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Exploring Teachers' Assessment Competency based on National Professional Standards for Teachers in Punjab

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ABSTRACT

Within the context of National Professional Standards for Teachers (NPST), the objective of the study was to explore Pakistan's national professional standards for teachers in order to determine assessment competencies of Pakistan's teachers. Quantitative methodology was used, 500 Public elementary teachers were sampled and an observation sheet was developed to collect data. It was found that the assessment competences were not good but rather inadequate. It was determined that 25.5% of teachers were at level 1 (Emerging Teacher), that 50.2% of the teachers were at level 2 (Developing Teacher), that 18.39% of the teachers were placed in the category of level 3 (Proficient Teacher), and that 6.8% of the teachers were found to be Accomplished Teachers. Further, difference on the basis of age and qualification were found meaningful. The results of this study will assist educators in improving their evaluation skills, which will ultimately improve the quality of education.

Keywords: Assessment, Professional Standards, Classroom Observation, Teachers' Competency

Introduction

Teachers and administrators now view assessment as one of the most effective strategies for increasing student engagement and accomplishment (Mcmillan, Kathleen, Cauley & James, 2010). In the education and teaching learning process, assessment is crucial. Assessment in the classroom is a constant process. It is employed to raise the standard of teaching and to encourage students to be taught (Gronlund, 2006). There are various methods of classroom assessment that encourage learning among children (Brookhart et al., 2006 & Alkharusi, 2009).

The perception of classroom assessment techniques by students has caught the attention of the educational assessment community. Many educators believe that the evaluation techniques employed in the classroom have an impact on students' academic performance (Ames, 1992a, 1992b; Halen& Crick, 2003; Hidi & Harackiewicz, 2000; Linnenbrink & Pintrich, 2001).

The primary purpose of classroom assessment is to enhance the students' educational experience, and spur greater interest in studying (Stipek, 2002; Harlen & Crick, 200; Gronlund, 2006). According to Gronlund (2006), a well-constructed classroom assessment should be based on specific learning objectives, include a variety of assessment approaches connected to the instruction, and be equitable to all students. Additionally, a sound evaluation requires the definition of the standards for determining effective performance as well as prompt and thorough feedback to pupils. Feedback highlighted the student's performance's strengths and areas that needed improvement (Gronlund, 2006).

Literature Review

The teaching and learning process cannot function well without the process of evaluation and assessment (Brown, 1994). The term "assessment" is broad. Making decisions on students, courses, and educational policy involves gathering, syncing, interpreting, and applying qualitative and quantitative information (Airasian, 1997). Brookhart (2003) asserts that we must go farther and explain how reliability and validity of work must fundamentally differ, even for enhanced classroom assessment techniques.

Assessment and measurement specialists in education have argued that students should be told openly and more early on about the full grading method that is involved in the assessment process. Before the pupils take the examination, this should take place (Stiggins, 1994; Stiggins&Chapuis, 2005; Stiggins et al., 1989). In addition, teachers should utilize a variety of evaluation strategies in order to adequately and accurately gauge their students' levels of learning (Nitko, 2001; Stiggins et al., 1989). The assessment needs to both satisfy the learning outcomes or the objectives, and it needs to give the students feedback. And the comments should have some substance (Nitko, 2001).

The American Federation of Teachers (AFT), the National Council on Measurement in Education (NCME), and the National Education Association (NEA) have collaborated to define seven standards for teacher competency in educational assessment of students. These standards were developed by the three organizations (1990). According to these requirements, teachers are expected to possess the necessary knowledge and skills in order to select and construct appropriate assessment procedures (AFT, NCME, & NEA, 1990).

Stiggins and Conklin (1992) were the ones who initially brought assessment practices into the classroom. Stiggins and Conklin (1992) identified eight essential components of assessment practices in their research. "Assessment purposes," "assessment techniques," "criterion for selecting the assessment methods," "quality of assessment," "feedback on assessment findings," "assessment preparation," "teacher's impression of students," and "assessment policy" were some of the components that were included in this list.

According to McMillan and Workman (1998), explained that teachers should be clear about how assessments will be carried out and evaluated how specific feedback will be provided, and how learning may be enhanced. And how the use of assessment can help students become more motivated to study.

This is both an exciting and difficult time for those who educate future teachers. They are making the most of the new chances that have presented themselves and making the required adaptations in order to cater to the requirements of students in the 21st century (Agra, 2005).

