



A Study on Educational Assessment of Secondary and Higher Secondary Teachers of Bangladesh

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ABSTRACT

Educational assessment can be a powerful mechanism in enhancing classroom instructions and student performance. Its effectiveness relies on the beliefs and knowledge of those teachers who apply it daily on a classroom. This study explored attitudes, competence, knowledge, and practices of teachers about educational assessment. In this study participants were 80 in-service teachers teaching various subject areas in secondary and higher secondary level selected from government and private secondary schools and higher secondary colleges in Chittagong city. The study employed a descriptive survey research design. Results revealed that although teachers held a favorable attitude towards and perceived themselves as being competent in educational assessment, they demonstrated a low level of knowledge in educational assessment. Teachers used a variety of assessments in the classroom, primarily for assigning grades and motivating students to learn, with some variations by gender, grade level, and subject area. Teaching load and teaching experience accounted for some of the variations in teachers' educational assessment practices. Implications for professional developments of teachers in educational assessment as well as recommendations for future research were discussed in this study.

Keywords: attitudes, competence, knowledge, practices and educational assessment attitude

1. INTRODUCTION

Educational assessment is an essential component of the teaching profession. It refers to the process used in the classroom by the teacher to obtain information about students' performances on assessment tasks, either as a group or individually, using a variety of assessment methods, to determine the extent to which students are achieving the target instructional outcomes. A sound educational assessment requires a clear conception of all intended learning outcomes of the instruction and a variety of assessment procedures that are relevant to the instruction, adequate to sample student performance, and fair to everyone. As evident by classroom observations and reflective journals, results demonstrated that teachers holding views about educational assessment aligning with constructivist and socio-cultural views of learning tended to put a high emphasis on the alternative assessment strategies such as group projects compared to traditional assessment practices such as multiple-choice tests. Also, those teachers tended to interpret assessment results using a criterion referenced approach rather than a norm referenced approach. However, teaching load and other school responsibilities could cause conflicts between teachers' assessment beliefs and practices, in that the teachers do not always have time to enact all of the assessment practices that align with their beliefs about educational assessment. Recent studies have also confirmed the importance of attitude towards educational assessment, self-perceived competence in educational assessment, assessment training, gender, and major when considering teachers' educational assessment. Assessment is often divided into initial, formative, and summative, objective assessment, subjective assessment, referencing assessment, formal and informal assessment, and internal and external assessment categories for the purpose of considering different objectives for assessment practices.

- a) **Initial assessment:** Also referred to as pre-assessment or diagnostic assessment, initial assessments are conducted prior to instruction or intervention to establish a baseline from which individual student growth can be measured.
- b) **Formative assessment:** Formative assessment is generally carried out throughout a course or project. Formative assessment, also referred to as "educative assessment," is used to aid learning. In an educational setting, formative assessment might be a teacher or the learner, providing feedback on a student's work and would not necessarily be used for grading purposes. Formative assessments can take the form of diagnostic, standardized tests.
- c) **Summative assessment:** Summative assessment is generally carried out at the end of a course or project. In an educational setting, summative assessments are typically used to assign students a course grade. Summative assessments are evaluative.
- d) **Objective assessment:** Objective assessment is a form of questioning which has a single correct answer. Objective question types include true/false answers, multiple choice, and multiple-response and matching questions. Subjective questions include extended-response questions and essays. Objective assessment is well suited to the increasingly popular computerized or online assessment format.

- e) **Subjective assessment:** Subjective assessment is a form of questioning which may have more than one correct answer (or more than one way of expressing the correct answer). Some have argued that the distinction between objective and subjective assessments is neither useful nor accurate because, in reality, there is no such thing as "objective" assessment. In fact, all assessments are created with inherent biases built into decisions about relevant subject matter and content, as well as cultural (class, ethnic, and gender) biases.
- f) **Referencing assessment:** Test results can be compared against an established criterion, or against the performance of other students, or against previous performance: *Criterion-referenced assessment*, typically using a criterion-referenced test, as the name implies, occurs when candidates are measured against defined (and objective) criteria. Criterion-referenced assessment is often, but not always, used to establish a person's competence (whether s/he can do something). The best known example of criterion-referenced assessment is the driving test, when learner drivers are measured against a range of explicit criteria. *Norm-referenced assessment*, typically using a norm-referenced test, is not measured against defined criteria. This type of assessment is relative to the student body undertaking the assessment. It is effectively a way of comparing students. The IQ test is the best known example of norm-referenced assessment. Many entrance tests are norm-referenced, permitting a fixed proportion of students to pass. This means that standards may vary from year to year, depending on the quality of the cohort; criterion-referenced assessment does not vary from year to year.
- g) **Informal and formal assessment:** Assessment can be either *formal* or *informal*. Formal assessment usually implies a written document, such as a test, quiz, or paper. A formal assessment is given a numerical score or grade based on student performance, whereas an informal assessment does not contribute to a student's final grade such as this copy and pasted discussion question. An informal assessment usually occurs in a more casual manner and may include observation, inventories, checklists, rating scales, rules, performance and portfolio assessments, participation, peer and self-evaluation, and discussion.
- h) **Internal and external assessment:** Internal assessment is set and marked by the school (i.e. teachers). Students get the mark and feedback regarding the assessment. External assessment is set by the governing body, and is marked by non-biased personnel. Some external assessments give much more limited feedback in their marking. However, in tests such as Australia's NAPLAN, the criterion addressed by students is given detailed feedback in order for their teachers to address and compare the student's learning achievements and also to plan for the future.

2. LITERATURE REVIEW

The American Federation of Teachers (AFT), the National Council on Measurement in Education (NCME), and the National Education Association (NEA) (1990) have jointly defined seven Standards for Teacher Competence in Educational Assessment of Students. The

standards emphasized that teachers should competently be able to choose and develop assessment methods appropriate for instructional decisions; administer, score, and interpret results of externally produced and teacher-made assessment; use assessment results when making educational decisions; develop valid grading procedures; communicate assessment results to various audiences; and recognize unethical, illegal, and inappropriate methods and uses of assessment.

