

Effect of Formative Assessment on the Academic Performance of Secondary School Students of Taluka Mithi, District Tharparkar

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ABSTRACT

Aim of the Study: This study aimed to find out effect of formative assessment on the academic performance of secondary school students of Taluka Mithi, District Tharparkar.

Methodology: It was carried out through Quasi-experimental design, in which data was collected from sixteen public secondary schools of District Tharparkar. For collection of data, two research instruments, Formative Assessment Observation checklist and Learning Test of students were applied. Through formative assessment observation checklist, one classroom from each school was observed through simple random sampling. In addition, (N=486) correspondents were selected as samples for this study. There were two groups of classes, Group 1 and Group 2. These groups were decided based on the mean value of observation checklist. The collected data were tested and analyzed through Independent Sample T test.

Findings: The study's findings indicated that there is a statistically significant effect of formative assessment on the academic achievement of students.

Conclusion: Keeping in view the findings of the study, usage of formative assessment activities emphasized owing to its statistically significant impact on students' achievement.

Keywords: Formative Assessment, Academic Achievement, Secondary School Students.

Introduction

Assessment is all the methods and tools that teachers use to measure students' educational needs and learning progress. There are different types of assessment. Among them Formative assessment is one of them. This assessment is used by teachers as well as students during the instructional strategy through which information is collected about progress of students and help them to learn so that desired outcomes can be attained (McManus, 2008). Moreover, through this assessment teachers adjust their method of teaching according to the learning needs of students (Black & Wiliam, 1998). Therefore, this assessment

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is useful in improving the instructional methodology of teachers. According to (Miller & Lavin, 2007), formative assessment is the vital and integral part of teaching and assessment. It informs teachers that where the students are now and where they are going. In addition to, formative assessment improves the interaction and communication between teachers and students, which directs the teachers to bring effectiveness in the strategy of instruction and provide better feedback to students as well (Benjamin, 2013).

In formative assessment process learning gaps of students are identified then feedback is provided to ensure the learning of students'. That is why, this assessment is considered as the 'assessment for learning'. The prime aim of this assessment is to promote students' learning. It is a cyclical process having three main steps (Black & Wiliam, 2009). 1) Where is the student at now i.e. current ability level of students 2) Where is the student going i.e. expected learning outcomes of student and instruction is provided accordingly. 3) How should student reach the target objectives of the lesson i.e. providing instructional feedback? Conclusively, it works like a map for teachers. Therefore, it is necessary that there should be an alignment between this assessment and the instructional goal of learning (Moss & Brookhart, 2019).

There is an important relationship between formative assessment and students' learning because this assessment fulfills the students' needs, brings effectiveness in teaching and instructional methodology of teachers through which learning goals are attained appropriately and ultimately it will prove beneficial for institutions (Nightingale et al., 1997). Moreover, different studies reveal that in teaching and learning process this assessment bring betterment in the instructional strategies so that objectives of learning can be achieved. In addition, it will create a positive culture of learning in the classroom (Black & Wiliam, 1998). Assessment is considered as a key factor which direct relation on students learning. It promotes the achievement of students and improves their performance. The areas of improvements can easily be pointed out if assessments are applied during the course of study. It will help to close the gaps of learning. Here, the question arises how assessment becomes formative. The assessment becomes formative when evidence and information collected from students is used to adjust teaching and learning process, in order to fulfill their needs. When teachers get to know the ways of improving the learning of students or where they face hindrance in learning then they apply the collected information to bring adjustments in their instruction through re-teaching or use alternative instructional approach to tackle the problem.

Statement of the Problem

In the context of Pakistan, research has confirmed that poor system of assessment is one of the major causes of dismal performance of education system. Through existing system of assessment knowledge of facts is assessed while understanding of concepts, creative and critical skills of students are not assessed properly. Moreover, in schools due importance is not given to Formative assessment activities as compared to summative assessment. However, formative assessment is ongoing and occurs throughout the process of teaching and learning, while summative assessment takes place at the end of an academic year. In addition, our education system hardly emphasize the effectiveness of instructional strategies, but effectiveness in instructional methodology occurs through teachers' reflection which is a part of formative assessment (Mirza, 1999).

