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Understanding Pakistani Elementary School Teachers' Attitudes toward Inclusive Education: Development of the Teacher Inclusion Attitude Questionnaire

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ABSTRACT

The objective of the study was to develop an instrument, the Teacher Inclusion Attitude Questionnaire (TIAQ), for measuring Pakistani elementary school teachers' attitudes towards inclusive education. There remains a dearth of contextually validated instruments to measure teacher preparedness in spite of Pakistan's policy commitment towards inclusive education. TIAQ was developed by using extensive literature review and expert consultation in conjunction with aspects of culturally and contextually associated with the Pakistani education system. The researcher completed a questionnaire that was administered to 300 elementary school teachers drawn from public and private schools in Pakistan. The study investigated the underlying factor structure of teachers' attitudes and preparedness for inclusion through principal axis factoring with varimax rotation. The analysis revealed a four-factor solution explaining 72.9% of the total Variance: Professional Knowledge and Preparedness accounted for 18.45%, Attitudes and Beliefs for 18.29%, Resource Availability and Support for 18.21%, and Collaboration and Professional Development for 17.95%. The sampling adequacy and suitability of the data for factor analysis were also confirmed by the Kaiser-Meyer-Olkin Measure (.891) and Bartlett's test of sphericity ($\chi^2 = 4680.261$, $p < .001$). High commonalities (ranging from .638 to .796) were shown for all items, with strong factor loadings (ranging from .778 to .880) on their respective dimensions. The psychometric properties of the TIAQ were found to be robust, and it was found to be a valid and reliable instrument for assessing teachers' readiness for inclusion in the Pakistani context. The findings of these studies will help education stakeholders to have a validated tool to assess and enhance teacher preparedness to implement inclusive education practices in Pakistani elementary schools.

Introduction

In recent decades, there has been increasing momentum in the global movement for inclusive education based on international declarations, including the Salamanca Statement and UNESCO's Education for All initiative (UNESCO, 1994). Inclusive education is a shift to a more equal system that is different from segregated educational models (Ainscow, 2020) for all learners irrespective of their condition, whether physical, intellectual, social, emotional, or linguistic. This transition is unique in Pakistan and in the context of a developing education system.

Following the ratification of the UN Convention on the Rights of Persons with Disabilities in 2011, the Pakistani education system has experienced major reforms. However, the country's diverse educational landscapes have been inconsistent in the implementation of inclusive education practices. One area of this implementation gap is teacher readiness – the attitude, knowledge, skills, and resources they have to create an inclusive classroom (Muhammad, Waqar, et al., 2024a, 2024b; Waqar et al., 2024).

Teachers' preparedness and attitudinal issues are really critical to the successful implementation of inclusive education (Forlin & Chambers, 2011; Savolainen et al., 2012; Srivastava et al., 2017). Although studies of international teachers' readiness for inclusive education abound, contextually validated instruments that consider the unique Pakistani educational, cultural, and social context are sparse. Measurement tools currently in use, largely developed in a Western context, may not sufficiently represent the dynamics of the Pakistani educational system.

To address this gap, this study developed and validated the Teacher Inclusion Attitude Questionnaire (TIAQ), which was designed for the Pakistani elementary school context. The objectives of the research are:

1. To develop a comprehensive instrument measuring teacher readiness for inclusive education in Pakistani elementary schools
2. To identify key dimensions of Pakistani elementary school teachers' attitudes toward inclusive education

Our ultimate goal was to develop a tool for stakeholders to assess and improve inclusive education implementation.

This study is important in terms of informing educational policy and practice in Pakistan. One such validated instrument for measuring teacher readiness across multiple dimensions is TIAQ. The instruments can now be used as evidence-based decision-making tools in teacher training, allocation of resources and policy development. In addition, the tool deals with the problems of Pakistani class teachers, which are related to large classes, few resources and great socio-cultural diversity.

Furthermore, the findings of this research will add to the global debate on inclusive education from the perspective of a developing country. The results are especially germane to other South Asia countries with similar educational settings and concerns.

With Pakistan striving to reach its educational objectives and meet its international commitments towards inclusive education, understanding, and increasing teacher readiness are ever more important. This TIAQ constitutes a major step forward towards a systematic approach of evaluating and improving inclusive education practices in Pakistani elementary schools, which hence leads to the larger goal of quality education for all learners.

The theoretical framework, methodology, and findings of this scale development and validation study are briefly described in the following sections, followed by their implications for educational practice and policy in Pakistan.