Brookhart (2011) argues that the Standards for Teacher Competence in Educational Assessment of Students do not consider current conceptions of formative assessment knowledge and skills and teacher's assessment literacy required to successfully work in the standards-based assessment context. As such, she proposed a set of educational assessment knowledge and skills for teachers in reference to formative assessment and standards-based assessment systems. The set states that teachers should understand learning in the content area they teach, be able to set and apply learning intentions congruent with both the content and depth of the standards and curriculum goals, have strategies for communicating the expectation of the learning intentions to students, understand the purposes and uses of the various types of assessment and be able to use them, be skillful in analyzing assessment methods, be skillful in providing effective meaningful feedback on student work, have the ability to develop scoring schemes to quantify student performance for making informed educational decisions, be skillful in administering external assessments and interpreting their results for decisions making, be able to apply educational decisions made out from classroom assessments, be able to communicate assessment information to students to motivate them to learn, understand the legal and ethical issues in the classroom assessment practices.

Educational assessment can be a powerful tool in making improvements in educational systems (Koh, 2011). Yet, its effectiveness depends on teachers' attitudes, competence, knowledge, and practices due to the continual interaction between these dimensions (Calderhead, 1996). There is a need to fully understand teachers' attitudes, competence, knowledge, and practices about educational assessment. The present study aimed at addressing this need. Teachers' Assessment Attitudes, Competence, Knowledge and Practices Teachers are required to develop classroom assessment that aligns with practices recommended by experts of educational assessment. Unfortunately, findings from past and recent studies of classroom assessment practices have consistently expressed a concern about the adequacy of teachers' assessment practices (e.g., McMillan & Lawson, 2001; Zhang & Burry-Stock, 2003).

These studies have showed that there are some contradictions between teachers' practices and recommendations of educational assessment experts regarding issues of classroom assessment. This lack of agreement between teachers' practices and experts' suggestions has been attributed to teachers' knowledge and attitudes about educational assessment (Mertler & Campbell, 2005; Siegel & Wissehr, 2011; Popham, 2006; Volante & Fazio, 2007).

Several studies have examined teachers' knowledge, attitudes, and practices about educational assessment. For example, Plake and Impara (1992) surveyed assessment knowledge of 555 in-service teachers in the United States using an instrument titled the "Teacher Assessment Knowledge Questionnaire (TALQ)" consisting of 35 items based on the "Standards for Teacher Competence in the Educational Assessment" (AFT, NCME, & NEA, 1990).

The results indicated that the teachers were not well prepared to assess student learning as revealed by the average score of 23 out of 35 items correct, and as such teachers' assessment knowledge should deserve further recognition and investigation. In his discussion of the assessment knowledge, Popham (2006) asserted the need for a continuous in-service assessment training aligned with the classroom assessment realities. In a survey of assessment knowledge of 69 teacher candidates, Volante and Fazio (2007) found that the self-described levels of assessment knowledge remained relatively low for the candidates across the four years of the teacher education program, and hence agreed with Popham's (2006) assertion about the need for in-service assessment training to ensure an acceptable level of assessment knowledge.

Along similar lines, Wolfe, Viger, Jarvinen, and Linkman (2007) proposed that teachers' self-perceived competence in assessment should be a vital component in the professional development of in-service teachers. As part of the educational assessment knowledge, teachers are required to understand the legal and ethical issues in the educational assessment practices (AFT, NCME, & NEA, 1990; Brookhart, 2011).

In a related study, Pope, Green, Johnson, and Mitchell (2009) examined perceptions of 103 teachers on the ethical issues related to the educational assessment of students. Results indicated that the grading of students, standardized testing, and the assessment-related needs of special populations of students were the most frequently reported areas placing teachers in ethically difficult situations.

Pope et al. (2009) argued that ethics of assessment should be part of the professional training of teachers in educational assessment. Confirming to Pope et al.'s (2009) argument, Mertler (2009) examined the effectiveness of a two-week workshop on educational assessment for seven in-service teachers. Results showed that teachers' knowledge and skills in educational assessment including the ability to determine unethical assessment practices improved significantly after the workshop.

Ogan-Bekiroglu (2009) concluded that teachers' knowledge and attitudes related to the educational assessment should be taken into account when introducing reforms in the educational systems. Using a case study, Lyon (2011) described the alignment of teacher's beliefs about educational assessment and their classroom assessment practices. Further, in a study of 516 in-service teachers, Alkharusi (2011) found that in-service assessment training and teaching experience correlated positively with educational assessment knowledge. Similarly, when examining educational assessment knowledge of 259 pre-service teachers who completed an educational assessment course, Alkharusi (2011b) found that male teachers tended to have on average a higher level of educational assessment knowledge than female teachers. In the above literature review, the present study is an attempt to examine the significance of educational institutions in Bangladesh. It is expected that such a study would be helpful for the development in education sector of Bangladesh.

3. OBJECTIVES OF THE STUDY

The main objective of the study is to know the present status of educational assessment of secondary and higher secondary teachers of Bangladesh. The specific objectives of the study are as follows:

- 1) to know the current status of educational assessment of secondary and higher secondary teachers of Bangladesh;
- 2) to know the teachers' gender, teaching grade, teaching subject, pre-service assessment training, in-service assessment training, teaching load, and teaching experiences relate to their educational assessment;
- 3) to describe teachers' attitude towards educational assessment;
- 4) to identify teachers' perceptions of their competence in the educational assessment;
- 5) to review teachers' knowledge about educational assessment;
- 6) to explain teachers' practices in educational assessment;
- 7) to express teachers' uses of classroom tests;
- 8) to show teachers' attitudes toward classroom tests; and
- 9) to explore differences in the educational assessment of the teachers with respect to teachers' gender, teaching grade, teaching subject, pre-service assessment training, in-service assessment training, teaching load, and teaching experience.

