

## A Comparison of Mathematics Teachers Assessment Practices Between Public and Private Schools in District Sargodha

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### Abstract

Examining mathematics teachers' practices in assessing students' performance was the major concern of this research study. A survey method was applied within descriptive research design. The population of the study was all the 6<sup>th</sup> and 7<sup>th</sup> grade mathematics teachers teaching in elementary schools of district Sargodha. The sample of the study was one hundred and forty mathematics teachers of tehsil Shahpur of district Sargodha. The data were collected through a questionnaire developed by the researchers themselves. The instrument measured the assessment practices i.e. Multiple choice questions, portfolio, anecdotal record, self and peer assessment, assignment as mentioned in the national curriculum 2006. Cronbach Alpha was used to assess the instrument reliability and its value was found to be 0.824. Differences in assessment practices on the basis of demographic variables independent sample t-test and Analysis of variance were applied. It was revealed that private school mathematics teachers were practicing assessment tools more extensive than public schools teachers. It was also found that public school teachers were not performing well in students' mathematics assessment. Hence, it was recommended that government should provide them in-service training by conducting workshops and seminars to make them able to practice modern assessment techniques.

**Keywords:** assessment practices, public and private school, mathematics teachers, elementary level

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## Introduction

A process that uses variety of tools and techniques to gather information about students learning systematically is known as assessment. Rowntree (2014) described two objectives of assessment: first, to give feedback to improve students' learning continuously and second, to give value judgment on the achievement of students. Assessment has many types but classroom assessment is an important one. It is very helpful both for the teacher as well as students. It influences students' learning. Students focus their efforts on content or cognitive skills and they believe they are tested. Additionally, it will affect teacher assessment practices by focusing on certain aspects of the course content; specify the direction and supervision of the processing of information resources. A teacher assesses whether the students are able to learn by his teaching methodology. He also assesses the methodology whether it is suitable for the students or not, if not then he changes his methodology.

The subject of mathematics is an important one to develop students' abilities e.g. problem solving, reasoning, critical thinking. It has been used in every walk of life and has connections with other subjects. The National Council of Mathematics Teachers also speaks about the mathematics curriculum assessment and the problems faced by mathematics teachers. The council also focuses on different techniques and teacher participation in assessment.

In different countries and different institutions, a lot of mathematics' assessment techniques are being applied. According to National education policy (2009), it is must to make the Pakistani education system internationally competitive in Mathematics and scientific assessment to take part under the auspices of the time. In Pakistan, in 2006 curriculum, certain assessment techniques were mentioned for each subject and for mathematics in particular i.e. general assessment practices, assignment, anecdotal records, portfolio, and self and peer assessment. The need to use the portfolio is underlined by (Birgin, 2003). Many theoretical and empirical studies in the literature have the superiority of portfolio review to the traditional assessment tools in education (Baki & Birgin, 2004). Furthermore, Pakistani education system can be divided into basic education and higher education. Both are governed separately by various financial management systems and ministries. The education system in the province of Punjab is divided into two major sectors i.e. public and private. So, it is vital to examine whether the suggested assessment practices are being implemented in

both the sectors or not, or which of the sectors is implementing those practices in a better way. Previous research studies were about investigating assessment practices and their use in classrooms by teachers but this research keeping in view the importance of assessment was focused on comparing teachers' practices in assessing mathematics students' performance in both types of elementary schools i.e. public and private in district Sargodha.

## **Objectives**

Following were the objectives of the study:

1. To examine the elementary level mathematics teachers' assessment practices in Tehsil Shahpur.
2. To compare the elementary level mathematics teachers' assessment practices in Tehsil Shahpur by their academic qualification and school type.

The null hypotheses of the study were as follows:

H<sub>01</sub>: There is no significant difference between the public and private schools mathematics teachers' assessment practices

H<sub>02</sub>: There is no significant difference in the assessment practices of mathematics teachers on the basis of qualification.

