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THE ASSESSMENT PRACTICES BY CONTENT FACULTY, STUDENT-TEACHING SUPERVISOR AND COOPERATING MENTORS OF PRE-PROFESSIONAL MATHEMATICS TEACHERS IN STATE UNIVERSITIES IN NORTHEASTERN PHILIPPINES

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ABSTRACT

Assessment is the process of teachers gathering information about students' learning, including their achievement and behavior in both the cognitive and affective domains enabling teachers to make informed decisions for classroom instruction. The Pre-professional Math Teachers were exposed with various assessment practices during their academic years which were implemented by their Professors across their academic subject and not to exclude Mathematics classes. Assessment was just regarded as a means for "grading" the mathematical skills and knowledge of the students and not to measure what is worth measuring.This study aimed to determine the assessment practices of content faculty, student-teaching supervisors and cooperating mentors of pre-professional mathematics teachers in State Universities in the Cagayan Valley Region in the Philippines It made used of the qualitative-quantitative research method and utilized questionnaires and semi-structured interview. Frequencies, means, standard deviation, and one-way analysis of variance were used.It was found out that Mathematics content faculty used conceptual class discussions or recitations, students' calculator and computer use, routine homework or drills, student's use of manipulatives to monitor the learning progress of their students while write up of projects, tests (prelim, midterms, finals), and critique papers are utilized for grading purposes.The Student teaching Supervisors always used standard checklist for demonstration teaching, and post-conference and the Cooperating mentors used formal visit and post conference with the Pre-service Math Teachers for formative assessment in assessing the pedagogical skills of the Student teachers during the practicum period. Formal visits, standard checklists for demonstration teaching, and post-conferences with concerned individuals were utilized by both for summative assessment.

Keywords: formative, summative, assessment, pre-professional math teachers

INTRODUCTION

Assessment is the process of teachers gathering information about students' learning, including their achievement and behavior in both the cognitive and affective domains enabling teachers to make informed decisions for classroom instruction (Huo, 2010). It is used to diagnose student needs, to monitor student progress, to give students grades, to judge teaching effectiveness, to determine raises and promotions, to evaluate curricula and programs, and to decide on allocation of resources and thus being referred to as the "feedback loop in education" (Gold, Keith & Marion, 1999). Hence, its main purpose is to improve learning(Stassen, Doherty & Poe, 2001).

The result of assessment would be interpreted and serve as the basis of making decision and judgment (NCTM, 1995). From this view, it determines to what extent the assessment result becomes more meaningful to the students and teachers.Pressing issues concerning mathematics education include the selection,

retention and production of mathematics majors which are related to the nature and quality of assessment in mathematics learning of pre-professional mathematics teachers (Streen, 2011). The assessment in mathematics by the content faculty must take various forms in order to meet the competencies and standards intended for the learners. Construction of such materials should be based on the objectives or goals of the matter in relation to institution's mission, vision and alignment to the prescribed national goals for global competitiveness. Besides, the trainings or experiential learning of these pre-professional math teachers also matters which is being supervised by the student teaching supervisor from higher education institution with the guidance and help of the cooperating mentors in basic Education.

NCTM (1995) produced a set of Assessment Standards for School Mathematics with the belief that there are new assessment strategies and practices that need to be developed enabling teachers and others to assess student's performance according to their reformed vision for school mathematics. Its vision is to expect students to know and be able to use their learning (Dep Ed. 2012), the way they have learned it, and how their progress is to be assessed.

In the classroom instruction, the teacher must have the ability to construct materials, must know the processes and determines practices to adopt in assessing his students' learning in the subject (Lange, 1999). The quality, validity and reliability of the assessment materials, instruments or tools are very significant in attaining the quality of learning to be achieved. The manner in which content of assessment material is constructed often influences the mathematical value that a teacher wishes to achieve (NCTM, 1995). Thus, classroom teachers are the best persons and are in the best positions to make judgments about the development of student's progress and therefore, must be considered the primary assessors of students. Hence, it is reasonable that students should know how they are to be assessed, what mathematics they will be expected to do, the criteria for judging their performances, and the consequences of the assessment, and they have the right to receive timely feedback on their performance. Therefore, any assessment made by the teacher must be in congruence with the objectives of the subject and in line with the curriculum and instruction (Stenmark, 1991; Doran, Chan, &Tamir, 2002; Keeley& Tobey, 2011). These three dimensions should clearly interface with each other so that fairness, credibility, validity, and utility of assessment would not be compromised.

However, NCTM (1995) presents four interrelated phases in the assessment processes which are the planning assessment, gathering evidence, interpreting evidence, and using results. Since these phases are interactive, differences between them could hardly be determined and that they should not be seen as necessarily sequential. The same applies to the assessment practices of teachers in classroom mathematics.

The Mathematics Teachers of the students are products of Teacher Education Institutions. During the pre-service training, they were exposed with various and assessment practices. These assessment practices have been implemented by their Professors across subject areas in all their classes especially in Mathematics classroom. However, some Professors take for granted the real essence of assessment and they thought of it as a means for "grading" the

mathematical skills and knowledge of their students and not to measure what is worth measuring (Gold, Keith, & Marion, 1999).

In the preparation of the would-be teachers Feuer, Floden, Chudowsky, and Ahn (2013) believed that quality of instruction greatly contributes to students' learning process. They expounded on the need to have a record from observations of teaching for it measures quality of feedback from mentors and assesses whether they are applying what they have learned during the preparation stage.

In addition, the quality assurance system in higher education looks into the quality of teaching and learning (CMO, 16, s.2005). This implies that the teaching effectiveness of the instructors is very important in the quality of learning of the students. The result of the classroom assessment or evaluation administered by these instructors in their classrooms is a clear reflection of their teaching effectiveness.

The Commission on Higher Education (CHED) has set the policy-standard to enhance quality assurance in Philippine Higher Education through learning competency-based standards and an outcomes-based system of quality assurance that is differentiated by type of Higher Education Institution (HEI). The said policy-standard applies to both private and public HEIs which aims to contribute to building a nation capable of transcending the social, political, economic, cultural and ethical issues that constrains the country's human development, productivity and global competitiveness. In this light, CHED explicitly defined quality as the alignment and consistency of outcomes anchored from the institution's vision, mission, and goals demonstrated by exceptional learning and service outcomes and the development of a culture of quality (CMO 46, s. 2012).