4. METHODOLOGY OF THE STUDY

The participants in this study were 80 in-service teachers (20 males and 60 females) teaching grades (5-10) randomly selected from secondary school and higher secondary colleges in Chittagong city. About 85% of the teacher resides in Chittagong city. The 16.5% participants were teaching Bangla language, 19.2% English language, 14.6% Business studies, 22.5% Mathematics, 12.5% Science and 14.7% Social science studies. The teaching experience of the teachers ranged from 1 to 20 years with an average of 11.10 and a standard deviation of 5.24. The self-reported teaching load of the participants ranged from 4 to 20 classes per week with an average of 15 and a standard deviation of 5. One hundred and fifty teachers indicated that they have taken one course in educational assessment during their pre-service preparation. Sixty five teachers indicated that they have taken at least one in-service workshop training in the educational assessment whereas eighty five teachers indicated that they did not take in-service workshop training in the educational assessment.

4. 1. Instrumentation

A self-report questionnaire of seven parts was used in this study. The first part was about background and demographic data of the participants including gender, nationality, current teaching class, teaching subject, teaching load, teaching experience, and pre-service and in-service training in the educational assessment. The other six parts were about attitude towards educational assessment, self-perceived competence in educational assessment, knowledge in educational assessment, educational assessment practices, uses of classroom tests, and attitude towards classroom tests. To establish content validity, the questionnaire was given to an expert in the areas of educational measurement and psychology from the Institute of Education, Research & Training (IERT) of University of Chittagong. He was asked to judge the clarity of wording and the appropriateness of each item and its relevance to the construct being measured. Their feedback was used for further refinement of the questionnaire.

4. 2. Attitude towards Educational Assessment

In attitude towards educational assessment responses were obtained on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scoring of the negative items was reversed so that a high score reflected a more positive attitude towards educational assessment.

4. 3. Self-perceived Competence in Educational Assessment

This part of the questionnaire contained self-Confidence Scale in Educational Measurement designed to assess teachers' perceptions of confidence in their abilities to perform certain educational assessment tasks related to developing and administering assessment methods; analyzing assessment results; developing and scoring performance assessment; developing grading procedures; and communicating assessment results to various audiences. Additional items related to recognizing ethics of assessment were added to the questionnaire. Responses were obtained on a 5-point Likert scale ranging from 1 (very low competence) to 5 (very high competence) with high scores reflecting a high level of competence in educational assessment. An individual's self-perceived competence in each area of the educational assessment was represented by an average rating score across all the items in that area. Also, an overall individual's self-perceived competence in educational assessment was represented by an average rating score across all the items. Internal consistency reliability coefficient for the total scale scores was 0.93 as measured by Cronbach's alpha.

4. 4. Knowledge in Educational Assessment

In this part assesses teachers' knowledge and understanding of the basic principles of the educational assessment practices, terminology, development, and use of various classroom assessment methods. All items followed a multiple-choice format with four options, one being the correct answer.

4. 5. Educational Assessment Practices

This part of the questionnaire designed to assess teachers' frequent use of various assessment practices related to traditional assessment methods; alternative assessment methods; analysis of assessment results; assessment communication; assessment standards and criteria; student-involved assessment; and non-achievement grading factors. Responses were obtained on a 5-point Likert scale ranging from 1 (never) to 5 (all of the time) with high scores reflecting more frequent use of the assessment described in the item. An individual's frequent use of the assessment practice in a particular area was represented by an average rating score across all the items in that area.

4. 6. Uses of Classroom Tests

The participant teachers were asked to indicate the extent to which they use results obtained from classroom tests in addressing different areas of instructional decisions: diagnose student weakness, group students for instructional purposes, plan for instruction, assign grades, evaluate instruction, control student behavior, motivate students for learning,

evaluate academic achievement, compare student performances with others, upgrade students from one class to another.

4. 7. Attitude towards Classroom Tests

Six positively worded items and four negatively worded items were used to measure teachers' attitude towards classroom tests. Responses were obtained on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scoring of the negative items was reversed so that a high score reflected a more positive attitude towards classroom tests. Permission was requested from head of the institutions to collect data from the teachers. The participants were informed that a study is being conducted to investigate teachers' assessment attitudes, competence, knowledge, and practices. The teachers were also informed that they were not obligated to participate in the study, and that if they wished, their responses would remain anonymous and confidential. Those who wished to participate in the study were provided a cover letter and the questionnaire along with brief instructions about the information that was requested in the questionnaire, how to respond to the items, and where to find directions that were also included both on the cover letter and the questionnaire. The participants took on average one hour to complete the questionnaire.

5. SCOPE OF THE STUDY

This is a self-finance study. Considering the time and money factors, I have kept the study limited to only two levels of education (i.e. secondary and higher secondary level of education).

6. LIMITATIONS OF THE STUDY

It is not to deny that the paucity of time and resources at the disposal of the researchers and constrains to access to data, only two levels (secondary and higher secondary) of education have been selected for the study. As the study focuses on only one sector, that is education, it might be helpful for the policy makers of the country to examine the gap in the content and quality of disclosure in other sector. The study would have been more representative if more samples (i.e. degree colleges and universities) could have been taken.

7. FINDINGS AND ANALYSIS

The data analysis was primarily descriptive using frequencies, percentages, means, and standard deviations. Factorial analysis of variance (Factorial ANOVA) was used to examine differences in teachers' attitude towards and knowledge in educational assessment as well as their attitude towards and uses of classroom tests with respect to teachers' gender, teaching class, teaching subject, pre-service training in assessment, and in-service training in assessment. Multivariate analysis of variance (MANOVA) was used to examine differences in teachers' competence and practices in educational assessment with respect to teachers' gender, teaching class, teaching subject, pre-service training in assessment, and in-service

training in assessment. Post-hoc comparisons were conducted using Scheffe’s test. Pearson product-moment correlation coefficients were computed to examine relationships of teachers’ teaching load and teaching experience to their assessment attitudes, competence, knowledge, and practices.

