of mild level. Similarly, the means score for individual items reflecting modifications were ranged from 2.10 to 2.85. These outcomes specifically suggest that many teachers remain unclear to differentiate between curriculum modifications and accommodations.

In order to address the research question 1.1, the mean score of two groups was compared by using an independent samples *t*-test based on the gender. Additionally, the effect size between the mean scores of two groups was computed by using the Cohen's *d* test. The results are provided in Table 5.

Table 5
Mean Comparison of Male and Female Teacher's on their Understanding about the Concept of Curriculum Adaptations

Variables	Gender	<i>n</i> (167)	<i>M</i>	<i>SD</i>	<i>t</i> (165)	<i>p</i>	Cohen's <i>d</i>
Accommodation	Male	65	18.54	2.87	1.12	.265	0.17

	Female	102	18.03	2.87			
Modification	Male	65	18.20	2.91	-0.85	.394	0.14
	Female	102	18.59	2.87			

Table 5 displays the obtained results through an independent samples *t*-test to compare the mean differences between male and female teachers on their understanding about the concept of curriculum adaptations. Insignificant difference found between the male and female teacher's levels of understanding about the concept of curriculum adaptations. Results reveal that the mean value of male ($M = 18.54, SD = 2.87$) and female teacher's ($M = 18.03, SD = 2.87$) about accommodation, conditions; $t(165) = 1.12, p > .05$. The value of Cohen's *d* is ($0.17 < 0.20$), which indicate small effect size. Similarly, Insignificant difference in the mean value of male ($M = 18.20, SD = 2.91$) and female teacher's ($M = 18.59, SD = 2.87$) about modification, conditions; $t(165) = -.85, p > .05$. The calculated value of Cohen's *d* was ($0.17 < 0.20$), which indicated small effect size. Specifically, these outcomes evidence that both group of teachers have same opinion about the concept of curriculum adaptations.

In order to address research question 1.2, the mean score of two groups was compared by using an independent samples *t*-test based on their locality. Additionally, the effect size between the mean scores of two groups was computed by using the Cohen's *d* test. The outcomes of this test are provided in Table 6.

Table 6
Mean Comparison of Rural and Urban Teacher's on their Understanding about the Concept of Curriculum Adaptations

Variables	Residential Locality	n(167)	M	SD	t(165)	p	Cohen's d
Accommodation	Rural	69	17.81	2.92	-1.57	.117	0.24
	Urban	98	18.52	2.81			
Modification	Rural	69	18.23	2.96	-.78	.438	0.12
	Urban	98	18.58	2.79			

Table 6 displays that the obtain results through an independent samples *t*-test to compare the means differences between the rural and urban teacher's on their understanding about the concept of curriculum adaptations. Insignificant difference found between the rural and urban teacher's levels of understanding. Results exhibits that the means scores of rural ($M = 17.81, SD = 2.92$) and urban teacher's ($M = 18.52, SD = 2.81$) about accommodation, conditions; $t(165) = -1.57, p > .05$. The value of Cohen's *d* is ($0.24 < 0.50$), which indicate slightly high than small effect size. Similarly, there is no significant difference found in the means scores of rural ($M = 18.23, SD = 2.96$) and urban teacher's ($M = 18.58, SD = 2.79$) about modification, conditions; $t(165) = -.78, p > .05$. The calculated value of Cohen's *d* is ($0.12 < 0.20$), which indicate small effect size. Specifically, these outputs evidence that residential locality of both groups of teachers have no effect in their opinion about the concept of curriculum adaptations.

In order to address research question 1.3, the mean score of two groups was compared by using an independent samples *t*-test based on their educational levels. Additionally, the effect size between the mean scores of two groups was computed by using the Cohen's *d* test. The results are provided in Table 7.