The assessment process is a very significant part of the teaching process since it helps to convey clear ideas to the student and gives them a deeper comprehension of the material (Shakir &Adeeb,2014).

According to this standard's part A: knowledge and understanding, teachers are expected to be knowledgeable about and have an understanding of the various types of assessment. They need to be aware of how students learn, as well as what students know and what they are capable of doing. They need to have an understanding of how to evaluate the findings of assessments in order to improve teaching and learning. The instructors need to be aware of and comprehend the measurement theory as well as the challenges associated with the assessment, such as validity, reliability, bias, and concerns with scoring. According to the dispositions of this standard, instructors should appreciate and be committed to the concept that the learning outcomes of their students are the basis for progress. According to Performance and Skills of this standard, it is important for educators to participate in

activities that will allow them to create and utilize teacher-made assessments in order to conduct ongoing internal evaluations of the students' performance and abilities at different levels of the academic program. They should come up with objective assessment methods and use those to measure the progress of the students (Ministry of Education,2009).

The assessment procedures of teachers in the classroom have been the subject of a number of studies (Alsarimi, 2000; Mertler, 1998). Some people have thought about how their presence impacts students' perceptions of how classroom assessment techniques, motivation, and achievement are handled (Stefanou&Parkes, 2003; Wang, 2004). However, the limited number of studies that took an empirical approach to addressing these concerns tended to concentrate their attention on the elementary school and college levels. The researcher looked for studies that investigated teachers' evaluation competencies based on national professional standards for elementary school teachers, but they were unable to discover any such studies. Therefore, the results of this investigation will fill up this void.

Research Hypotheses

$H_0$1: What is the level of teachers' competencies on assessment with respect to national professional standards for teachers (NPST)?

$H_0$2: What is the level of teachers' competencies on knowledge, disposition and performance skills based on national professional standards for teachers (NPST)?

$H_0$3: Is there any difference among teachers' competencies on the basis of demographic variables (gender, designation, qualification, age and experience)?

Material and Methods

Theoretical Framework

The conceptual framework of the study includes a number of different steps, all of which are depicted in the figure that can be found below. This figure demonstrated the presentation of the overall research process from the perspective of the researcher, taking into account the conceptual framework of the study.
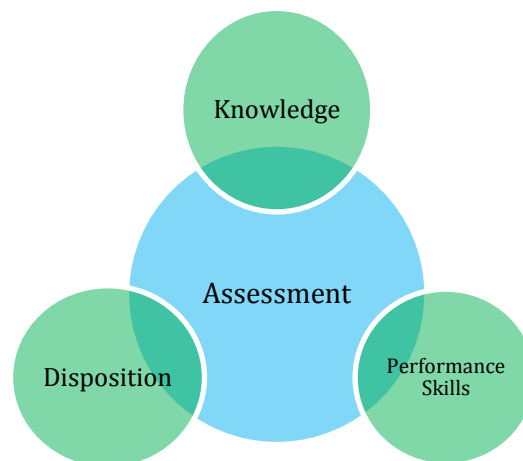
Research Design

A descriptive survey was chosen as the methodology for this research project's research design. It is suggested by Burns and Grove (1999) that a descriptive design can be used for the purpose of developing theory, discovering problems, making decisions with current practices, or what others are doing in the same circumstances. This is because it

presents the picture of situations as they logically take place. Survey research method was used to collect the data.

Population

The whole of the target audience to whom the results of the survey are intended to be applied is referred to as the total population (Levy & Lemeshow, 2008). The population of the research consisted of all of the Punjab's public elementary school teachers who were employed by public schools. As stated by School Information System (SIS) School Education Department (SED) (2022) there were 7180 Elementary Schools in the Province of Punjab and there were 192362 Primary School Teachers (PSTs) and 103522 Elementary School Teachers in the Province of Punjab.

Sample

The representative part of a population is called sample (Levin & Rubin, 2000). The sample of the study was 500 (260 female 240 male) elementary school teachers (250 PSTs and 250 ESTs) from 100 public elementary schools of ten districts of Punjab.

Sampling Techniques

The multistage sampling technique was used to select teachers as sample from population. The multistage sampling technique was used with the following detail: at stage-1 ten districts out of thirty-six districts in Punjab were selected randomly, at stage-II, 100 public elementary schools from ten districts were be selected randomly. At stage-III, 500 teachers from 100 public high schools were being selected randomly.