7. 1. Attitude towards Educational Assessment

An analysis of teachers’ attitude towards educational assessment is presented in Table 1. Overall, the teachers tended to have a positive attitude towards educational assessment ($M = 3.0855$, $SD = 0.4165$). The 51.25% of the teachers reported having positive and 12.50% strongly positive attitude towards educational assessment. 32.50% reported being neutral in their attitude towards educational assessment and 3.75% perceived themselves to have a negative attitude towards educational assessment.

Table 1. Frequencies for teacher attitude towards educational assessment.

Scale Value	Attitude	<i>f</i>	%
1.00-1.79	Strongly negative attitude	0	0.00
1.80-2.59	Negative attitude	3	3.75
2.60-3.39	Neutral	26	32.50
3.40-4.19	Positive	43	51.25
4.20-5.00	Strongly positive attitude	28	12.50
N		80	100.00

Table 2. Factorial ANOVA for the attitude towards educational assessment

Sources	SS	<i>df</i>	MS	<i>F</i>	p-Value
Gender	0.1394	1	0.1394	0.7349	0.3009
Teaching class	0.8015	3	0.1606	0.8415	0.3621
Teaching subject	7.7265	3	1.5450	8.1149	0.0000
Pre-service training	0.3740	1	0.3740	1.9618	0.1113
In-service training	0.1113	1	0.1113	0.5856	0.3468
Error	24.4409	71	0.1615		

Further analysis of teachers’ attitude towards educational assessment was conducted to examine differences with respect to teachers’ gender, teaching class, teaching subject, pre-service training in assessment, and in-service training in assessment using factorial ANOVA. Table 2 summarizes results of the factorial ANOVA. There were no statistically significant differences in the attitude towards educational assessment between the teachers with respect

to their gender, teaching class, pre-service training in assessment, and in-service training in assessment. However, there was a statistically significant difference in the attitude towards educational assessment between the teachers with respect to their teaching subject (partial $\eta^2 = 0.231$). Scheffe's test indicated that teachers teaching English language and those teaching Social science tended to have on average less favorable attitude towards educational assessment than those teaching Bangla Language, Business Studies, and Mathematics. Pearson product-moment correlation coefficients indicated no statistically significant relationships of teaching load and teaching experience with attitude towards educational assessment.

7. 2. Self-perceived Competence in Educational Assessment

An analysis of teachers' self-perceived competence in educational assessment is presented in Table 3. Overall, the teachers tended to perceive themselves as being competent in educational assessment ($M = 3.1280$, $SD = 0.3740$). The majority of the teachers (60%) considered themselves to be competent or highly competent in the educational assessment. About 28% perceived themselves to be moderately competent in the educational assessment and 2.50% perceived they to have a low competence in the educational assessment.

Table 3. Frequencies for teacher competence in educational assessment.

Scale Value	Attitude	<i>f</i>	%
1.00-1.79	Very low competence	0	0.00
1.80-2.59	Low competence	2	2.50
2.60-3.39	Moderate competence	23	28.75
3.40-4.19	High competence	48	60.00
4.20-5.00	Very high competence	7	8.75
N		80	100.00

Table 4. Means and standard deviations for the competencies in educational assessment.

Competencies of educational assessment	<i>M</i>	<i>SD</i>
1. Developing assessment methods	3.24	0.39
2. Analyzing assessment results	2.66	0.62
3. Developing performance assessment	3.14	0.42
4. Developing valid grading procedures	3.10	0.46
5. Communicating assessment results	3.30	0.44
6. Recognizing ethics of assessment	3.36	0.49

Table 4 displays means and standard deviations of the teachers' responses regarding their competence in the different areas of the educational assessment. As shown in Table 4, although teachers perceived themselves to be competent in developing and administering assessment methods, developing and scoring performance assessment, developing valid grading procedures, communicating assessment results to various audiences, and recognizing ethics of assessment; they tended to have on average a lower level of competence in analyzing assessment results than other areas of the educational assessment.

Further analysis of teachers' competence in the educational assessment was conducted to examine differences with respect to teachers' gender, teaching class, teaching subject, pre-service training in assessment, and in-service training in assessment using MANOVA. Results revealed a statistically significant multivariate effect for gender on the teachers' competence in the educational assessment; $F(6, 74) = 3.798$, *Wilks' Lambda* = 0.865, $p = 0.002$. There were no statistically significant multivariate effects for teaching subject, teaching class, pre-service assessment training, and in-service assessment training on the teachers' competence in the educational assessment. The univariate analysis showed statistically significant gender differences on recognizing ethics of assessment; $F(1, 79) = 13.771$, $p = 0.000$, partial $\eta^2 = 0.084$. Female teachers ($M = 4.083$, $SD = 0.45$) perceived themselves to be more competent on recognizing ethics of assessment than male teachers ($M = 3.731$, $SD = 0.64$).

Table 5. Pearson product-moment correlation coefficients of teaching load and teaching experience with teacher's competence in the educational assessment (N = 80).

Variables	Teaching load	Teaching experience
1. Developing assessment methods	-.148*	0.109
2. Analyzing assessment results	-.106	0.057
3. Developing performance assessment	-.215**	0.146*
4. Developing valid grading procedures	-.137*	0.044
5. Communicating assessment results	-.152*	0.127
6. Recognizing ethics of assessment	-.133*	0.139*
7. Overall competence in assessment	-.178**	0.123

* $p < 0.05$, ** $p < 0.01$

Table 5 displays Pearson product-moment correlation coefficients of teaching load per week and teaching experience with teacher's competence in the educational assessment. As shown in Table 5, weekly teaching load correlated negatively with teacher's overall competence in the educational assessment as well as with teacher's competence in developing and administering assessment methods, developing and scoring performance assessment, developing valid grading procedures, communicating assessment results to various audiences, and recognizing ethics of assessment. There was no statistically significant correlation between weekly teaching load and teacher's competence in analyzing assessment results. According to Table 5, there were statistically significant positive relationships between

teaching experience and teacher’s competence in developing and scoring performance assessment and recognizing ethics of assessment. Teaching experience did not correlate significantly with teacher’s overall competence in the educational assessment as well as with teacher’s competence in developing and administering assessment methods, analyzing assessment results, developing valid grading procedures, and communicating assessment results to various audiences.

