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Problems Identified by Elementary School Science Teachers Using Assessment Techniques in Lahore Division

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KEY WORDS

Formative assessment, summative assessment, syllabus, overcrowded classrooms, and execution of valuation techniques

ABSTRACT

The objectives of this study are to identify the challenges encountered by elementary school science teachers when applying assessment methodologies in the Lahore division and propose feasible ideas to enhance the present assessment system. A qualitative survey was carried out following the Naturalistic philosophical research paradigm. Population for this study consisted of female elementary school teachers while the sample included 18 teachers. A semi-structured interview was developed to collect the data. While thematic analysis was used to analyze it. Mock interviews were used to establish the instrument's dependability and validity was reviewed by four specialists. Major findings were: majority of teachers mentioned issues connected to a limited budget, a lengthy curriculum, overcrowded classrooms, pressure to complete the syllabus in limited time, lack of infrastructure to undertake science practicals and employ various evaluation techniques to boost student learning. It is suggested that the government should offer scientific facilities and additional backing to every government sector primary school for science experiments and enhance/update the paper design for the Punjab Examination Commission for grade VIII.

Introduction

Appraisal is an essential component of effective learning and teaching. It begins with setting learning objectives and finishes with assessing how effectively these objectives were met or to what degree teachers met their learning objectives (Ahmed, Mahmood, Ghuman, & Wain, 2013). Students' assessment is the fundamental element of any school, college, and institution. It is similar to teachers discovering the nature of pupils' acquisition to the degree of progress toward a goal that teachers make changes to their future teaching approach planning (Rehmani, 2003).

The term "valuation" has several meanings depending on the context, such as evaluation, measurement, judgment, review, and appraisal. Every sphere of life has a different assessment time frame. When we look at it in medical profession we see physicians assessing patients, in business profession traders assessing the quality of products and the costs of pieces of stuff when anyone wants to buy them from the market, and in teaching profsession a teacher assessing a student for elevation, grading, and placement to the higher class. The quality of assessment is allied and tied up with the quality of education. Correspondingly, evaluation assists in the realization of numerous objectives in our daily lives stretching over the eminence and customary of our educational system (Mohammad, Saeed, & Shahid, 2017).

Taking stock of things inclusive of the background of Pakistan's education system, it emerges as one of the key causes of the fiasco in the instruction and learning process. Pakistan's educational system goes by two categories of examinations: formative and summative appraisals. The formative assessment is used to evaluate the success of instructional practice and student's learning results. The most commonly applied tool for this aim was a test with good (PASS) and negative (FAIL) outcomes. Our educational processes and procedures rely upon the focus on representative information rather than measuring practical and critical abilities. There is a need to assess the subject system, to good instruments for measuring the process in the beginning and conclusive sphere of daily life. At times when we are obliged to appraise the educational system during the session we don't find unique methods that may be of help to measure important skills since we fail to focus on teaching tactics whether those have been realized or the situation was otherwise (Mirza, 1997).

In Pakistan, the test system rested on high stakes since those were meant for the promotion of kids to the next grade. Success is overelaborated in the examination system while humiliation fails. The current testing procedure only evaluates students' memorizing skills rather than their critical, social, and intellectual talents which does not provide a reliable indication of the truth. According to Erfan (2000), education must emphasize both social and intellectual growth.

According to Brown (2004), there are four main misconceptions about assessment that remain prevalent among teachers. These are: (a) assessment improves teacher instruction and student's learning by providing quality information for decision-making; (b) assessment holds students accountable for their learning; (c) assessment holds teachers or schools accountable; and (d) assessment is inappropriate as a way to evaluate the work of teachers and the lives of their students.

In order to cultivate excellence, special efforts must be made in fields like curriculum and pedagogy, textbooks, assessment techniques, teacher caliber, learning environments, and facilities. Numerous educational systems and their standards are addressed by eminent assessment systems in the measurement system. The assessment system evaluates both individual student performance and the effectiveness of the system as a whole in order to determine eligibility for academic advancement. A thorough examination of inputs as an objective yardstick is required for improvements at all levels, from classroom adjustments to changes to the national system (Ahmed, Mahmood, Ghuman, & Wain, 2013). To increase learning, real assessments are proposed. This is required for successful assessment, designing a curriculum based on students' ability, and developing fundamental learning content that caters to knowledge, skills, values, and attitudes (Khattak, 2012). Students' levels of competency should be assessed in the classroom regularly. Regular assessment practices can aid in raising levels of achievement. It is more dependable than memorizing when pupils explore and develop their understanding based on reasoning.

