

Practice and Challenges of Continuous Assessment Implementation in Injibara College of Teachers' Education: Focus on Regular Mathematics Students

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Abstract

The major objective of this study was to examine the practice of continuous assessment (CA) and the major challenges that affect the implementation of CA at Injibara College of Teacher Education (ICTE), particularly mathematics department. For this study purpose descriptive survey design was employed by using quantitative approach. A sample of 11 instructors and 189 student-teachers were involved in the study. Instructors were selected through comprehensive sampling, while student-teachers were selected through simple random sampling technique. The instructors' questionnaire had Cronbach's Alpha (α) of .902 and .872 for CA practice scales and CA challenge scales, respectively. Student-teachers' questionnaire scales had Cronbach's Alpha (α) of .754 and .879 for CA practice scales and CA challenges scale, respectively. The demographic information of the respondents was analyzed by using frequency table, while one-sample t test was used to analyze the quantitative data from close-ended items. Qualitative data collected through open-ended questions were analyzed thematically in narrative approach. The study found weak practice of CA in mathematics learning and teaching at ICTE and the practice was predominated by paper and pencil tests. This gap in practice was due to serious challenges related to instructors, student-teachers, leadership, curriculum and large class size. Based on these findings it is concluded that there is imbalance between the practice of assessment of learning (summative assessment) and assessment for learning (formative assessment). In sum, the need to design CA guideline is recommended to standardize the practice of CA and balance assessment of learning and assessment for learning.

Key Terms: Continuous assessment, Student-centered, Teachers education & formative assessment.

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1. INTRODUCTION

Continuous assessment (CA) has a prime aim of improving students' learning performance. Hence, CA practice should be based on an understanding of how students learn. In connection to this, Victorian Office of Learning and Teaching ([VOLT], 2005) claim that CA should be an integral component of course design and not something to add afterwards. Similarly, Ajuonuma (2006) claimed that CA is an integral part of teaching and learning process. Moreover, Yared (2012) stated that CA is an integral part of the teaching and learning process so that student assessment is given a very important place in every educational institution irrespective of their level.

To foster effective practice of CA, instructors and student-teachers should have considerable understanding about CA types and their underlying principles. In many literatures, CA is categorized as formative assessment and summative assessment though they are not mutually exclusive. Formative assessment is an assessment for supporting learning (Butcher, Davies, & Highton, 2006), whereas summative assessment is an assessment of learning with purpose of judging performance by marking learning performance quantitatively (Hernandez, 2012).

Accordingly, CA of mathematics learning should first and foremost be anchored in important mathematical content and "reflect topics and applications that are critical to a full understanding of mathematics as it is used in today's world and in students' later lives" (National Research Council, 1993, p. 32). In Ethiopia, like elsewhere, CA was introduced in schools since 1994. The Ethiopian MoE underscored that CA must be applied in all academic and practical subjects to ensure the formation of all-round profile of students at all levels (MoE, 1994). Cognizant of competency-based curriculum, in Ethiopia, CA must be "interesting for students to complete; help teachers assess the new learning outcomes; and help teachers analyze the kinds of mistakes that students make in order to be able to help them improve" (MoE, 2009, p.35).

Nonetheless, mathematics is a core subject taught at all Teacher Training Colleges of Ethiopia, including Injibara College of Teachers Education (ICTE). These colleges are presumed to assess 60% of their student-teachers' learning performance through CA. Based on this guideline, ICTE has been utilizing CA to assess student-teachers' mathematics learning.

However, as far as the knowledge of the researcher, ICTE has no any guideline and code of practice for CA in general and formative assessment in particular. Besides, ICTE has no any guideline and code of practice for CA utilization in any subjects also. As the researcher is being the member of college supervision committee, supporting mathematics department of ICTE placed based on the background of experts, it is observed that there are some inconsistencies in the practice of CA across departments. During supervision the researcher had also observed relatively serious gaps in mathematics department in practicing CA in the college. Even, the mathematics student-teachers' achievement both in classroom tests, and Regional Competence Examinations was very much below expectation (ICTE report, 2018). The general objective of the study was to examine the practices and major challenges of CA in mathematics learning and teaching at ICTE.

2. RESEARCH DESIGN AND METHODOLOGY

2.1 Research Design

To this study purpose descriptive survey design was employed. (Creswell, 2012). Similarly, Lodico, Spaulding, and Voegtle (2010) noted that the descriptive survey research has a purpose of gathering opinions, beliefs, or perceptions about a current issue from a large group of people. In descriptive survey study, participants are asked to report on their own activities, behaviors, and feelings using brief reporting forms (Lodico et al., 2010).

2.2 Research Approach

This study was conducted by quantitative research approach which involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid fashion.

