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Formative Assessment at Secondary Education Level in Bangladesh: A Study on Measuring Teachers' Readiness

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Abstract

Effectively assessed and skilled students are potentially the greatest agents of change for ensuring sustainable development Goals (SDGs), meeting the challenges of the 4th Industrial Revolution, and meeting the national demand for achieving national development plans (vision 2041/ smart Bangladesh) by generating skilled manpower. Here Formative Assessment (FA) can play a crucial role in promoting such change by enabling students through smooth assessment if it is effectively implemented in Bangladesh, especially in secondary education. Hence this study was conducted to measure teachers' knowledge, attitudes, and practices to determine readiness for Formative Assessment at secondary level education in Bangladesh. The survey was conducted on 100 respondents who are teachers at secondary schools from Rangamati and Cox's Bazar districts in Bangladesh. The result revealed a moderate level of knowledge and positive attitude towards the FA among the teachers. It was observed that the relationship between their readiness (knowledge, attitudes, and practices) and training towards the FA is positive and strong with a 5% level of significance. Also, it was observed that the relationship between their practices and training about FA is stronger with a 1% level of significance. Therefore, it was concluded that FA literate teachers especially in secondary education are practicing FA tools/strategies to ensure better students' assessment. Thus, the research recommends that more training on FA needs to be done to promote and encourage teachers at all levels of education in the country, especially in secondary education by the government and its agency to ensure effective implementation of FA. Researchers do believe that it will meet the national demand for skilled next generation to build a smart Bangladesh by ensuring quality education of sustainable development goals SDGs -4.

Keywords: Formative Assessment (FA), Knowledge, Attitudes, Practice, Teachers' Readiness

Introduction

Education is a major driving force of development in any society. To keep pace with the present competitive global environment, the education system of a country needs to be up to date. Every aspect of the education system from curriculum to teaching-learning environment, instruction method, and assessment system must be properly aligned to produce skilled and humane individuals who can meet the demands of the current world. The traditional education system is struggling to produce such

citizens. For this reason, now we need a creative, innovative education system that can fulfill the demands of society in the age of the 4th Industrial Revolution. As a part of the modernization of our education system, we are going to implement a new curriculum. A formative assessment system is one of the major aspects of this new curriculum. Formative assessment involves a continuous way of checks and balances in the teaching-learning processes. The method allows teachers to frequently check their learners' progress and the effectiveness of their practice, thus allowing for self-assessment of the student (Hannah, 2019). The goal of the formative assessment is to monitor student learning to provide ongoing feedback that can help students identify their strengths and weaknesses and target areas that need to work. It also helps faculty recognize where students are struggling and address problems immediately (Crooks, 2001). It typically involves qualitative feedback (rather than scores) for both student and teacher that focuses on the details of content and performance (Huhta, 2010). According to the National Curriculum Framework of Bangladesh, at the secondary level (grades 6 to 10) 50% of the total assessment will be in the summative method and 50% in the formative method.

Statement of the Problem

According to the National Curriculum Framework in Bangladesh, "The degree of success in achieving the objectives of the curriculum largely depends on what kind of assessment techniques are being used to measure learning progress, and how the data from the assessments are being used to make decisions at various levels." An effective assessment system is the key to success in achieving the goals and objectives of the curriculum through a proper teaching-learning process. "Assessment plays a vital role in any teaching-learning process" (Black & Wiliam, 2009). At Bangladesh's secondary education level, mostly we use the traditional summative assessment system. In the traditional summative assessment system, "The giving of marks and the function of grading were overemphasized, whereas the giving of feedback and the function of learning were underemphasized (Alam, 2018; Amin, 2017). Formative assessment can ensure better learning outcomes for students. "Reviews on the studies of assessment confirm that formative assessment can improve the academic achievement of students markedly" (Black & Wiliam, 1998). So, to achieve the desirable goal of education our teachers must have expertise in formative assessment. The teachers need to acquire depth knowledge and a positive attitude toward formative assessment, and they must practice in the classroom. Therefore, this study was undertaken to measure teachers' readiness for formative assessment systems at the secondary education level.