Research Instrument

The observational sheet was used in this study for collecting the data. Due to the fact that the observational checklist allowed for a more accurate evaluation of the instructors' assessment abilities at primary levels, the topic was investigated using quantitative methods. The researcher took notes on the respondents' abilities as they were shown in a natural situation, such as during class.

Observational Sheet

The observational sheet consisted of two parts: The first part of the instrument consisted of demographic information and the second part consisted of eleven statements divided into three areas (knowledge, disposition and skills) was adapted from a previous similar research study conducted by Muhammad Shakir (2014).

Table1
Factor Wise Items of observation sheet

SrNo	Factor	No of items	Item No
1	Knowledge		1, 2, 3
2	Disposition	6	4, 5
3	Skills	5	6, 7, 8, 9, 10, 11

Data analysis and Interpretation

Statistical Package for Social Sciences (SPSS 21) was used to determine the descriptive and inferential statistics including Percentage, Mean, Standard Deviation, T-test, and Analysis of Variance (ANOVA).

Results and Discussion

The research problem addressed in this study was to explore teachers' assessment competencies with respect to national professional standards for teachers in Pakistan.

Standard-5: Assessment.

Table 2
Level of Teachers' Competencies on Assessment

Assessment	Emerging % Teacher	Developing % Teacher	Proficient % Teacher	Accomplished % Teacher
ASS-1: Teacher knows various methods of assessment	6.8	74.8	10.2	9.2
ASS-2: Teacher understands to improve students' learning through assessment	30.6	57.4	10.0	8.0
ASS-3: Teacher understands to make reliable and valid assessment	26.8	54.8	10.2	8.2
ASS-4: Teacher believes that growth of learners on the basis on learning outcomes	68.2	13.4	10.2	8.2
ASS-5: Teacher reports the students' learning achievements to their parents	68.2	13.4	10.2	8.2
ASS-6: Teacher evaluates students' learning through continuous internal assessment	5.6	55.8	31.0	7.6
ASS-7: Teacher evaluates teaching techniques through continuous internal assessment	12.4	69.2	10.2	8.2
ASS-8: Teacher provides feedback through continuous internal assessment	21.2	60.4	10.2	8.2
ASS-9: Teacher helps students to engage in self assessment.	66.6	15.0	10.2	8.2
ASS-10: Teacher measures students' progress through objective based assessment	66.6	15.0	10.2	8.2
ASS-11: Teacher promotes self assessment activities for students	64.0	17.4	10.4	8.2

The table shows that at ASS-1, 74.8% were found at level-2(Developing Teacher) having basic knowledge of methods of assessment, 8.2% were found at level-4(Accomplished Teacher) having full knowledge about various methods of assessment. At ASS-2 51.4% were found at level-2(Developing Teacher) they understand how to improve students' learning through assessment, 10.0. % of the teachers were found at level-3(Proficient Teacher) having better understanding of assessment knowledge, At ASS-3 26.8% of the teachers were found at level-1(Emerging Teacher) they did not have enough knowledge about making valid and reliable assessment, 49.0% were found at level-2(Developing Teacher) understand to make reliable and valid assessment, At ASS-4 68.2% of the teachers were found at level-1(Emerging Teacher) Teacher did not believe that growth of learners on the basis on learning outcomes, 8.2% Teacher believes that growth of learners on the basis on learning outcomes and placed at level-4(Accomplished Teacher). At ASS-5 68.2% of the teachers were found at level-1(Emerging Teacher) teachers occasionally reports the students' learning achievements to their parents, 10.2. % of the teachers was found at level-3(Proficient Teacher) having regularly reports the students' learning achievements to their parents, At ASS-6 5.6% of the teachers were found at level-1(Emerging Teacher) they infrequently evaluate students' learning through continuous internal assessment, 55.8% were found at level-2(Developing Teacher) they seldom evaluate students' learning through continuous internal assessment, 31.0. % of the teachers were found at level-3(Proficient Teacher) they regularly evaluate students' learning through continuous internal assessment. At ASS-7 12.4% of the teachers were found at level-1(Emerging Teacher) Teacher have poor concept of evaluates teaching techniques through continuous internal assessment, 69.2% were found at level-2(Developing Teacher) Teacher did not have clear concept of to evaluate teaching techniques through continuous internal

assessment. At ASS-8 60.4% were found at level-2(Developing Teacher) Teacher provides poorly feedback through continuous internal assessment. At ASS-9 66.6% of the teachers were found at level-1(Emerging Teacher) Teacher rarely helps students to engage in self assessment. At ASS-10 66.6% of the teachers were found at level-1(Emerging Teacher) Teachers were not clear to measures students' progress through objective based assessment. At ASS-11 64.0% of the teachers were found at level-1(Emerging Teacher) Teachers have poor concept of promoting self assessment activities for students.