Achieving high quality in education entails much effort for all individuals and agencies concerned in the educational system. For instance, in its aim of developing a culture of quality, CHED will help HEIs strengthen their management of academic administrative processes in order to achieve their quality goals and educational objectives (CMO 46, s. 2012). Furthermore, it ensures the presence of mechanisms, procedures, and processes in order to deliver the quality desired. This task is delegated to the deans of the different colleges and Universities through the chairmen of each program. Further, the ultimate individuals to implement so as to achieve this quality are the teachers, instructors or professors and students.

Relative to quality assurance, the Department of Education conceptualized assessment as a tool to track student's progress in the attainment of standards, promote self-reflection and personal accountability for one's learning, and provide a basis for the profiling of student performance. Its nature and purpose must address the total development of the learner emphasizing the formative or developmental purpose of quality assuring student learning, standards-based seeking to ensure teachers teaching the standards for students aiming to attain in terms of content and performance as a critical evidence of learning (DepEd, 2012). In addition, the National Council of Teachers of Mathematics (NCTM, 1995) describes assessment as the process of data collection about student's knowledge of, ability to use, and disposition towards subject matter and of making inferences from that information for a variety of purposes.

Consequently, the preparation of the Pre-service math teachers greatly affects the quality of education they would provide. Hence, proper

implementation of assessment practices should be manifested in all types of assessment to be conducted across fields of interest most especially to Pre-service teachers because they would be agents of quality education to the students in the Basic Education. The performance of their students in any assessment activity reflects the practices of these Pre-service teachers. Thus there is a great need to look into the assessment practices of teachers in the classroom in accordance with the international standards of evaluation especially at the level of preparatory stage of becoming teachers. Thus, the main purpose of this study.

Statement of the Problem

This study aimed to evaluate the assessment practices of content faculty, student-teaching supervisors and cooperating mentors of pre-professional mathematics teachers in State Universities in the Cagayan Valley Region. It specifically attempted to answer the following questions:

1. What are the assessment practices used by content faculty, student- teaching supervisors and cooperating mentors in assessing pre- professional mathematics teachers along the following categories:
    1.1. formative assessment?
    1.2. summative assessment?
2. To what extent do the content faculty, student-teaching supervisors and cooperating mentors adopt the above practices for formative and summative assessment?
3. Is there a significant difference in the extent to which the assessment practices across formative and summative assessment categories.

Statement of Null Hypotheses

There is no significant difference in the extent to which the assessment practices across formative and summative assessment categories.

METHOD

Research Design

This study employed qualitative-descriptive and quantitative-comparative research designs. The questions on the practices and processes of assessment in classroom mathematics were dealt with qualitative-descriptive research designs. The descriptive method used to describe the assessment practices being utilized in the classroom mathematics teaching and the processes they have implemented in the assessment. Comparative method was used to ascertain the differences of some variables in the study. Semi-structured interviews, checklist/questionnaire and focus-group discussion were utilized in the gathering and triangulation of data.

Research Environment

This study was conducted in four different State Universities in Northeastern Philippines namely: Cagayan State University (Andrew's Campus), Isabela State University (Echague Campus), Quirino State University (Diffun Campus) and Nueva Vizcaya State University (Bambang Campus). The said State Universities are offering the course Bachelor in Secondary Education major in

mathematics. The Secondary Math teachers of the identified secondary schools in the Department of Education in the Region were considered because of their functions as Cooperating Mentors to these pre-professional math teachers relative to their training and development as future math teachers.

Research Respondents and Sampling Procedure

The sampling technique utilized in this study was purposive and quota sampling. Content faculty, Student-teaching supervisors and Cooperating mentors of the four state universities in the Northeastern Philippines offering Bachelor in Secondary Education major in mathematics were the main subjects of this research. The content faculty had a class with the pre-professional math teachers in one of the major subjects in mathematics during the first semester of the Academic year 2014-2015. The Student-teaching supervisors were the College Instructors designated to do the transactions concerning the deployment and monitoring the performances of the pre-service math teachers in their off- campus experience (practicum) while the Cooperating mentors are the Secondary math teachers from the Department of Education who were given pre- service math teachers to assist and guide them in the duration of their practicum.

Table 1 shows the number of faculty teaching major subjects in mathematics to the BSE-math major students and the number of student-teaching supervisor in the program. It is seen in the table that CSU and ISU had same number of content faculty which is three (21.43%) while the other two had four (28.57%) of the total number of content faculty. On the other hand, the average ratio of pre-professional math teachers to the cooperating mentors is one-to-one, i.e. for every pre-professional math teacher there is one cooperating mentor from the Basic Education. This is to give focus and attention to the performance of the pre-service math teachers in their functions as classroom teachers and to oversee the progress of training in pedagogical skills of the perspective math teachers.

Table 1: Number of Math Faculty, Student-teaching Supervisors and Cooperating mentors of Pre-Professional Math Teachers

Educator	CSU	ISU	QSU	NVSU	TOTAL
Content Faculty	3	3	4	4	14
Student-Teaching Supervisor	1	1	1	1	4
Cooperating mentors	27	13	5	9	72

Further, Table 2 presents the number of BSE-math major students (Pre-professional Math teachers) who are currently in their last year of teacher preparation and the actual number of Students in the four State Universities who are considered in the study. They are included in the study to triangulate the information obtained from the survey and interview from their Math Content Professors.

Table 2: Number of Students in BSED – IV Math Program (2nd Semester, 2014-2015)

State Universities (SU)	Male	Female	Total	Actual Number of Student- Respondents	Actual Percentage	Total Percentage
CSU	14	23	37	27	72.97%	49.33%
ISU	7	11	18	13	72.22%	24.00%
NVSU	4	8	12	9	75.00%	16.00%
QSU	1	7	8	7	87.50%	10.67%
Total	26	49	75	56	74.67%	

As being showed on the table, CSU has the largest number with 37 Pre-service math teachers (49.33%), ISU has 18 (24%), NVSU has 12 (16%) and QSU has the least number with eight (10.67%). However, the number of female students dominated the number of male by a difference of 30.66%. There are 27 (72.97%) students' respondents who were considered from CSU, 13 (72.22%) student teachers from ISU, nine (75%) student teachers from NVSU and seven (87.50%) student teachers were taken from NVSU.

