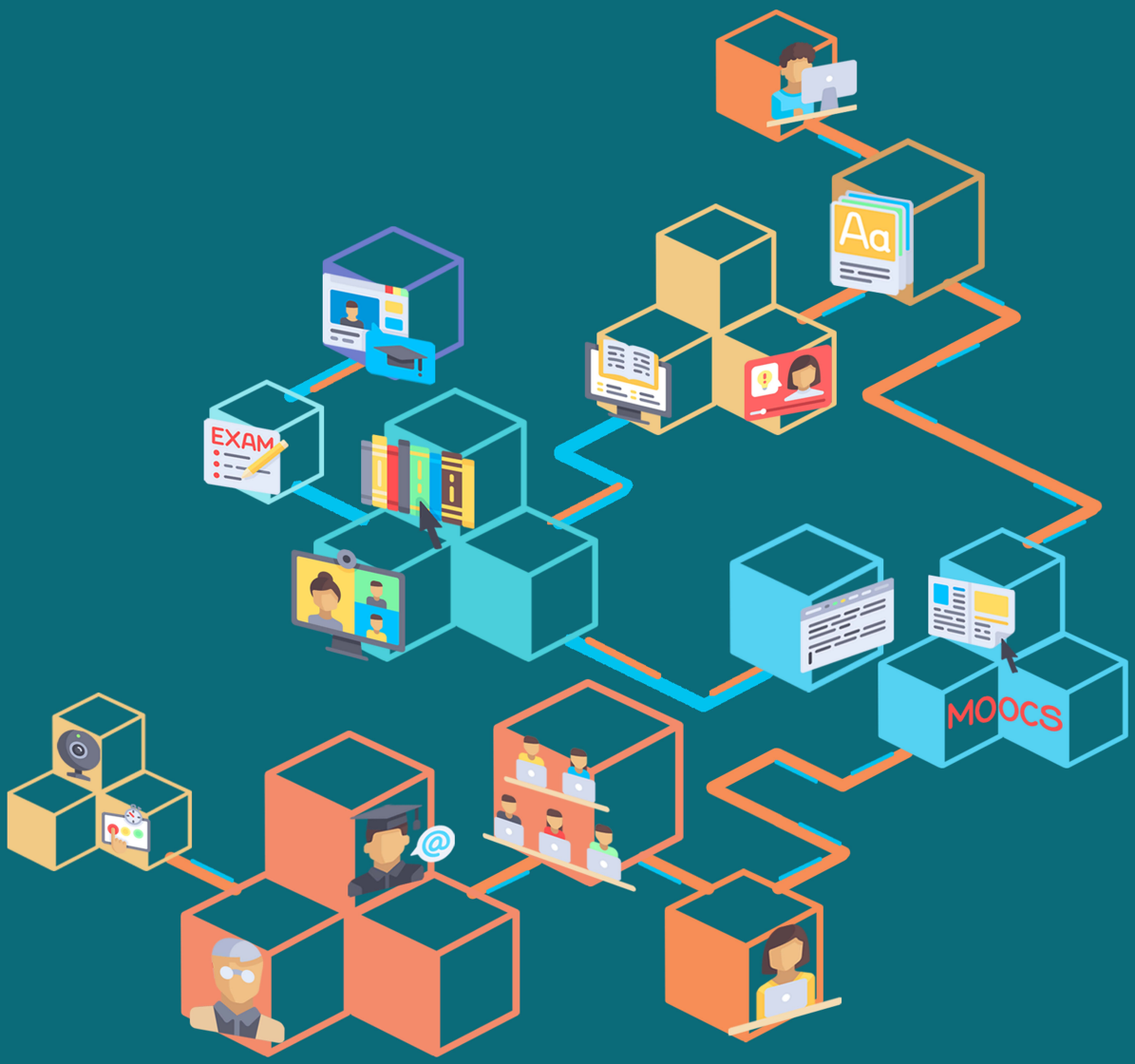
ASSESSMENT PRAXIS IN OPEN AND DISTANCE e-LEARNING:

THOUGHTS AND PRACTICES IN UPOU



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University of the Philippines
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FOREWORD

UP Open University's journey of more than 20 years is a story of development and transformation which are outcomes of initiatives and directives. The story also tells of the shift from the first generation Distance Education (DE) characterized by print and once-a-month face to face (F2F) tutorial sessions in a University Learning Center to the current full open and distance e-Learning (ODeL) generation. While these DE generations focus on the mode of delivering instructional content and learner support services, they also have an accompanying impact on how assessment should be carried out, strictly guided by the need to uphold the quality of education that the university delivers as well as the integrity of the assessment process and the degrees that we confer on our graduates.