Table 3
Table Level of teachers

	GENDER	TOTAL SCORE3	ASS.K	ASS.D	ASS.S
male	Mean	90.4167	6.6625	3.2500	12.3458
	N	240	240	240	240
	Std. Deviation	28.50870	2.25717	2.06687	4.88885
female	Mean	85.6615	6.5308	3.0923	12.0077
	N	260	260	260	260
	Std. Deviation	21.72096	1.80599	1.80923	4.05940
Total	Mean	87.9440	6.5940	3.1680	12.1700
	N	500	500	500	500
	Std. Deviation	25.29444	2.03407	1.93682	4.47539

The table shows the level of teachers' competencies regarding knowledge, disposition and skills of subject matter knowledge. It is indicated that female teachers have high level of competencies in Assessment Skills M=12.17 than Disposition M=3.16 and Knowledge M=6.59 while, male teachers showed similar pattern.

Table 4
Comparison of assessment competencies of teachers regarding age

	AGE	Sum of Squares	Df	Mean Square	F	P
			ANOVA			
ASS.K	Between Groups	116.144	4	29.036	7.377	.000
	Within Groups	1948.438	495	3.936		
	Total	2064.582	499			
ASS.D	Between Groups	127.186	4	31.797	9.021	.000
	Within Groups	1744.702	495	3.525		
	Total	1871.888	499			
ASS.S	Between Groups	490.350	4	122.587	6.385	.000
	Within Groups	9504.200	495	19.200		
	Total	9994.550	499			

p ≤ 0.05

In order to investigate the influence that age has on the degree of competence possessed by instructors, a one-way analysis of variance across groups was carried out. The subjects were separated into the five groups. There was a statistically significant difference in the levels of assessment expertise possessed by the various teachers, as shown by the statistic $F_{(4,495)} =7.37$ with a significance level of.000. As a result, the null hypothesis that stated "There is no substantial variation among instructors' competence regarding assessment competencies" was found to be either acceptable or unacceptable. Therefore, it should come as no surprise that various instructors have varying levels of competence when it comes to evaluation. The real disparity between the groups in terms of their mean scores was not very large. Using eta squared, we were able to determine that the effect size was.04. Post hoc comparisons using the Tukey HSD test revealed that the mean score for Group 2 (M=6.44, SD=2.19) was substantially different from the scores of Group4 (M=5.81, SD=1.41) and Group5 (M=5.81, SD=1.28), but it did not vary significantly from either Group1 or Group3.

Table 5
Comparison of Assessment competencies of teachers regarding experience

EXPERIENCE	Sum of Squares	Df	Mean square	F	P
Between Groups	243.230	4	60.808	6.448	.000
Within Groups	4667.752	495	9.430		
Total	4910.982				

p ≤ 0.05

A one way between groups analysis of variance was conducted to explore the impact of experience on level of competencies. Subjects divided into five groups. There was significant difference among the teachers' competencies regarding subject matter knowledge as{$F_{(4,495)}=6.44$, p value = .000. Hence the null hypotheses "There is no significant difference among teachers' competencies regarding subject matter knowledge was accept to reject. So, it is clear that the teachers have different level of competencies regarding subject matter knowledge. The actual difference in mean scores between the groups was medium. The effect size calculated using eta squared was .06. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group1 (M=12.47, SD=3.26) was significantly different from Group4 (M=10.86, SD=2.01) and Group5(M=5.66, SD=.57) and did not differ significantly from either Group1or 2.
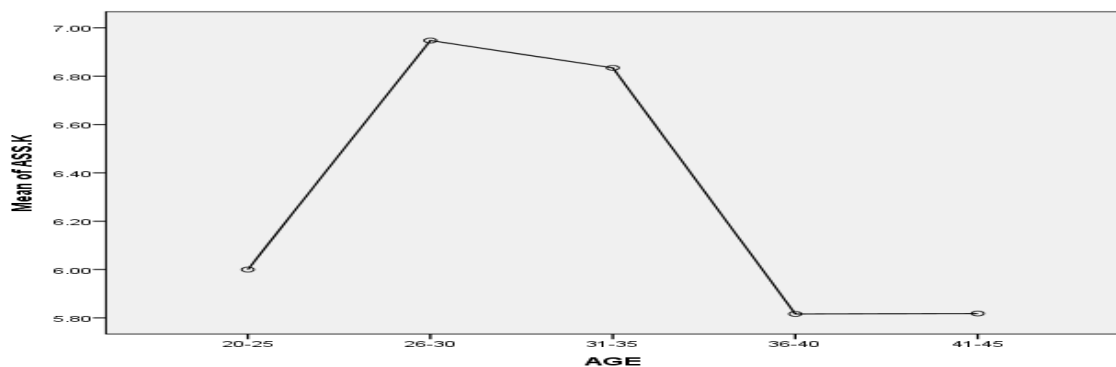