Table 3 shows the number of cooperating mentors for student teachers in every State University. As the table provides, out of 37 Cooperating mentors of CSU, 27 of them were considered, others have served to validate the instruments. However, the largest percentage came from NVSU with 9 out of 12 mentors. QSU has the smallest number of Mentors considered (i.e. 5 out of 7) during the time of data gathering. One of its pre-service math teachers was assigned in the High School Laboratory of the University and another mentor has been given assignment by the Division of Quirino outside the School.

Table 3: Number of Cooperating mentors

SU	Total Number	Cooperating Mentors	%
CSU	37	27	72.97%
ISU	18	13	72.22%
QSU	7	5	71.43%
NVSU	12	9	75.00%
Total	74	54	72.97%

Instrumentation

The instruments used in gathering the data for this study was questionnaire / checklist designed for the i) content faculty, ii) student-respondent, iii). supervising instructors and cooperating mentors:

a). Questionnaire/checklist

a.1. Content faculty

It contained personal-professional information which included the

educational background and the major subjects taught and the assessment practices employed in assessing mathematics content skills of the Math major students. The assessment practices were categorized as formative or summative depending on the purpose of the faculty while the extent of its implementation is rated using the 6-Likert scale: 6 – always; 5-most of the time; 4 – often; 3-sometimes; 2 – seldom; and 1-never.

a.2). Student-Respondent

The checklist contained the respondent's information sheet, math subjects earned, and the checklist for the assessment practices by the Mathematics content faculty. The respondent's information sheet was used to verify their attendance to the class in the major subjects with the Mathematics content faculty. The assessment practices' checklist was utilized to triangulate the information obtained from the Content faculty about the extent of implementation of the assessment practices of their Mathematics Professors. The extent of implementation is rated using the 6-Likert scale: 6 – always; 5- most of the time; 4 – often; 3-sometimes; 2 – seldom; and 1-never.

As regards the major subjects taken by the Pre-professional Math teachers across State Universities, the universal subjects as reported by all the Students' respondents are Abstract Algebra, Analytic Geometry, Calculus1 (Differential Calculus), and Calculus II (Integral Calculus) while the most common subjects revealed by 49 to 55 (87.5% to 98.21%) Student teachers are Linear Algebra, Advanced Statistics, History of Math, Advanced Algebra, Action Research in Mathematics, Instrumentation in Mathematics, and Solid Geometry.

a.3). Student-teaching Supervisors/Cooperating Mentors

The questionnaire/checklist for both the Student-teaching Supervisor and Cooperating Mentors were made parallel. It asked about the respondent's personal information including their present designation and educational background and the list of assessment practices possibly employed in assessing the pedagogical skills of the pre-service math teachers during the Off-campus Experience.

The assessment practices as identified by the respondents were categorized as formative or summative. A 6-point Likert scale was used to rate the extent of implementation of the assessment practices. Descriptions of the scale were as follows: 6-always, 5-most of the time, 4-often, 3-sometimes, 2- seldom, and 1-never.

However, in the analysis of results, along the extent of implementation of assessment practices and processes by the Content faculty, Student teaching Supervisors and Cooperating Mentors the following is the scale used: 1-1.82 (Not a practice); 1.83 – 2.65 (Rare practice); 2.66 – 3.49 (Moderate practice); 3.5 – 4.32 (Common practice); 4.33 – 5.15 (Very common practice); 5.16 – 6.0 (Universal practice)

All of the instruments used were validated by Mathematics instructors, Student-teaching Supervisors and Cooperating Mentors in selected Private Catholic Universities and campuses of State University in the region. Prior to the research instruments administration for data gathering, revisions were made to include suggestions and integrate results of the tests conducted regarding their reliability.

Data Gathering Procedure

The study was conducted in three phases. The first phase was a direct retrieval of initial sample data from the State Universities. This served as basis in determining the target samples in the study. The second phase involved the visits to the respondents which were made through the Dean of the College of Teacher Education. The third phase consisted of the interviews that focused on the processes of preparing, implementing/gathering, interpreting, and using results of the assessment. There were follow-up interviews conducted with the respondent's assessment practices employed in the assessing the skills (content and pedagogical) based from the questionnaire/checklist given to them.

The request letters for the permission to conduct one-on-one interview and floating of questionnaires were forwarded to the concerned authorities in the State Universities and Department of Education in the Region.

A. First Phase

Initial data were collected from the identified State Universities where the study was conducted. The data included the number of content faculty with teaching loads during the first semester, AY 2014-2015, the ratio of the student-teachers to cooperating mentors, and the student-teaching supervisors.

B. Second Phase

This phase has been undertaken to properly negotiate with the Dean of the College of Teacher Education the schedule of the interview and floating of questionnaire to the content faculty. Aside from the schedule, relevance of the study to the present scenario in mathematics education in the aspect of assessment was also presented.

C. Third Phase

It involved the administration of questionnaires to the respondents and interview. Questions in the interview were focused on the implementation of assessing the mathematics content skills (acquired during the preparation stage) and assessing the pedagogical skills (during the Off-campus experience) of the pre-service mathematics teachers in the College. The interview was divided into two: a) assessment practices, and b)assessment processes. On the assessment practices, the implementation of each practice was initially asked. General idea or concept of assessment from each respondent was then solicited. A video-camera was used to capture the interview. The interviews were transcribed for later analysis. English translations of interview transcripts in the vernacular/dialect were slightly modified in grammar and in sentence structure to present the respondents' thoughts and ideas in more coherent manner.

The ratings of the respondents were encoded in spreadsheets and analysed using SPSS v.21.

Treatment of Data

All quantitative data gathered were entered in SPSS for the data analysis. Descriptive statistics which include means, frequencies and percent, standard deviation, and ranks were used. Least significant difference (LSD) was used for post-hoc pair-wise comparisons. Statistical hypotheses were tested at

significance level of 5%.

The qualitative data were selected in congruence to the results of quantitative data analysis which were incorporated in the interpretation of findings. Also, responses in the interview were categorized according to the criteria of meta-evaluation.