Rationale of the Study

The purpose of this research was to measure teachers' readiness for a formative assessment system effectively at the secondary education level in Bangladesh. It is necessary to know do our teachers have the required knowledge for implementation of formative assessment. The teachers think and feel about formative assessment is also important to know. Perfect assessment is also needed to fulfill the goals of the government of a developed country by 2041 requiring enlightened and skilled manpower who will contribute to achieving and sustaining these goals. Students' perfect development is crucial for getting ready for the 4th industrial revolution. National Education Policy 2010 and goal-4 of SDGs are committed to producing human and social capital for the nation. Findings will also help to take appropriate policy for teachers' continuous development (CPD). The study's main aim was to identify the teachers' readiness in the implementation of formative assessment at the secondary school. The creative question and assessment system has not achieved the expected result. So, this study was

intended to identify the teachers' readiness through their knowledge, attitudes, and practices in the classroom and know the obstacles so that we can achieve the expected results through the implementation of formative assessment. This research was conducted to understand these issues in the context of Bangladesh secondary education.

Objectives of the study

The intended aim of this study was to determine teacher's readiness for formative assessment at the secondary education level in Bangladesh. The following precise objectives are expected to be met to achieve the goals:

1. To measure teachers' knowledge of formative assessment.
2. To assess teachers' attitudes towards formative assessment.
3. To identify teachers' practices of formative assessment.

Research Questions

1. What is the knowledge level of the teachers of formative assessment?
2. What is the teachers' attitude towards formative assessment?
3. How do teachers practice formative assessment in school and/or classes?

Hypothesis

1. There is no significant relation between Teachers' readiness for FA and their Training.
2. There is no significant relation between Teachers' readiness for FA and their school management system (Govt. & Non-govt.)
3. There is no significant relation between Teachers' readiness for FA and their gender.
4. There is no significant impact on teachers' FA practices regarding their training.

Scope and Limitations of the Study

The study assesses teachers' readiness for implementation of formative assessment at the secondary education level in Bangladesh. It paves the way for other researchers to measure the feasibility of the implementation of formative assessment not only at the primary level but also at the tertiary education level of Bangladesh. It aimed to investigate the teachers' literacy of formative assessment and to find out the factors that relate to teachers' knowledge of formative assessment. It provides continuous feedback to both teacher and student concerning learning successes. Implementing formative assessment will make an impact on reorganizing and reordering the national education policy. The research reveals the necessity of formative assessment in ensuring quality education that will positively influence to meet up the government's vision for 2041. This study surely compels the policymakers to rethink the existing assessment pattern and reorganize the curriculum design to ensure quality education which is an inseparable part of sustainable development goals.

A limited sample size (only 100 teachers) restricted the study to a specific number of participants, which might not fully represent all teachers in the country. The research would be more effective if the number of respondents was increased. Findings from this study may not be directly applicable to other educational levels or countries due to the unique context of secondary education in Bangladesh. The data was collected from the institutions from only two districts, so the generalization of findings all over the country seems to be ambiguous. The study's timeframe is only five days which might not allow for a

comprehensive exploration of long-term readiness factors. External factors such as changes in education policies or economic conditions may impact the study's findings and recommendations. The study is conducted with a low budget. The budget must be increased to conduct the research fruitfully and effectively.

Ethical Considerations

Ethics was maintained in every aspect of research work from inception to conclusion. Informed consent was taken from the participants before data collection. We sent a letter to the participants mentioning the nature and purpose of the study. The confidentiality of the participants was strictly maintained. The participants had the right to withdraw themselves and their data at any stage of the research.

Materials and Methods

Research Methodology

The study was based on the quantitative approach. Creswell (2018) notes that "In quantitative research, the investigator identifies a research problem based on trends in the field or on the need to explain why something occurs. Describing a trend means that the research problem can be answered best by a study in which the researcher seeks to establish the overall tendency of responses from individuals and to note how this tendency varies among people." (p.13).

Sampling Method & Sample Size

Sampling denotes the process of selecting desired elements or some elements from a given population to represent the population. The actual population for this study is unknown as the total number of teachers who are working in schools that are conducting secondary education courses in Bangladesh is unknown. 100 teachers from 10 govt. and private schools of 2 (two) districts (Rangamati and Cox's Bazar) were samples for this study. At first, the respondents for the study were selected based on two districts, and from each district 2 (two) govt. and 3 (three) Private schools have been selected purposively. From each of those schools, respondents were selected randomly with the consideration of a 3:1 ratio of the total teachers. In this way, a total of 100 respondents were selected from 10 secondary schools in Rangamati and Cox's Bazar districts. The sample unit for the study was selected using a simple random sampling technique.