Fig 1:   Means of Ass-Knowledge on the basis of age

The means plot shows that 26-30 years old teachers had highest level of competencies regarding Assessment (knowledge) while 36-40 and 41-45 years old teachers had least level of competencies regarding assessment (standard-5). 20-25 years old teachers had more competencies than 36-40 and 41-45 years old teachers while 31-35 years old teachers had more competencies than 20-25 years old teachers regarding Assessment (Knowledge (standard-5).
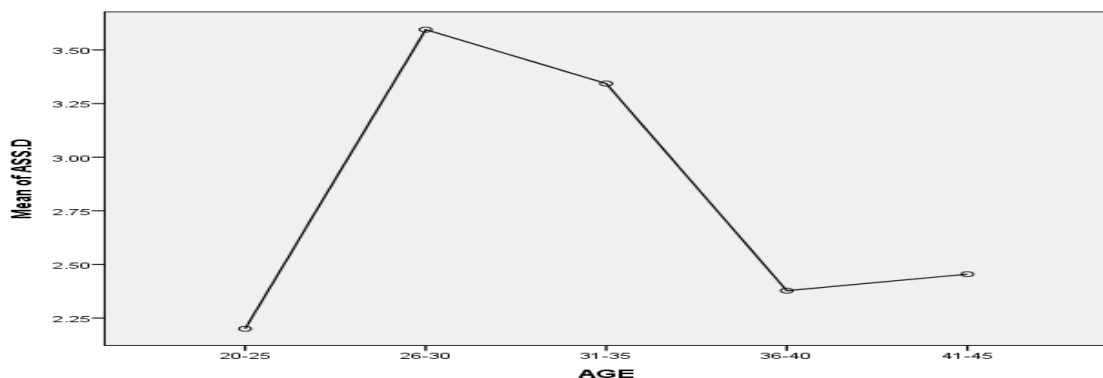

Fig 2: Means of Ass-Disposition on the basis of age

The means plot shows that 26-30 years old teachers have highest level of competencies regarding assessment (Disposition) while20-25 years old have least level of competencies regarding assessment (standard-5). 36-40 and 41-45 years old teachers had more competencies than 20-25 years old teachers while 31-35 years old teachers had more competencies than 20-25, 36-40 and 41-45 years old teachers regarding Assessment (Disposition) (standard-5).
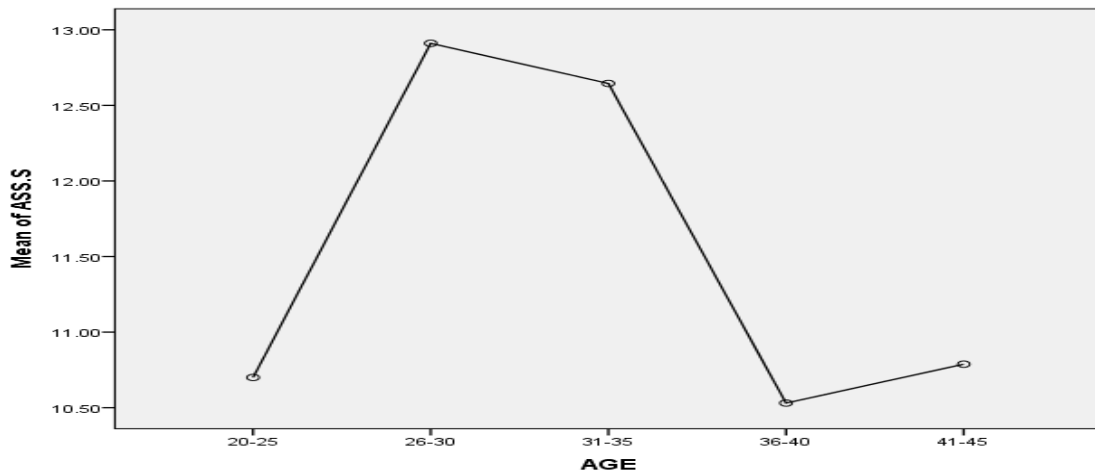