7. 3. Knowledge in Educational Assessment

The scores of the participating teachers on the TALQ ranged from 3 to 21 with an average of 12.42 and a standard deviation of 3.34. Approximately 41 (25%) teachers answered 10 items or less correctly out of 32 items of the TALQ. About 42 (50%) teachers answered 12 items or less correctly out of 32 items of the TALQ. Approximately 60 (75%) teachers answered 15 items or less correctly out of 32 items of the TALQ. Further analysis of teachers’ knowledge in educational assessment was conducted to examine differences with respect to teachers’ gender, teaching class, teaching subject, pre-service training in assessment, and in-service training in assessment using factorial ANOVA.

Table 6. Factorial ANOVA for the educational assessment knowledge.

Sources	SS	df	MS	F	p-Value
Gender	118.610	1	118.610	12.385	0.000
Teaching class	79.962	3	79.962	1.670	0.074
Teaching subject	97.664	3	97.664	2.14	0.034
Pre-service training	21.820	1	21.820	2.278	0.880
In-service training	57.814	1	57.814	6.036	0.007
Error	1229.190	71			

Table 6 summarizes results of the factorial ANOVA. As shown in Table 6, there were no statistically significant differences in the educational assessment knowledge as measured by TALQ’s scores between the teachers with respect to their teaching class and pre-service training in assessment. However, there were statistically significant differences in the educational assessment knowledge with respect to teacher’s gender (partial $\eta^2 = 0.088$), teaching subject (partial $\eta^2 = 0.074$), and in-service training in assessment (partial $\eta^2 = 0.045$). Female teachers ($M = 12.588$, $SD = 3.21$) tended to have on average a higher level of educational assessment knowledge than male teachers ($M = 10.236$, $SD = 3.51$). Teachers having in-service training in assessment ($M = 12.115$, $SD = 3.20$) demonstrated on average a higher level of educational assessment knowledge than teachers having no in-service assessment training. Scheffe’s test indicated that Business Studies teachers ($M = 12.438$, $SD = 3.53$) and Mathematics teachers ($M = 12.612$, $SD = 4.81$) had on average a higher level of educational assessment knowledge than English language teachers ($M = 10.746$, $SD = 3.09$). Also, Business Studies teachers had on average a higher level of the educational assessment knowledge than social science teachers ($M = 10.155$, $SD = 2.67$).

Pearson product-moment correlation coefficients indicated no statistically significant relationships of teaching load and teaching experience with educational assessment knowledge.

7. 4. Educational Assessment Practices

Table 7 presents descriptive statistics for teachers’ assessment practices. As shown in Table 7, the teachers reported involving students in the assessment process, analyzing assessment results, using alternative assessment methods, and using non-achievement factors in grading some of the time. Less than a quarter of the teachers indicated involving students in the assessment process most to all of the time. Less than one third of the teachers reported analyzing assessment results most to all of the time. About one third of the teachers mentioned using alternative assessments most to all of the time. Also, the teachers reported using traditional assessment methods, developing scoring criteria and standards for performance assessments, and communicating assessment results to various audiences most of the time. Nearly half of the teachers indicated using traditional assessment methods most to all of the time. About 71% of the teachers reported communicating assessment results to various audiences most to all of the time. Approximately 64% of the teachers indicated developing scoring criteria and standards for performance assessments most to all of the time.

Table 7. Descriptive statistics for teachers’ assessment practices (N = 80).

Assessment practices	Scale value					M	SD
	1.00-1.79	1.80-2.59	2.60-3.39	3.40-4.19	4.20-5.00		
	Never	Seldom	Some of the time	Most of the time	All of the time		
	f (%)	f (%)	f (%)	f (%)	f (%)		
1. Traditional assessment methods	0 (0.0)	3(3.75)	36(45)	33(41.25)	8(10)	2.91	0.43
2. Alternative assessment methods	0 (0.0)	12(15)	40(50)	18(22.5)	10(8)	2.68	0.48
3. Analysis of assessment results	2 (3.6)	15(18.8)	38(46.7)	20(26.1)	5(4.8)	2.61	0.60
4. Assessment communication	0 (0.0)	0(0.0)	23(28.75)	42(52.5)	15(18.75)	2.66	0.33
5. Assessment standards and criteria	0 (0.0)	2(2.4)	26(33.9)	35(44.8)	17(18.8)	3.04	0.48
6. Student-involved assessment	10(14.5)	13(15.8)	36(46.7)	11(13.9)	10(9.1)	2.47	0.76
7. Non-achievement grading factors	1(1.25)	11(13.75)	40(50)	20(25)	8(10)	2.69	0.55

Further analysis of teachers’ assessment practices was conducted to examine differences with respect to teachers’ gender, teaching class, teaching subject, pre-service training in assessment, and in-service training in assessment using MANOVA. Results revealed a

statistically significant multivariate effect for gender on the teachers' assessment practices; $F(7,73) = 7.499$, *Wilks' Lambda* = 0.734, $p = 0.000$.

There were no statistically significant multivariate effects for teaching subject, teaching class, pre-service assessment training, and in-service assessment training on the teachers' assessment practices. The univariate analysis showed statistically significant gender differences on using alternative assessments; $F(1, 79) = 13.454$, $p = 0.000$, partial $\eta^2 = 0.082$; analyzing assessment results; $F(1, 79) = 5.790$, $p = 0.017$, partial $\eta^2 = 0.037$; communicating assessment results; $F(1, 79) = 5.434$, $p = 0.021$, partial $\eta^2 = 0.035$; using assessment standards and criteria; $F(1, 79) = 11.896$, $p = 0.001$, partial $\eta^2 = 0.073$; and using non-achievement grading factors; $F(1, 79) = 12.530$, $p = .001$, partial $\eta^2 = 0.077$. Alternative assessments were used more frequently by male teachers ($M = 3.548$, $SD = 0.51$) than by female teachers ($M = 3.156$, $SD = 0.54$). Male teachers ($M = 3.483$, $SD = 0.48$) tended to analyze assessment results more frequently than female teachers ($M = 3.154$, $SD = 0.75$). Female teachers ($M = 3.772$, $SD = 0.50$) tended to communicate assessment results with various audiences more frequently than male teachers ($M = 3.552$, $SD = 0.45$). Assessment standards and criteria were used more frequently by female teachers ($M = 3.703$, $SD = 0.55$) than by male teachers ($M = 3.322$, $SD = 0.57$). Female teachers ($M = 3.126$, $SD = 0.67$) tended to use non-achievement factors in grading less frequently than male teachers ($M = 3.570$, $SD = 0.48$).

