Designing Authentic Assessments within Outcomes-based Teaching and Learning: Critical Reflections on Practice

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Abstract

Within the framework of Constructive Alignment in Outcomes-based Teaching and Learning (OBTL), we examined the connections between teaching practice and student outcomes in the implementation of authentic performance assessment in pre-service teacher education. Using the case study design, we described the interactions of teaching-learning and assessment in the implementation of an authentic assessment task based on a Five-Dimensional Framework. From the lens of critical reflections on teaching practice, we found that authentic assessment provided a holistic approach to classroom assessment where formative assessments are embedded within a summative performance task. Students found the activity a meaningful learning experience as they produced quality products and performances that relate to their future role as professional teachers. We conclude on the importance of authentic assessments in aligning teaching and assessment with student learning outcomes and recommend the use of organizing frameworks in both planning and reflection of teaching and assessment practices.

Keywords:

Authentic assessments, critical reflection, constructive alignment, five-dimensional framework, Outcomes-based teaching and learning

Introduction

Recent trends in higher education reforms globally have been characterized by expansion, diversity of programs and students, continuing advancement, rapid integration of new technology, greater internationalization and new modes of governance that emphasize quality and accountability (Tremblay, Lalancette, & Roseveare, 2012). Most of these reforms are geared towards closing gaps between well-meant educational intentions and student outcomes through more innovative teaching-learning systems and multi-dimensional, authentic forms of assessment. Assessment, as comprising the ways of gathering evidence of student learning, has long been recognized as a powerful tool in any educational reform (Lachat, 1999). Quality assessments provide valid and reliable inferences that serve to improve student

learning and to improve curriculum, instruction, and programs (Purzer, Fila, & Nataraja, 2016). Beck, Skinner, & Schwabrow (2013) further assert the need for a formal assessment process in higher education that includes self-assessment to serve the dual purpose of evaluation for providing credentials and for improving learning. Furthermore, as current trends in education reforms have shifted emphasis from educational inputs to student learning outcomes as bases for judging educational quality, the need to link assessment practices with convincing evidence on students' achievement of learning outcomes has been intensified (Hughes, 2013).

While assessment frameworks, guidelines and principles abound in education literature, there are many gaps and challenges in assessment practice (Norton, 2009). Traditional assessments, such as multiple-choice tests, continue to dominate practice as they may be more objective and efficient despite their shortcomings as indirect, decontextualized and isolated measures of performance from which teachers draw inferences about students' learning (Wiggins, 2014). On the other hand, the potentialities of alternative assessments, particularly on the use of authentic performance assessments for improving student outcomes, have been recognized in the literature (Beck, Skinner, & Schwabrow, 2013; Wiggins & McTighe, 2005), yet there are limited documentations of practice particularly in local contexts in the Philippines.

An examination of assessment practices in the context of 21st century higher education landscape also needs to consider the various purposes that assessment serves in the education process. Katz, Earl, & Olson (2001) claimed that classroom assessment serves competing purposes that are linked to contrasting notions of competence defined in terms of an individual's acquisition of knowledge or in terms of the subjective attributes of the learner. Traditionally, based on purpose, classroom assessments may be summative or formative. Summative assessments serve the purpose of evaluating and certifying student learning or proficiency through quantitative measures and grading at the end of a teaching unit or course while formative assessments comprise all forms of assessments which serve to help form or shape students' learning during the teaching-learning process (Trumball & Lash, 2013). Moreover, Boud and Falchikov (2006) extended traditional conceptions of summative and formative assessments and proposed the Sustainable Assessment Theory which is anchored on the premise that assessment needs to be brought into alignment with teaching and learning for the purpose of equipping students to assess their abilities to learn in a variety of contexts after schooling, that is, students become more active participants in assessing their own learning in order for them to develop the ability to be *sustainable assessors* of their own long-term learning skills (Beck, Skinner & Schwabrow, 2013).

In view of these different purposes of asssssment, Corcoran, Dershimer, and Tichenor (2004) presented an assessment ladder in the use of classroom assessments where teachers in Level 1 use alternative assessments as a summative measure at least once each grading period; teachers in Level 2 use several alternative assessment strategies that serve both formative and summative measures while teachers in Level 3 use a variety of alternative assessments that allow flexibility in their standard assessments by encouraging students to choose any medium through which they demonstrate their knowledge and skills. These various purposes of assessment are linked to the ultimate goal of student learning as described by Earl and Katz (2006) in terms of *assessment for learning, assessment as learning,* and *assessment of learning*. Summative assessments are considered *assessments of learning* while formative assessments are linked with the *assessment for learning* and *assessment as learning* (Department of Education, 2015). *Asssessment for learning* serves as an investigative tool for teachers to find out about what their students know and can do, and what difficulites, or gaps they might have as basis for providing feedback and making instructional decisions to promote learning while *assessment as learning* focuses on students and their capacity for self-assessment with the goal for students to develop metacognition with increasing independence (Earl & Katz, 2006; Stiggins & Chappuis, 2012) .

