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# Looking Through the Digital Portfolios of Teachers at Different Career Stages: Lessons and Reasons

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## Abstract

This study aimed to examine the individual digital portfolios of three classes of students in a Teacher Education Institution (TEI) in the Philippines to assess their knowledge, skills and other learnings gained from the assessment courses they enrolled in. They were at different stages in their teaching career, namely: pre-service teachers in an undergraduate assessment course; in-service teachers in a master's program in elementary education; and in-service teachers in a doctoral program in science education. They were all taught in a blended learning mode by one course professor within two school years. A thorough exploration of students' written journals and other contents of their digital portfolios showed the power of portfolio for assessment for, as, and of learning. However, a continuum of professional standards on assessment for teachers at different career stages is recommended for a more appropriate curriculum and assessment of their learning.

## Keywords:

Digital portfolio, portfolio assessment, teachers at different career stages

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## Introduction

The world is getting smaller as everything can be accessed and learned within one's reach through the help of technologies. Classes can be conducted not only in the usual physical classrooms where instruction is face-to-face but also through virtual learning where teacher-student interaction happens online. With the advent of advanced educational technologies, higher education institutions are heading towards flexible learning. Internationalization of education where institutions open their doors to faculty and students

across nations has also become a trend in the global educational community. Learning has then become more accessible for those with technological skills as this could happen even at home or can be facilitated by faculty in institutions of their choice within or outside their own country.

In the Philippines, the offering of courses online has become the direction of teachers and universities to prepare their graduates for gainful employment in this digital age. In the light of educational reforms and the growing population of learners, such modality in

delivering instruction is imperative. The integration of nations to be one community also demands a more flexible yet contextualized concept of learning. The Association of Southeast Asian Nation (ASEAN) Integration, outcomes-based education in higher learning, and the K to 12 Reform in basic education all demand for lifelong learning and 21<sup>st</sup> century skills. These educational reforms require teaching and assessment that are attuned to the emergence of educational technologies that are found effective in helping students learn.

As the National Center for Teacher Education in the Philippines, whose vision is to be nationally relevant and internationally recognized teacher education institution, the University created systems to help address the needs of teachers for the effective implementation of the educational reforms. One support system it has established is the creation of the College of Flexible Learning and e-PNU in 2013 to have a specific unit to explore ways on how to internationalize the offering of the University's curricular programs in a seamless and borderless learning community. Even before the organization of this college, individual faculty members have been encouraged to conduct classes online or in blended delivery.

Among those who took the initiative to conduct classes online are the researchers of this study. They have delivered their courses through blended learning, which combines both face-to-face and online learning. One of the researchers is into the field of Educational Research and Evaluation while the other is into Curriculum and Instruction. Being into these fields, they find it imperative to contribute in addressing the needs of teachers in strengthening their skills in assessing learning.

Having in mind the directions of the University and the need of the discipline where the researchers are teaching, a study on assessing their students who were pre-service and in-service teachers on their learned knowledge and skills in student assessment was thought of. Hence, this study that aimed to gauge what the students, who are teachers at different stages in their teaching career, have gained (lessons) from their assessment courses as demonstrated in

their digital portfolios, and what led them to these gains (reasons).

### **Targets for Student Assessments**

Three assessment courses have served as venue for the exploration of the possible targets for student assessment: 1) the undergraduate course called "*Assessment of Learning*" for the pre-service teachers; 2) the graduate course called "*Construction and Evaluation of Assessment Instruments*" taken by in-service teachers; and 3) the doctoral course called "*Measurement and Evaluation*" for more experienced in-service teachers. The intentions of the courses were classified into five learning or achievement targets such as knowledge, reasoning, skills, products, and disposition (Stiggins, 2001, p. 66 & McMillan, 2010, p. 28). According to Stiggins (2001, pp. 66-67), *knowledge* refers to mastery of substantive subject matter content which involves both knowing and understanding. *Reasoning* is the ability to use that knowledge and understanding to figure things out and to solve problems. *Performance skills* are competencies in doing something where process is important. *Products* are tangible or concrete evidences of academic proficiency. *Dispositions* are certain kinds of feelings, like attitude, interests, and motivational intentions. These targets should be aimed at when setting targets for instruction.