While the nature of teaching and learning is a classic example of "no one-size-fits-all", and this includes how assessment is done in a course, good practices can still be shared and can serve as take-off points for further improvement of the practice. This book, which compiles the codified good practices on assessment by UP Open University faculty members, is a good initiative toward this end. Each narrative reflects the convergence of innovativeness, creativity, and expertise in the subject area by the author. This book is another testimony to UP Open University's continued quest for excellence in a context very much different from the usual and the conventional – the ODeL context. Likewise, the book is a testimony to the university's leadership as our practices can be the standard and the guide for others to consider.

I commend the chapter authors of this book who unselfishly shared their thoughts and practices in assessment strategies in ODeL. I also congratulate the book editors, Dr. Melinda F. Lumanta and Prof. Liza C. Carascal, and the publication team and staff of the Office of the Vice Chancellor for Academic Affairs for coming up with this book. Lastly, I would like to thank Dr. Ester B. Ogena and Dr. Li Kam Cheong, recognized experts in the field of education, assessment, and ODeL, who served as peer reviewers of the book. We hope that the insights the readers will get from this book will contribute to the enrichment of ODeL theory and practice.

Dr. Melinda dP Bandalaria
Chancellor, UP Open University

PREFACE

Assessment, in its various forms, is a vital component of learning that not only aids students' learning, but also monitors the effectiveness and efficiency of academic programs and institutional policies and practices. The complexity of an assessment system could be reflected in terms of product, process, and personnel embodied in a functional view of assessment often expressed as assessment of learning (AoL), assessment for learning (AfL), and assessment as learning (AaL).

As we cannot ignore the current challenges of learning - both learning for the future and learning in the future - the book's content reflects the thoughts and practices of UP Open University as an open and distance e-Learning (ODeL) institution. In varying ways and emphases, the selected articles included in this book articulate the need to address the realities of 21st century teaching and learning where assessment plays a vital role.

In this book we attempt to capture the assessment praxis of the UP Open University. Praxis, as differentiated from practice, is the dynamic interplay between thought and action involving a continuous process of understanding, interpretation, and application. In hopes of elucidating this, we organized the chapters into thoughts, practices, and institutional responses informed by the ODeL framework.

The article by Bonito gives an overview of current thinking in the assessment arena which includes authentic, formative, summative, and integrative assessment. It provides an organizing context within which ideas for assessment strategies for the future could be located. This is followed by articles which look into possibilities of employing assessment strategies at program and course levels. Flor focuses on third party and industry-based assessment, arguing that benefits such as greater relevance of curriculum and skills development could arise from involvement of the industry in the educational system. Cantada presents possibilities of using an intelligent tutoring system (ITS) in assessing, diagnosing, and monitoring thought processes of learners. In their article, Saludadez, Jeotee, Alfonso, and Lumanta propose an assessment system addressing quality, credibility, and scalability issues of a conceptualized assessment system for ODeL.

Following the thought papers are articles that are grounded in practice exemplifying assessment of learning, assessment for learning, and assessment as learning. Experiences of UP Open University faculties-in-charge (FIC) are presented as attempts at designing their systems of assessment appropriate to course objectives and mode of delivery. An e-portfolio approach is described by Librero as an appropriate assessment strategy for an online course. Likewise, the use of blogging as a tool for assessing students' understanding of concepts and engagement in reflective learning is discussed by Alip. The exploration of formative assessment as an approach to assessing online learners' performance is tackled by Oruga and Bagos as they profile International Health students in terms of learners' connected and separate knowing. With emphasis on sharing and co-creation of knowledge, Alfonso, Suarez, and Bundalian discuss peer assessment as an appropriate tool for an ODeL setting. Their chapter is followed by Flor, who highlights the importance of acknowledging learner diversity by noting various authentic assessment approaches that nurture higher order thinking and arguing that results, rather than scores, is of main priority. The use of indices in developing assessment tools for use in online classes is reflected in Habito and Ealdama's chapter. The article by Carascal raises concerns on delayed and impersonal assessment feedback and suggests that educators refocus attention on how and when feedback should be considered as quality formative assessment. Lastly, the chapter by Lumanta, Dolom, and Perez looks into an innovative way of assessing interaction among learners in an online colloquium course through the use of network analysis.

From articles that describe practices at course level, we shift to articles that describe the evolution and corresponding approaches to assessment systems at the level of the academic unit and at the institutional level. The chapter by Yambao and Lumanta gives a historical perspective of the different ways examinations, as form of summative assessment at UP Open University, was administered from print-based to online learning. At the Faculty level, the Online Examination System (OES) as conceptualized, piloted, and evaluated is presented by Serrano, Ramos, and Cabrera. Finally, a culminating chapter by Lumanta and Carascal suggests that assessment of technological affordances be integrated in a multi-level, multi-function quality assessment framework for ODeL.