Table 8. Pearson product-moment correlation coefficients of teaching load and teaching experience with teachers' assessment practices (N = 80).

Variables	Teaching load	Teaching experience
1. Traditional assessment methods	-0.158*	0.133*
2. Alternative assessment methods	-0.064	0.064
3. Analysis of assessment results	-0.118	0.011
4. Assessment communication	-0.209**	0.087
5. Assessment standards and criteria	-0.136*	0.034
6. Student-involved assessment	-0.011	-0.029
7. Non-achievement grading factors	-0.021	-0.045

* $p < .05$, ** $p < .01$

Table 8 displays Pearson product-moment correlation coefficients of teaching load per week and teaching experience with teachers' assessment practices. Weekly teaching load correlated negatively various audiences. There were no statistically significant correlations between weekly teaching load and teacher's use of alternative assessments, analysis of assessment results, student-involved assessment, and non-achievement grading factors. There was a statistically significant positive relationship between teaching experience and teacher's use of traditional assessments. However, teaching experience did not correlate significantly with teacher's use of alternative assessments, analysis of assessment results, communication

of assessment results, assessment standards and criteria, student-involved assessment, and non-achievement grading factors.

7. 5. Uses of Classroom Tests

Table 9 presents descriptive statistics for teachers’ uses of classroom tests. As shown in Table 9, on average, the teachers reported using classroom tests for assigning grades and motivating students for learning all of the time. Also, on average the teachers indicated using classroom tests most of the time for other purposes such as diagnosing students’ weakness, grouping students for instruction, planning for instruction, evaluating instructional methods, controlling students’ behavior, evaluating academic achievement, comparing students’ performances with each other, and upgrading students from one class to another.

Table 9. Descriptive statistics for teachers’ uses of classroom tests (N = 80).

Assessment practices	Scale value					M	SD
	1.00-1.79	1.80-2.59	2.60-3.39	3.40-4.19	4.20-5.00		
	Never	Seldom	Some of the time	Most of the time	All of the time		
	f (%)	f (%)	f (%)	f (%)	f (%)		
1. Diagnose student weaknesses	0(0.0)	2(2.5)	15(18.75)	33(41.25)	30(37.5)	3.51	0.68
2. Group students for instruction	0(0.0)	3(3.75)	27(33.75)	33(41.25)	17(21.25)	3.24	0.70
3. Plan for instruction	2(2.5)	7(8.75)	26(32.5)	34(42.5)	11(13.75)	3.06	0.82
4. Assign grades	0(.00)	2(2.5)	15(18.75)	22(27.5)	41(51.25)	3.65	0.71
5. Evaluate instructional methods	3(3.75)	8(10)	27(33.75)	26(32.5)	16(20)	3.11	0.88
6. Control student behavior	4(5)	3(3.75)	23(28.75)	20(25)	30(37.5)	3.33	0.94
7. Motivate students for learning	0(0.0)	2(2.5)	16(20)	25(31.25)	37(46.25)	3.62	0.71
8. Evaluate academic achievement	1(1.25)	2(2.5)	17(21.25)	26(32.5)	36(45)	3.55	0.74
9. Compare students’ performances	3(3.75)	4(5)	31(38.75)	27(33.75)	15(18.75)	3.08	0.83
10. Upgrade students to upper classes	2(2.5)	4(5)	23(28.5)	25(31.5)	26(32.5)	3.32	0.82

Further analysis of teachers’ uses of classroom tests was conducted to examine differences with respect to teachers’ gender, teaching class, teaching subject, pre-service training in assessment, and in-service training in assessment using MANOVA. Results revealed statistically significant multivariate effects for gender; $F(10, 70) = 3.084$, *Wilks’ Lambda* = 0.822, $p = 0.001$; teaching class; $F(50, 650.984) = 1.696$, *Wilks’ Lambda* = 0.572, p

= 0.003; and teaching subject; $F(50, 650.984) = 0.719$, *Wilks' Lambda* = 0.568, $p = 0.002$ on the teachers' uses of classroom tests. There were no statistically significant multivariate effects for pre-service assessment training and in-service assessment training on the teachers' uses of classroom tests. The univariate analysis showed statistically significant gender differences favoring female teachers than male teachers on using classroom tests for grouping students; $F(1, 79) = 6.132$, $p = 0.014$, partial $\eta^2 = 0.039$; assigning grades; $F(1, 79) = 17.494$, $p = 0.000$, partial $\eta^2 = 0.104$; motivating students; $F(1, 79) = 4.609$, $p = 0.033$, partial $\eta^2 = 0.030$; evaluating academic achievement; $F(1, 79) = 10.923$, $p = 0.001$, partial $\eta^2 = 0.067$; and upgrading students from one class to another; $F(1, 79) = 6.092$, $p = 0.015$, partial $\eta^2 = 0.039$. Also, the univariate analysis showed statistically significant differences by teaching class on using classroom tests for grouping students; $F(5, 75) = 2.621$, $p = 0.026$, partial $\eta^2 = 0.080$; and assigning grades; $F(5, 75) = 2.458$, $p = 0.036$, partial $\eta^2 = 0.075$. Scheffe's test indicated that sixth grade teachers ($M = 4.16$, $SD = 0.82$) tended to use classroom tests for grouping students more frequently than ninth grade teachers ($M = 3.46$, $SD = 0.95$). Also, the sixth grade teachers ($M = 4.68$, $SD = 0.60$) reported using classroom tests for assigning grades more frequently than fifth grade teachers ($M = 3.91$, $SD = 0.90$) and ninth grade teachers ($M = 4.08$, $SD = 0.89$). Further, the univariate analysis showed statistically significant differences by teaching subject on using classroom tests for grouping students; $F(5, 75) = 2.970$, $p = 0.014$, partial $\eta^2 = 0.090$; and evaluating academic achievement; $F(5, 75) = 3.328$, $p = 0.007$, partial $\eta^2 = 0.026$. Scheffe's test indicated that Bangla language teachers ($M = 4.20$, $SD = 0.76$) tended to use classroom tests for grouping students more frequently than Business Studies teachers ($M = 3.59$, $SD = 0.79$). Also, Social science teachers ($M = 4.55$, $SD = 0.51$) reported using classroom tests for evaluating academic achievement more frequently than Bangla language teachers ($M = 3.84$, $SD = 0.90$).