In the three courses examined, the *knowledge targets* refer to students' understanding of the concepts, theories, principles, policies, programs and competencies required when assessing learning. *Reasoning targets* require students to analyze and interpret assessment data or when they evaluate the validity and reliability of assessment tools. *Skills targets* require students to design and implement different assessment tools like using pen-and-paper tests, scales, and rubrics for performance-based and portfolio assessments. *Product targets* refer to the construction of different assessment tools like tests, rubrics and scales. *Disposition targets* are the intents of developing the students to be empowered or be a reflective practitioner, a research scholar, and an educational leader particularly when assessing students' learning.

One of these three courses delivered in blended form is a professional education course for pre-service teachers involving educational assessment. In a program for pre-service teachers that the Commission on Higher Education (CHED) has mandated all Teacher Education Institutions (TEIs) to implement beginning school year 2005-2006, this course is called “Assessment of Learning” with two courses required such that the first is focused on traditional assessment while the second focused on non-traditional assessment (CMO No.30 s.2004). In the same CHED-mandated curriculum, Information and Communications Technology (ICT) was also a required course for would-be teachers. In their attempt to address the demands for teachers who are competent on student assessment and use of ICT, they required their students to develop a digital learning portfolio that could demonstrate their knowledge, reasoning, skills, products and disposition developed in the courses they handled. The use of students’ digital portfolios was a venue to gauge learning targets that the students can demonstrate in addition to what the pen-and-paper assessment (i.e. Final Examination) and performance-based assessment (i.e. oral presentations) could evidently show.

### **Teacher Needed Competencies on Student Assessment**

For students trained to become teachers or those who are already teaching, assessment of learning is one area they should be competent in. According to the American Federation of Teachers (AFT), the National Education Association (NEA), and the National Council on Measurement in Education (NCME) (as cited by Plake & Impara, 1997; Balagtas, Dacanay, Dizon, & Duque, 2010), there are seven competency areas on student assessment for teachers: 1) choosing assessment methods appropriate for instructional decisions; 2) developing assessment methods appropriate for instructional decisions; 3) administering, scoring, and interpreting the results of both externally produced and teacher-produced assessment methods; 4) using assessment results when making decisions about individual students, planning instruction, developing curriculum, and improving schools; 5) developing valid pupil grading

procedures; 6) communicating assessment results to students, parents, other lay audiences, and other educators; and 7) recognizing unethical, illegal, and other inappropriate methods and uses of assessment information.

In the study of Balagtas et al. (2010), that assesses literacy on student assessment, the pre-service and in-service teachers who were assessed from a teacher education institution were found to be weak in 5 to 6 among 7 areas of assessment competencies. They were found weak in competency 3,4, 5, 6, and 7. They have a good grasp on competency 1 and 2. For those who graduated without units in education but are teaching, they are found weak in all competency areas. Their study revealed the need to strengthen teachers’ competence on student assessment. This result is supported in the study of the Philippine National Research Center for Teacher Quality or RCTQ (2014, p. 25) in its Teacher Development Needs Study, where assessment of learning was identified as one of the weakest competency areas of teachers, therefore a priority area for teachers’ continuing professional development program.

In the Philippines, Magno (2013, p. 44) explained that the assessment standards for teachers are incorporated in the National Competency-based Teacher Standards (NCBTS) particularly in the domain on Planning, Assessing, and Reporting. On the contrary, Ballada (2013, p. 13) argued that the domain on assessment in the NCBTS does not provide specific competencies that teachers must possess in performing assessment-related activities. In 2017, however, NCBTS has been replaced with the adoption of DepEd of the Philippine Professional Standards for Teachers (PPST) that has been developed through RCTQ. The PPST has highlighted in its domain on Assessment and Reporting the need for teachers to be familiar with a variety of assessment tools and strategies in monitoring, evaluating, documenting, and reporting learners’ needs, progress and achievement (Department of Education, 2017, p. 18). In the DepEd Order no. 47, s. 2017, the PPST is recognized as the basis for the continuing professional development and advancement of teachers. Hence, the competency standards on Assessment and Reporting, which is a

component of PPST, must be developed by teacher educators in the teacher education programs. This imperative for the development of teachers guided by the PPST including the need for them to be equipped with competencies on student assessment is supported in CHED's Policies, Standards and Guidelines (PSGs) for the different teacher education programs for early childhood, elementary, and secondary school teachers (CHED Memo No. 74 to 76, s.2017).