## **Methodology**

A descriptive research design was used in the study to examine different assessment techniques being practiced by mathematics teachers in public and private schools at 6<sup>th</sup> and 7<sup>th</sup> grades in tehsil Shahpur of Sargodha district in Punjab province. It was appropriate to use this design as Creswell (2005, 2009), and Cohen, Manion, and Morrison (2007) supported this design to examine practices and beliefs of a particular group. It was a quantitative study and both, formative and summative assessments (Gronlund & Waugh, 2009) were included. A survey was conducted to examine the mathematics teachers' assessment practices. According to the information collected from Punjab school website, the population of the study was 230 mathematics teachers teaching to 6<sup>th</sup> and 7<sup>th</sup> grade in elementary schools of tehsil Shahpur, district Sargodha. The sample was selected by multistage sampling. Firstly, 70 public and private schools were selected randomly. At second stage, one hundred and forty elementary Mathematics teachers were selected from these schools.

The tool of study was a self-developed questionnaire on five point Likert type containing forty items for elementary school teachers. The teachers were asked to give their response on strongly agree to strongly disagree. This questionnaire covered five main aspects regarding mathematics teachers' assessment i.e. general assessment practices, assignment, anecdotal records, portfolio, and self and peer assessment. Initially researchers developed 64 items. Only forty items were finalized after the expert opinion and pilot testing. The reliability of the instrument was ensured through pilot testing. The instrument was piloted on 20 respondents who were not the part of this study. To check the reliability of questionnaire, Cronbach Alpha was applied. Its value was found to be 0.824. This value showed that instrument was reliable (Cronbach, 1970). Final data were collected personally by the researchers. For data analysis, Statistical Package for Social Sciences was used. On the basis of demographic information, mean score and standard deviation were applied. Inferential statistics i.e. independent sample t-test and one way ANOVA were applied used in this research to compare Mathematics teachers' assessment practices.

## Results

Following were the findings:

It was found in school-wise comparison that private schools Mathematics teachers were practicing the assessment techniques much as compared to public school teachers at elementary level. It was found that that private school Mathematics teachers were practicing more in assignment work (Mean=3.95 for private, Mean=3.83 for public); anecdotal record work (Mean=3.97 for private, Mean=3.81 for public); portfolio work (Mean=3.67 for private, Mean=3.49 for public) and in self and peer assessment (Mean=3.87 for private, Mean =3.79 for public). While only in general assessment practices public schools were practicing more than private school teachers (Mean =3.73 for public, Mean = 3.68 for private). The detail is given in table 1 and graphically presented in figure 1.

Table 1  
*School-wise Mathematics Teachers' Assessment Practices Comparison*

Statement	Group	N	$\bar{X}$	SD	df	t	Sig.
School-wise Assessment Practices on General Assessment Practices	Public	30	3.73	7.285	108	.561	.576
	Private	80	3.68	4.895			
School-wise Assessment Practices on Assignments	Public	30	3.83	.709	108	-.901	.370
	Private	80	3.95	.637			
School-wise Assessment Practices on Anecdotal Records	Public	30	3.81	.676	108	1.393	.166
	Private	80	3.97	.434			
School-wise Assessment Practices on Portfolio	Public	30	3.49	.774	108	1.253	.213
	Private	80	3.67	.719			
School-wise Assessment Practices on Self and Peer Assessment	Public	30	3.79	0.69727	108	-.685	.495
	Private	80	3.87	4.91823			

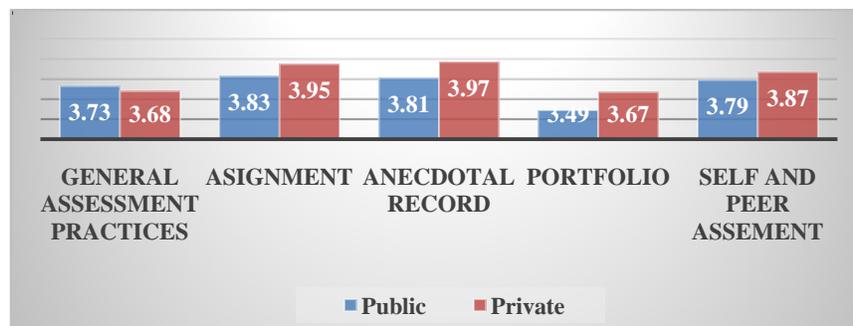


Figure 1: Public and Private Mathematics Teachers Mean Scores on their Assessment Practices