RESULTS

1. Formative and Summative Assessment Practices and Processes

1.1. Content Faculty's Formative Assessment

Table 4 presents the assessment practices of the content faculty along formative assessment with the corresponding frequency and percent of each practice. Among the practices, conceptual class discussions or recitations, students' calculator and computer use, routine homework or drills, and student's use of manipulatives are the most common for formative assessment which were reported by nine (64.3%) to 12 (85.7%) of the content faculty. However, write up of projects, tests (prelim, midterms, finals), and critique papers are not being utilized. Very few (one out of 14 or 7.1%) of them required portfolio of student's works and factual standardized tests to determine learning progress.

Furthermore, practices such as open-ended responses, peer assessment, theoretical problem solving, group competitions, student's applications of mathematics, checklists of students' disposition/attitudes, interviews with students, textual teacher-made tests, procedural student exhibitions of work, student's self-assessments, teacher-made quiz (paper-pencil), ready-made test and student journals were reported to be practiced by only two (14.3%) to as many as eight (57.1%) of the content faculty.

In a triangulation conducted, conceptual class discussions or recitations, open-ended responses, students calculator and computer use, routine homework / drill / exercises, and student

Table 4:Formative Assessment Practices by Content Faculty and as revealed by Pre-professional math teachers of the State Universities(Multiple Response, n = 14)

Formative Assessment Practices	Content Faculty (n=14)		Pre-professional Math Teacher (n=57)	
	Freq	%	Freq	%
Checklist of students' disposition/attitudes	6	*42.9*	24	*42.1*
Conceptual class discussion/recitation	12	*85.7*	53	*93.0*
Critique Paper	0	*0*	4	*7.0*
Factual standardized tests	1	*7.1*	3	*5.3*
Group competition	7	*50.0*	32	*56.1*
Interviews with students	6	*42.9*	19	*33.3*
Open-ended responses	8	*57.1*	40	*70.2*
Peer Assessment (by the students' peers)	8	*57.1*	32	*56.1*
Portfolio of Student's work	1	*7.1*	7	*12.3*
Procedural student exhibition of work	5	*35.7*	20	*35.1*
Ready-made test(*no modification, directly lifted from Teacher's guide, book or internet*	4	*28.6*	24	*42.1*
Routine homework/drill/exercises	10	*71.4*	34	*59.6*
Student journals	2	*14.3*	4	*7.0*

Student use of manipulative	9	*64.3*	34	*59.6*
Student's application of mathematics	7	*50.0*	28	*49.1*
Students calculator and computer use	11	*78.6*	39	*68.4*
Student's self-assessment	5	*35.7*	24	*42.1*
Teacher-made-Quiz (paper-pencil)	5	*35.7*	24	*42.1*
Test(prelim, midterm, finals)	0	*0*	9	*15.8*
Textual teacher-made tests	6	*42.9*	11	*19.3*
Theoretical problem solving exploration	8	*57.1*	18	*31.6*
Write up of projects	0	*0*	4	*7*

use of manipulatives were reported by 34 to 53 (59.6% to 93%) of the Pre-service Mathematics Teachers which their Mathematics Professors were monitoring the student teachers' learning progress through group competitions, peer assessments, student's applications of mathematics, checklist of students disposition / attitudes, ready-made test (no modification, directly lifted from the teacher's guide, book or internet), student's self-assessment, teacher-made quiz, and procedural student exhibition of work. These were reported by 20 to 32 student teachers (35.1% to 56.1%): interviews with students, theoretical problem solving exploration, textual teacher-made tests, tests (prelim, midterm, finals), portfolios of student's work, critique papers, student journals, write up of projects, and factual standardized tests were practiced by Math Professors as revealed by 3 to 19 (5.3% to 33.3%) of the Pre-service math teachers.

1.2. Content Faculty's Summative Assessment

Table 5 shows the summative assessment practices by Content Faculty of the State Universities. The table reveals that the content faculty has administered tests (prelim, midterm, finals), teacher-made-quizzes (paper pencil), routine homework/drill/exercises, and write up of projects to summatively assess their students. These are the most common implemented practices reported by nine (64.3%) to 14 (100%) of the Mathematics faculty. The assessment practices being least frequently utilized are the student's use of manipulatives, peer assessments, conceptual class discussions or recitations and group competitions as revealed by only one (7.1%) to four (28.6%) of the content faculty respondents.

In addition to the practices for summative assessment, there were eight (57.1%) content faculty who were using student's self-assessment and theoretical problem solving exploration; seven (50%) were using factual standardized tests, portfolio of student's work, student's application of mathematics, textual teacher-made tests; six (42.9%) were using ready-made tests, critique paper, open-ended responses, and students calculator and computer use; 5 (35.7%) were using interviews with students, checklists of students' disposition/attitudes, procedural student exhibition of work, and student journals.

In the data obtained from the Pre-service math teachers, there were 45 to 53 (78.9% to 93%) of the Pre-service Math teachers who revealed that that (prelim, midterm, finals), portfolio, write up of projects, teacher-made-quiz (paper-pencil), and textual teacher-made tests were formative assessment practiced by their Mathematics content faculty.

Reported by 30 to 37 (58.6% to 64.9%) Student teachers, the Mathematics content faculty practiced theoretical problem solving, student's self-assessment, critique papers, interviews with students, peer assessment, students' application of

Mathematics, ready-made tests (no modification, directly lifted from the teacher's guide, book or internet),procedural student's exhibition of work, students'

Table 5:Summative Assessment Practices by Content Faculty and as revealed by the Pre-professional Math teachers of the State Universities(Multiple Response)

Assessment Practices	Content faculty (n=14)		Pre-professional Math teachers (n = 57)	
	Freq	%	Freq	%
Checklist of students' disposition/attitudes	5	*35.7*	17	*29.8*
Conceptual class discussion/recitation	3	*21.4*	10	*17.5*
Critique Paper	6	*42.9*	34	*59.6*
Factual standardized tests	7	*50.0*	30	*58.6*
Group competition	4	*28.6*	27	*47.4*
Interviews with students	5	*35.6*	33	*57.9*
Open-ended responses	6	*42.9*	24	*42.1*
Peer Assessment (by the students' peers)	3	*21.4*	33	*57.9*
Portfolio of Student's work	7	*50.0*	50	*87.7*
Procedural student exhibition of work	5	*35.7*	31	*54.4*
Ready-made test(*no modification, directly lifted from Teacher's guide, book or internet*	6	*42.9*	32	*56.1*
Routine homework/drill/exercises	9	*64.3*	29	*50.9*
Student journals	5	*35.7*	31	*54.4*
Student use of manipulative	1	*7.1*	21	*36.8*
Student's application of mathematics	7	*50.0*	33	*57.9*
Students calculator and computer use	6	*42.9*	26	*45.6*
Student's self-assessment	8	*57.1*	35	*61.4*
Teacher-made-Quiz (paper-pencil)	11	*78.6*	45	*78.9*
Test(prelim, midterm, finals)	14	*100*	53	*93.0*
Textual teacher-made tests	7	*50.0*	45	*78.9*
Theoretical problem solving exploration	8	*57.1*	37	*64.9*
Write up of projects	9	*64.3*	48	*84.2*

journals, and factual standardized tests as formative assessment.