### **Portfolios in Teacher Education**

One approach in assessing students' learning is through their portfolios. According to Schipper and Rossi (1997, p. 5), portfolio is a purposeful collection of student work that exhibits processes, strategies, progress, achievement, and effort over time. Each entry in the portfolio includes a student self-assessment reflection that is based on specific criteria. Purves, Quattrini, and Sullivan (1995) (as cited in Burke, 1999, p. 61) describe a portfolio as an amplified resume as it seeks to show the person off to the world. According to Chatterji (2003, pp. 215-233), one of the performance assessment methods is portfolio-based assessment, which requires collection of student work or behavior samples that are systematically gathered to serve many different educational purposes, namely: 1) to provide an evidence of a student's best work; 2) to document change or growth over time in particular areas; 3) to measure both the processes and products of learning; and 4) to involve the student in the assessment process through self-reflection, selection of portfolio items, self-assessment and other metacognitive assessments.

The process of assessing students through their portfolios is called portfolio assessment. Portfolio assessment is a purposeful, ongoing, dynamic, and collaborative process of gathering multiple indicators of the learners' growth and development (Balagtas & Dacanay, 2013, p. 147). To Stiggins (2001, p. 471), portfolio assessment is a combination of multiple assessments that underpin and give meaning to a message. According to McMillan (1997, p. 236) portfolios are ideal in assessing products, skills and reasoning targets.

In teacher education in the Philippines, the use of portfolios is one of the alternative assessments that would-be teachers are trained on when they are introduced to a professional education course called "Assessment of Learning 2", one of the two assessment courses required in the teacher education programs set in the CHED Memorandum Order No. 74 to 76, series of 2017.

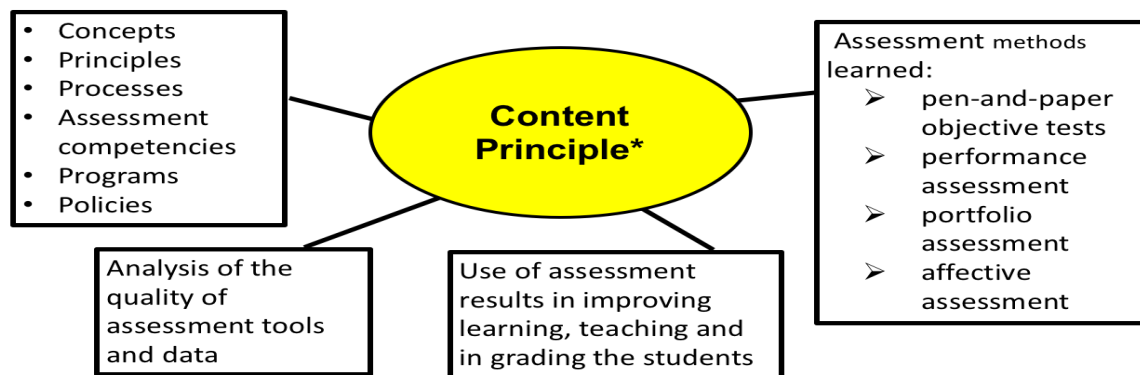
### **Purposes of the Research**

In cognizance of these needs of teachers to gain competence in assessing learning and the power of portfolios to demonstrate what students have learned, this study was conceived to answer the following questions: 1) What knowledge and skills the students at different teaching career stages have gained in their assessment course as demonstrated in their digital learning portfolios (lessons)? and 2) How had their course helped them gain competence on student assessment (reasons)?

### **Methodology**

The research method is qualitative which involves examination of students' digital portfolios showing both the process and product of learning in an educational assessment course. The digital portfolios refer to students' collection of works packaged in a CD or sent online. Some of the students also created their own website for their digital portfolios but the ones analyzed in this study were those submitted to the course professor in a CD format. The research does not include learnings gained revealed in other approaches in assessing learning like results of pen-and-paper tests and one-time performance-based assessments, which are other sources of student marks or grades from the course.