The education system at all institutions is dependent on professors who are good and well-versed in their subjects. Teachers are more essential than anything else, and we cannot replace them with any other source of educational content. The truth is that tutors and teachers are the most important component of the educational and instructional system. As a result, teachers are recognized as the most significant and necessary factor for the success of any education system. Teachers constantly worked hard and went above and beyond their assigned tasks. No book or other source pays as much attention to pupils as teachers do (Deen, 2000).

The value of teaching influences successful and fruitful learning which necessitates academically competent professionals caring about the well-being of children and teenagers. Teaching is one of the most significant and powerful professions in society as opined by Sarital and Tomer (2004). Teachers are considered the heart of educational institutions as they establish a conductive teaching and learning environment which brings quality in students' learning and enable them to become a good Muslim and citizen.

Objectives of the Study

The objectives devised for the study were to:

1. Identify the issues that science teachers encounter during the introduction of the existing assessment system in public sector primary schools in the Lahore division.
2. Gather feedback from teachers to augment their present assessment practices.

Research Questions

The following were the research questions laid down for this research in hand:
1. What are the issues encountered by teachers in public sector primary schools in the Lahore division during the implementation of present evaluation system?
2. What ideas have been generated by teachers to enhance the existing assessment system?

Methodology of Research

In order to gather the data for the study, a survey method was used.

Population and Sample of the study

The district Lahore had 143 primary schools, whereas the district Kasur had 142. There were 2174 elementary teachers in the public sector schools in the district Lahore and 1904 in the distric Kasur. There were five tehsils in the district of Lahore: such like Model Town, Lahore Cantt, Raiwind, Lahore City, and Shalimar. Model Town had a total of 33 public primary schools. There were 52 public sector primary schools in Lahore. Raiwind is home to 15 public primary schools. There were 14 public elementary schools in Lahore Cantt and 29 in Shalimar Tehsil. Additionally, it shows demographic data for a different district that the researcher has selected. Four tehsils were established in Kasur: Chunian, Kot Radha Kishan, Pattoki, and Kasur. There were 28 public primary schools in Chunian Tehsil. There were 13 public primary schools in Kot-Radha Kishan. 52 schools were located in Pattoki tehsil. According to the 2018 Annual School Census, Tehsil Kasur had a total of 49 schools.
The population of this study consisted of teachers from Lahore division's public sector primary schools for females. The researcher picked up schools from the districts of Lahore and Kasur using simple random sampling technique. Since the researcher only wanted teachers who were instructing General Science to students in grades VI–VIII, a purposeful selection approach was used to choose the teachers. Ten from Lahore and eight from Kasur were chosen by the researcher out of 18 science teachers in basic schools.

Development of Instrument

The researcher developed a semi-structured interview stretched over 13 questions. McGrath, Palmgren, and Liljedahl (2019) presented fundamental principles for designing questions in semi-structured interviews, which the researcher followed methodically. Semi-structured interviews were utilized to identify challenges

encountered by primary science teachers when applying various assessment methodologies and to solicit suggestions from teachers to enhance the present assessment system. The specialists were requested to validate the research tool. To validate the tools associated with semi-structured interviews, four assessment specialists were contacted. Semi-structured interviews were made reliable through mock interviews with general science teachers from two public primary schools. The researcher spent 20 to 30 minutes with permission to conduct semi-structured interviews with science teachers from public sector elementary schools. To create a more comprehensive picture of the topic under inquiry and to cross-check data, triangulation is the process of utilizing multiple approaches, data-gathering techniques, and data sources. Qualitative research's strength lies on using two or more procedures to collect data rather than just one and this approach typically involves two or more methodologies.

Findings from Data Analysis

This study was qualitative and the obtained data was analyzed using theme analysis and presented as such.