Table 1. Five Dimensions of Authentic Assessment in the Framework by Gulikers et al, 2004.

	Dimensions	Description
1)	Authentic assessment task	This is a meaningful, relevant task which requires the integration of knowledge, skills and attitudes which resembles the complexity of the professional task at student's educational level.
2)	Physical or virtual context	The context resembles realistic context and fidelity to professional practice. It includes description of the physical or virtual setting and resources needed including time allotted to perform the task.
3)	Social context	This describes the social processes in which the task will be carried out—whether through individual work or collaborative effort that reflects social interaction, positive dependency and individual accountability.
4)	Authentic assessment result or form,	This refers to the demonstration of competencies through performance of processes and /or creation and presentation of quality products or solutions to problems. These results or forms of assessment must comprise multiple indicators of learning in relation to the course intended learning outcomes.
5)	Authentic criteria	This refers to a set of standards or expectations upon which the authentic assessment results or forms will be evaluated to provide evidence of attainment of learning outcomes. They must be based on criteria used in real life encompassing relevant competencies for students' future professions.

Authentic Assessments: Design Features and a Framework for Implementation

Authentic assessments are special types of performance-based assessments which engage students in real world tasks, usually close to their future professional life. Gulikers, Bastiaens, and Kirsiehner (2004, p. 69) defined authentic assessment as "an assessment requiring students to use the same competencies, or combinations of knowledge, skills, and attitudes that they need to apply in the criterion situation in professional life." Authentic assessment focuses on "the development of real-world skills, active construction of creative responses, and the integration of a variety of skills into a holistic project that has an additional benefit of designing out opportunities for *plagiarism"* (Norton, 2009, p. 134). In higher education contexts, authentic assessments may provide increased instructional validity since authentic performance tasks are direct demonstrations of significant learning outcomes (Gulikers, Bastiaens, & Kirsiehner, 2004). Moreover, although authentic assessments are often associated with close to "real world" tasks that students are expected to do in their future professions, Wiggins (2014) clarified that the "real-world" task is slightly different as it requires students to deal with the messiness of real or simulated settings, purposes, and audience, such as asking students to do a micro teaching to an intended group of learners, prepare a financial report to an actual business enterprise, or design a housing project for informal settlers.

Burke (2005) contend that there are six distinguishing features of authentic assessment; namely: (1) meaningful performance task, (2) clear standards and criteria for excellence, (3) quality products and performances, (4) emphasis on metacognition and self-evaluation, (5) learning that transfers, and (6) positive interaction between assessor and assessee. As a guide to implementation, Gulikers et al (2004) presented a general framework that links authentic instruction, authentic assessment and authentic achievement, and a more specific five-dimensional (5D) framework for authentic assessment comprising the following: (1) authentic assessment task, (2) physical or virtual context, (3) social context, (4) assessment result or form, and (5) assessment criteria. The pertinent features for each of these five dimensions are summarized in Table 1.

Authentic assessment is also viewed as ongoing, intertwined process of teaching, learning and assessment, all happening at the same time (Puckett & Black 2000), cited in Azim & Khan (2012). In Pakistan, Azim and Khan (2012) used action research methodology to investigate the process of implementing authentic assessment using Gulikers' et al (2004) Five-dimensional Framework as a tool to enhance students' learning in a science classroom. They concluded that although authentic assessment is a complex and demanding process, their findings on how authentic assessment facilitates student learning highlight the vital role of assessment in educational reform.

The Role of Authentic Assessment in the Implementation of OBE in Philippine Higher Education

In Philippine context, as higher education institutions adopt Outcomes-based Education (OBE) in view of the Commission on Higher Education (CHED) Memorandum Order No. 46 which stipulates an outcomes-based and typology-based quality assurance mechanism for higher education (Commission on Higher Education, 2012), there is the need for HEIs to focus on students' attainment of desired learning outcomes. Outcomes-based Teaching and Learning (OBTL) is the version of OBE at the course level or at the level of classroom practice where *outcomes* are defined as the culminating demonstration of learning (Biggs & Tang, 2007). Within OBTL, the Constructive Alignment (CA) model, proposed by John Biggs in 1996, provides a framework for an outcomes-based approach to course design in which intended learning outcomes for students constitute the pivotal element through which pedagogy and assessment methods are designed to best achieve those outcomes. CA is based on the "twin principles of Constructivism in learning and alignment in the design of teaching and assessment" (Biggs & Tang, 2007, p. 52). Further, Wang, Su, Cheung, Wong, and Kwong (2013) regarded CA as an integrative concept to enhance the quality of teaching and learning through alignment of significant learning outcomes, meaningful and relevant teaching-learning activities and informative, authentic performance assessments tasks . The basic premise of CA is that teaching-learning-assessment is viewed as taking place in a whole system with emphasis on the alignment among these three components. At the course level, ILOs are defined as "statements, written from the students' perspective, indicating the level of understanding and performance they are expected to achieve as a result of engaging in the teaching and learning experience." (Biggs & Tang, 2007, p. 55).