District	Management System	Category	School Name	Total no. of Teachers	Sample Size
Rangamati	Government	Boys	Rangamati Govt. High School	29	10
		Girls´	Rangamati Govt. Girls´ High School	38	15
	Non-Government	Combined	Lakers Public School & College	53	20
		Girls´	Shaheed Shamsuddin Girls´ High School	12	5
		Combined	St. Teresa´s School	22	8
Cox´s Bazar	Government	Boys	Cox´s Bazar Govt. High School	38	15

		Girls´	Cox´s Bazar Govt. Girls´ High School	36	13
	Non-Government	Combined	Baharchora	10	3
		Girls´	Amena Khatun Girls´ High School	17	6
		Combined	A. K. M. Mojammel Haque Memorial High School	13	5
				268	100

Table 1: Population and Sample

Source and Methods of Data Collection

Data was collected from primary sources. The teachers who are working in schools that are conducting secondary education courses in Bangladesh were the source of data for this study.

The study was conducted through a survey design. Creswell (2018) notes that **"**In a cross-sectional survey design, the researcher collects data at one point in time. A cross-sectional study can examine current attitudes, beliefs, opinions, or practices. Attitudes, beliefs, and opinions are ways in which individuals think about issues, whereas practices are their actual behaviors." (p. 380). In this study, data was collected at one point in time to assess or evaluate the knowledge, attitudes, and practices of the teachers regarding the formative assessment. So, a survey design was used in this study to collect data.

Instruments / Tools of Data Collection

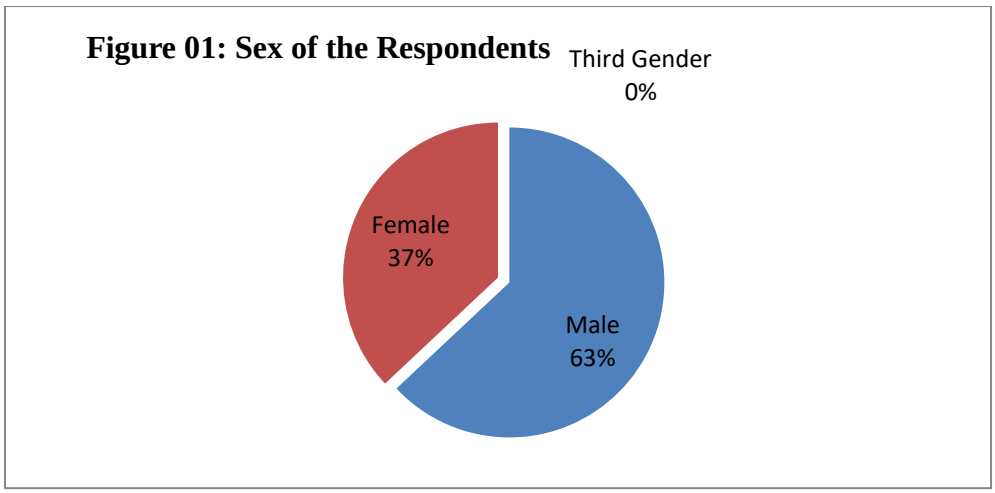
Among the different methods of obtaining primary data, we collected data from the respondents using a questionnaire survey with a five-point and two-point Likert scale.

Methods of Data Analysis and Presentation

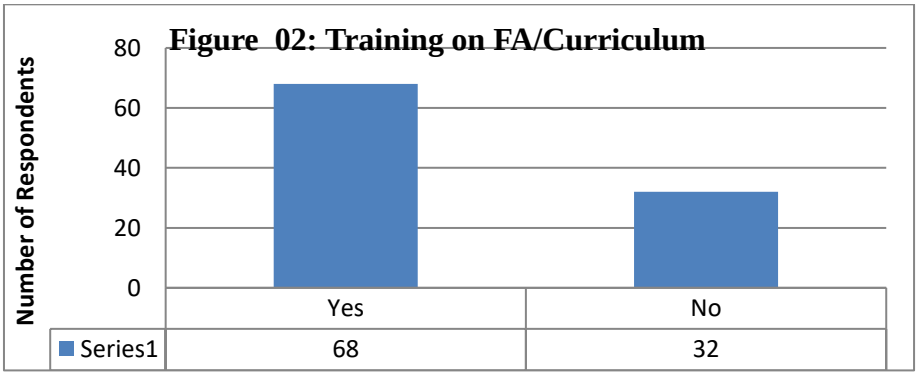
Both descriptive and inferential statistics were used to analyze the collected data. By using a Statistical Package for Social Science techniques (SPSS), the data was evaluated and analyzed. We presented the findings of this study from an objective position. Data was analyzed by statistical tools such as descriptive statistics (Mean, standard deviation, variance, frequencies, independent sample t-test).