This volume captures the assessment praxis of the UP Open University as gleaned from existing practices as well as from thought papers of its faculty, researchers, and academic and administrative leadership. The

book gives a glimpse of how a community of 21st century educators, immersed in ODeL, engage thought and practice to produce a unified, albeit continuously adapting, system of assessment in varied forms and functions carried out at different levels.

Melinda F. Lumanta
Liza C. Carascal
Editors

LIST OF ACRONYMS

A
AA - Associate in Arts
AA (in chapter 9) - Oral Authentic Assessment
AaL - assessment as learning
AAOU - Asian Association of Open Universities
AfL - assessment for learning
ALEKS - Assessment and Learning in Knowledge Spaces
AoL - assessment of learning
ASEAN - Association of Southeast Asian Nations
ATTLS - Attitudes Towards Thinking and Learning Survey
AUN - ASEAN University Network

B
BAMS - Bachelor of Arts in Multimedia Studies
BES - Bachelor of Educational Studies
BIO 260 - Advance Ecology
BKT - Bayesian Knowledge Tracing

C
CAT - computerized adaptive testing
CIC - coefficient of internal consistency
CK - Connected Knowing
CTAT - Cognitive Tutor Authoring Tools

D
DE - Distance Education
DEVC 202 - Development Communication Concepts and Approches
DI - discrimination index
DKT - Deep-Knowledge Tracing
DIH - Diploma in International Health

E
ECD - evidence-centered assessment design
EOES - Enhanced Online Exam System
ER - Error Ratio
ES - Examination Services

F
F - Facility index
FEd - Faculty of Education
FICS - Faculty of Information and Communication Studies
FIC - faculty-in-charge
FMDS - Faculty of Management and Development Studies
F2F - face to face

G
GIFT - Generalized Intelligent Framework for Tutoring
GPA - grade point average

H
HE - Higher education

I
ICAI - Intelligent Computer Aided Instruction
ICT - Information and communications technology
INTUITEL - Intelligent Tutoring Interface for Technology Enhanced Learning
ITS - Intelligent Tutoring Systems
IVLE - Integrated Virtual Learning Environment

K
K-12 - Kindergarten to grade twelve

L
LCs - Learning Centers
LCCs - Learning Center Coordinators
LMS - Learning Management System

M
M&E - monitoring and evaluation
MAS - Master of ASEAN Studies
MISO - Management Information System Office
MMS 100 - Introduction to Multimedia
MMS 173 - Photography in Multimedia
MMS 175 - Videography in Multimedia
MOOCs - Massive Open Online Courses
MOOC - massive open online course
MOODLE - Modular Object-Oriented Dynamic Learning Environment

N
N-CCR - threshold of consecutive correct responses
NFE - non-formal education

O
ODE - Ohio Department of Education
ODeL - Open and Distance e-Learning
ODL - Open and Distance Learning
OERs - Open Educational Resources
OES - Online Examination System
OVCAA - Office of the Vice Chancellor for Academic Affairs
OVCSSS - Office of the Vice Chancellor for Student Support Services

P
PLE - personal learning environment
PUP - Polytechnic University of the Philippines

Q
QA - Quality Assurance

R
R&D - Research and Development
REPS - Research, Extension and Professional Staff
RSP - Reflection Synthesis Piece

S
SK - Separate Knowing
SSPQ - Shortened Study Process Questionnaire
STOU - Sukhothai Thammatirat Open University

T
TLA - Total Learning Architecture
TMAs - Tutor Marked Assignments
TORs - transcript of records
TVET - technical vocational education and training

U

UNESCO - United Nations Educational, Scientific and Cultural Organization
UPOU - University of the Philippines Open University
UP - University of the Philippines
URL - Uniform Resource Locator
USA - United States of America

V

VLC - Virtual Learning Center

X

xAPI - experience application programming interface

Y

YM - Yahoo Messenger

CONTENTS

CHAPTER 1

Assessment of Current and Future Learning in Open and Distance e-Learning

Sheila R. Bonito

ABSTRACT

Assessment of current learning can be done through the use of formative and summative assessments to ensure that students have achieved the learning objectives of specific courses. Assessment of future learning involves a higher level of learning outcome and needs integrative assessments to ensure that students who went through the program/s can meet the needs of the industry or field of practice. This chapter explores how assessment of learning outcomes is done at the UP Open University, particularly in its postgraduate courses in health sciences. The use of formative, summative, and integrative assessment emphasizing student autonomy and authentic learning is showcased. Through the use of assessment rubrics and automated feedback in formative and summative assessment tools, students are encouraged to assess their own learning and that of their peers. Assessment of future learning using integrative assessments and authentic assessments exemplified by e-portfolios, blogs, and wikis are highlighted and evidence of student learning as applied in their different settings are provided.