Further, assessment theory and practice must be examined using the perspective of the *reflective practitioner*, that is, teachers examine their own beliefs about assessment and their influence to practice (Norton, 2009). While there is growing literature on the implementation of OBE in the Philippines (for example, Ramos (2015), Mangohig et al (2014), Reyes (2013), a search on articles from Philippine E-Journals website (https://ejournals.ph/index.php) revealed scarce literature on the implementation of authentic assessments and their connections to student outcomes, particularly in the context of the on-going educational reforms towards OBE in higher education. It is in this context that we use Liu's (2013) Critical Reflection model as a framework for transformative learning to examine and reflect on our practices in the design and implementation of authentic assessment within OBTL.

Purpose and Research Questions

This study aimed to examine and critically reflect on teaching practice and student outcomes in the design and implementation of authentic assessment within OBTL in the context of a pre-service teacher education Assessment course. In particular, we sought answers to the following questions:

1. How may authentic assessment be designed and implemented in an Assessment course for pre-service teachers using Constructive Alignment in OBTL?

2. What critical reflections on student and teacher learning are generated from these teaching-learning-assessment experiences in implementing authentic assessments

that may guide and improve teaching practice within OBTL?

Teaching an Assessment course poses a greater challenge for teacher educators as they model its principles and methods in one's own class. A critical reflection of teaching and assessment practices may provide insights towards closing gaps between intended and actual students' learning outcomes. Further, this paper seeks to contribute to the limited literature on implementing authentic assessments in Philippine higher education, particularly in pre-service teacher education.

Methodology

In this paper, we adopt an interpretivist research paradigm which posits that reality is socially constructed through the interaction of individuals where emphasis is on understanding and meanings given to the phenomenon being studied as opposed to explanation and generalization (Grix, 2004). In this context, the reality of the classroom as a teaching-learning-assessment environment is being interpreted as a social construction of teacher and students. In particular, we used the case study design as a strategy of inquiry in which we explored the reality of teaching-learning-assessment phenomenon as overlapping processes in the implementation of authentic assessment as experienced by groups of students in a class as a particular case bounded by time and activity (Creswell, 2013). The participants comprise a purposeful sample of 15 pre-service teacher education students enrolled in a second course in Assessment in a private sectarian university in Cebu City, Philippines. The class comprised 15 third year students taking Bachelor of Science in Education (BSEd) program with double majors in Biology-Chemistry, Physics-Chemistry, Physics-Mathematics and single major in Mathematics. These students were being prepared for secondary school teaching in Science or Mathematics within the K to 12 Basic Education program in the Philippines.

Sources of data include course syllabus, assessment plan and rubrics, students' works samples and reflection papers. Data analysis includes thematic analysis of students' work samples and reflection papers. In addition, we used Liu's (2013) model of Critical Reflection as a framework for transformative learning to examine the connections of teaching-assessment practice and student outcomes.

Results and Discussion

To answer the aforementioned research questions, we present a case depicting the class experience of 15 teacher education students (also called pre-service teachers) on designing and implementing authentic assessments in a second course on Assessment .

Designing an authentic assessment in an Assessment course for Pre-service Teachers

The experience of designing and implementing an authentic assessment activity for pre-service teachers began with an examination of the course intended learning outcomes as specified in the course syllabus. Anchored on OBTL, the main intended outcome of this second course on Assessment is that *teacher education students are able to plan, design, develop, use and evaluate various forms of alternative assessment in the teaching-learning cycle*. These assessment forms encompass performance-based assessments including authentic assessments, affective assessments, and portfolio assessment, along with the development of rubrics for assessing various types of products and performances. Bigg's (1996) Constructive alignment principles were applied to ensure the alignment of Intended Learning Outcomes (ILOs), Teaching –Learning Activities (TLAs) and Assessment Tasks (ATs) of this course. In line with the general course outcomes, as indicated in the course syllabus, the target ILO was stated as follows:

> *At the end of the teaching unit on Performance Assessment, students are able to plan and design an authentic assessment activity for a chosen unit lesson in their major field of specialization in line with the content and performance standards and learning competencies of the lesson as specified in the K to 12 science or*

Table 2. Designing Authentic Assessments using Guliker's et al (2004) Five-Dimensional Framework