In addition, formative assessment is under continuous debate regarding the students' achievement in the examination. Rote memorization is stressed in the educational institutions. The prevailing situation in schools in Pakistan reveals that there is a lack of comprehension among students therefore they can't reproduce and assess ideas and concepts (Rehmani, 2003).

Objectives of the Study

This research study focuses on following main objectives;

1. To evaluate the effect of formative assessment on the academic performance of students in English subject of class IXth at secondary schools of Taluka Mithi, District Tharparkar.

2. To suggest the measures for the improvement of formative assessment practices in the secondary schools.

Hypothesis of the Study

Following Null Hypothesis was formulated and tested at 0.05 level of significance.

There is no significant effect of formative assessment on the academic performance of secondary school students in English subject of class IXth, at Taluka Mithi, District Tharparkar.

Literature Review

Formative assessment is a continuous and ongoing process and takes place during learning (Stiggins, 2002) . This assessment assists students, and also collects information from students for the teachers, in order to adjust their teaching methodology so that objectives of lesson can be achieved properly. In addition, through this assessment teachers identify the current level of understanding of students and they plan and design their lesson according to the learners' needs and level, to achieve the objectives of lesson effectively (Ainsworth & Viegut, 2006). There are important elements of formative assessment as identified by researchers. Among them providing feedback is one of the potent element of this assessment and through it learners performance can be improved significantly (Hattie & Timperley, 2007).

Research studies reveal that formative assessment enhances the learning of students'. In one of the experimental study two groups i.e. experimental group and control group was selected. In that study sample size was 60 students of class 10th. One group that is experimental was treated with frequent formative assessment while another group that is control group wasn't treated with formative assessment activities. After treatment it was revealed that those student who were included in experimental group they achieved better results compared to those students' who were not exposed to formative assessment (Mehmood, Hussain, Khalid, & Azam, 2012). In addition, same type of other experimental research revealed that when students know objectives of lesson, learning targets and standards of assessment earlier then they also perform better as compared to other students who don't know learning targets (Fontana & Fernandes, 1994).

Another study conducted at nine universities of Sindh, Pakistan in which size of sample were 111 faculty members. The data was collected through questionnaire when that collected data was analyzed, then it indicated that formative assessment and students' learning is related to each other significantly. Hence it was proved statistically that regular formative assessment practices reflect and bring effectiveness in the instructional process which further helps to accomplish the objectives of learning (Heritage, 2010).

Moreover, another experimental study was carried out to find out the effect of formative assessment on students achievement in secondary school mathematics. In this study purposive sampling technique was used and one hundred twenty students of secondary schools were selected. Formative test and achievement test were applied on students. Then, data was analyzed through Independent T test. In this way, findings of the analyzed data reveal that those students who were exposed to formative assessment tests they showed their mean score was significantly better than other students' (Moyosore, 2015). Through formative assessment students' difficulties can be identified properly which they encounter during teaching and learning process (Dann & O'Neill, 2018). Therefore, it can be said that this assessment set the basis to evaluate the hindrances in learning. In this way, it enables the teachers to initiate corrective measures which increase students' understanding. In addition, one of the action research project was carried out to evaluate the effect of formative assessment of learning of students'. In this study eighty nine students were exposed to formative assessment. When data was collected and analyzed then it revealed that methods of formative assessment brings positive changes in students' learning (Greenstein, 2010).

Research Methodology

Research Design

In this study quasi experimental design was adopted. Two groups of students i.e. Group 1 and Group 2 were created and number of students in both these groups were also not equal. In this type of research, groups were not created for experiment and were not totally under the control of researcher. However, researcher used the existing groups. Group 1, includes students of those classes who were exposed to more frequent formative assessment practices and Group 2 includes students of those classes which were exposed to less frequent formative assessment practices.

Population

2094 boys of 11 Boys Public Secondary Schools and 245 girls of 5 Girls Public Secondary Schools were the population of this study.

Sample Size and Sampling Technique

There were 335 boys and 151 girls correspondents calculated according to the table given by (Israel, 1992). From all the sixteen schools, sixteen classrooms were selected, one sample classroom from each school. In this way, one classroom and one English teacher was selected randomly for observation from each of the sixteen schools.

Research Tools

Self-developed Learning test of students and observation checklist were developed and used as research instruments.