Lastly, there were 10 to 29 student teachers (17.5% to 50.9%) who reported that their Mathematics content faculty practiced routine homework or drills or exercises, group competition, students' calculator and computer use, open-ended responses, students' use of manipulatives, checklists of students' disposition or attitudes and conceptual class discussions or recitation.

1.3. Student-Teaching Supervisor's (STS) Formative Assessment

Table 6 shows the assessment practices implemented by the STS in assessing the pedagogical skills of the pre-service math teachers during the Practicum period with the corresponding frequency and percent for formative assessment. Interview with the pre-service math teachers, the use of standard checklist for demonstration teaching, and post-conference of the Student teaching Supervisors with the Pre-service Math teachers are the three universal practices employed by all Student teaching Supervisor.

Table 6:Formative Assessment Practices by Student Teaching Supervisors (Multiple Response, n = 4)

Formative Assessment Practices	Freq	%
Formal Visit (informed)	1	*25.0*
Informal Visit (on-the spot, uninformed)	2	*50.0*
Interview	4	*100*
Peer assessment (Students' peer)	2	*50.0*
Portfolio	1	*25.0*
Self-assessment (by the student-teacher)	3	*75.0*
Student Journal reflection	3	*75.0*
Standard Checklist for demonstration teaching	4	*100*
Post-conference of Student-teaching Supervisor with		
• Student-teachers	4	*100*
• Cooperating Mentors/Teachers	3	*75.0*
• The Principal of Cooperating Schools	2	*50.0*
• The Dean of the College of Teacher Education	2	*50.0*
• Parents of Student-teacher	2	*50.0*

Practices such as self-assessment, student journal reflection and post-conference with the Cooperating Mentors were reported to be utilized by three (75%) Supervisors for formative assessment. Other practices like formal visit, informal visit, peer assessment, portfolio, and post-conferences with the principal of the cooperating schools, Dean of the Teacher Education Institution and Parents of the Pre-service Math Teachers were only revealed by one (25%) to two (50%) of the STS.

1.4.Student teaching Supervisor's (STS) Summative Assessment

Table 7 reveals the summative assessment practices by Student Teaching Supervisors to the Pre-service Math teachers. The final demonstration teaching is the highlight of the Practicum which is considered as a form of summative assessment.

It is seen from the table that formal visit, interview with the students, and post-conferences with the Student teachers, Cooperating mentors, Principal of the Cooperating Schools, and Dean of the College of Teacher Education have been reported by all Student Teaching Supervisors as ways to assess the readiness of the pre-service math teachers in joining the teaching force.

Practices such as portfolio, student journal reflection and standard checklist for demonstration teaching were utilized by three (75%) of the Supervisors. Informal visit, peer assessment, self-assessment, and post-conference with parents of the practice teachers were only reported by one (25%) to two (50%) of the STS.

In the summative assessment, a formal visit is done by all the Supervisors for the final demonstration teaching of the Practice teachers. Supervisors personally observe the teaching performance of their practice teachers.

Table 7:Summative Assessment Practices by Student Teaching Supervisors(Multiple Response, n = 4)

Summative Assessment Practices	Freq	%
Formal Visit (informed)	4	***100.0***
Informal Visit (on-the spot, uninformed)	2	***50.0***
Interview	4	***100.0***
Peer assessment (Students' peer)	1	***25.0***
Portfolio	3	***75.0***
Self-assessment (by the student-teacher)	2	***50.0***
Student Journal reflection	3	***75.0***
Standard Checklist for demonstration teaching	3	***75.0***
Post-conference of Student-teaching Supervisor with		
• Student-teachers	4	***100***
• Cooperating Mentors/Teachers	4	***100***
• The Principal of Cooperating Schools	4	***100***
• The Dean of the College of Teacher Education	4	***100***
• Parents of Student-teacher	2	***50.0***

1.5. Cooperating Mentor's Formative Assessment

Table 8 displays the assessment practices by cooperating mentors for formative assessments with the corresponding frequency and percent.

Of the 54 cooperating mentors, almost all (52 or 96.3%) have been conducting formal visit and 47 (87%) for post-conference with the Pre-service Math Teachers for formative assessment. Practices like informal visits, interviews, standard checklists for demonstration teaching and self-assessment were used by 30. (55.6%) to 42 (77.8%) of the Cooperating mentors. Other practices such as peer assessment, portfolio, student journal, and post- conferences with STS, Principal of the cooperating school, Dean of TEI, and parents of the Pre-service math teachers were only utilized by five (9.3%) to 25 (46.3%) of the Cooperating mentors. Formal visit and post-conference of Cooperating Mentors with the Student teachers have always been the formative assessment activities reported by most of the Mentors because of their presence inside the classroom during actual teaching by the latter. Mentors are required to stay with their Practice teachers throughout their actual teaching. In terms of a post-conference with the Student teachers, Mentors need to provide feedbacks to the Practice teachers regarding the observed strengths and weakness in the actual teaching. These functions are embedded in the guidelines for the deployment of Pre-service teachers (Dep Ed Order No. 3, s. 2007).