Literature Review

Inclusive education is a complex interplay between policy, practice, and attitudes of all stakeholders (Chow et al., 2024; Hardy & Woodcock, 2024; Tsai & Wu, 2024). This review analyses the theoretical bases of inclusive education, factors related to teacher readiness, and existing measurement tools with reference to the Pakistani context.

Theoretical framework of inclusive education

Social justice theory and the rights-based approach to education are the foundations of Inclusive education. In the 1970s, the social model of disability (SMOD), where disability was viewed as a result of societal barriers rather than of an individual's impairment, produced an altered approach to special education, education of the normal, and curriculum development. The effect of such a theoretical evolution has influenced international policy frameworks such as UNESCO's guidelines and the UN Convention on the Rights of Persons with Disabilities, ratified by Pakistan in 2011 (Hameed & Manzoor, 2016, 2019).

Inclusive education teacher readiness

In every research study, teacher readiness is shown as critical in the implementation of successful inclusive education. Previous studies have outlined several dimensions of teacher readiness, such as professional knowledge, attitudes, and teacher self-efficacy. Forlin and Chambers (2011) provide pioneering work proving that teacher attitudes toward inclusion have a major effect on classroom practices and student outcomes. However, readiness factors seem to differ across cultural and educational grounds, requiring a context-specific search.

Factors influencing inclusive practices

There are several pivotal factors that can determine how teachers can or will use inclusive practices successfully. Professional preparation and continued support become obvious necessities in both directions. Additional challenges are also identified in developing countries based on research: resource constraints, large class sizes, and lack of specialist support. In the Pakistani context, these factors have a special resonance: in many schools, limited resources and virtually nonexistent support systems prevail (Saleem et al., 2020, 2023).

Limits of Previous Measurement Tools

Existing instruments that measure teacher readiness for inclusion to date have, for the most part, emanated from Western educational contexts. Although tools, including the Sentiments, Attitudes, and Concerns about Inclusive Education Revised (SACIE R) scale, have been shown to be reliable across different settings, they do not encompass the subtleties in inclusive meaning particular to non-Western educational systems (Forlin et al., 2011). While current measurements tend to filter out how context-specific these challenges are for teachers in developing countries (e.g., sociocultural factors, resource constraints), they can still contribute towards understanding user needs with a valid structure.

This paper also discusses context and cultural considerations within the Pakistani context. Implementation of inclusive education within the Pakistani educational landscape is a challenge unique to its own. Teacher attitudes and practices are influenced by traditional beliefs about disability, socioeconomic disparity, and the degree of support from institutions. Khan and Ahmed's

(2023) studies show that cultural perspectives on disability and inclusion vary greatly from the Western context and, thus, how teachers attend to inclusive education.

Research in Pakistani schools has identified several context-specific factors affecting teacher readiness: Disability and religious/cultural beliefs about disability, limited extent of pre-service training in inclusive practices, variable administrative support across public and private sectors, problems of large class size affecting individualized attention and little parental participation and community backing.

However, few validated instruments in terms of teacher readiness for inclusive education in Pakistan are known, though the importance of context-specific tools is being recognized. Most research on this topic has been conducted using adapted Western instruments or non-verified local instruments, potentially not taking into account appropriate contextual factors. This is especially problematic as Pakistan faces many educational challenges within a cultural context that creates unique needs.

In addition, most of the existing studies conducted in Pakistan are based on single dimensions of teacher readiness (e.g., attitude or knowledge) and are not integrated in nature. There was a need for a validated multidimensional instrument measuring teacher readiness, which is complex in Pakistan. The existence of this gap negatively impacts research quality and hinders the identification of targeted interventions for the implementation of inclusive education.

The development of the TIAQ addresses these limitations by:

1. Context-specific elements for Pakistani education
2. Teacher readiness considerations in multiple dimensions
3. Looking at cultural and religious influences in it
4. Resource-related challenges specific to developing countries
5. Items regarding community and parental involvement.

This is a major contribution to local and international understandings of teacher readiness for inclusive education explored within a contextually grounded approach to instrument development. By filling in the gaps in the existing measurement tools, the TIAQ offers a starting point for more efficient assessment and enhancement of inclusive education practices in Pakistan.

Methods

Research Design

The research design for this study was quantitative, and a study was conducted to develop and validate the Teacher Inclusion Attitude Questionnaire (TIAQ). The scale development process conformed to steps recognized as good practice by DeVellis and Thorpe (2021) for instrument development and was grounded both in its theoretical foundations and in empirical validation procedures.