Fig 3: Means of Ass-Skills on the basis of age

The means plot shows that 26-30 years old teachers have highest level of competencies regarding Assessment (Skills) while 36-40 years old teachers have least level of competencies regarding Assessment (standard-5). 20-25 and 41-45 years old teachers had more competencies than 36-40 years old teachers while 31-35 years old teachers had more competencies than 20-25, 36-40 and 41-45 years old teachers regarding Assessment (Skills) (standard-5).
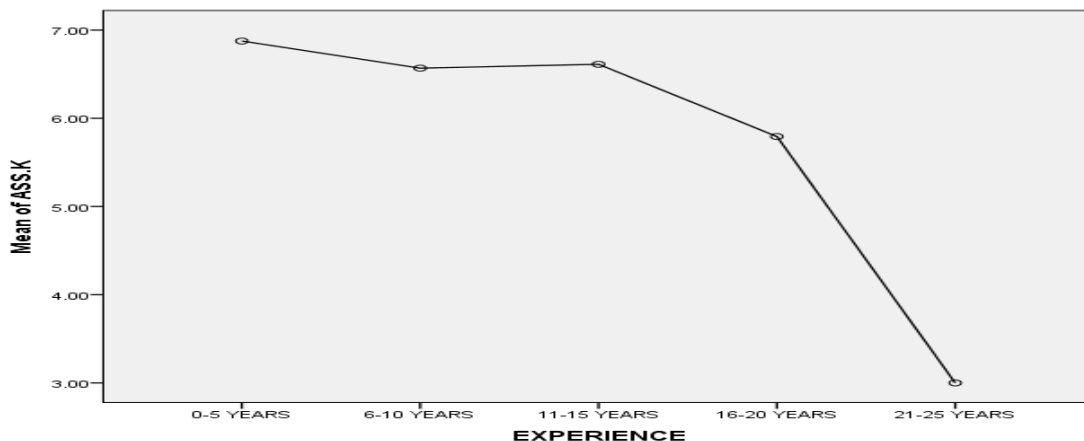

Fig 4: Means of Ass-Knowledge on the basis of experience

The means plot shows that the teachers having 0-5 and 6-10 years' experience have highest level of competencies regarding Assessment (knowledge) while the teachers having 21-25years experience have least level of competencies regarding assessment (knowledge) and teachers having 16-20 years' experience had more competencies than 21-25 years' experience teachers regarding Assessment (knowledge).
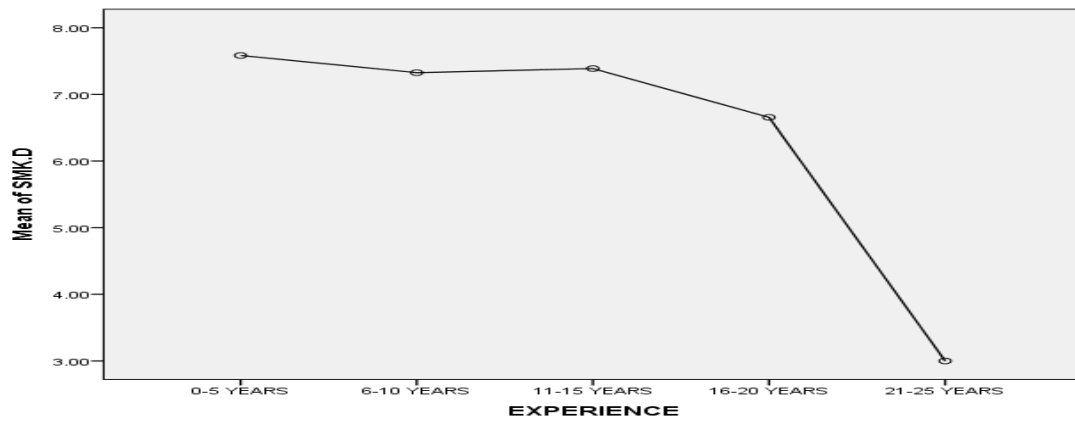
Fig 5: Means of Ass-Disposition on the basis of experience