Table 10. Pearson product-moment correlation coefficients of teaching load and teaching experience with teachers' uses of classroom tests (N = 80).

Variables	Teaching load	Teaching experience
1. Diagnose student weaknesses	-0.133*	0.075
2. Group students for instruction	-0.180**	-0.008
3. Plan for instruction	0.032	-0.048
4. Assign grades	-0.114	0.149*
5. Evaluate instructional methods	-0.105	0.001
6. Control student behavior	-0.016	-0.063
7. Motivate students for learning	-0.124	0.063
8. Evaluate academic achievement	-0.123	0.129*
9. Compare students' performances	-0.129*	0.110
10. Upgrade students to upper classes	-0.034	0.095

* $p < .05$, ** $p < .01$

Table 10 displays Pearson product-moment correlation coefficients of teaching load per week and teaching experience with teachers' uses of classroom tests. As shown in Table 10, weekly teaching load correlated negatively with teacher's use of classroom tests for diagnosing students' weaknesses, grouping students for instruction, and comparing student performance with others. There were no statistically significant correlations between weekly teaching load and teacher's use of classroom tests for planning for instruction, evaluating instructional methods, controlling students' behavior, motivating students, evaluating academic achievement, and upgrading students from one class to another. According to Table 10, there were statistically significant positive relationships between teaching experience and teacher's use of classroom tests for assigning grades and evaluating academic achievement. However, teaching experience did not correlate significantly with teacher's use of classroom tests for diagnosing students' weakness, grouping students for instruction, planning for instruction, evaluating instructional methods, controlling students' behavior, motivating students, comparing students' performances with each other, and upgrading students from one class to another.

7. 6. Attitude towards Classroom Tests

An analysis of teachers' attitude towards classroom tests is presented in Table-11. Overall, the teachers tended to have a positive attitude towards classroom tests ($M = 3.56$, $SD = 0.38$). The 68.75% of the teachers reported having positive to strongly positive attitude towards classroom tests. About one quarter of the teachers reported being neutral in their attitude towards classroom tests.

Table 11. Frequencies for teacher attitude towards classroom tests.

Scale Value	Attitude	<i>f</i>	%
1.00-1.79	Strongly negative attitude	0	0.00
1.80-2.59	Negative attitude	0	0.00
2.60-3.39	Neutral	25	31.25
3.40-4.19	Positive	50	62.50
4.20-5.00	Strongly positive attitude	5	6.25
N		80	100.00

Further analysis of teachers' attitude towards classroom tests was conducted to examine differences with respect to teachers' gender, teaching class, teaching subject, pre-service training in assessment, and in-service training in assessment using factorial ANOVA.

Table 12 summarizes results of the factorial ANOVA. As shown in Table 12, there were no statistically significant differences in the attitude towards classroom tests between the teachers with respect to their gender, teaching class, teaching subject, pre-service training in assessment, and in-service training in assessment. Pearson product-moment correlation coefficients indicated teachers' attitude towards classroom tests correlated negatively with

weekly teaching load, $r(73) = -0.151, p = 0.052$; and positively with teaching experience; $r(73) = 0.194, p = 0.013$

Table 12. Factorial ANOVA for the attitude towards classroom tests (N = 80).

Sources	SS	df	MS	F	p-Value
Gender	0.306	1	0.306	2.159	0.096
Teaching class	0.280	3	0.056	0.396	0.680
Teaching subject	0.560	3	0.112	0.791	0.393
Pre-service training	0.034	1	0.034	0.247	0.501
In-service training	0.278	1	0.278	1.969	0.110
Error	18.178	71	0.120		

8. CONCLUSIONS

Assessment of student learning is one of the daily classroom tasks for teachers. A significant proportion of the classroom time is devoted to educational assessment-related activities. These assessment activities play a critical role in shaping student academic motivation and performance. Educators have long recognized that teachers' knowledge and beliefs might influence their classroom practices. As might be expected, undesirable teachers' knowledge and beliefs about educational assessment could cripple the quality the assessment outcomes. Thus, there is a need to fully understand teachers' attitudes, competence, knowledge, and practices about educational assessment. The present study aimed at addressing this need. Results revealed that although teachers held a favorable attitude towards and perceived themselves as being competent in educational assessment, they demonstrated a low level of knowledge in educational assessment. Teachers used a variety of assessments in the classroom primarily for assigning grades and motivating students to learn, with some variations by gender, grade level, and subject area. Teaching load and teaching experience accounted for some of the variations in teachers' educational assessment practices. Appropriate classroom assessment practices have been identified as one of the critical element that must be considered in order to maximize student learning. However, this research has consistently reported that teachers, in general, lack adequate knowledge about educational assessment deemed necessary for appropriate assessment practices. It is identified that two external sources (educational policy and professional development) and an internal source (teachers' beliefs) mediating teachers' assessment practices.