Results

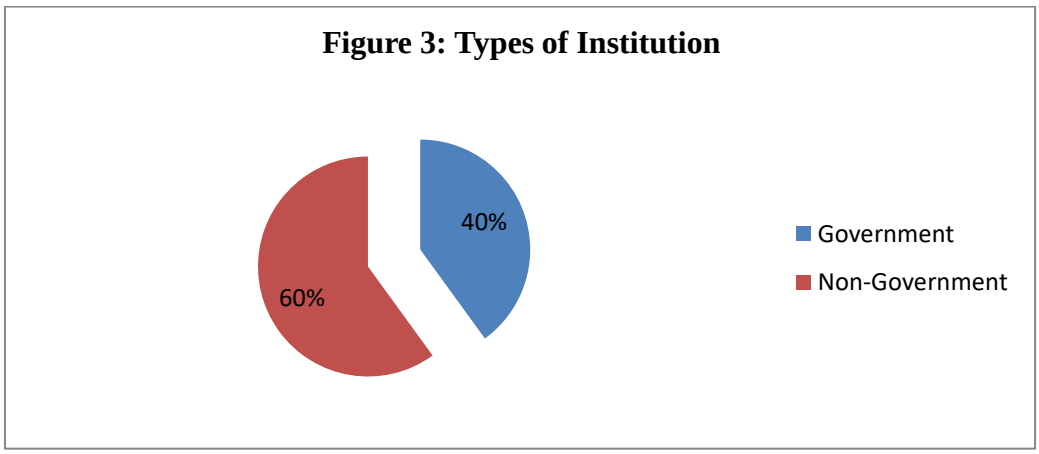
Data were analyzed in various ways. The ways that were appropriate for this study are given below.



The above statistical chart reveals that 63% of respondents regarding the topic of teachers' readiness in case of implementing formative assessment in the secondary level of Bangladesh are male whereas only 37% of respondents are female. The male respondents are twice as in comparison with female participants.



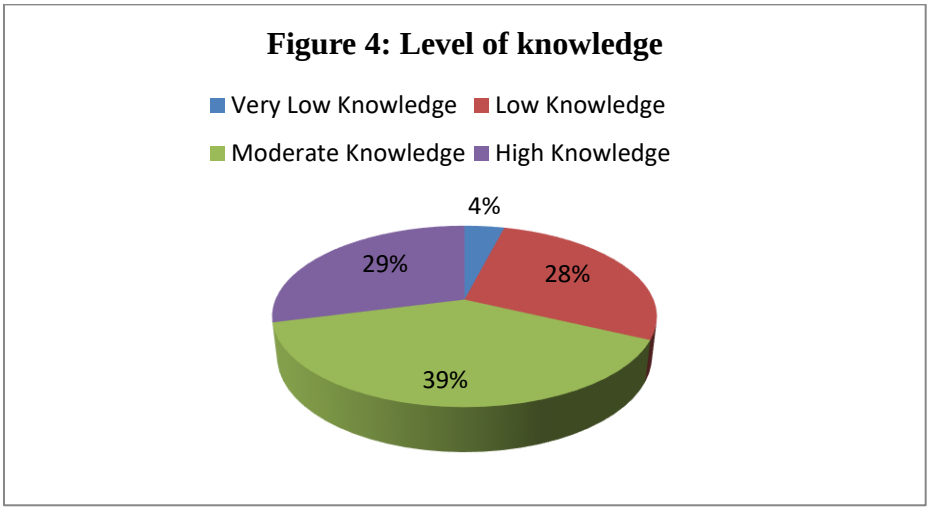
It is stated in the above graph that out of 100 respondents, 68% of respondents have got training on either formative assessment or on new curriculum whereas 32% of respondents didn't get training on either formative assessment or on new curriculum. The number of non-received trainees is less than half in comparison with the number of received trainees.