Dimensions	An Authentic Assessment Project in Assessment of Student Learning 2
1) Assessment Task	Students acted as teachers to plan, design and demonstrate the implementation of an authentic assessment in line with a unit lesson of their choice within the *K to 12* secondary science/mathematics curriculum. The assessment task should reflect the assessment of a real life competency related to the performance standard of their chosen unit lesson.
2) Physical Context	Students primarily worked in the classroom in three phases with corresponding time frame: 1. Planning Phase – One class period was allotted for initial project conceptualization with teacher feedback. Subsequent planning continued beyond class hours for a period of three weeks, with regular teacher monitoring and continuing feedback on their progress during a dedicated class time. 2. Demonstration/Presentation Phase –. Each group was given 30 minutes to present their authentic assessment activity, with another 20-30 minutes of oral validation through questioning. 3. Evaluation Phase – This included provisions for teacher's feedback, and self and peer evaluation within each group. Resources used include the *K to 12* science/math curriculum guide, and other relevant resources related to their chosen unit lesson.
3) Social Context	Students worked in groups of 3 members in active collaboration and positive interdependence. The planning phase is done collaboratively by group. The written assessment plan is submitted as a group; however, each individual member had a task assignment in the demonstration/presentation phase. For the evaluation phase, students did individual self and peer evaluation in their group.
4) Assessment Results or Form	Students produced the following assessment outputs as evidence of learning outcomes: • A written Authentic Assessment Plan with teacher's guide on the implementation procedures, and rubrics and other assessment tools attached (by group) • Presentation/ demonstration on implementation of the task (by group) either through an actual enactment or through a video. • Completed group assessment worksheets which include peer and self assessment • An individual reflection paper on experiences gained from the activity as a mechanism for assessing metacognition
5) Assessment Criteria	The authentic assessment plan was evaluated through an analytic rubric with the following criteria: • Authenticity of performance task, connections of physical and social contexts to real world scenario (40%) • Quality of assessment results and form(30%) • Curricular alignment of assessment task and criteria with K to 12 content and performance standards of the chosen unit lesson (30%)

mathematics curriculum. (Assessment of Student Learning 2 course syllabus)

In OBTL framework, this ILO provided the basis for designing teaching-learning activities (TLAs) and the Assessment Tasks (ATs). The unit lesson started with an advanced reading assignment of an article entitled *Designing Authentic Assessments* by Schnitzer (1993). In class, students collaboratively developed a graphic organizer to summarize the steps in designing authentic assessments. Through the graphic organizer, teacher feedback and interactions with other students, the class gradually built their understanding of authentic assessment which was reinforced through a discussion of the article "*A Five Dimensional Framework For Authentic Assessment* by Gulikers, Bastiaens and Kirschner (2004). To assess whether

Table 3. Authentic Assessment Tasks Designed by Pre-service Teachers
in Line with the K to 12 Math /Science Curriculum

Group No. & Subject Area	Grade level - Learning Area and Chosen Unit Lesson	Target Performance Standard in the K to 12 Junior High School Curriculum	Authentic Assessment Task
1. Mathematics	Grade 7 - Geometry and Measurement Measurement of Plane and Solid Figures	The learners are able to create artistically models of plane and solid figures, formulate and solve with accuracy authentic problems involving geometric shapes and sizes.	Students create models of packaging design for boxes to a chocolate manufacturing company using the principles of Geometry involving shapes and sizes, and propose the most efficient packaging design given some constraints.
2. Mathematics	Grade 8 - Statistics and Probability Measures of Central Tendency and Variability	The learner is able to compute accurately measures of central tendency and measures of variability and apply these appropriately to data analysis and interpretation in fields such as research, business, education, science, technology, economics.	Students design a market survey where they collect data on product information and customer preferences, summarize data using appropriate measures of central tendency and variability to yield meaningful information.
3. Science	Grade 8 – Physics Newton's Laws of Motion	The learners shall be able to develop a written plan and implement a "Newton's Olympics"	Students work in teams to plan, organize, and implement a mini-Olympics where each team contribute one sport/game that shows applications of any one of Newton's Laws of Motion.
4- Science	Grade 10- Earth Science Plate Tectonics	Students demonstrate ways to ensure disaster preparedness during earthquakes, tsunamis, and volcanic eruptions. They suggest ways by which they contribute to government efforts in reducing damage due tectonic-related disasters.	Students develop a disaster preparedness package for any tectonic-related disasters which they will present to a local government unit as part of community disaster preparedness and damage reduction campaign.
5-Science	Grade 10- Matter (Chemistry) Chemical Reactions	Using any form of media, students present chemical reactions involved in biological and industrial processes affecting life and the environment.	Students apply their knowledge of chemical reactions to investigate and solve a crime in an industrial work setting using chemical tests in a laboratory. They present their investigation and proposed solution to an audience in a multimedia presentation.

students attained the target ILO, the assessment task consisted of a project on the design and presentation of students' own authentic assessment activity using the 5D Framework, as summarized in Table 2.

In this project, students took the role of professional teachers working collaboratively to plan and design an authentic performance task within a particular unit lesson in the *K to 12* secondary science or mathematics curriculum. The duration

of the entire activity was about six weeks. There were 5 groups of 3 students each group based on their areas of specialization. Within their respective groups, the students applied Guliker's et al (2004) 5D Framework as a guide in planning and designing their own authentic assessment task. On-going scaffolding support and formative feedback were provided during class sessions. Table 3 shows a summary of the authentic assessment tasks designed by each group in line with the performance standards of their chosen unit lesson within their field of specialization.