2.3 Sources of Data

Data for this research were collected from primary sources. The primary data were collected from mathematics instructors and mathematics student-teachers at Injibara College of Teacher Education (ICTE).

2.4 Population of the Study

All mathematics instructors and mathematics student-teachers at ICTE were the population of this study. Accordingly, 11 (male=10, female=1) mathematics instructors and 273 (male=159, female=114) student-teachers were the population of the study. From student-teachers, the population of study comprised 25 (male=18, female=7) first year, 65 (male=38, female=27) second year and 183 (male=103, female=80) third year mathematics student-teachers.

2.5 Sample and Sampling Techniques

All mathematics instructors, 11 (male=10, female=1) were involved in the study. On the other hand, a sample of 205 (male=119, female=86) student-teachers were selected by using simple random sampling technique.

2.6 Instruments of the Study

Questionnaire was the prominent data collection instrument in this study.

2.7 Procedure of Data Collection

The data gathering instruments were prepared in English language for instructors, but for student-teachers it was prepared in Amharic to overcome the problem of understanding and for free expression of ideas.

2.8 Method of Data Analysis

After all data were collected, the questionnaires were checked to see if the participants filled in all the required information properly. The data obtained from close ended questionnaires were fed to the computer in the spread sheet and analyzed by using Statistical Package for Social Sciences (SPSS) software version 20. The demographic information of the respondents was analyzed by using frequency table. A one-sample *t* test was used to analyze the data collected via close-ended items. Qualitative data collected through open-ended questions were analyzed thematically in narrative approach.

3. RESULTS AND DISCUSSION

3.1 Demographic Characteristics of Participants

As shown in Table 1, the sample student-teachers involved in the study were 189 (male=104, female=85). In fact, all mathematics instructors were involved in the study.

Table 1: Frequency Distribution of Sample Students by Batch and Sex and Instructors

		Frequency	Percent
Sex	Male	104	55.0
	Female	85	45.0
	Total	189	100.0
Student-teachers Bach	Bach 1	15	7.9
	Bach 2	38	20.1
	Bach 3	136	72.0
	Total	189	100.0
	Instructors	Male	10
Female		1	9.1
Total		11	100.0

3.1.1 Findings of CA Practice

As shown in Table 2, a one-sample t-test was conducted to determine whether or not the mean practice of CA from student-teachers' response was significantly different from the hypothetical expected mean of 3. The result of this test revealed that the mathematics instructors' mean practice of employing different types of CA techniques ($M=4.16$, $SD=1.041$) was significantly greater than the expected mean of 3 at $p<.001$, $t(188)= 15.365$, 95% CI (1.01, 1.31).

Table 2: A One-Sample T-Test Result of CA Practice as Rated by Student-Teachers (N=189, df=188)

Items	M	SD	t	p-value	95% Confidence Interval of the Difference	
					Lower	Upper
Mathematics instructors employ different types of CA techniques.	4.16	1.041	15.365	.000	1.01	1.31
Mathematics instructors offer feedback after we get assessed.	3.79	1.205	9.055	.000	.62	.97
Mathematics instructors offer the feedback that is appropriate and timely.	3.43	1.230	4.849	.000	.26	.61
Mathematics instructors score our results by using mid and final exams rather than our daily activities.	3.79	1.124	9.642	.000	.63	.95
All Mathematics instructors follow similar methods of CA.	3.40	1.215	4.551	.000	.23	.58
Overall Practice of CA	18.58	4.136	11.906	.000	2.99	4.18

As shown in Table 3, the instructors' average practice of assessment for learning ($M=44.13$, $SD=7.28$) was not significantly different from the expected mean of 42, $t(10)=1.606$, $p=.119$, 95% CI (-.58, 4.85).

Table 3: A One-Sample T-Test Result of Instructors' Self-Rated CA Practice (N=11, df=10)

Variables	M	SD	t	p-value	95% Confidence Interval of the Difference	
					Lower	Upper
Instructors' practice of planning CA	9.27	2.64	.554	.584	-.72	1.25
Instructors' practice of assessment of learning	15.47	2.37	-5.844	.000	-3.42	-1.65
Instructors' practice of assessment for learning	44.13	7.28	1.606	.119	-.58	4.85
CA practice of students' affective domain learning	2.80	.997	-1.099	.281	-.57	.17
CA practice of students' psychomotor domain	3.07	.868	.421	.677	-.26	.39

Table 4: A One-Sample T-Test Result of Instructors' Self-Rated Challenges of CA Practice (N=11, df=10)

Challenges	M	SD	t	p-value	95% Confidence Interval of the Difference	
					Lower	Upper
Instructor Related Challenges	51.80	8.00	6.708	.000	6.81	12.79
Student-teacher Related Challenges	15.20	2.49	7.02	.000	2.27	4.13
Leadership Related Challenges	7.80	1.49	6.595	.000	1.24	2.36
Curriculum Related Challenges	7.27	1.91	3.631	.001	.55	1.98
Large class size	3.63	1.33	2.473	.019	.10	1.10

As indicated in Table 4, curriculum related factors ($M=7.27$, $SD=1.91$) were significant challenges of CA practice compared with expected mean of 6, $t(10)=3.631$, $p=.001$, 95% CI (.55, 1.98).