The pie chart brings to light that the respondents are taken from Two types of institutions both government and non-government. Where 60% of respondents are from non-government institutions, 40

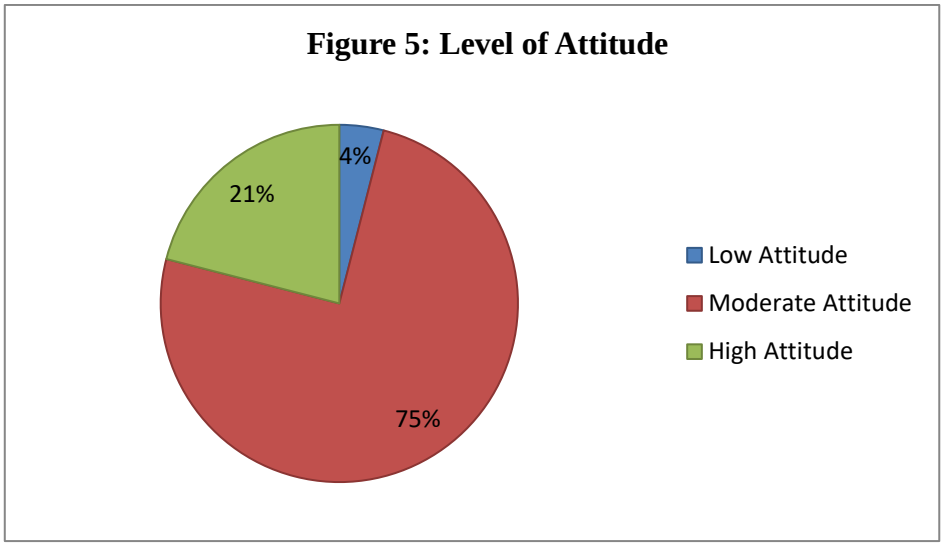
% of respondents are from government institutions. The respondents of non-government are one and a half times than respondents of government institutions.

Level of knowledge about Formative Assessment



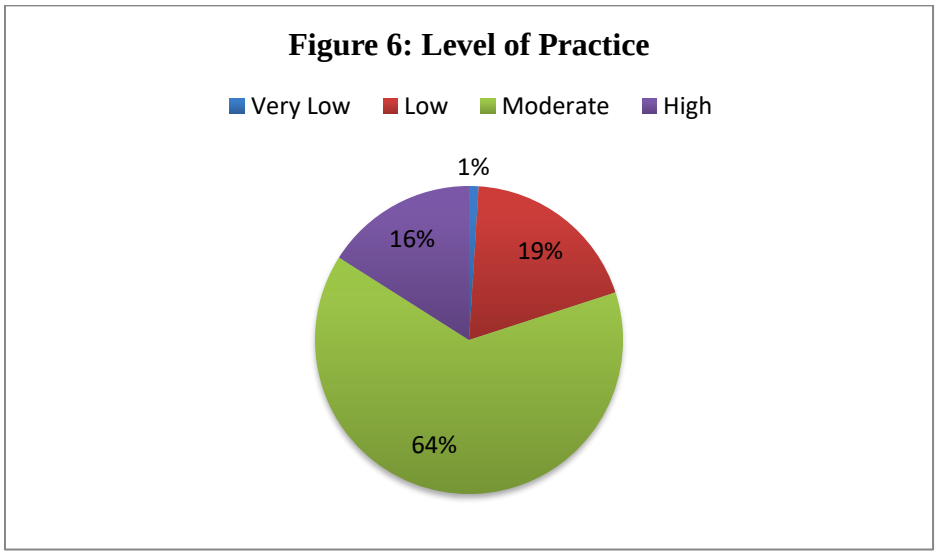
The above chart shows that 29% of respondents (teachers) hold high-level knowledge of the formative assessment whereas 4% of respondents possess very low-level knowledge about formative assessment. On the other hand, 39% and 28% of respondents have moderate and low-level knowledge regarding formative assessment respectively.