The digital portfolios gathered and analyzed were developed by students who are at different stages of their teaching career (undergraduate, master's, and doctoral levels). They were all handled by the same course professor and were enrolled in education programs in a premier teacher education institution in the Philippines. The courses were delivered through blended format in two school years. The students



\* The Mathematical Sciences Education Board and National Research Council (1993)

**Figure 1. Content Learned in Assessment Courses**

were already given marks at the time their digital portfolios were analyzed for the purposes set by this study. The first group of portfolios analyzed belonged to fifteen non-education professionals who took up an undergraduate assessment course that could qualify them to take the Licensure Examination for Teachers (LET) that every professional teacher in the Philippines should have passed. The second group of digital portfolios examined belonged to eight in-service teachers who took up an assessment course in a master’s degree program in education. Seven in-service teachers who took up also an assessment course in a doctorate degree in education developed the third group of portfolios examined in this study.

All the data in teachers’ digital portfolios were explored to include the assessment tools that they developed and the processes the students went through in developing them. The digital portfolios also contain students’ reflections for the topics discussed in the class and the learning experiences they have been provided with by their teacher. Analysis focused on the process of learning (i.e. reasons) that they went through and the product (i.e. lessons) of their learning. To ensure reliability of data, the two researchers explored the portfolios independently after which they compared their observations based on the stated purpose of this study. Data were analyzed qualitatively through themes generation for detailed observations.

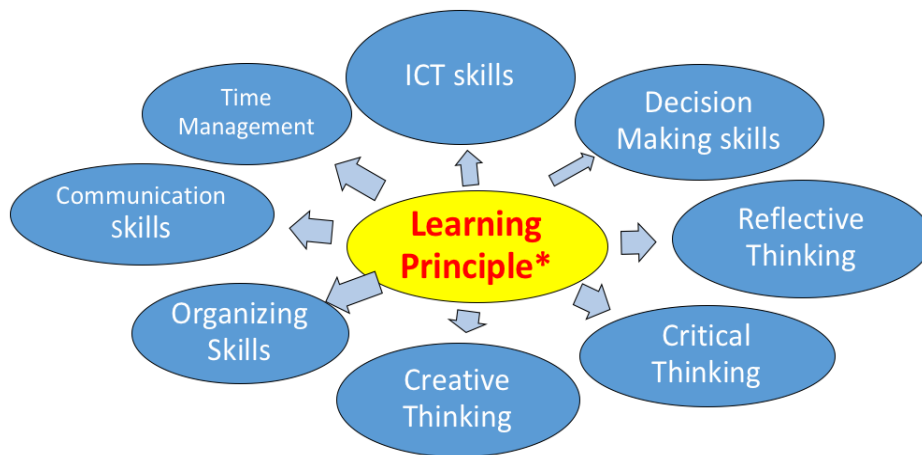
## Results and Discussion

### Lessons Learned as Gauged Through Students’ Digital Portfolios

In describing what the teachers at different career stages have learned from the process and product of portfolio assessment, the three fundamental principles that form as foundation of all educational assessments were used. The Mathematical Sciences Education Board and National Research Council (1993, p.1) named these three as content, learning and equity principles.

**Content Principle.** As Balagtas and Dacanay (2013, p. 147) explained, portfolios should reflect the subject matter that is important for the students to learn. In examining the students’ portfolios, it was evident that everything in the portfolio was related to the course they took. The portfolio entries enabled the students to learn the concepts, principles, processes, and assessment competencies that teachers should be equipped with. They learned the different methods of assessment like the pen-and paper tests, performance-based assessment, portfolio assessment, affective assessment, and how they are used in improving teaching and learning (See Figure 1).

One graduate student quoted in her reflection an idea about assessment, which she believes is significant. She quoted an idea that says “*The important question is not how assessment is defined but whether assessment information is used...*” Since in the class,



\* The Mathematical Sciences Education Board and National Research Council (1993)

**Figure 2. 21<sup>st</sup> Century Skills Learned in the Assessment Courses Gauged Through Students' Digital Portfolios**

basic concepts about assessment were introduced and their use in the classroom was explained, the quotation indicates that definitions are better understood if defined according to how they are actually used. Such idea again explains the value of the course content as it enables the students to understand concepts as to how they are actually used in the way teachers do their function when assessing learning.