Figure 1

Thematic Analysis Process

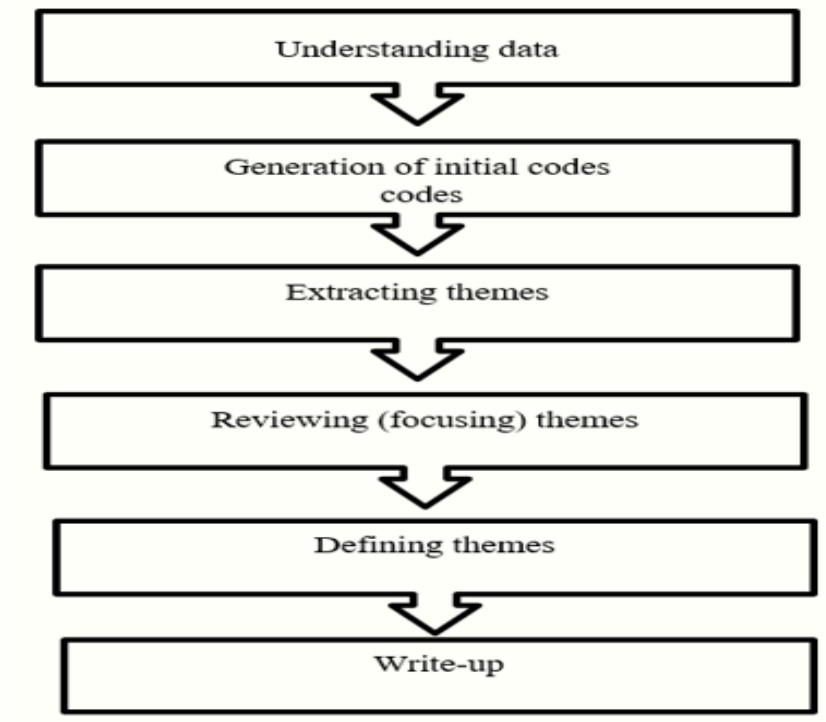

Figure 1 shows the thematic analysis method for this study. Step 1 involved gathering and familiarizing the researcher with raw data from a predetermined sample. Generating initial codes was the next step after becoming familiar with the data. Open coding and axial coding were the two different types of coding used in the study. In open coding, the researcher reviews the material multiple times before assigning rough names or coding to the information. After that the researcher used axial coding which involves establishing connections between the codes. The search for a topic was the third phase of thematic analysis. The data were incorporated into an appropriate theme by the researcher. The researcher extensively evaluated the concepts in the fourth phase. The fifth phase in the thematic analysis was to precisely identify each subject one by one. The final phase in thematic analysis was writing up. It was the most essential aspect of the qualitative research analysis. The data was analyzed against each research question by the researcher.

Semi-Structured Interview Protocol Analysis

Teachers in both districts of the Lahore division encountered several challenges when adopting a formative and summative assessment system. Table 1 lists some of the primary and frequent difficulties faced by teachers in both districts.

Table 1
Elementary Science Teachers' Challenges in Using Formative and Summative Assessment Systems

Sr. No.	Theme	Sub-themes	Responses of Participants
1.	Difficulties encountered by teachers using the F.A. and S.A. system	1. Budget	1. The majority of teachers in both districts experienced financial difficulties. 2. The necessary equipment for carrying out any activity was not provided by the authority.
		2. Pressure for results and grades	1. All participants opined that the head teachers have to face pressure on grades or marks. 2. Most of the teachers use rote memorization even for teaching.
		3. No science lab; insufficient tools	1. Several Lahore district teachers claimed that their schools lacked science labs. 2. The same problem could be excavated by interviewing in district Kasur.
		4. Infrastructure	1. Teachers of district Lahore divulged that they don't find

	(physical environment)	the physical environment of classrooms conducive for projects. 2. The district Kasur participants felt that due to combined/overcrowded sessions they were unable to employ any assessment strategies.
	5. Teaching style	1. The district Lahore participants had issues with the medium of teaching. 2. The majority of teachers in Kasur district admitted that they have trouble teaching English because the majority of the students come from illiterate backgrounds.
	6. Lengthy material and a heavy syllabus	1. In response to their concern that the information in science textbooks is lengthy, the vast majority of teachers took action. 2. Teachers acknowledged that they can't use the techniques.