Analysis of Data and Results

After the collection of data, it was tabulated, analyzed and interpreted through SPSS, in order to attain the objectives of the study. In order to study, ‘the effect of formative assessment on students learning’, observation tool was developed and administered in different sixteen classes of public secondary schools of District Tharparkar. In addition, learning test of students’ was also conducted.

Descriptive Statistics of Formative Assessment

The below table shows two groups of classroom. In one group of classroom more frequent formative assessment activities occurs while in the other group less frequent formative assessment activities occurs. The type of classroom was known through the mean results of learning test of students and mean value of the observation checklist. If the mean value of observation checklist of a class is above 2.50 then, it was considered that more frequent formative assessment activities happen in the classroom. Contrarily, if the mean value of observation was below 2.50, then it was considered as a classroom in which less frequent formative assessment activities happen. This similar type of research study was also conducted by (Obeta, 2014), in that study mean of 2.50 was taken as the minimum acceptable score of observation while any mean under 2.50 was rejected.

Table 1: *Analysis of formative Assessment*

Classes	Mean Observation	Mean of Marks	
I	2.78	45.7143	Class with formative assessment
II	3.09	46.5714	Class with formative assessment
III	2.60	41.1875	Class with formative assessment
IV	3.33	49.1250	Class with formative assessment
V	2.00	38.3077	Class without formative assessment
VI	2.03	37.7241	Class without formative assessment
VII	3.42	46.5000	Class with formative assessment

VIII	3.21	43.9375	Class with formative assessment
IX	2.06	38.6061	Class without formative assessment
X	3.27	46.5000	Class with formative assessment
XI	3.33	47.0345	Class with formative assessment
XII	2.15	36.9333	Class without formative assessment
XIII	3.54	43.8824	Class with formative assessment
XIV	3.66	49.0323	Class with formative assessment
XV	2.27	31.8000	Class without formative assessment
XVI	2.09	33.7931	Class without formative assessment

Classrooms where Formative assessment practices was used most regularly

Classes in which formative assessment activities practiced more regularly, the Mean value of observation checklist of that class was above 2.50, while classes in which formative assessment activities wasn't followed frequently the Mean value of observation of that class was below 2.50.

Table 2: *Classrooms where Formative assessment is used more regularly.*

Class	Formative Assessment observation Mean	Classroom Result/marks Mean
1	2.78	45.7143
2	3.09	46.5714
3	2.48	41.1875
4	3.33	49.1250
7	3.42	46.2143
8	3.21	43.9375
10	3.27	46.5000
11	3.33	47.0345
13	3.54	43.8824
14	3.66	49.0323
	32.11/10 =	459.1992/10=
	Mean Value (3.2110)	Mean of marks 45.9199

This table shows classes in which formative assessment activities was practiced more regularly the mean results of observation checklist of those classes was 3.2110 and the mean of marks of learning test conducted in those classes was 45.9199.

Classrooms where Formative assessment practices was used less regularly

Classes in which formative assessment activities followed rarely the Mean value of observation checklist of that class was below 2.50, while classes in which formative assessment activities was followed more regularly the Mean value of observation checklist of those classes was above 2.50.

Table 3: *Classrooms where Formative assessment is used rarely*

Class Number	Formative Assessment observation check list Mean	Classroom Result /marks Mean
5	2.00	38.3077
6	2.03	37.7241
9	2.06	38.6061
12	2.15	36.9333
15	2.27	31.8000
16	2.09	33.7931
	12.6/6=	217.1643/6=
	Mean 2.1000	Mean 36.1940

This table shows classes in which formative assessment activities was practiced rarely the mean results of observation checklist of those classrooms was 2.1000 and the mean of marks of learning test conducted in those classes was 36.1940

Hypothesis Testing

Following null hypothesis was developed and tested, to find the significant difference of the Mean of learning of two different types of students who were exposed to regular formative assessment and less regular formative assessment practices.

Ho 1: There is no significant effect of formative assessment on the learning of secondary school students of subject English class ninth.

To find out the relationship between two groups i.e. Group 1 and Group 2, independent sample T test was applied. The below Table shows statistics of two different types of classes. Group 1 indicated the results of those students who were exposed to more regular formative assessment, while group 2 indicated results of those students who were exposed to less regular formative assessment activities.