Level of Attitude



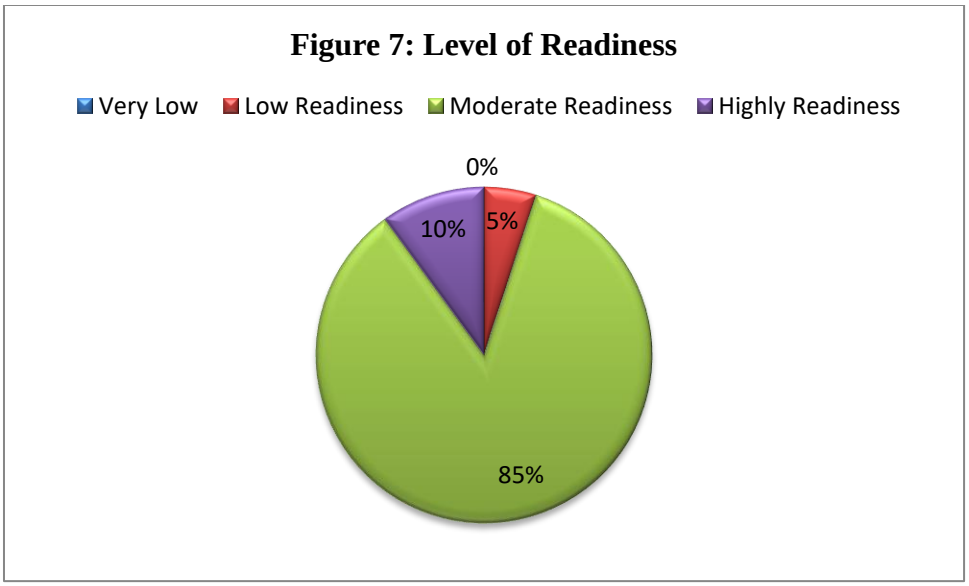
The above analysis through this pie chart substantiates that 21% of teachers hold a highly positive attitude and 75% bear moderate levels of positive attitudes towards the formative assessment. But the most hopeful fact is that only 4% of teachers carry the lowest level of attitudes which is very tiny compared to the moderate level of positive attitudes.

Level of Practice



It observed that from the above chart most of the teachers (64%) practice formative assessment strategy to evaluate students' performance moderately. But an unexpected matter is that only 16% of teachers of secondary level employ formative assessment effectively in assessing the students' behavior and performance.

Level of Readiness for Formative Assessment



The pie chart revealed that no teacher at the secondary level does not hold any knowledge about formative assessment. However, only 10% of teachers are highly ready for the execution of formative assessment which needs to be addressed as soon as possible. On the other hand, 85% of teachers are moderately ready for the formative assessment. If the authority properly intervenes in this portion of teachers, it will, certainly, ensure proper implantation of the formative assessment.

Data Interpretation

Teachers' readiness and training:

Hypothesis 1: There is no significant relation between Teachers' readiness for formative assessment and training.

Group Statistics						
Training		N	Mean	Std. Deviation	Std. Error Mean	
Per_Readiness	Yes	68	73.5685	7.11572	0.86291	
	No	32	70.3263	6.88053	1.21632	

Table 1: Teachers' readiness and training

Independent Samples Test										
		Levene's Test for		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Lower	95% Confidence Upper
Per_Readiness	Equal variances assumed	0.019	0.890	2.148	98	0.034	3.24213	1.50965	0.24627	6.23798
	Equal variances not assumed			2.174	62.708	0.033	3.24213	1.49132	0.26169	6.22256

Table 2: Teachers' readiness and training 2

Here the P value is <0.05 which indicates that there is a significant difference between teachers' readiness for formative assessment and training. So here null hypothesis is rejected and significantly varied.

Teachers' readiness and school management system:

Hypothesis 2: There is no significant relation between Teachers' readiness for FA and their school management system (Govt. & Non-govt.)

Group Statistics					
Ins_type		N	Mean	Std. Deviation	Std. Error Mean
Per_Readiness	Government	54	72.3861	7.61341	1.03605
	Non-government	46	72.7010	6.69030	0.98643

Table 3: Teachers' Readiness and School Management System 1

Independent Samples Test										
		Levene's Test for		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Lower	95% Confidence Upper
Per_Readiness	Equal variances assumed	1.026	0.314	-0.218	98	0.828	-0.31494	1.44548	-3.18344	2.55357
	Equal variances not assumed			-0.220	97.895	0.826	-0.31494	1.43054	-3.15384	2.52397

Table 4: Teachers' Readiness and School Management System 2

Teachers' Readiness and School Management System 1P value >0.05 indicates that there is no significant difference between teachers' readiness for formative assessment and the school management system. Here null hypothesis is accepted and not significantly varied.