The present study provided evidence that in-service training in educational assessment might have a positive impact on teachers' educational assessment knowledge. Thus, it is recommended that ongoing professional development programs should be designed to strengthen teachers' educational assessment knowledge and skills. As shown in this study, the teachers had positive views about educational assessment and perceived themselves as competent in educational assessment.

Teachers' assessment practices tend to be influenced by their beliefs about educational assessment. However, the results of the present study showed that heavy weekly teaching load of the teachers might have a negative impact on teachers' assessment beliefs, knowledge, and practices. The present study found that teaching load and other school responsibilities could cause conflicts between teachers' assessment beliefs and practices. Thus, it is recommended that the authority should pay attention to the teaching load of the teachers in relation to the educational assessment responsibilities of the teachers. The current findings showed some trends with respect to grade level and subject area in relation to teachers' self-perceived competence, knowledge, and practices in educational assessment. Thus, it is recommended that teacher educators should consider the specific nature of the various grade levels and subject areas when designing and implementing professional development programs for teachers in educational assessment.

The findings of this study revealed that gender differences exist in educational assessment competence, knowledge, and practices. In this study, female teachers were found to have on average a higher level of knowledge and self-perceived competence in educational assessment than male teachers. The study reported that gender differences in the self-perceived assessment skills favoring female teachers and found gender differences in the educational assessment knowledge favoring male teachers. In addition, the current study showed that female teachers tended to use non-achievement factors such as effort and ability in grading more frequently than male teachers.

These practices do not align with those recommended by educational assessment experts who state that non-achievement factors such as effort, ability, interest, and motivation should not be incorporated into academic grades because they are complex to be operationally defined and measured. In this study it is also found that female teachers seemed to be more skillful than male teachers in writing test items and communicating assessment results, Science teachers perceived themselves more skillful than Bangla and English language teachers and Business studies teachers in developing performance assessment and analyzing assessment results, sixth grade teachers reported higher levels of self-perceived skills in developing performance assessment than eighth and tenth grade teachers, teaching experience correlated positively with self-perceived assessment skills, and teachers with in-service assessment training showed a higher level of assessment skills than those without in-service assessment training.

9. DIRECTIONS FOR FUTURE RESEARCH

Future research using classroom observations and interviews might shed more light on gender differences in the educational assessment competence, knowledge, and practices. Finally, the generalizability of the present study findings is limited by the use of self-report questionnaire and by the particular sample of teachers.

Future research might consider using interviews and direct observations of teachers' assessment practices to judge the validity of the teachers' responses to the questionnaire. Also, future research should be conducted to testify the findings using a representative larger sample of teachers selected from various educational institutions in the country.

References

- [1] Alkharusi, H. A., An analysis of the internal and external structure of the teacher assessment literacy questionnaire. *International Journal of Learning*, 18 (2011) 515-528.
- [2] Alkharusi, H., A logistic regression model predicting assessment literacy among in-service teachers. *Journal of Theory and Practice in Education*, 7 (2011) 280-291.
- [3] American Federation of Teachers, National Council on Measurement in Education, & National Education Association. Standards for teacher competence in educational assessment of students. *Educational Measurement: Issues and Practice*, 9 (1990) 30-32.
- [4] Alimo-Metcalfe, B. & Alban-Metcalfe, R., The development of a new Transformational Leadership Questionnaire. *Journal of Occupational and Organizational Psychology*, (2001) 1-27.
- [5] Brookhart, S. M., Educational assessment knowledge and skills for teachers. *Educational Measurement: Issues and Practice*, 30 (2011) 3-12.
- [6] Calderhead, J., Teacher: Beliefs and knowledge. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of educational psychology* (1996) 709-725. New York: Macmillan.
- [7] Koh, K. H., Improving teachers' assessment literacy through professional development. *Teaching Education*, 22 (2011) 255-276.
- [8] Lyon, E. G., Beliefs, practices and reflection: Exploring a science teacher's classroom assessment through the assessment triangle model. *Journal of Science Teacher Education*, 22 (2011) 122-124.
- [9] McMillan, J. H., & Lawson, S. R., *Secondary science teachers' classroom assessment and grading practices*, (2001) 301.
- [10] Mertler, C. A., Teachers' assessment knowledge and their perceptions of the impact of classroom assessment professional development. *Improving Schools*, 12 (2009) 101-113.
- [11] Mertler, C. A., & Campbell, C., *Measuring teachers' knowledge and application of classroom assessment concepts: Development of the assessment knowledge inventory*, (2005) 25-28.
- [12] Ogan-Bekiroglu, F., Assessing assessment: Examination of pre-service physics teachers' attitudes towards assessment and factors affecting their attitudes. *International Journal of Science Education*, 31 (2009) 1-29.
- [13] Plake, B. S., & Impara, J. C., *Teacher competencies questionnaire description*. Lincoln, NE: University of Nebraska, (1992) 312.
- [14] Pope, N., Green, S. K., Johnson, R. L., & Mitchell, M., Examining teacher ethical dilemmas in classroom assessment. *Teaching and Teacher Education*, 25 (2009) 778-782.
- [15] Popham, W. J., Needed: A dose of assessment knowledge. *Educational Leadership*, 63 (2006) 84-85.

- [16] Siegel, M., & Wissehr, C., Preparing for the plunge: Preservice teachers' assessment literacy. *Journal of Science Teacher Education*, 22 (2011) 371-391.
- [17] Volante, L., & Fazio, X., Exploring teacher candidates' assessment knowledge: Implications for teacher education reform and professional development. *Canadian Journal of Education*, 30 (2007) 749-770.
- [18] Wolfe, E. W., Viger, S. G., Jarvinen, D. W., & Linksman, J., Validation of scores from a measure of teachers' efficacy toward standards-aligned classroom assessment. *Educational and Psychological Measurement*, 67 (2007) 460-474.
- [19] Zhang, Z., & Burry-Stock, J. A., Classroom assessment practices and teachers' self-perceived assessment skills. *Applied Measurement in Education*, 16 (2003) 323-342.

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