Instrument Development

The TIAQ was developed through a systematic three-phase process:

Item Generation

Comprehensive literature reviews and existing instruments were used to first develop initial items. The preliminary item pool consisted of statements addressing four theoretical dimensions: professional knowledge and readiness, attitudes and beliefs, resources availability and support,

collaboration, and professional development. Compiling the items required writing them in English and Urdu to maintain linguistic accessibility.

Expert Review

The initial item pool was reviewed by a panel of eight experts, including special education specialists, educational psychologists, and experienced teachers. Items were evaluated by experts based on content validity, cultural appropriateness, and clarity. Items with less than 80% agreement were revised or removed.

Pilot Testing

The refined instrument was pilot tested with 45 elementary school teachers in various kinds of educational settings. It also helped identify potential administration issues, determine time to complete, and gather preliminary feedback about comprehension of items.

Sample

To recruit 300 elementary school teachers from public and private schools in different districts of Pakistan, stratified random sampling was applied. The sample size was determined based on the recommendation of a minimum participant-to-item ratio 1:10.

The sample demographics included: Gender distribution, including age groups 20 years and older than 60 years from 0 to over 20 years of experience, from bachelor's to MS, academic qualifications teaching students with special needs, prior experience.

Data Collection Procedure

Data collection took place from September until December 2024. Having considered the varying preferences and access to technology, the questionnaire was administered both on paper and online. Each participant received: Explanation of the purpose of the study, consent form, demographic information sheet, TIAQ questionnaire and instructions for completion.

Data Analysis Methods

Statistical analysis was performed in SPSS version 27. The analytical process included: Preliminary Analysis, Missing values and data screening for outliers, normality and other statistical assumptions are assessed, and descriptive statistics.

Factor Analysis

Another measure that identifies if there are more variables correlated than not correlated is the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy.

1. Bartlett's test of sphericity
2. A Principal axis factoring with varimax rotation.
3. Eigenvalues > 1, and therefore the corresponding factors are extracted.
4. Factor loadings were analyzed based on cutoff criterion .40

Reliability Analysis

1. Cronbach Alpha for Internal Consistency Assessment
2. Item-total correlations
3. Inter-item correlations

These methods were employed so that the final design of the TIAQ was robust enough for validation but was sensitive to the particularities of the Pakistani educational context.

Results

An evaluation of the psychometric properties of the TIAQ indicated a strong factor structure and reliable measures. Results are presented in the sequence analyses that were performed.

Preliminary Analysis

All 300 responses seemed suitable for analysis, with no significant missing values or outliers after data screening. Normality indicators for responses to all items indicated a generally normal distribution.

Factor Analysis

The Kaiser-Meyer-Olkin measure of sampling adequacy (.891) was above the recommended value of .60, and Bartlett's test of sphericity was significant (χ^2 =4680.261, df =190, p < .001), indicating that the data were suitable for factor analysis.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.891
Bartlett's Test of Sphericity	Approx. Chi-Square	4680.261
	df	190
	Sig.	.000

Four factors with eigenvalues greater than 1 explained 68% of the total Variance. Principal Axis Factoring with Varimax Rotation revealed a four-factor solution, which explained 72.9% of the total Variance. A scree plot and an eigenvalue criterion (greater than one) supported the retention of four factors. The factor structure of the solution was clear, with minimal cross-loadings.