The means plot shows that the teachers having 0-5 and 6-10 years experience have highest level of competencies regarding assessment (Disposition) while the teachers having 21-25years experience have least level of competencies regarding assessment (Disposition) and teachers having 16-20 years experience had more competencies than 21-25 years experience teachers regarding Assessment (Disposition).
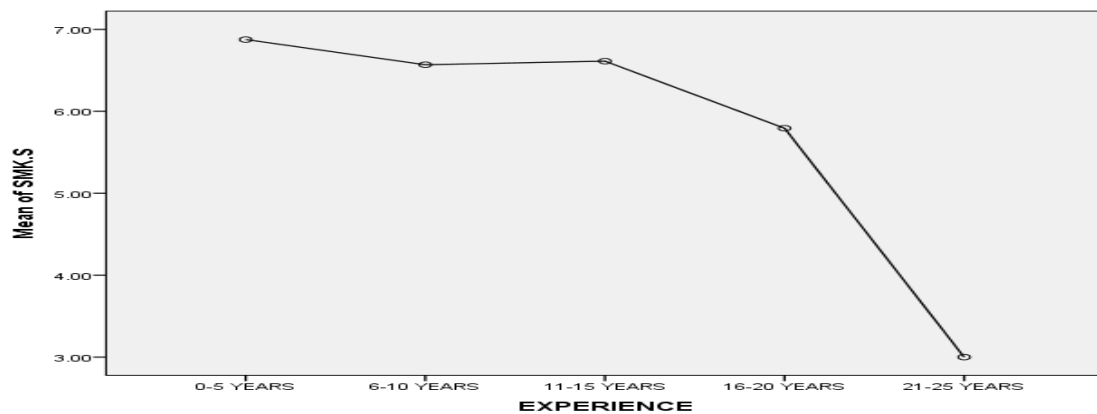

Fig 6: Means of Ass-Skills on the basis of experience

The means plot shows that the teachers having 0-5 and 6-10 years experience have highest level of competencies regarding Assessment (skills) while the teachers having 21-25years experience have least level of competencies regarding Assessment (skills) and teachers having 16-20 years experience had more competencies than 21-25 years experience teachers regarding Assessment (Skills).

Table 6
Gender wise difference of teachers' competencies regarding Assessment

Category	Gender	N	Mean	SD	*Df*	T	*P*
Knowledge	Male	240	6.6625	2.25717	498	.717	.474
	Female	260	6.5308	1.80599			
Disposition	Male	240	3.2500	2.06687	498	.905	.366
	Female	260	3.0923	1.80923			
P. Skills	Male	240	12.3458	4.88885	498	.838	.403
	Female	260	12.0077	4.05940			

$p \leq 0.05$

A comparison of male and female teachers' abilities in terms of assessment was investigated using an independent samples t-test, as shown in table above. There was no significant difference between mean scores of responses male and female. According to these findings, there was not a significant difference between the mean scores of responses received from male and female elementary school teachers in terms of assessment competencies (Knowledge, Disposition Performance Skills). It was determined that the responses of both male and female educators were the same when it came to Assessment Competencies.

Summary

500 elementary school teachers working in the public sector in the state of Punjab participated as respondents in this study. In order to evaluate the teachers' level of expertise, an observational checklist was utilized. The competencies of instructors in terms of subject matter knowledge were the primary emphasis of the observational checklist (standard 1 of the national professional standards for teachers) (NPST). The observational sheet contained 11 elements, statements, or competencies, which were further subdivided into the following three groups: knowledge, disposition, and skills. The five levels of competency that were mandated by the Pakistani Ministry of Education served as the basis for the development of the observational checklist. In order to investigate the teachers' capabilities, we used some statistical tools such as simple means, percentage, the T test, and one way ANOVA. The level of the teachers' competencies was determined through the use of straightforward methods. T.Test was utilized to assess not only the gender-specific differences between males and females but also the differences between other demographic variables. To analyze the differences in means between the groups, a one-way ANOVA was carried out.

Findings

The following is an explanation of the most important findings from the study, as well as an analysis and interpretation of the data obtained from the study.

1- It was discovered that more than half of the teachers were unaware of the various types of evaluation, and as a result, they were assigned to level 2 of the competency scale (Developing Teacher).

2- Roughly half of the educators had an inadequate understanding of how to enhance the learning of their students through evaluation, and as a result, they were ranked at level 2 (Developing Teacher).