A pre-service teacher also wrote in the journal found in her portfolio about her understanding on the principles of assessment. She said:

*I believe that assessing the learning and the learner should be done accurately with the assessor knowledgeable and skilled in getting a valid result. The result should inform what is needed to improve instruction and how the weaknesses of the learners should be addressed.*

Such reflection shows that the student understands the important role assessment plays in improving learning and instruction. A doctoral student critically reflected on the competency standards in assessing learning and said:

*I strongly agree to the different standards stated in the article discussed in class. If these competencies are possessed by each*

*teacher in the field, assessment would serve well its purpose. I believe in the saying "Expectation vs. Reality" because what I learned in school is not what I see most teachers do in the workplace. The bad thing is, if they do what is right, they do this just for the sake of compliance.*

Such statement shows the belief that assessment competencies are ideal for teachers to possess but are difficult to put into practice. Students also showed understanding of different assessment methods to include pen-and-paper objective tests, performance assessment, affective assessment, and portfolio assessment. They also learned to analyze the quality of assessment tools and the data collected through them. Likewise, they learned how to use the assessment results in improving learning and teaching and in grading the students.

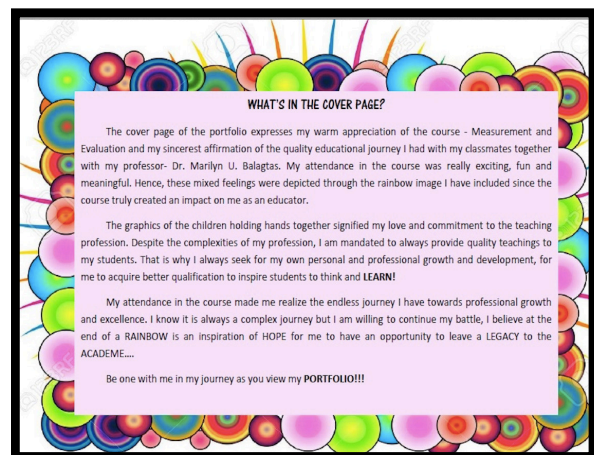
*Learning Principle.* Balagtas and Dacanay (2013, p. 148) suggest that portfolios should enable the students to become active and thoughtful learners. An exploration of the students' portfolios showed that students learned a lot of lifelong and 21<sup>st</sup> century skills that were not explicitly targeted by the course but demonstrated in students' portfolios (Figure 2).

a. *Communication Skills.* Students' ability to communicate their ideas

in writing was evidenced by their written reflections of their learnings gained in the course. In the students' portfolios, there were at least four written reflections made by the students on four different topics. This was true across courses. The rubric in rating their journals, which was the same across courses, has trained them to be careful in their written reflections as accuracy, which was referring to correct grammar, spelling and use of punctuation marks, was a criterion in the evaluation of work. The journal rubric also sets a criterion that ideas should be communicated clearly.

- b. *Organizing Skills.* Students' organizing skills can be seen in the way they organized the whole portfolio. The portfolio rubric explains that one of the criteria in evaluating the packaging of the portfolio is organization. The students were able to demonstrate their ability to organize as the portfolio rubric sets this as a criterion for high rating, where they have to package their work to meet the following indicators: digital portfolio a) has table of contents; b) uses codes (e.g. number or color codes) for easy location of entries; c) has all entries that are properly labeled; and d) has all entries that are logically, chronologically or thematically arranged, or arranged according to type, time when completed, or degree of importance. Organization was also manifested in the way they organized their ideas in their reflective journal.
- c. *Creative Thinking.* Students' creative thinking was manifested

in three aspects of the portfolio: their portfolio cover; the way the portfolio entries were presented; and in the presentation of their reflective journals. The portfolio rubric sets some criteria that could allow development of creative thinking. For example, in packaging the portfolio, they were encouraged to have its cover attractive, unique and with explanation of the concept behind its design (*See Exhibit 1*). The layout of entries has to be artistically displayed and if there were graphics, they should be appropriate to the content. Creativity was also manifested in their reflective journals. One of the criteria in the journal rubric is that the layout or writing style should be unique/creative/attractive which were explained as: a) having relevant graphics with explanations of their inclusion; b) having some sayings that are related to the topic; or c) the presentation of ideas maybe through poems, songs, or anything that is not purely narrative.