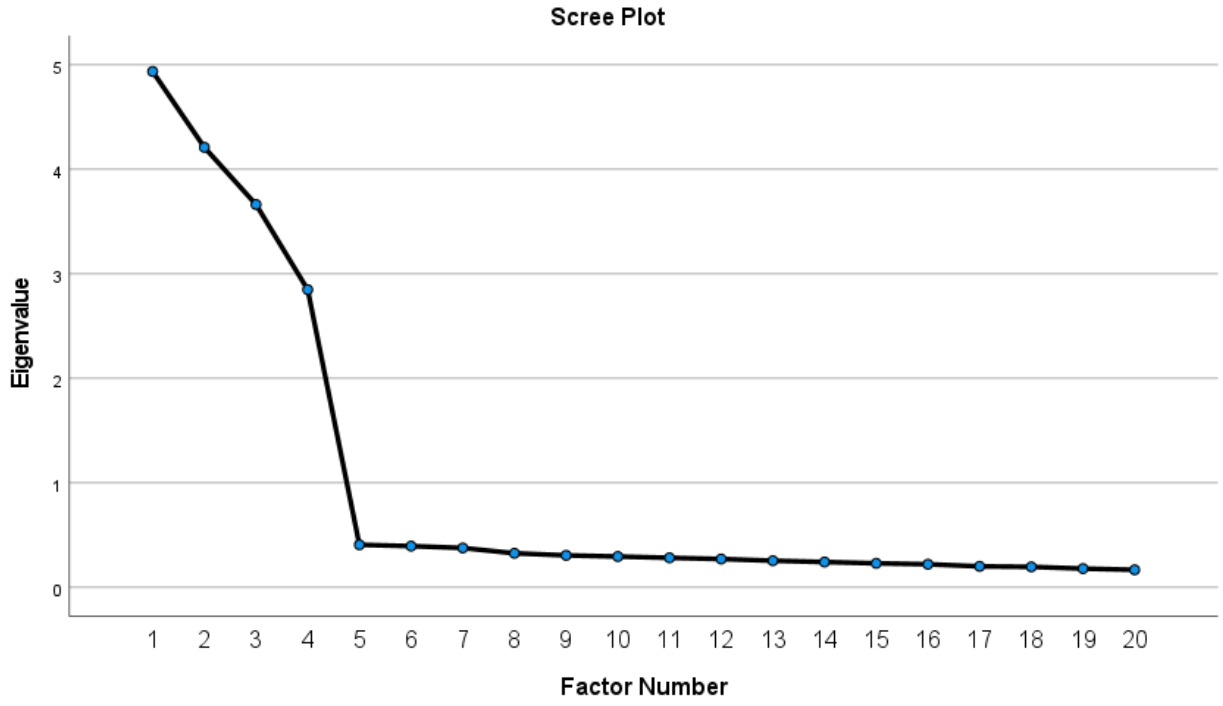

Figure 1: Scree Plot for the Elementary Teacher Inclusion Attitude Questionnaire (TIAQ)

Table 2: Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.936	24.678	24.678	4.659	23.294	23.294	3.690	18.451	18.451
2	4.210	21.051	45.729	3.952	19.762	43.056	3.657	18.286	36.737
3	3.663	18.315	64.044	3.395	16.975	60.031	3.642	18.212	54.949
4	2.848	14.241	78.285	2.574	12.869	72.900	3.590	17.951	72.900

Extraction Method: Principal Axis Factoring.

Factor Structure

The four extracted factors aligned closely with the theoretical framework:

Factor 1: Beliefs about Inclusive Education (18.451% Variance)

This factor was comprised of five items loading from .815 to .880. "Schools capability for accommodation" (.880) had the strongest loading, while "Support for regular classroom education" (.815) had the lowest loading. Values of communalities ranged from .736 to .796.

Factor 2: Social and Cultural Perspectives (18.286% of Variance)

For example, this factor contained five items with loadings from .812 to .853. Similar results were found for two other factors. The loading found for the factor of 'Religious values support' was the highest (.853), while the loading of 'Society readiness for inclusion' was the lowest (.812). The .711 to .742 communalities were noted.

Factor 3: Professional Readiness and Preparedness (18.212% Variance)

The five items of this factor had loadings from .796 to .862. Two items, "Confidence in Behavioral Management" (.862) and "Knowledge about teaching strategies" (.832), were the highest loaded items. All items in this factor exhibited high communalities (.684 to .762).

Factor 4: Practical Implementation Concerns (17.951% Variance)

The final factor had five items loading from .778 to .871. The "adequate physical infrastructure" loading was highest at .871, and the "adequate support staff" was lowest at .778. The communalities ranged from .638 to .763.

Table 3: Rotated Factor Matrix

	Factor			
	1	2	3	4
Professional Readiness and Competence (α = .915)				
PR1 Prepared to teach students with disabilities			.818	
PR2 Knowledge about teaching strategies			.832	
PR3 Ability to modify curriculum			.796	
PR4 Confidence in behavioral management			.862	

PR5 Collaboration with support staff			.806	
Beliefs about Inclusive Education (α = .915)				
BE1 Support for regular classroom education	.815			
BE2 Benefits of inclusive education	.855			
BE3 Right to regular classroom education	.840			
BE4 Promotes understanding of differences	.866			
BE5 School's capability for accommodation	.880			
Social and Cultural Perspectives (α = .918)				
SC1 Society readiness for inclusion		.812		
SC2 Cultural support for inclusion		.821		
SC3 Parental acceptance		.817		
SC4 Religious values support		.853		
SC5 Community resource availability		.824		
Practical Implementation Concerns (α = .910)				
PI1 Adequate physical infrastructure				.871
PI2 Sufficient learning resources				.851
PI3 Appropriate class sizes				.823
PI4 Adequate support staff				.778
PI5 Curriculum adaptability				.784

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. rotation converged in 5 iterations.