Table 7
Mean Comparison of Teacher's Educational Levels on their Understanding about the Concept of Curriculum Adaptations

Variables	Educational Levels	n(167)	M	SD	t(165)	p	Cohen's d
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Accommodation	M.A/M.Ed.	106	17.21	2.30	3.58	.000	0.60
	M.Phil.	61	18.81	3.01			
Modification	M.A/M.Ed.	106	18.06	2.77	-2.29	.023	0.36
	M.Phil.	61	19.09	2.89			

Table 7 discloses that an independent samples *t*-test was conducted to compare the mean differences between the teacher's educational levels on their understanding about the concept of curriculum adaptations. Results shows a significant difference found between the mean values of teachers with educational level M.A/M.Ed. ($M = 17.21, SD = 2.30$) and M.Phil. ($M = 18.81, SD = 3.01$) about accommodation, conditions; $t(165) = 3.58, p < .05$. The value of Cohen's *d* is ($0.60 > 0.50$), which indicate slightly high than medium effect size. Similarly, there is a significant difference found in the mean scores of teachers with educational level M.A/M.Ed. ($M = 18.06, SD = 2.77$) and M.Phil. ($M = 19.09, SD = 2.89$) about modification, conditions; $t(165) = -2.29, p < .05$. The value of Cohen's *d* is also calculate ($0.36 > 0.20$), which indicate moderately high than small effect size. These results suggest that teacher's education level does have an effect on their understanding about the concept of curriculum adaptations. Specifically, these results suggest that the higher the education level of teacher's have the better understanding about the concept of curriculum adaptations.

In order to address research question 1.4, to determine the linear relationship between two variables, a Pearson's correlation coefficient was calculated the teachers' age, and their levels of understanding; between the teacher's age and teaching experiences; between the teaching experiences and their levels of understanding. Means and standard deviations are also calculated. The results are provided in Table 8.

Table 8
Descriptive Statistics and Correlations Matrix of Teacher's Age, Teaching Experience and their Levels of Understanding

Variables	<i>n</i> (167)	<i>M</i>	<i>SD</i>	1	2	3
1. Age (years)	167	2.61	0.99	-		
2. Levels of understanding	167	2.60	0.99	1.000**	-	
3. Teaching experience	167	2.62	1.06	.188**	.444***	-

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Table 8 reveal that a Pearson's correlation coefficient test were computed to determine the linear relationship between the teachers' age and their levels of understanding; between the teacher's age and teaching experiences; between the teaching experiences and their levels of understanding. Results unveil that teacher's age has a weak positive correlations with their levels of understating about the concept of curriculum adaptations ($r(167) = 1.000, p = < 0.01$). In addition, there is also a weak positive relationship between teachers' age and teaching experience ($r(167) = .188, p = < 0.01$). Similarly, there is a significant moderate positive correlation is observe between the teacher's levels of understanding and teaching experience ($r(167) = .444, p = < 0.001$). To sum up, as the teachers' age increases, the level of their understanding about the concept of curriculum adaptations also increases. On the other hand, as the level of teaching experiences enhance, the level of their understanding about the concept of curriculum adaptations is also enhances.

In response of research question 2, an effort was made to find out the type of adaptation most preferably used by the teachers of students with MPI in their classroom. This was done through descriptive analysis by calculating the observed mean ratings and standard deviation ratings. The results of this analysis are provided in Table 9.

Table 9
Type of Adaptation Most Preferably Used by the Teacher's in Classrooms

S/N	Adaptation Type	n	M	SD	Cohen's d
1.	Accommodation	167	19.78	2.87	0.67
2.	Modification	167	17.89	2.85	
	Total	167	18.84	2.86	

Table 9 depicts that the type of adaptation most preferably used by the teachers in classrooms. The observe means ratings and standard deviation ratings of accommodation are higher ($M = 19.78$, $SD = 2.87$) as opposed to modifications ($M = 17.89$, $SD = 2.85$). The value of Cohen's d is ($0.67 > 0.50$), which indicate that observe value slightly greater than the medium effect size. These results proclaim that teachers of students with MPI most preferably used accommodations as compared to modifications. Literature endorses that modifications in content, instructions and assessments require lots of hard work and planning on the part of teachers. That's why teachers used accommodations preferably as compared to modifications for students with MPI.

In order to address research question 2.1, an analysis of variance (ANOVA) was performed to test the difference between marital status of teachers (unmarried, married and separated/widowed) on the two types of curriculum adaptations (accommodation and modification). A commonly used Eta-squared value was also employed to calculate the effect size between the means scores. The results are given in Table 10.