*Exhibit 1: Sample Explanation of a Portfolio Cover*

- d. *Critical Thinking.* Students' critical thinking was manifested in their redesigned course syllabus and rubrics, self and peer evaluation,

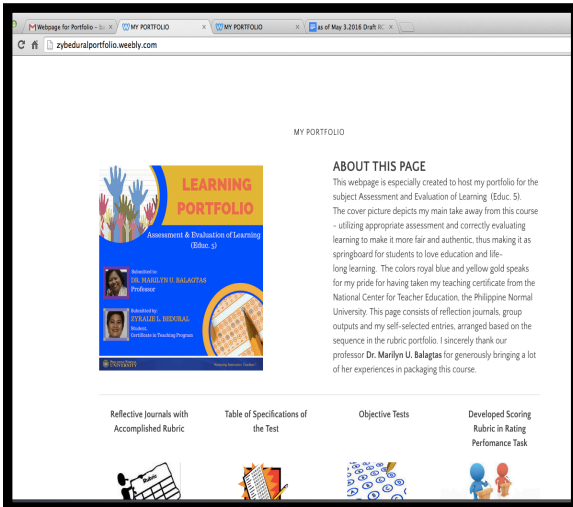
and reflective journals. The students have been given opportunities to demonstrate critical thinking when they were given a chance to review and suggest improvements in the course content, their learning experiences, and assessment process. Their suggested improvements were documented in an improved course syllabus which the students helped finalize before the course has been implemented. Improvements were also shown in the rubrics developed and validated for use in the class. The students have also been critical in the way they assessed themselves and their peers as they were guided by the rubrics agreed in class as basis for evaluation. The journal writing allowed them to question their own practices and those of their teachers and colleagues when it comes to assessing students' learning.

- e. *Reflective Thinking.* The requirement for students to write reflective journals for the topics discussed in class served as venue for the development of students' reflective thinking. In the journal rubric which was also included in the portfolio, one of the criteria in rating the journals is the evidence of thoughtfulness which has the following indicators: a) focuses reflections on the lessons, activities or assignments presented in class; b) supports reflections with examples based on a personal account or real-life experiences; c) reveals feelings (negative or positive) towards the topic or work with explanation; d) relates current insights with the past/present/future teaching job; and e) relates lessons learned with what

one already knows/to a real life situation.

- f. *Decision-making Skills.* Students' decision-making skills were evidenced by their self-selected entries and their choice if working alone or in groups in making their non-negotiable outputs. All courses allowed the students to choose at least two other entries to add into their portfolio provided that their chosen entries are related to the course and have reasons for their inclusion. For the non-negotiable outputs like the development of the assessment tools, the students were given the option to work individually or in groups in doing them. Their choice as to how they intend to work is a decision to make as this requires time and resources. Should students decide to work in groups, they need to do peer evaluation. Hence, the mark of the members of the group could differ depending on the their contribution in the work or on the peer evaluation results.
- g. *ICT skills.* Students' digitized portfolio, its entries and process of development, reflective journals and oral presentation materials have all been evidences of their acquired ICT skills. The portfolio presentation which is in digitized format as all entries have to be saved in a re-writable CD provides teachers of any age to learn the use of computers. The use of PowerPoint presentation with hyperlinks to allow viewing of outputs in one file provides the students the opportunity to learn how to interface PowerPoint with word documents, excel files, pictures, and videos. Some students





*Exhibit 2: A Sample Student Webpage Portfolio*

also learned to use a different format for presentation like “Prezi”. Others have learned to create their webpage portfolios (See sample in Exhibit 2). Some students also claimed to have learned to use some computer menus like the “review menu” and “track changes” where students could see corrections in their work or feedback given by the teacher. They were also trained to always cite properly ideas or information taken from the Internet. They get to use social network like “Facebook” and “email” to communicate with their groupmates and with their course professor.

*h. Time Management.* The students’ time management was developed as well as they were required to submit works at a specific time to get feedback from peer and teachers and to free them from cramming in completing the portfolio at the end of the course. They were also given deadlines for the presentation and final submission of their portfolios, which they learned to comply with to avoid getting deductions in

their grades as promptness in the submission of work was a criterion for grading.