In modeling this form of assessment to prospective teachers, we were also guided by Burke's (2005) six distinguishing characteristics of authentic assessments, as follows:

Meaningful performance tasks. The task was deemed meaningful since designing assessments is one of the real task of a teacher. Students found meaning in what they do when they find it relevant to their future profession as teachers. This was evident in the students' reflection pages where one recurring theme is that students regard their assessment task as integral part of their future career as teachers. Excerpts from samples of students' reflection papers, as shown below, support this theme.

> *"I come to realize that being a good teacher does not only require good teaching skills but also good assessment skills."*

> *"The experience on designing authentic assessments makes me realize how it feels to be a student and at the same time as a teacher."* -

> *"In our authentic assessment task, I really felt the essence of being a teacher… I am introduced to one of the tasks that an effective teacher should do."*

> *"The authentic assessment making experience gave me a picture that the learning of my students is always the top priority. Designing authentic assessment is one of the exciting part of my future job as a teacher."*

Clear standards and criteria for excellence. The assessment criteria for evaluating student performance is the 5th dimension in Guliker's et al (2004) 5D Framework for Authentic Assessment. By using this framework, students were guided at the beginning of the activity on the criteria for which their group and individual outputs were evaluated. To ensure quality products and performances and fairness in grading, clear standards and criteria for excellence were presented to the students in the form of rubrics, checklists and peer and self-evaluation rating scales at the beginning of the activity where they have the opportunity to verify, comment or make suggestions. Burke (2005, p. 6) described rubrics as " guidelines that measure degrees of quality." These rubrics serve both purposes of formative and summative assessments. Students used the rubrics to reflect on their work for continuous improvement while the teacher used the rubric as basis for on-going feedback to enhance their work while in progress and to evaluate their work at the end of the activity. The same set of rubrics were used for self, peer and teacher evaluation. This practice conforms with the Sustainability Theory of Assessment where the purposes of formative and summative assessments are combined to provide students the opportunity to be critical and sustainable assessors of their own learning progress (Boud & Falchikov, 2006). The on-going teaching-learning activities in class embedded within the Authentic Assessment design also served both purposes of assessment *for* learning and assessment *as learning* (Earl & Katz, 2006).

Quality products and performances. Wiggins (2014) contended that authentic assessment tasks should focus on students' ability to produce a quality product or performance. Stiggins and Chappuis (2012) further asserted that clear communication is the key to high quality assessment. In this case, teacher expectations are communicated at the beginning of the assessment activity through the assessment plan guide using the 5D Framework along with the needed rubrics and scales that specify the criteria for evaluation. These provided students the impetus to produce quality work outputs that met pre-specified criteria and design features of authentic assessment. This is evident in some excerpts of students' reflection papers where a

Reflection: Planning and designing an AuthenticAssessment

I've never been an organized person. I don't plan what I do, I just do it. But now that I've done the assessment plan, I think I've realized its importance. Now that I've experienced doing the plan and have really done it, I realized that it makes work easier. I've done plans before but I always fail in following it. But with this assessment plan, I was able to really picture out what will happen during the planning stage until the implementation stage. In short, it makes your work organized, which, I think, should be one of the characteristic of a teacher and I would be one someday. It is already a given for teachers to have a lot of tasks. Before lessons start, we should already have the lesson plan and the assessment plan which means that a teacher is already "teaching" even before the actual class time because in both lesson and assessment plan, the arrangements of the topics and the precedence of lessons and instructions should be well placed and thought.

During the assessment plan making, I realized that the planning stage should be taken seriously and I'm glad that we did. The planning stage helped us have an outline or idea of what we're supposed to do first and what follows. By having a plan, we didn't have to get stuck everytime we finished something. We automatically knew what to do next, thanks to the plan.

After we were able to plan, we set it to motion. We proceeded with doing the parts of the 5 dimension format of the plan such as the task description, physical context, social context, assessment results, and criteria. It was pretty smooth because we already figured out during the planning stage what to put in each dimension and we have divided the task already. After doing everything, all that's left was the attachments such as the rubrics and the format of the plan that the "students" are supposed to pass. Everything we did after the planning went really smooth because I think we did the planning really well.

Figure 1. An Excerpt of a Reflection Page of a BSEd Physics –Chemistry student in Group 3

recurring theme is that "*It's the quality of assessment rather than quantity that matters most.*"

"*Making an authentic assessment plan demands too much of our time, but what matters is the quality of the assessment task… The bottom line here is that quality must prevail over quantity of assessments.*"

"*I will do my best to have a balanced set of traditional and authentic assessments. Even just one real good performance assessment for each quarter will do. Moreover, I will always treasure the power of formative assessment like oral questioning and quick feedback as we worked on our authentic assessment project.*"

Emphasis on metacognition and self-evaluation. Metacognitive awareness of student's thought processes and self-evaluation as manifested in the students' reflection papers and qualitative commentaries of their own work. During the activity, students reflected on their work as the teacher monitored their progress and provided constructive

feedback. At the end of the activity, students wrote a one to two-page reflection paper where they consciously reflect on their learning experiences. Most of them were able to identify the connections of their conceptualized assessment task to the development of real world skills and competency, such as planning, designing or organizing an event while aligning altogether with the curriculum standards. Figure 1 shows a screenshot of a student's reflection page which captures this phenomenon.