Table 8:Formative Assessment Practices by Cooperating Mentors (Multiple Response, n = 54)

Formative Assessment Practices	Freq	%
Formal Visit (informed)	52	***96.3***
Informal Visit (on-the spot, uninformed)	42	***77.8***
Interview	38	***70.4***

Peer assessment (Students' peer)	25	***46.3***
Portfolio	9	***16.7***
Self-assessment (by the student-teacher)	30	***55.6***
Student Journal reflection	13	***24.1***
Standard Checklist for demonstration teaching	37	***68.5***
Post-conference of Student-teaching Supervisor with		
• Student-teachers	47	***87***
• Student teaching Supervisor	12	***22.2***
• The Principal of Cooperating Schools	23	***42.6***
• The Dean of the College of Teacher Education	5	***9.3***
• Parents of Student-teacher	5	***9.3***

1.6. Cooperating Mentor's Summative Assessment

Table 9 shows the summative assessment practices by cooperating mentors with the frequency and percent of each practice. It appears in the table that the practices used by 38 (70.4%) to 39 (72.2%) Cooperating Mentors for summative assessment are formal visits, standard checklists for demonstration teaching, and post-conferences with the STS. About 26 (48.1%) to 35 (64.8%) mentors reported that they were using interview, portfolio, student journal reflection, post-conferences with practice teachers and principal of the cooperating schools. Practices such as informal visit, peer assessment, self-assessment, and post-conferences with the Dean of the TEI and parents of the student-teachers were only utilized by as many as 10 (18.4%) to 18 (33.3%) of the mentors.

Table 9:Summative Assessment Practices by Cooperating Mentors (Multiple Response, n = 54)

Assessment Practices	Freq	%
Formal Visit (informed)	38	*70.4*
Informal Visit (on-the spot, uninformed)	10	*18.4*
Interview	26	*48.1*
Peer assessment (Students' peer)	11	*20.4*
Portfolio	30	*55.6*
Self-assessment (by the student-teacher)	18	*33.3*
Student Journal reflection	29	*53.7*
Standard Checklist for demonstration teaching	39	*72.2*
Post-conference of Student-teaching Supervisor with		
• Student-teachers	35	*64.8*
• Student teaching Supervisor	38	*70.4*
• The Principal of Cooperating Schools	32	*59.3*
• The Dean of the College of Teacher Education	15	*27.8*
• Parents of Student-teacher	13	*24.1*

2. Extent of Content faculty, Student-teaching supervisor and Cooperating

Mentors in adopting practices for formative and summative assessment.

2.1.Extent of Implementation of Assessment Practices by Mathematics Content Faculty

Table 10 presents the extent of implementation of the assessment practices of Mathematics Content faculty. It includes the mean rating of implementation, standard deviation and corresponding qualitative description of each practice.

As regard extent of implementation of assessment practices, universal practice is

Table 10: Extent of Implementation of Assessment Practices by Content Faculty (Multiple Response,n = 14)

Assessment practices	M	SD	Qualitative Description
Checklist of students' disposition/attitudes	3.29	1.94	Moderate Practice
Conceptual class discussion/recitation	4.50	1.45	Very Common Practice
Critique Paper	2.14	1.61	Rare Practice
Factual standardized tests	2.86	2.03	Moderate Practice
Group competition	2.93	1.17	Moderate Practice
Interviews with students	3.36	1.87	Moderate Practice
Open-ended responses	3.71	1.54	Common Practice
Peer Assessment (by the students' peers)	2.93	1.50	Moderate Practice
Portfolio of Student's work	1.79	1.19	Not a Practice
Procedural student exhibition of work	2.50	1.56	Rare Practice
Ready-made test(*no modification, directly lifted from Teacher's guide, book or internet*	2.43	1.60	Rare Practice
Routine homework/drill/exercises	4.64	1.55	Very Common Practice
Student journals	2.08	1.44	Rare Practice
Student use of manipulative	2.93	1.49	Moderate Practice
Student's application of mathematics	3.57	2.03	Common Practice
Students calculator and computer use	3.57	1.91	Common Practice
Student's self-assessment	3.36	1.78	Moderate Practice
Teacher-made-Quiz (paper-pencil)	5.29	0.83	Universal Practice
Test(prelim, midterm, finals)	4.79	1.63	Very Common Practice
Textual teacher-made tests	3.86	1.88	Common Practice
Theoretical problem solving exploration	3.71	1.68	Common Practice
Write up of projects	2.36	1.34	Rare Practice

regarded as a practice which has always been implemented by the Mathematics Content Faculty in assessing the pedagogical skills of the Preservice teachers with computed mean rating

ranging 5.16 to 6.0; very common practice is most often practiced by the Content Faculty with computed mean rating ranging from 4.33 to 5.15; common practice is often practiced by the content faculty with computed mean rating from 3.5 to 4.32; moderate practice is a practice sometimes implemented by the content faculty with computed mean rating ranging from 2.66 to 3.49; rare practice is a practice seldom implemented by the Content Faculty with computed mean rating ranging from 1.83 to 2.65; lastly, not a practice is a practice which has never been implemented with computed mean rating ranging from 1.00 to 1.82.

Among the practices, the teacher-made quiz is considered universal among the Math Faculty as indicated by the Mean (X) of 5.29 with Standard Deviation (SD) 0.83. Prelim, Midterm & final tests, routine homework/drill/exercises and conceptual class discussion or recitation are very common practices with mean ratings of implementation from 4.5 (SD = 1.45) to 4.79 (SD = 1.63). The common practices being implemented are open-ended responses (X = 3.71, SD = 1.54), theoretical problem solving (X = 3.71, SD = 1.68), student's application of mathematics (X =3.57, SD = 2.03), and students calculator and computer use (X = 3.57, SD = 1.91).

2.1. Extent of Implementation of Assessment Practices by Student teaching Supervisors

Table 11 presents the extent of implementation of the assessment practices of Student teaching supervisors which includes the mean, standard deviation and corresponding qualitative description of each practice.

As regards extent of implementation of assessment practices, universal practice is regarded as a practice which has always been implemented by the Student teaching Supervisors in assessing the pedagogical skills of the Pre-service teachers with computed mean rating ranging 5.16 to 6.0; very common practice is most often practiced by the Student teaching Supervisors with computed mean rating ranging from 4.33 to 5.15; common practice is often practiced by the Supervisors with computed mean rating from 3.5 to 4.32; moderate practice is a practice sometimes implemented by the Supervisors with computed mean rating ranging from 2.66 to 3.49; rare practice is a practice seldom implemented by the Supervisors with computed mean rating ranging from 1.83 to 2.65; lastly, not a practice is a practice which has never been implemented with computed mean rating ranging from 1.00 to 1.82.