*Equity Principle.* Balagtas and Dacanay (2013, p. 148) suggest that portfolios should allow the students to demonstrate their learning styles and multiple intelligences. An exploration of the portfolios suggests that this process of assessing learning is fair as everyone has the potential to succeed regardless of their background and learning styles. Some evidences in the portfolio that showed equity in the assessment of students’ learning are as follows:

- They can design their own portfolio in their own style as long as they are all contained in a CD format.
- They can work on their own outputs individually or in groups as long as the maximum grade of an individual in a group work is the grade of the group output.
- They can choose their own groupmates if they so decide to work in groups but they have to rate peers based on agreed-upon rubric.
- They can choose any grade level or subject area of their interest when developing assessment tools.
- They can submit outputs targeted to be accomplished at a certain time within the term to have time for feedbacking and resubmission or to just submit at the end of the term but may not allow resubmission.
- Everyone was provided a copy of the portfolio rubric at the time of course orientation and before the actual performance task for transparency of assessment criteria.
- Everyone has the chance to rate his/her own work and peer’s work using the same rubric that the teacher uses to evaluate one’s work.

**Table 1: Students' Outputs in their Assessment Courses**

<i>Outputs of Learning Activities</i>	<i>Undergraduate Program</i>	<i>Master's Program</i>	<i>Doctoral Program</i>
Reflective Journals	/	/	/
Table of Specifications (TOS)	/	/	/
Pen-and-Paper Test	/	/	/
Item Analysis	/	/	/
Performance-based Assessment	/	/	/
Tools (i.e. Rubric)			
Affective Instruments	/	/	/
Self-Selected Entries	/	/	/
Packaging of Portfolio	/	/	/
Critique of Assessments Tools Used in the Classroom and/or in Research Studies		/	/
Utilization of Evaluation Tools		/	/
Analysis of Assessment Data		/	/
Plan in Using Assessment Results		/	/
Literature, Studies, Policies and Programs Reviewed			/
Research Paper on the Utilization of the Assessment Tools			/

**Reasons for Lessons Learned as Gauged Through Students' Digital Portfolios**

Table 1 presents the outputs in varied learning activities that students have been exposed to in their assessment courses. Students' portfolios vividly reflect how they learned in the course.

Table 1 shows that the contents of the portfolio reflect all the activities in the course. Some similarities can be seen in the activities. For example, all portfolios require students to write reflective journals, construct table of specifications for a pen-and -paper test, the test itself, rubric for performance-based assessment, affective instrument, item analysis, try-out results, and self-selected entries. All portfolios examined include the portfolio rubric. It can be seen in the rubric that some portfolio entries were non-negotiable and others were self-selected. Further analysis of the rubric shows that students can resubmit outputs. Self, peer and teacher assessment were also practiced across

courses. The portfolio rubric includes guide in the interpretation of results. It has also two parts such as the portfolio packaging and the individual entries.

Some differences have also been observed in the portfolios given the stage the students are at. These differences include weights of entries, which could be due to the importance or difficulty of the outputs. The portfolio for the undergraduate course is the simplest and the entries are all found in the portfolios of the graduate and doctoral classes. The portfolio of the students in the master's level has four unique entries and these are: 1) critiqued assessment tools used in the classroom and/or in research studies; 2) utilization of evaluation tool; 3) analysis of assessment data; 4) plan in using assessment results. The portfolio of students who are in the doctoral level include students' reviewed literature and studies for every type of assessment and plans for the utilization of assessment tools. These differences in the content of the portfolios

also reflect the increasing competencies that the course intends to develop among teachers at different career stages. In the undergraduate, the course intends to develop their skills in the development and use of different assessment tools. The students in the master's level have a significant leverage over those in the undergraduate course as they were trained more on evaluating the quality of assessment tools that they have been using and those used by their colleagues in the classroom and in research studies. The doctoral level students have to develop different assessment tools and prove their effectiveness through their own use and with the support of reviewed literature and studies.

The examination of the journals in the portfolios also shows that indeed, portfolio assessment is a dynamic and a continuous process as the students' growth and development in their understanding of assessment of learning progresses as they are exposed to varied types of assessment. There was also an expression of appreciation of the experience in the actual construction of assessment tools, which led to an understanding for careful designing of assessment tools as this is a gauge of students' learning.