Teachers' readiness and their gender:

Hypothesis 3. There is no significant relation between Teachers' readiness for FA and their gender.

Group Statistics					
Sex:		N	Mean	Std. Deviation	Std. Error Mean
Per_Readiness	Male	67	72.4475	7.43908	0.90883
	Female	33	72.7005	6.69635	1.16568

Table 5: Teachers' readiness and their gender 1

Independent Samples Test										
		Levene's Test for		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Lower	95% Confidence Upper
Per_Readiness	Equal variances assumed	0.071	0.791	-0.165	98	0.869	-0.25296	1.53228	-3.29372	2.78780
	Equal variances not assumed			-0.171	70.158	0.865	-0.25296	1.47810	-3.20083	2.69491

Table 6: Teachers' readiness and their gender 2

Here P value is >0.05 which indicates that there is no significant difference between teachers' readiness for formative assessment and their gender. So here null hypothesis is accepted and not significantly varied.

Teachers' practice and training:

Hypothesis 4. There is no significant relation between Teachers' practice for FA and their training.

Group Statistics					
Training		N	Mean	Std. Deviation	Std. Error Mean
Level of Practice	Yes	68	3.1324	0.59612	0.07229
	No	32	2.5625	0.50402	0.08910

Table 7: Teachers' practice and training 1

Independent Samples Test										
		Levene's Test for		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Lower	95% Confidence Upper
Level of Practice	Equal variances assumed	1.191	0.278	4.675	98	0.000	0.56985	0.12189	0.32796	0.81174
	Equal variances not assumed			4.967	71.010	0.000	0.56985	0.11474	0.34108	0.79863

Table 8: Teachers' practice and training 2

Here P value is <0.05 which indicates that there is a significant difference between teachers' practice of formative assessment and training. So here null hypothesis is rejected and significantly varied.

Discussion

The result in the above discussion (chart no. 4) shows that 39% of secondary teachers believe that they have a moderate level of knowledge of the formative assessment. However, this segment of teachers can be turned into high-level knowledge towards the formative assessment through proper intervention. Chart 5 unveils that only 21% of teachers hold highly positive attitudes towards the formative assessment which is very low in comparison to the study done by Ahmedi (2019). After that chart 6 reflects that only 16% of teachers in the secondary level highly practice formative assessment in evaluating the performance of the students. 64% of the teachers hold positive attitudes but they do not apply them in appraising the performance of the students, which is also supported by Schoenfield (1992). Chart 7 shows that every teacher is executing formative assessment. However, the number of teachers who practice this strategy highly is only 10% and 85% of the teachers' practicing level is moderate. In hypothesis 1, the P value is <0.05 which indicates that there is a significant difference between teachers' readiness for formative assessment and training. So here null hypothesis is rejected and significantly varied. According to the hypothesis, P value >0.05 indicates that there is no significant difference between teachers' readiness for formative assessment and the school management system. Here null hypothesis is accepted and not significantly varied. In hypothesis 3, the P value is >0.05 which indicates that there is no significant difference between teachers' readiness for formative assessment and their gender. So here null hypothesis is accepted and not significantly varied and in hypothesis 4 P value is <0.05 which indicates that there is a significant difference between teachers' practice of formative assessment and training. So here null hypothesis is rejected and significantly varied.

Conclusion

Formative Assessment as a new process has come to assess students more effectively in Bangladesh's education system /paradigms, especially in secondary and higher secondary education. Although the sustainability of FA demands effective implementation of this innovative process with due interventions and teachers' readiness. This study revealed that teachers in secondary education have a moderate level of knowledge and positive attitudes towards the FA and most of them practice FA to assess their students effectively. Thus, these positive attitudes and expected level of knowledge reveal that teachers in secondary school practice FA enthusiastically, and it has a great impact on the teachers, students, and teaching-learning process. Meanwhile, there is a strong and positive relationship between their readiness

(knowledge, attitudes, and practices) and training towards the FA with a 5% level of significance. Also, it was observed that the relationship between their practices and training about FA is stronger with a 1% level of significance. Hence this study reveals that Formative Assessment literate teachers are trying their best to foster this assessment system in secondary education in the country, although more interventions need to be done to encourage the teachers and promote the smooth implementation of Formative Assessment.

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