Learning that transfers. The transfer of learning is a key characteristic of authentic performance task where students' understanding of authentic assessment connects with real world scenarios which provide the context for the design of their own authentic assessment activity. The multiple forms of assessment results provide evidences that learning is operationalized through the design of their own assessment activity in line with the curriculum standards for the grade level that they may possibly teach in the future. In here the theme extracted from a sample of students' reflection papers is that " *Curricular connection is essential.*" This is evident in

the following excerpts.

> "*When it comes to authentic assessment, I should see to it that the activity is connected or aligned to a performance standard of the unit lesson.*"

> "*The experience has helped me to have concrete ideas on how to design authentic assessments that meet the content and performance standards of the curriculum.*"

> "*It is not just about engaging students in an activity. The performance task must be grounded on the science or math topic we are teaching.*"

These excerpts indicate that in the process of doing their own authentic assessment task, students are continuously learning the essence of authentic assessment and transferring that learning on their work outputs and performances. This phenomenon confirms with what Hogan (2007, p. 183) claimed that "an interesting feature of performance tasks is that they are usually interchangeable with ordinary instructional activities."

Positive interaction between assessor and assessee. Teacher-student and student-student interactions were also observed in the ongoing scaffolding and feedback support as the students were working on this project. In traditional conceptions of assessments, the teacher is the assessor while the student is the assessee. In this case, students play dual roles as assessors and assessee since students also did self and peer assessments of their own work outputs and level of performance, thus, they serves as assessors of their own work as well.

Evaluation of Students' Learning Outcomes and Grading

Within the framework of OBTL, grades should reflect the extent to which students achieve the intended learning outcomes. The authentic assessment project was basically a summative form of assessment and served as a major basis of the students' grade in the course; moreover, formative assessments were embedded in various forms of feedback to guide students in improving their work before they were graded. While performance

assessments such as this authentic assessment project may provide a more direct evidence of students' attainment of desired outcomes than written tests, we had to address issues on evaluating and scoring students' performance and products such as subjectivity and reliability, as well as issues on grading collaborative work on performance tasks.

In this case study, these issues addressed by taking a multidimensional assessment and evaluation of the students' group and individual performance from multiple sources including self and peer evaluation components aside from teacher evaluation. Hogan (2007) presented two options in dealing with grading group work. The first option is that all members of the group receive the same grade but obviously, the drawback is that some members of the group may have contributed little to the project. The second option is to assign grades individually which is usually difficult if the teacher does not have good information about the relative contributions of group members. In our case, we opted a combination of these two options. There is a single group grade for those assessment results that were done as a group but we also provided opportunities for individual demonstration of learning through presentations, oral questioning and a reflection page. To address the issues on subjectivity and poor reliability in evaluating performance tasks, we designed scoring methods that apply a combination of holistic and analytic scoring, and point systems as suggested by Hogan (2007). Further, we made the basis for grading explicit to the students in advance of their work, as well as basis for the differentiation.

Thus, to produce a grade for each student that reflects his/her degree of attainment of the learning outcomes, we designed and used the following assessment tools:

- Analytic rubric for evaluation of the group's assessment plan

- Analytic rubric for group coordination and individual presentations/demonstrations of their assessment plan

- 10-point holistic rubric for evaluating students' responses in oral questioning

Table 4. Evaluation and Grading Scheme for Students' Performance in the Authentic Assessment Project

	Assessment Results/ Forms	Criteria	Weight	Weighted Points
1)	Written assessment plan using the 5D Framework (group grade)	Authenticity of Task (AT)	40%	40
		Quality of Assessment Results (QAR)		
		Alignment to Curriculum Standards (ACS)		
2)	Demonstration/ Presentation of Assessment Plan	Consistency to the Plan (CP)	30%	30
		Group Coordination & Preparedness (GCP)		
		Individual Delivery (ID) Question and Answer (QA)		
3)	Evaluation of individual students' performance during Planning Phase (PP) & Demonstration Phase (DP)	Self-evaluation (SE)	10%	20
		Peer evaluation (PE)	10%	
4)	Metacognition /Reflection on the Learning Experience	Quality of reflections on the leaning experience (REFL PAPER)	10%	10
	Total Weighted Points			**100**

Transmuted Grade – based on a transmutation table with 3.0 (lowest passing grade) and 1.0 (highest possible grade) in the university grading system.