3.2 Discussion

3.2.1 Discussion of Results on Continuous Assessment Practice

The findings of this study showed that the instructors' practice of CA for summative purpose (assessment of learning) was below expected level. In this regard, instructors involved in this study reported that they often used CA to decide the grade of the student-teachers and to assess student-teachers' learning by using paper and pencil tests. Similarly, Obioma (as cited in Awofala & Babajide, 2013) found that many teachers misapplied the CA instruments leading to more continuous testing instead of CA.

Instructors reported that they had good practice in continuously assessing student-teachers learning progress by using individual and group activities, and in providing feedback to student-teachers after the completion of assessment. This result contradicts with the student-teachers report that raises the instructors' frequent use of test and exam as a critical challenge for CA practice. Such a difference may be because of instructors' interest to show that their CA practice is in conformity with policy expectations. The study also found that the instructors had poor practice in utilizing CA to notice the difficulties on the learning progress of the student-teachers, and in recording student-teachers' performance to see their learning progress. Similarly, Abiy's (2013) study indicated that the purpose of CA to diagnose student-teachers' problems and modify instructors' teaching approach was limited, and even absent in most cases. Hence, CA was not properly practiced in the schools (Abiy, 2013)

The study results also indicated that the instructors had poor practice of assessing student-teachers learning progress in every lesson, and supporting student-teachers with learning difficulties. This finding implies that the teacher educators' practice of CA for formative purpose (assessment for learning) is yet very weak (Arega, 2014, p.31).

Cauley and McMillan (2010) noted that effective teachers use formative assessment during instruction to identify specific student misunderstandings, provide feedback to students to help them correct their errors, and identify and implement instructional correctives. The student-teachers reported contradicting result regarding instructors' practice in providing CA feedback (Cauley & McMillan, 2010).

3.2.2 Discussion of Results on Challenges of CA Practice

Challenges related to instructors: The findings of this study reveal that the instructors' frequent use of test as CA tool is a great challenge for CA practice. The results also indicated that the instructors used CA solely to grade the students' work and they did not use CA to support low achieving students' learning.

The student-teachers also reported that teacher educators' failure to provide timely feedback and to check and score the students group work carefully was a serious challenge related to instructors. Congruent with this finding, Solomon's (2014) study found weak follow up, support and feedback system as critical challenges in CA practice.

Challenges related to student-teachers: Accordingly, the study results indicate that the lack of understanding and readiness among students, absence of opportunity for absentee students to be assessed in another day, cheating system, and poor participation of students in group assignment and project works as student-related challenges of CA practice were the challenges hampering CA implementation.

Challenges related to leadership: The present study found that leadership related factors were significantly great challenges of CA practice.

Challenges related to curriculum and learning resources: Instructors reported that the curriculum related challenges were absence of strict guidelines about the implementation of CA and mismatch between course content and its allotted contact hours in some courses.

4. CONCLUSION

The real practice of CA in the study area indicates the imbalance between the practice of assessment of learning (summative assessment) and assessment for learning (formative assessment). The instructors dominantly use paper-and-pencil tests, mid and final exams for grading purpose. This implies that the CA mainly serves its

summative purpose, while formative assessment (assessment for learning) is neglected issue. Likewise, the practice of self-assessment and peer-assessment as formative assessment methods are totally forgotten. Moreover, the instructors do not assess the student-teachers' affective and psychomotor domain learning.

The practice of CA has been challenged by tremendous factors. The challenges related to instructors are frequently using tests as CA tool, utilizing CA mainly for grading (summative) purpose, teaching workload, lack of professional support and training, lack of knowledge and understanding, conception of CA as grade inflator and extra burden, and lack of professional commitment and readiness. Irregular attendance, practice of cheating, lack of willingness to engage in CA activities, lack of participation in group assignments and project works, and lack of understanding and readiness among student-teachers are the CA challenges related to student-teachers. The challenges related to leadership are lack of continuous follow up by the department heads and other supervisors to confirm the implementation of CA. The challenges related to curriculum and learning resources are absence of strict guidelines about the implementation of CA, mismatch between course content and its allotted contact hours in some courses, and lack of adequate teaching learning facilities like internet access, books, laboratory, etc.

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