Students' digital portfolios have also been a venue to show the three purposes of assessment: assessment for, of and as learning. Balagtas and Dacanay (2013, p. 140) describe assessment for learning as an assessment before and during instruction. The giving of the portfolio and journal rubrics at the beginning of the course and allowing students to review them to have a picture of what is expected of them in the course illustrates what is meant by assessment for learning. Use of these portfolio and journal rubrics as guide of the students while preparing the portfolios and reflective journals is another illustration of assessment for learning. Balagtas and Dacanay (2013, p. 140) describe assessment of learning as an assessment after instruction. The presentation of the students' digital portfolios, which could be seen by the PowerPoint presentation that they prepared and the act of evaluating their over-all learning as gauged through their packaged work, illustrates how these portfolios have served as assessment of learning. Balagtas and Dacanay (2013, p. 140) further describe

that assessment as learning is done for students to understand and perform well their role in assessing for and of learning. This purpose of assessment has been manifested in the contents of the digital portfolios that the students at different teaching career stages have developed. The digital portfolio has become a tool in itself for self-monitoring of learning progress in understanding and gaining the skills on student assessment.

## **Conclusion and Recommendations**

This section summarizes the results of the study that aims to describe the knowledge and skills the students at different teaching career stages have gained in their assessment course as demonstrated in their digital learning portfolios (lessons) and how had their courses helped them gain competence on student assessment (reasons).

The examination of the individual digital portfolios of three classes of students at different teaching career stages in a Teacher Education Institution (TEI) in the Philippines to assess their knowledge, skills and other learnings gained from the assessment courses they enrolled in reveals the power and capabilities of digital portfolios as a tool and outcome of learning. The digital portfolios, in whatever course or level of learners they were required, have become a window to viewing the intents of the course that the students took and how they have been supported to attain their learning targets. Digital portfolios have become a process through which the students gain knowledge, understanding, skills, attitudes, and values on student assessment that their course expects them to develop. They have become the key to acquiring high order thinking and lifelong learning skills such as written communication, critical thinking, creative thinking, problem solving, decision making, reflective thinking and good time management. They have become the venue to the development of ICT skills of teachers across career stages. They have become a gauge of the success of the students in their learning and the effectiveness of the teacher as a facilitator of such learning.

As to how the course has developed the competencies on student assessment of the students at different teaching career stages, this has been through the actual development of their digital assessment portfolio. Actual development of digital portfolios in the assessment courses has been the venue for the students to practice assessment *for, of* and *as* learning. The students have been equipped with the skills in planning, developing and using different tools such as test, rubrics for performance-based and portfolio-based assessment and other tools for affective assessment. The actual process of using the assessment tools that they have developed for use before, during and after instruction has led them to gaining the strategies in maximizing the tools in assessing *for, as* and *of* learning. The critiquing of different assessment tools as shown in their outputs documented in their digital portfolios has strengthened their skill in the utilization, interpretation and communication of assessment results. Their actual development and use of digital portfolios have developed their reflective and research skills in finding better assessment tools and strategies in assessing students' learning.

Given all the benefits that the students have gained in their exposure to portfolio assessment, it is suggested that this approach to assessing learning be used particularly in teacher preparation and for their continuous professional development. More importantly, portfolio assessment should be used when training teachers on the competencies in assessing learning as this approach is a comprehensive and a meaningful way in documenting both the process and product of their learning.

Likewise, a thorough examination of the portfolio contents of the group of students at three different teaching career stages suggests the need for a continuum of learning outcomes informed by the professional standards for teachers. As explained by Darling-Hammond and Falk (1997, p. 53), basing assessment on standards promotes greater clarity about the content and performance that are valued and assessed. They further explained that standards-based assessment starts with learning goals and ends with performance standards, with descriptions of varying levels of achievement that allow students

to demonstrate a range of abilities from beginning competencies to distinguished performance. Hence, the use of portfolio assessment through the development of digital portfolios or ePortfolios is highly recommended for further study to find its usefulness in the continuing professional development programs of teachers. The PPST would then be a good reference when investigating the power of portfolios in developing the competencies of teachers on student assessment, which this study failed to do. The assessment courses should be used as venue to demonstrate use of digital portfolios in documenting the competency-based teacher standards that were met under the domain of Assessment and Reporting and the career stage they are at among beginning, proficient, highly proficient and distinguished teachers.

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