Table 11: Extent of Implementation of Assessment practices by Student Teaching Supervisor (Multiple Response, n = 4)

Assessment Practices	M	SD	Qualitative Description
Formal Visit (informed)	5.00	1.15	Very Common Practice
Informal Visit (on-the spot, uninformed)	2.75	1.5	Moderate Practice
Interview	4.75	.96	Very Common Practice
Peer assessment (Students' peer)	3.75	2.06	Common Practice
Portfolio	5.00	1.15	Very Common Practice
Self-assessment (by the student-teacher)	4.75	1.5	Very Common Practice
Student Journal reflection	5.25	1.5	Very Common Practice
Standard Checklist for demonstration teaching	6.00	.00	Universal Practice

Post-conference of Student-teaching Supervisor with			
• Student-teachers	6.00	.58	Universal Practice
• Cooperating Mentors/Teachers	4.50	1.29	Very Common Practice
• The Principal of Cooperating Schools	4.00	1.83	Common Practice
• The Dean of the College of Teacher Education	3.50	2.38	Common Practice
• Parents of Student-teacher	1.75	.96	Not a Practice

2.3. Extent of Implementation of Assessment Practices by Cooperating Mentors

Table 12 describes the extent of implementation of the assessment practices of Cooperating Mentors in which the mean, standard deviation and corresponding qualitative description of each practice are included.

As regards extent of implementation of assessment practices, universal practice is regarded as a practice which has always been implemented by the Cooperating Mentors in assessing the pedagogical skills of the Pre-service teachers with computed mean rating ranging 5.16 to 6.0; very common practice is most often practiced by the Mentors with computed mean rating ranging from 4.33 to 5.15; common practice is often practiced by the Mentors with computed mean rating from 3.5 to 4.32; moderate practice is a practice sometimes implemented by the Mentors with computed mean rating ranging from 2.66 to 3.49; rare practice is a practice seldom implemented by the Mentors with computed mean rating ranging from 1.83 to 2.65; lastly, not a practice is a practice which has never been implemented with computed mean rating ranging from 1.00 to 1.82.

Table 12: Extent of Implementation of Assessment Practices by Cooperating Mentors (Multiple Response, n = 54)

Assessment Practices	*M*	*SD*	*Qualitative Description*
Formal Visit (informed)	5.54	0.57	Universal Practice
Informal Visit (on-the spot, uninformed)	3.26	1.64	Moderate Practice
Interview	4.56	1.14	Very Common Practice
Peer assessment (Students' peer)	2.93	1.92	Moderate Practice
Portfolio	3.43	2.13	Moderate Practice
Self-assessment (by the student-teacher)	3.69	1.90	Common Practice
Student Journal reflection	3.24	2.08	Moderate Practice
Standard Checklist for demonstration teaching	4.80	1.80	Very Common Practice
Post-conference of Cooperating Mentor with			
• Student-teachers	5.30	0.94	Universal Practice
• Student teaching supervisor	3.78	2.00	Common Practice
• The Principal of Cooperating Schools	3.54	1.81	Common Practice
• The Dean of the College of Teacher Education	1.69	1.33	Not a Practice
• Parents of Student-teacher	1.52	1.30	Not a Practice

Based from the data, formal visit (X = 5.54, SD = 0.57) and post-conference with the student teachers (X = 5.3, SD = 0.94) are universally practiced by Mentors in assessing the pedagogical skills of the pre-service math teachers. Practices such as standard checklist for demonstration teaching (X = 4.8, SD = 1.8) and interview with students teachers (X = 4.56, SD = 1.14) are very common while self-assessment (X = 3.69, SD = 1.9) and post-conferences with STS (X = 3.78, SD = 2.0) and Principal of Cooperating Schools (X = 3.54, SD = 1.81) are common assessment practices among the Cooperating mentors.

Post-conferences with the a) Dean (X = 1.69, SD = 1.33) and b) Parents of Student teacher (X = 1.52, SD = 1.3) are not a practice by the Mentors. Others like portfolio (X =3.43, SD = 2.13), informal visit (X =3.26, SD = 1.64), student journal reflection (X = 3.24, SD = 2.08), and peer assessment (X =2.93, SD = 1.92) are practiced moderately.

3. Differences in the Extent of Implementation of Assessment Practices and Processes across assessment categories (formative and summative)

3.1. Mathematics Content faculty

Table 13 presents the results of paired sample t-test on the assessment practices across assessment categories practiced by the Mathematics Content Faculty. The table contains the mean, standard deviation, standard error of the means, t-test value, degree of freedom, level of significance at two-tailed test, then the remarks on its significance.

Table 13:Paired Samples Test on the Frequency of Assessment Categories by Mathematics Content Faculty (n = 14)

Assessment Practices	M	SD	Std. Error Mean	t	Df	Sig. (2-tailed)	Remarks
Checklist of students' disposition/attitudes	.071	.829	.221	.32	13	.752	Not Significant
Conceptual class discussion/recitation	.643	.633	.169	3.80	13	.002	Significant
Critique Paper	-.429	.514	.137	-3.12	13	.008	Significant
Factual standardized tests	-.429	.514	.137	-3.12	13	.008	Significant
Group competition	.214	.699	.187	1.15	13	.272	Not Significant
Interviews with students	.071	.829	.221	.32	13	.752	Not Significant
Open-ended responses	.143	.770	.206	.70	13	.500	Not Significant
Peer Assessment (by the students' peers)	.357	.842	.225	1.59	13	.136	Not Significant
Portfolio of Student's work	-.429	.514	.137	-3.12	13	.008	Significant
Procedural student exhibition of work	.000	.679	.182	.00	13	1.000	Not Significant

Ready-made test(*no modification, directly lifted from Teacher's guide, book or internet*	-.143	.663	.177	-.81	13	.435	Not Significant
Routine homework/drill/exercises	.071	.730	.195	.37	13	.720	Not Significant
Student journals	-.214	.699	.187	-1.15	13	.272	Not Significant
Student use of manipulative	.571	.646	.173	3.31	13	.006	Significant
Student's application of mathematics	.000	.679	.182	.00	13	1.000	Not Significant
Students calculator and computer use	.357	.497	.133	2.69	13	.019	Significant
Student's self-assessment	-.214	.699	.187	-1.15	13	.272	Not Significant
Teacher-made-Quiz (paper-pencil)	-.385	.870	.241	-1.59	12	.137	Not Significant
Test(prelim, midterm, finals)	The correlation and t cannot be computed because the standard error of the difference is 0.						
Textual teacher-made tests	-.071	.829	.221	-.32	13	.752	Not Significant
Theoretical problem solving exploration	.000	.784	.210	.00	13	1.000	Not Significant
Write up of projects	-.643	.497	.133	-4.84	13	.000	Significant

Based from the analyzed data, the assessment practices of the Mathematics Content Faculty across State Universities use conceptual class discussion, routine homework / drill / students' use of calculator and computer more significantly for formative purposes and they have used tests, teacher-made quiz, and write up of projects significantly more on summative purposes

3.2. Student teaching Supervisors

Table 14 presents the results of paired sample t-test on the assessment practices and processes across assessment categories practiced by the Student teaching Supervisors. The table contains the mean, standard deviation, standard error of the means, t-test value, degree of freedom, level of significance at two-tailed test, and the remarks on its significance.