Table 10
Mean, Standard Deviation and One-Way Analysis of Variance in Accommodation and Modification across Marital Status Groups

Variables	Unmarried		Married		Separated/ Widowed		$F(3, 163)$	η^2	Post-Hoc
	M	SD	M	SD	M	SD			
Accommodation	32.05	2.18	25.50	3.18	21.30	7.92	22.67***	.44	1>2>3
Modification	31.85	2.13	25.45	2.94	21.60	7.50	23.15***	.45	1>2>3

*** $p < .001$.

Table 10 depicts means, standard deviation and F -values for accommodation and modification across marital status groups. Results indicates that a statistically significant difference found among the three levels of marital status on a test variable 'accommodation' with conditions, $F(3, 163) = 22.67$, $p < .001$. The value of eta squared was .44 ($< .50$) which indicates near about to medium effect size. The Post-Hoc Tukey comparisons indicated that the mean score for unmarried teachers ($M = 32.05$, $SD = 2.18$) is significantly different from married teachers ($M = 25.50$, $SD = 3.18$) and separated or widowed teachers ($M = 21.30$, $SD = 7.92$). Similarly, a significant difference is also exhibits between the married and separated or widowed teachers groups.

Results show that a statistically significant difference is found among the three levels of marital status on a test variable 'modification' with conditions, $F(3, 163) = 23.15$, $p < .001$. The value of eta squared was also computed .45 ($< .50$), which indicates near about to medium effect size. The Post-Hoc Tukey comparisons indicates that the means score for unmarried teachers ($M = 31.85$, $SD = 2.13$) is significantly different from married teachers ($M = 25.45$, $SD = 2.94$) and separated or widowed teachers ($M = 21.60$, $SD = 7.50$). Similarly, a significant difference is also appear between the married and separated or widowed teachers groups. Results reveal that unmarried teachers use accommodations and modifications most preferably as opposed to married and separated or widowed teachers.

Conclusions

Descriptive and inferential statistics along with Cohen's *d* tests were used to calculate the effect size between the mean scores while using independent samples *t*-tests and Eta-squared value was computed to calculate the effect size between the means scores while using an ANOVA to answer the questions posed. This particular study was conducted to measure the teachers' levels of understandings about the concept of curriculum adaptations. Additionally, this study was assessed which type of adaptations was preferably used by the teachers for students with MPI in classroom.

Based on the evidence of the results of this study, it was concluded that Junior Special Education Teachers (JSETs) have 'moderate' levels of understandings about the concept of accommodations and 'mild' levels of understandings about the concept of modifications. These outcomes specifically suggest that majority teachers remain unclear to differentiate between curriculum modifications and accommodations. The idea of "curriculum adaptations" elusive for JSETs; they mixed up both terms (accommodations and modifications) regularly. The results of this study were evident that no significant difference found between male and female teacher's levels of understandings about the concept of curriculum adaptations. Similarly, there was no significant difference found between the rural and urban teacher's levels of understandings. It was concluded that male and female teachers have no effect in their opinion about the concept of curriculum adaptations based on their residential locality. Both group of respondents were unable to understand the phenomenon of curriculum adaptations.

The results of this study proved that teacher's education level does have an effect on their understanding about the concept of curriculum adaptations. It was concluded that the higher the education level of teacher's have the better understanding about the concept of curriculum adaptations. Additionally, the results of this study were evident that experienced teachers more clear in their concepts about curriculum adaptations as opposed to novice teachers. The results of this study proclaimed that teachers of students with MPI most preferably used accommodations as compared to modifications. Literature endorses that modifications in content, instructions and assessments require lots of hard work and planning on the part of teachers. That's why teachers used accommodations preferably as compared to modifications for students with MPI. It was evident that unmarried teachers used accommodations and modifications most preferably as opposed to married and separated or widowed teachers.

Recommendations

1. Productive adaptations require continues support, and sustained development. It is important to engage administrators, students itself, parent and other school staff members from the beginning and identify exactly what kinds of adaptations require, create a plan for adaptations, implement and assess over the year.
2. Teachers must receive professional development in the areas of curriculum adaptation, instruction delivery, and evaluation.
3. All participants who took part in this study were professionally trained as teachers, but not all of them were trained on how to adapt the curriculum. Based on that, this study recommends that the district education office should organise continuous workshops to address this issue.
4. Department of special education Punjab should provide professional in-service training to bridge this gap in understanding and address specific issues related to adaptations for teachers.
5. There is a strong need for a clearer understanding of the concept of curriculum adaptations, as teachers need to be better prepared to provide these basic supports for students with disabilities.

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