In academic qualification-wise comparison of Mathematics teachers' assessment practices, it was found that the high qualified teachers (M.A, M.Phil, P.hD), give more emphasis on students assessment than the low qualified teachers (B.A). Significant difference was found between high and low qualified Mathematics teachers' in their 'general assessment practices' (f-value= 3.83, p-value=0.03); and 'self and peer assessment practices' (f-value=4.07, p-value=0.02). There is no significant

difference was found in their 'assignment work' (f-value=0.46, p-value=0.63); 'anecdotal record work' (f-value=2.35 and p-value=0.10); and 'portfolio work' (f-value=1.14, p-value=.33) which is shown in table 2.

Table 2  
*Mathematics Teachers' Academic Qualification wise Assessment Practices Comparison*

Qualification -wise Assessment Practices		Sum of Squares	df	Mean Square	F	Sig.
General Assessment	Between groups	1.79	2	.89	3.83	.03
	Within groups	24.97	107	.23		
	Total	26.76	109			
Assignments	Between groups	.43	2	.22	.46	.63
	Within groups	50.24	107	.47		
	Total	50.67	109			
Anecdotal Record	Between groups	1.63	2	.82	2.35	.10
	Within groups	37.10	107	.35		
	Total	38.73	109			
Portfolio	Between groups	1.29	2	.65	1.14	.33
	Within groups	60.87	107	.57		
	Total	62.16	109			
Self and Peer Assessment	Between groups	2.98	2	1.5	4.07	.02
	Within groups	39.22	107	.37		
	Total	42.21	109			

## Conclusions

- It was concluded that the private school Mathematics teachers were better than public school teachers in terms of assessment practices like assignments, anecdotal record, portfolio, and self and peer

assessment, while the public school teachers are doing more general assessment practices.

- It was concluded from the academic qualification-wise comparison; high qualified teachers (M.A, M. Phil, and P. HD) were practicing modern Mathematics assessment techniques more as compared to teachers having low qualification (B.A).

## **Discussion**

Assessment is an essential part of educational activities and the worth of teaching and learning process is judged through assessment. The study by Adams & Hsu (1998) suggested the need for a variety of assessment techniques. If assessment and evaluation system is not valid, authentic and reliable, the exact quality of output of teaching learning process cannot be determined. The challenge to enhance the assessment practices has not been taken seriously in schools. If the process of assessment is not reliable, you cannot achieve the targets of teachings. Teachers in Pakistan tend to be under pressure from the formal assessment to complete the prescribed program and overlooking pupil assessment of knowledge and skills. Public school teachers spend too much time with more emphasis on certain parts of Mathematics curriculum and do not focused on modern assessment techniques to assess students learning in Mathematics. This study concluded that the private sector is good in practicing modern assessment practice as compared to public sector school teachers. In government school, teachers used only general practices while in private schools, teacher were using both general and specific assessments practices like assignments, anecdotal record, portfolios and self and peer assessment practices. The reason behind this may be the security of jobs in public school while the private teachers have to work for their jobs.

## **Recommendations**

This study put forward the following recommendations:

- The study may be replicated in other tehsils of district Sargodha and other districts of the Punjab province of Pakistan.
- Result of the study shows that public school teachers were not performing well in students' assessment. Hence, it is recommended that government may provide them in service training by conducting workshops and seminars on modern assessment techniques to make them able to utilize modern assessment techniques for the assessment of students at elementary level.
- Head teachers may monitor the assessment practices of teachers and provide them adequate feedback.

- It may also be recommended that it is the duty of Govt. of Pakistan that it provides appropriate number of teachers and physical resources in every elementary school so that the teachers may fully concentrate at their work instead of clerical works.

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