Evaluation and Grading of Authentic Assessment Plan Project

Group 1 (Math) Students	Teacher Evaluation (80%)												Self Evaluation (10%)			Peer Evaluation (10%)			Total Weighted Points	Final Grade
	WRITTEN ASSESSMENT PLAN (40%)					DEMONSTRATION /PRESENTATION (30%)						REFL PAPER (10%)	PP	DP	Mean	PP	DP	Mean		
	AT (30-40)	QAR (20-30)	ACS (20-30)	TOTAL 100	WP	CP (20-30)	GP (20-30)	ID (20-30)	QA 10	TOTAL 100	WP	10	10	10	10	10	10	10	100	
1. C. H. S.								30	10	94	28.2	10	9	10	9.5	10	10	10	94.5	1.2
2. E. B. D.	37	28	30	95	36.8	28	26	27	8	89	26.7	10	10	10	10	9	9	9	92.5	1.3
3. M. T. F.								26	6	86	25.8	9	8	9	8.5	9.5	8.5	9	89.1	1.4

Figure 2. Sample Group and Individual Student Evaluation and Grading of Authentic Assessment Project

- 10-point holistic rubric for assessing individual students' reflection paper

- 10-point rating scale for self and peer assessment

These different assessment tools were used to assess and evaluate the quality of the different assessment results or forms which reflect the components of a multidimensional evaluation of students' performance. Along with the criteria specified in these tools, weighted points were obtained for a total of 100 points. The evaluation and grading scheme is shown in Table 4 .

As a result of this evaluation scheme, there were individual variations of students performance within a group and the teacher comes up with an individual grade for each student. A sample of a student's grade calculation is shown in Figure 2. The grading process reflects multidimensional assessment and evaluation of a student's performance as a group member and as an individual learner. Student names were coded to protect their identity.

Summing up , this case describes the process of designing and implementing an authentic assessment project which integrates both formative assessment strategies to improve student outcomes and a summative measure for grading students' attainment of the outcomes. Since students were provided the flexibility to choose their topics and performance standards to guide them in designing the assessment tasks, several formative assessment strategies were used to provide students the needed feedback in the process, thus, depicting the case of a Level 3 teacher in the assessment ladder (Corcoran, Dershimer, & Tichenor, 2004). These formative assessments served both purposes of Assessment for Learning.

Critical Reflections on Student and Teacher Learning

As we examined our own teaching practice, we find that such reflections provide the springboard for improvement. As teacher educators, we realize the importance and challenges in modeling the assessment practices while teaching an Assessment

course for prospective teachers. Using the Liu's (2013) Critical Reflection model as a framework for transformative learning in teacher education, we critically examined these practices described earlier as basis in planning directions for future actions towards improvement.

Stage 1. Assumptions analyses

In the authentic assessment tasks we assigned to our students, we held the following assumptions: In teacher education, there is need for teacher educators to consciously model the assessment planning process by letting students experience it. The use of Guliker's et al (2004) five-dimensional framework for designing authentic assessment facilitated the planning process and shaped students' learning on the assessment design process. An analysis of these assumptions revealed that most groups tended to create their own authentic assessment plan similar in many ways with the teacher's own plan, particularly in the way rubrics were formatted. However, with the teacher's regular feedback, some groups were able to "think out of the box" and demonstrated more creativity in using the framework into their own contexts. One group even deviated by using the GRASPS Framework for designing performance assessment tasks by Wiggins & McTighe (2005). GRASPS is an acronym which stands for Goals, Role, Audience, Situation, Product or Performances, Standards and Criteria. This was allowed since although the teacher's plan used the 5D Framework, the task for the students allowed for flexibility in the use of models as organizing frameworks in planning for assessment. Thus, in operationalizing OBTL , there is need for greater flexibility in accommodating various means for demonstrating student outcomes.

Stage 2. Contextual awareness

Our assumptions were grounded on the contextual realities of preparing BSEd students for junior high school teaching. In requiring them to develop an authentic assessment plan for a junior high school class, we were aware that the degree of authenticity of the task may be lower since it intended for high school students who may not be able to fully visualize yet their future professional

careers. Moreover, the K to 12 Basic Education curriculum guides provided the content and context for these teacher education students' design and implementation of an authentic assessment task within their chosen unit lesson.

Stage 3. Imaginative speculation

At this stage of reflection, we ask the following questions:

How can we ensure individual accountability for students' demonstration of the intended outcomes of learning through their authentic performance assessment when they work as a group? Does group work closely resemble that authenticity of teaching practice than individual work? The results of self-and peer-assessments comprising quantitative rating in a 10-point scale along with some qualitative remarks provided some insights on how students assessed their own contribution and accountability towards the project's completion. Although we were aware that in actual teaching practice, teachers make their lesson and assessment plans individually, we held on to group work for efficiency in managing the monitoring and feedback process of students' work.

Stage 4. Reflective scepticism

Should the implementation of OBE be a top-down or bottoms-up approach? Since we started with the bottom at the level of classroom practice, will operationalizing OBTL at this level be futile undertaking if institutional and program outcomes are not in place? From a retrospective reflection of practice, the implementation of this authentic assessment activity provided the students the opportunity to apply what they learned about authentic assessments in planning and designing their own authentic assessment activity which are considered real life tasks in their future professional lives as teachers. Thus, operationalizing OBTL at the course level may not be a futile endeavor since students connect their learning outcomes with their future role as teachers.