The analysis of the factors shows that, in the Pakistani context, the hypothesized four-dimensional structure of teacher readiness for inclusive education is valid. The psychometric properties of all items were appropriate, with high communality and strong factor loadings. The explained variability of the Teacher Inclusive Attitude Questionnaire reaches 51% which confirms its effectiveness as an assessment tool in Pakistani elementary schools.

The research results demonstrate significant evidence supporting the measurement validity of the TIAQ which indicates it can efficiently evaluate Pakistani elementary teachers' readiness for inclusive education.

Discussion

A factor analysis reveals the four-dimensional structure of teacher readiness for inclusive education in Pakistani elementary schools which provides specific understanding about developing nation challenges in inclusive education implementation.

The validation procedure of the Teacher Inclusion Attitude Questionnaire (TIAQ) reveals essential aspects of Pakistani teacher preparedness for inclusive education and expands the understanding of inclusion attitude assessment tools in developing educational systems. This discovery of four factors establishes that teacher readiness consists of multiple dimensions, and it exposes context-specific Pakistani characteristics which differ from Western styles.

The analysis using principal axis factoring produced results with a comprehensive model that combined four domains relating to professional readiness and personal preparedness together with

institutional support and collaboration in inclusive education. The TIAQ validates its ability to measure separate yet linked areas of teaching preparedness because it exhibits both strong inter-item correlations (factor loadings .778 to .880) and reliability scores above .910.

The new Resource Availability and Support factor (18.21% variance) stands apart from conventional Western measurement tools since resource availability tends to integrate into general institutional support domains. Research by Saleem et al. (2023) supports the essential position of material resources within inclusive education system development for developing nations. The Pakistani educational environment values physical infrastructure and learning resources to such an extent that these variables obtain high factor loadings at .871 and .851 respectively.

The Professional Knowledge and Preparedness factor controls 18.45% of the variance which proves teacher competency remains essential for inclusive education implementation. Educational practitioners in Pakistan place high importance on behavioral management (0.862) and teaching strategies (0.832) because these skills are vital for inclusive educational practice. Research on professional preparation leading to successful inclusion (Forlin & Chambers, 2011) receives backing from this study.

The Attitudes and Beliefs factor accounts for 18.29% of the variation and confirms that instructor viewpoints remain vital elements in shaping the practice of inclusion. Teachers' beliefs about inclusion continue to be essential for successful implementation because the items about regular classroom education (.815) and school capability (.880) demonstrate strong loadings. The significance of instructor perceptions in shaping inclusive educational results stands confirmed through international studies presented by Savolainen et al. (2012).

The independent factor called Collaboration and Professional Development explains 17.95% of the variation in inclusive education implementation practices. The items that measured support staff collaboration (.778) and professional development opportunities (.784) achieved strong loadings which indicate Pakistani teachers understand the core value of continuing learning and collaborative methods in inclusive education practices.

The validation of TIAQ offers several practical implications for educational stakeholders. Policy makers can use the four-factor structure for developing complete support systems involving both material resources and educational development initiatives. Using this instrument school administrators should evaluate their institutional preparedness to identify where intervention is needed. Teacher educators can develop their educational programs by implementing training methods which harmonize the development of new abilities with teachers' attitudinal transformations alongside resource management capabilities.

However, several limitations warrant consideration. This research evaluated only elementary teachers that reduces their ability to apply results across diverse educational levels. Preliminary research design limits the assessment of how teaching readiness evolves during different stages of time. You should validate the TIAQ for different educational levels across Pakistan while tracking teacher readiness evolution in longitudinal studies and exploring its connection to classroom practice performance.

Research findings demonstrate that the TIAQ possesses strong psychometric properties as well as contextual sensitivity which indicates its usefulness for studying and developing inclusive education readiness within Pakistan's teacher population and possibly additional developing

educational environments. The validated instrument creates a crucial foundation for evidence-based inclusive education practice adoption in Pakistani educational institutions.