The numerous difficulties that science teachers in public primary schools in the Kasur and Lahore areas confront are shown in Table 1. The majority of the 18 participants said that the main issue they encountered while adopting various evaluation procedures was a lack of funds. They said that the higher authorities did not give them the fundamental essentials needed to carry out scientific activity. Science, as we all know, is the subject that is best learned by doing. To inspire our pupils to study, we also need multiple evaluation approaches throughout sessions. To examine the various mental levels of the students, one form of assessment is insufficient. Some of them indicated that they were unable to use an alternative evaluation technique due to the long content provided by the government to cover in a restricted period. In a semi-structured interview, all participants (18 science teachers) from both districts stated that owing to the lack of a scientific lab at our school, some of the themes were not properly given to pupils. All participants answered the significant issue of receiving grade or mark pressure from the head of school and the majority of teachers claimed they relied on rote memory. Some of them noted that the language of the material is challenging for both pupils and parents.

Three teachers from the district of Kasur stated that due to merged classrooms, they could not readily implement any assessment plan. They had to deal with the

problems of checking homework and controlling the disciplinary situation in the classroom. This happens as a result of the school's inadequate physical environment or infrastructure for carrying out various evaluation procedures. Students in government schools are often from low-income homes with the majority of parents being illiterate. As a result, the teachers noted that the medium of instruction needed to be altered. According to one of the teachers from the Kasur district, the notion expressed in scientific textbooks is not appropriate for pupils' mental levels. The kids are having difficulty in grasping the subject.

Suggestions for Improving the Current Grade VI-VIII Assessment System

In semi-structured interviews, the researcher questioned the participants, "What can be the various suggestions to improve the current assessment system"? In this response, following suggestions were made by primary teachers in the Lahore area to enhance the present evaluation system for grades VI-VIII:

1. The government should fund laboratories in all public sector schools to teach science in its true sense because the final judgment of science should be based on practical experience.
2. Books should use modern science teaching techniques and the paper layout should be suitably updated. A science report ought to be supported by actual experience.
3. Term papers should be used instead of summative assessments.
4. It would be excellent to give adequate equipment training to all science teachers.
5. The government should support instructors who are hired as primary educators but instruct science to elementary pupils and have their courses earn the highest grades.
6. Conduct of activities and their marks may be included in class examinations and final assessments as well.
7. A proper budget may be spared for activities related to teaching based science subjects.
8. The teachers may be free to award marks more objectively without government pressure.
9. The PEC processes, procedures and evaluation system may be amended or altered.

The primary teachers belonging to Kasur district put forth the following changes to be brought about in the present evaluation system for grades VI-VIII:

1. Amend the final test paper pattern.
2. The science report must be based on daily life experiences.
3. Projects may be made mandatory for all government science teachers and the marks from these projects are to be included in the final examination.
4. To reduce the possibility of cheating, replace the paper-pencil test method with a computer-based test.

5. Provide enough assessment training to all teachers.
6. Remove the threat of getting the greatest possible grades.
7. PEC shall only promote students who have honestly studied all of the material.

Conclusion and Recommendations

It is stated that the biggest challenge that most teachers confront in public sector elementary schools in the Lahore division is a lack of extra cash, long content, medium of instruction, a lack of a science lab, and overcrowded classrooms. Some teachers encountered difficulties owing to a lack of training in the use of formative assessment implementation. The several proposals offered by the teachers to enhance the present evaluation system include providing an appropriate budget for completing activities to reduce the sole reliance of the school on marks. In their final exams, add the scores from each student's formative tests. The science paper has to describe experiments, process observations, and discussions of first-hand observations.

The following recommendations are made considering the findings.

1. Schools must have labs and the government should fund every public sector primary school for this purpose.
2. For students and parents to understand the material, both the substance and the format of education should be revised.
3. Based on the students' overall formative assessment results, the paper design for the eighth-grade PEC system may be enhanced.
4. Future researchers may carry out this research at the secondary and higher secondary levels as well as in other areas of Punjab.

Future researchers may also include additional stakeholders like students, parents, and principals to obtain their perspectives on the use of formative and summative assessment methodologies.

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