3- More than half of the educators had an inadequate understanding of how to create an evaluation that was trustworthy and valid, and as a result, they were classified at level 2 (Developing Teacher).

4- The findings of the study reveal further that fewer than half of the instructors working in elementary schools feel that the growth of learners is based on learning outcomes, and these teachers were categorized as Level-1 (Emerging Teacher).

5- It was found that about more than half of the teachers almost never mention the students' learning successes to their parents, and as a result, the students were categorized as belonging to Level 1 (Emerging Teacher).

6- During the classroom observation, the majority of teachers were found to hardly monitor students' development through evaluation, and as a result, they were classified at level 2 (Developing Teacher).

7 The vast majority of the educators were not continuously examining their teaching methods as part of an internal assessment process, and as a result, they were ranked at level 2 (Developing Teacher).

8- More than half of the educators did not give adequate feedback to the pupils via ongoing internal assessment, and as a result, they were ranked at level 2 (Developing Teacher).

9- The vast majority of teachers did not assist pupils in engaging in self-evaluation, and as a result, they were put at Level 1 (Emerging Teacher).

10- The majority of the teachers did not use objective-based assessment to measure their students' progress; hence the majority of the pupils were classified in Level 1 (Emerging Teacher).

11 The majority of the teachers did not encourage students to participate in self-evaluation activities, and as a result, the pupils were assigned to Level 1 (Emerging Teacher).

12- The findings of teaching competencies, which are composed of knowledge, disposition, performance, and skills, show that teachers have low competencies regarding the knowledge they possess, lower competencies regarding their disposition, and the lowest competencies regarding their performance skills.

13- With regard to age, it has been discovered that teachers between the ages of 26 and 30 have high levels of competency, while teachers between the ages of 40 and 45 have the lowest levels of competency about assessment (standard-5)

14- In terms of experience, it was discovered that instructors with 0-5 and 6-10 years of experience possessed high level competencies regarding assessment (standard-1), whereas teachers with 40-45 years of experience possessed the lowest level competences about assessment (standard-1).

15- The findings indicate that the level of instructors' competences varied with relation to their knowledge, temperament, and skills of evaluation. It appears that instructors have a higher degree of competencies in terms of their knowledge as compared to their attitudes and skills.

16- The overall findings of the standard-5 Assessment suggest that the majority of instructors have just a limited comprehension of their assessment abilities. The majority of teachers were put at level 2, which indicates that this is the case (Developing teacher). At level 4, just a handful of teachers could be found (Accomplished Teacher).

Conclusions

It was concluded that many teachers lacked the competencies required by Pakistan's national professional standards for teachers. The majority of the teachers were classified as level 2 (Developing Teachers), and they needed to increase their assessment ability (standards-5). It was determined that the assessment-related competencies of male and female teachers were equivalent. Teachers' competencies in category 1 (knowledge) were found to be higher than those in categories 2 (disposition) and 3. (skills). Based on Pakistan's national professional requirements for teachers, it was determined that rookie teachers, who had less experience, had higher competence than older instructors, who had more experience. Based on national data, it was also shown that young instructors (aged 26 to 30) had higher competences than experienced teachers (aged 44 to 45).

Recommendations

On the basis of finding and conclusion of this study, researcher gives some recommendations for further education. In the light of the objectives of the study some recommendations for practitioners are as under:

1. It is recommended that Higher education institutions may arrange meetings, seminars and workshops for awareness about national professional standards for teachers in Pakistan.
2. It also recommended that to hold introductory workshop sessions for teachers, head teachers and administrators about assessment and importance of national professional standard for teachers and assessment competencies criteria.
3. It was concluded that teacher had less competencies in disposition and skills so it is recommended that these two categories should be great emphasized.
4. Aged and more experienced teachers had low level competencies so it is recommended that refresher courses should be arranged for them.
5. It is recommended that teachers should be updated their knowledge about assessment.
6. It is also recommended that teachers should be evaluated against national professional standards for teachers in Pakistan and evaluation criteria should be adopted recommended by Ministry of Education Pakistan.
7. More research studies are needed to be conducted to investigate and explore the results of the present study with different sample size.
8. More research studies are needed to be conducted to explore the teachers' competencies in other standards.
9. Further research studies may be required to conduct in other public and private schools and other provinces of Pakistan.
10. Further studies required to identify the factors which affect the teachers' competencies in all provinces of Pakistan.

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