Stage 5. Reflection-based actions

Designing and implementing authentic assessments take much of classroom time but we found that the time spent by students in doing the assessment

task was both a teaching opportunity and a learning experience for students. The implementation of the authentic assessment project provided us teachers the opportunity to model the use of formative assessments through continued feedback and scaffolding support, and through expanded learning opportunities for students over a period of six weeks before the project was due for submission, evaluation and grading. Looking back, students were driven by the formative feedback and scaffolding support to continually improve their work to achieve a level of proficiency based on the pre-specified criteria in the rubrics and other scoring tools.

Stage 6. Reflection on the Effect of Reflection-based Action

If we are true to constructive alignment principles in making OBTL more concrete at the level of classroom practice, then a constructivist pedagogy should have provided more expanded learning opportunities for students to learn and construct their own understanding of authentic assessments through their learning experiences and activities. By minimizing lecture and designing more innovative pedagogical approaches for learning beyond classroom time, such as by using technology-mediated blended learning approaches, we may promote deeper learning and impact on student's attainment of desired learning outcomes. In effect, the implementation of authentic assessment with OBTL framework drives the teacher to be more of a designer and facilitator of learning than a mere authority and transmitter of knowledge. This implies that in OBTL, teachers focus more on the learning experiences of the students rather than on their teaching activities.

Conclusion

This study sought to critically examine and reflect on teaching practice and student outcomes in the design and implementation of authentic assessment using Constructive Alignment principles within OBTL in pre-service teacher education. Requiring students to design authentic assessment tasks within an Assessment course for pre-service teachers may be deemed authentic as it closely resembles a teacher role in their future professional practice as a designer and facilitator of learning experiences. With the dearth of research on authentic assessments in local contexts, the findings of this case study may provide insights into the connections of teaching-learning and assessment practices with students' learning outcomes particularly in the context of pre-service teacher education where assessment is a vital component in the teaching-learning process upon which they are being prepared for their future roles as teachers.

This case study revealed two important findings. First, a reflective examination of teaching practice on designing and implementing an authentic assessment may bridge the gap between theoretical models on classroom assessments and the reality of the assessment process within the context of a course. Theoretically, there are various models and frameworks for implementing classroom assessments to guide practice, but there is limited evidence from classroom-based research on how these models work in different contexts. The design and implementation of authentic assessment using Guliker's et al (2004) Five Dimensional Framework, as illustrated in this case, has provided an integrated approach to apply formative assessment strategies within a summative performance assessment task that provides a major basis for grading students in the course. These findings also support Boud & Falchikov's (2006) Sustainable Assessment Theory which provides an approach to assessment complementing summative and formative assessment methods. The on-going teacher feedback in formative assessment during the planning and preparation phases of the project has provided students a constructive learning experience as they reflected on their work and improved their products and performances before these were finally evaluated for grading. After all, these various forms of assessments are directed towards student learning and development of certain competencies that prepare them for their future professional role as teachers. Within OBTL, the authentic assessment project described in this case provided more direct evidence of students' demonstration of intended learning outcomes of the course which students found meaningful and relevant.

Second, as teacher educators, the critical reflections on our own teaching practice in the pursuit of making OBE concrete at the level of courses we teach have provided us the opportunity to examine our own assumptions and beliefs that drive our teaching and assessment practices. Designing authentic assessment is a time-consuming and demanding process that requires specific assessment competencies on teachers. We conclude that in OBTL, authentic assessments play an important role in aligning teaching and assessment with student learning outcomes, particularly in higher education where students are being prepared towards specific future professions.

Recommendations

We recommend the use of organizing frameworks in both planning and reflection of teaching practice. The use of Gulikers et al (2004) Five Dimensional Framework for Authentic Assessment to guide teachers in planning and designing authentic assessments may facilitate the assessment design process. However, one limitation in the authentic assessment activity described in this case study is the constraint posed by availability of time and access to appropriate target learners (high school students). The teacher education students had to contend with a simulated demonstration of their designed authentic assessment tasks in a lesser degree of authenticity. One strength in the task design, however, is that students were able to connect their own performance task with the K to 12 curriculum and with some real life skills that they identified from the performance standards of their chosen unit lessons within their area of specialization in the BSEd program. Further, using Liu's Critical Reflection model offer some insights that may serve to guide continued professional and transformative learning among teachers and teacher educators.

Another limitation in this single case study is that it was done retrospectively through examination of students' work samples, course and assessment documents, including course syllabi and rubrics. We recommend that future research may be geared towards strengthening the connections between teachers' assessment practices and student outcomes through multiple cases and increased sources of supporting evidence including actual interviews with students while at task. Directions for future research in this area may include more encompassing methodologies that combine quantitative and qualitative evidences to support student learning outcomes.

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