Based from the analyzed data, the assessment practices and processes implemented by the Student teaching Supervisors in assessing the pedagogical skills of the Pre-service Math teachers are not significantly different. This implies that they have similar practice and processes being practiced. This may be attributed to the Handbook of Experiential Learning provided through the partnerships of the Department of Education and the Commission on Higher Education (Dep. Ed. Order, No. 3, s. 2007).

Table 14:Paired Samples Test on the Assessment Categories by Student teaching Supervisors

Assessment Practices	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)	Remarks
Formal Visit (informed)	-.750	.500	.250	-3.000	3	.058	Not Significant
Informal Visit (on-the spot, uninformed)	.000	.816	.408	.000	3	1.000	Not Significant
Interview	.250	.957	.479	.522	3	.638	Not Significant
Peer assessment (Students' peer)	The correlation and t cannot be computed because the standard error of the difference is 0.						
Portfolio	-.500	1.000	.500	-1.000	3	.391	Not Significant
Self-assessment (by the student-teacher)	.250	.957	.479	.522	3	.638	Not Significant
Student Journal reflection	.000	.816	.408	.000	3	1.000	Not Significant
Standard Checklist for demonstration teaching	.250	.500	.250	1.000	3	.391	Not Significant
Post-conference of STS with Student-teachers	The correlation and t cannot be computed because the standard error of the difference is 0.						
Post-conference of STS with Cooperating Mentors/Teachers	-.250	.500	.250	-1.000	3	.391	Not Significant
Post-conference of STS with the Principal of Cooperating Schools	-.500	.577	.289	-1.732	3	.182	Not Significant
Post-conference of STS with the Dean of the College of Teacher Education	-.500	.577	.289	-1.732	3	.182	Not Significant
Post-conferenceof STS with Parents of Student-teacher	.000	1.155	.577	.000	3	1.000	Not Significant

3.3. Cooperating Mentors

Table 15 presents the results of paired sample t-test on the assessment practices and processes across assessment categories practiced by the Cooperating Mentors. The table contains the mean, standard deviation, standard error of the means, t-test value, degree of freedom, level of significance at two-tailed test, then the remarks on its significance.

Based from the results of analysis, the Cooperating mentors across State Universities are significantly different with their practices on standard checklist for demonstrating teaching, post-conference of Cooperating mentors with Student teaching supervisors, and post-conference of Cooperating mentors with the Parents of student-teachers.

Table 15: Paired Samples Test on the Assessment Categories by Cooperating Mentors

Assessment Practices	Mean	SD	Std. error Mean	t	df	Sig.(2-tailed)	Remarks
Formal Visit (informed)	.29	.53	.07	4.04	55	.000	Not significant
Informal Visit (on-the spot, uninformed)	.61	.59	.08	7.66	55	.000	Not significant
Interview	.25	.86	.12	2.18	55	.034	Not significant
Peer assessment (Students' peer)	.25	.64	.09	2.93	55	.005	Not significant
Portfolio	-.36	.65	.09	-4.15	55	.000	Not significant
Self-assessment (by the student-teacher)	.25	.72	.10	2.60	55	.012	Not significant
Student Journal reflection	-.27	.67	.09	-2.97	55	.004	Not significant
Standard Checklist for demonstration teaching	-.02	.56	.07	-.24	55	.811	Significant
Post-conference of STS with Student-teachers	.25	.67	.09	2.80	55	.007	Not significant
Post-conference of STS with Cooperating Mentors/Teachers	-.43	.66	.09	-4.88	55	.000	Not significant
Post-conference of STS with the Principal of Cooperating Schools	-.13	.74	.10	-1.26	55	.212	Significant
Post-conference of STS with the Dean of the College of Teacher Education	-.18	.54	.07	-2.46	55	.017	Not significant
Post-conference of STS with Parents of Student-teacher	-.13	.51	.07	-1.85	55	.070	Significant

CONCLUSIONS

The Mathematics Content Faculty of the Colleges of Teacher Education in State Universities in Region 02 commonly determine the learning progress of the pre-professional math teachers through conceptual class discussion or recitations, calculator and computer application, routine homework and working with manipulatives. They use results from long exams, teacher- made quizzes, homework and project write-up for grading purposes.

The Student Teaching Supervisors and Cooperating mentors of the four State Universities in Region 02 always use the standard checklists for demonstration teaching in assessing the pedagogical skills of their Student teachers and the post-conference with the Student teachers as universal practices for formative assessment while conduct of formal visits, interviews with students and post-conferences with concerned individuals have also been regularly done for summative assessment.

Among the practices, the teacher-made quiz has been the universal assessment among the Mathematics content faculty in the Teacher Education Institutions of State Universities in Region 02.

The universal assessment practiced by the Student teaching Supervisors and Cooperating mentors is the conduct of post-conference with the Student teachers.

The assessments by Mathematics content faculty, Student-teaching supervisors, and Cooperating mentors are highly valuable in meeting the needs of intended users in the State Universities in Region 02. The assessment done with pre-professional math teachers are greatly dependable and valid in support of quality output

RECOMMENDATIONS

Mathematics content faculty, student teaching supervisors and cooperating mentors should employ alternative assessment in the mathematics classroom that have been proven to be efficient in assessing the Mathematical content and pedagogical skills of the Pre-service Math teachers.

Validation studies may be done on the specific assessment practices, to determine the actual conduct and nature of these assessment practices, especially the best ones, if not the unique ones. The qualitative data gathered in this study may be further sieved for this purpose.

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