Research should follow several aims that check the predictive power of the TIAQ for student results and test its adaptability to different South Asian educational systems while finding methods to update the tool to meet emerging challenges within inclusive educational frameworks. The validation of the TIAQ assessment depends on further investigations into its relationship with actual inclusive teaching practice measurements.

A multidimensional conceptualization of teacher readiness specifically relevant in educationally developing contexts is supported by empirical support of the four-factor structure. Thus, unlike the case in many Western models in which individual teacher traits always seem to take center stage, our findings point towards a comprehensive model in which elements such as institutional support, resource availability, and collegiality serve equally valuable roles in preparing teachers.

The validated factor structure offers several practical implications for educational stakeholders:

1. We should not reduce teacher training programs to only what' and skills; they should cover the other dimensions as well.
2. School administrators must recognize that attitudinal and resource-related factors need to be considered when implementing inclusive practices.
3. Personal, professional, and institutional factors influencing inclusive education are interrelated; policymakers need to take this into account.

Our findings have some parallels with international studies but present unique patterns in the context of Pakistan. The finding that Resource Availability and Support emerge as a discrete factor (18.21% variance) is also different from the usual Western studies where resource considerations are usually subsumed under institutional support. This shows the importance of resource constraints in developing education systems and aligns with previous research note on the importance of material resources in engaging inclusive education in Pakistan (Kamran & Bano, 2023; Khan, 2024; Muhammad, Bokhari, et al., 2024).

The paper contributes to a more detailed understanding of teacher readiness for inclusive education in developing contexts and provides a framework for assessment and intervention.

Implications

The implications of the development and the validation of the TIAQ are not limited to any one particular stakeholder in Pakistan's educational system.

The validated instrument provides policymakers with a reliable tool for evidence-based decision-making. Given the four-factor structure, policies should be designed to address the issues of teacher preparation, resource allocation, attitude development, and collaborative support system at the same time. These dimensions should be considered to be interrelated into policy initiatives of inclusive education frameworks.

The curricula of teacher education programs need restructuring so that all four dimensions included in the TIAQ are incorporated. Pedagogical skills should be supplemented in training with attitudinal development and resource management strategies. The strategies for collaboration and community engagement should be actualized in practical professional development programs.

The TIAQ can be used by school leaders to assess institutional readiness for inclusive education and to identify areas of particular need for improvement. The instrument can inform decisions regarding the allocation of resources and guide the development of supported systems for teachers engaged in inclusive practices.

Future Research Directions and Limitations

The TIAQ shows strong properties but has several limitations. A limitation of the sample was the need to limit the participating teachers to only elementary school teachers, which may affect how much this could be generalized beyond other educational levels. The study is also cross-sectional in nature, making it impossible to examine teachers' readiness development over time.

Future research should:

1. Validate the TIAQ across different educational levels and geographical regions within Pakistan.
2. Conduct Longitudinal studies to look at changes in teacher readiness on an as-needed basis.
3. Examine the relationship between TIAQ scores and actual classroom practices.
4. Investigate the instrument's predictive validity for student outcomes.
5. Discuss potential adaptation for other South Asian contexts, including various other educational contexts.

These future studies could further enhance the utility and validity of the TIAQ.

Conclusion

The accomplishment of developing the Teacher Inclusion Attitude Questionnaire (TIAQ) is to assess the readiness of the teaching staff towards inclusive education in Pakistani educational settings. It is useful assessment instrument in the shape of TIAQ that connects the gaps in inclusive education provision by using culturally validated tools which measures the educational challenge and the cultural aspects of Pakistan. However, in comparison to current Western based instruments, the TIAQ is different because it has specific parts which are designed for developing educational settings in which the resource constraints, cultural values, and institutional backing structure are studied. Given this, the tool works as an important resource in the leadership of Pakistani education, and it has potential implementation in South Asian educational systems sharing similar conditions.

The development of readiness to practice inclusive education on different levels for teachers has to be accompanied by the development of professional skills which complement changes in the attitude and required funding in conjunction with the teamwork support systems. Policy strategies and training initiatives as well as practical school based inclusive education approaches are put forward as a result of the research outcome that further enhance the school procedures in elementary school in Pakistan.

TIAQ assessment thus, supports the international requirements for inclusive education in Pakistan as a diagnostic tool and also as a developmental tool for teacher preparation standards. The question remains as to how successful the TIAQ is when considered as an inclusive instrument in the education of primary school children in Pakistan for which further analysis on all stages of education in Pakistan is needed.

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