Table 4: *Statistics of Two Group of classes with Regular Formative Assessment and less regular Formative Assessment (Mean of Observation checklist and marks of learning Test)*

Group	N (Number of samples)	N (Sample Classrooms)	Mean of observation checklist	Mean of marks	Std. Deviation	S.E Deviation
A (With Formative Assessment)	309	10	3.2110	45.9199	2.41681	.76426
B (Without Formative Assessment)	177	6	2.1000	36.1940	2.76569	1.12909

Table 5: *Independent sample T-Test*

Levene's Test for Equality of Variances		T-test for Equality of Means							
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
									Lower Upper
Mean of Equal Marks	variances assumed	.421	.527	7.395	14	.000	9.72587	1.31522	6.90501 12.54673
	Equal variances not assumed			7.133	9.521	.000	9.72587	1.36343	6.66711 12.78463

The table indicates the significant mean difference between Group 1 and Group 2. It is revealed in the table that the value of sig.2 tailed is .000 which is less than 0.05 therefore the rejection of the null hypothesis occurred. This value is also called alpha value. Those students who were exposed to more regular formative assessment practices were included in Group 1 and students who were exposed to less regular formative assessment practices were included in Group 2.

Discussion

As, Formative Assessment reflects and assists the teachers and students to attain the desired objectives of learning, so education policy makers and researchers focus this field of assessment in the better interests of students and teachers (William, 2011). It is visualized that this assessment ensures a strategy by which desired targets of learning of students can be achieved properly. In addition, during instructional strategy teachers and students use feedback in order to enhance the learning of students in the classroom (McManus, 2008). (Miller & Lavin, 2007), remarked that this assessment is a blending of teaching as well as assessment.

In the present study effect of formative assessment on the academic performance of secondary school students of class Ninth, of Taluka Mithi, was evaluated. For that purpose, self-developed and validated learning test was developed and conducted in the sixteen different schools. In these sixteen schools, sixteen classrooms were also observed through self-developed formative assessment observation checklist. On the basis of the Mean value of that observation checklist, classes were bifurcated into two groups i.e. Group 1 and Group 2. Group 1 includes those classrooms in which formative assessment practices were used more frequently, while Group 2 includes those classrooms in which Formative assessment practices were used rarely. Then, results of both groups were analyzed in SPSS through Independent sample T test. As a result, the null hypothesis i.e. 'There is no significant effect of Formative assessment on the academic performance of secondary school students of class IXth at Taluka Mithi, District Tharparkar', is rejected. It was indicated that Formative assessment has a positive effect on the academic achievement of secondary school students. In addition, this study reveals that Formative assessment practices promotes students performance. Moreover, several other studies findings (Hattie & Timperley, 2007) (Moyosore, 2015), also furnish to the findings of this study as well.

Conclusion

Formative assessment is considered as an important tool for improving the teaching and learning process which consequently improves the learning of students. There are sufficient evidence which reveal that formative assessment practices and learning of students' are positively related to each other. In this way, it can be said that formative assessment and learning are inextricably linked. Keeping in view, the finding of other researchers, the present study was also planned to evaluate the effect of formative assessment on the learning of secondary school students of Taluka Mithi, District Tharparkar. Finally, the findings of this research study is also parallel to the previous studies conducted by different researchers. Hence, the use of formative assessment is strongly emphasized.

Recommendations

- 1) Administration and authorities of schools should make arrangement for the professional development of teachers, in which trainings must be conducted on the assessment particularly on formative assessment, its elements, concepts and related strategies so that it can be implemented effectively in the educational institutions which will consequently improve the teaching and learning process.
- 2) The District Education authorities should provide proper schedule for conducting formative assessment on weekly and monthly basis, in which appreciation certificates should be issued to those students who performed their best and to those teachers who frequently use formative assessment.
- 3) School administration should facilitate the teachers who use formative assessment more regularly and Head teacher should make formative assessment an integral part of school policy.
- 4) Formative assessment practices have potential for increasing the achievement of students in science classroom, so it must be emphasized.
- 5) Teachers should incorporate formative assessment practices in their daily lessons in the classroom.

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Conflict of Interest


Authors have no conflict of interest.

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