INTRODUCTION

Open and Distance e-Learning (ODeL) is becoming a popular strategy for many higher education institutions in making quality education accessible and affordable. This arose from the challenge, particularly in developing countries, to provide quality and relevant education that is applicable to future labor markets and to developing the knowledge society (Schwartzman, 2003). Developing countries, like the Philippines, have recognized the potential of ODeL in reaching out to many potential students. The "Open Distance Learning Act" has promulgated expanding access to educational services by institutionalized open and distance learning in levels of tertiary education (Republic Act 10650, 2014). The possibilities of doing online learning even in traditional higher education institutions are being explored and implemented by many state and private universities to harness the power of information and communication technology in education and to meet the growing demands for education in more efficient and more cost-effective means.

The use of Information and Communications Technology (ICT) in ODeL has created a revolution in the development and delivery of courses, offering new and more flexible learning opportunities and empowering both teachers and students. It has also extended to the ways of assessing learning outcomes. The need for timely feedback to facilitate student learning and autonomy has never been more crucial than in ODeL. Crisp (2012) proposes a need to make a clear distinction between assessment of current and future learning. Learning is not only about progressing through the courses for certification purposes, but also building capacity of the current and/or future work force. Assessment of current learning can be done through the use of formative and summative assessments to ensure that students have achieved the learning objectives of specific courses. Assessment of future learning involves a higher level of learning outcome and needs integrative assessments to ensure that students who went through the program/s can meet the needs of the industry or field of practice.

Assessment of learning outcomes in ODeL also means that teachers need to think of using technology in giving formative, summative, and integrative assessments. Learning management systems that make formative and summative assessments easy use built-in features like

online quizzes and games. These features also allow immediate feedback to individual students, facilitating student autonomy and self-direction. Integrative assessments can also be made through the use of e-portfolios where students are tasked to assemble a number of critical outputs as evidence of their learning. Kuh et al. (2014) studied the current state of student learning outcomes assessment in United States' Colleges and Universities showing that the range of tools and measures to assess student learning have expanded significantly especially in the use of rubrics, portfolios, and other classroom-based assessments.

This chapter explores how assessment of learning outcomes is done at the UP Open University, particularly in its postgraduate courses in health sciences. The use of formative, summative, and integrative assessment emphasizing student autonomy and authentic learning is showcased.

ASSESSMENT OF LEARNING OUTCOMES

Assessment is the ongoing process of gathering, analyzing, and reflecting on evidence to make informed and consistent judgments to improve future student learning (Victoria State Department, 2017). Assessment has multiple purposes. One of the traditional purposes of assessment is determining the level of achievement of a student and/or between students. This confirms that certain knowledge, skill, and/or attitude has been demonstrated. There are other purposes such as: (1) assessment *for* learning (formative), (2) assessment *as* learning (formative), and (3) assessment *of* learning (summative).

Formative Assessment

Formative assessment can be described as "assessment *for* learning" from the teacher's perspective and "assessment *as* learning" from the student's point of view. Assessment *for* learning occurs when teachers use inferences about student progress to inform their teaching. Assessment *as* learning occurs when students reflect on and monitor their progress to inform their future learning goals.

The teachers' role is central in the assessment *for* learning. Through assessment *for* learning, teachers ascertain students' prior knowledge, perceptions, and misconceptions and use these evidences to inform

curriculum planning and teaching practice. This type of assessment establishes a classroom culture that encourages interaction and the use of assessment tools. It occurs throughout a learning sequence and is planned when teachers design teaching and learning activities. It involves teachers sharing learning intentions and explicit assessment criteria with students. It involves both teachers and students setting and monitoring student progress against learning goals. Assessment *for* learning thus provides sensitive and constructive feedback to students on their performance.

Assessment *as* learning establishes students' roles and responsibilities in relation to their learning and assessment. It engages students in self- and peer-assessment and promotes students' confidence and self-esteem through an understanding of how they learn. Its focus on student reflection on their learning is powerful in building metacognition and students' ability to plan for their own future learning goals. This type of assessment involves students monitoring their learning and using feedback from this monitoring to make adjustments and changes to their skills and understandings. It establishes students' role and responsibility in relation to their learning and assessment. It empowers students to consider strategies for learning and taking action. It involves students in self-assessment and peer-assessment.

Assessment *as* learning also promotes students' self-esteem and self-confidence through an understanding of how they learn to learn. It develops students' capacity to reflect on their learning and to contribute to their future learning goals. It enhances students' lifelong learning skills and emphasizes the process of learning as experienced by the students.

The use of automated feedback in online quizzes and/or the use of criteria in discussion forum posts are examples of formative assessments that are very useful in aiding students in assessing their performance (See Figure 1 and Figure 2).

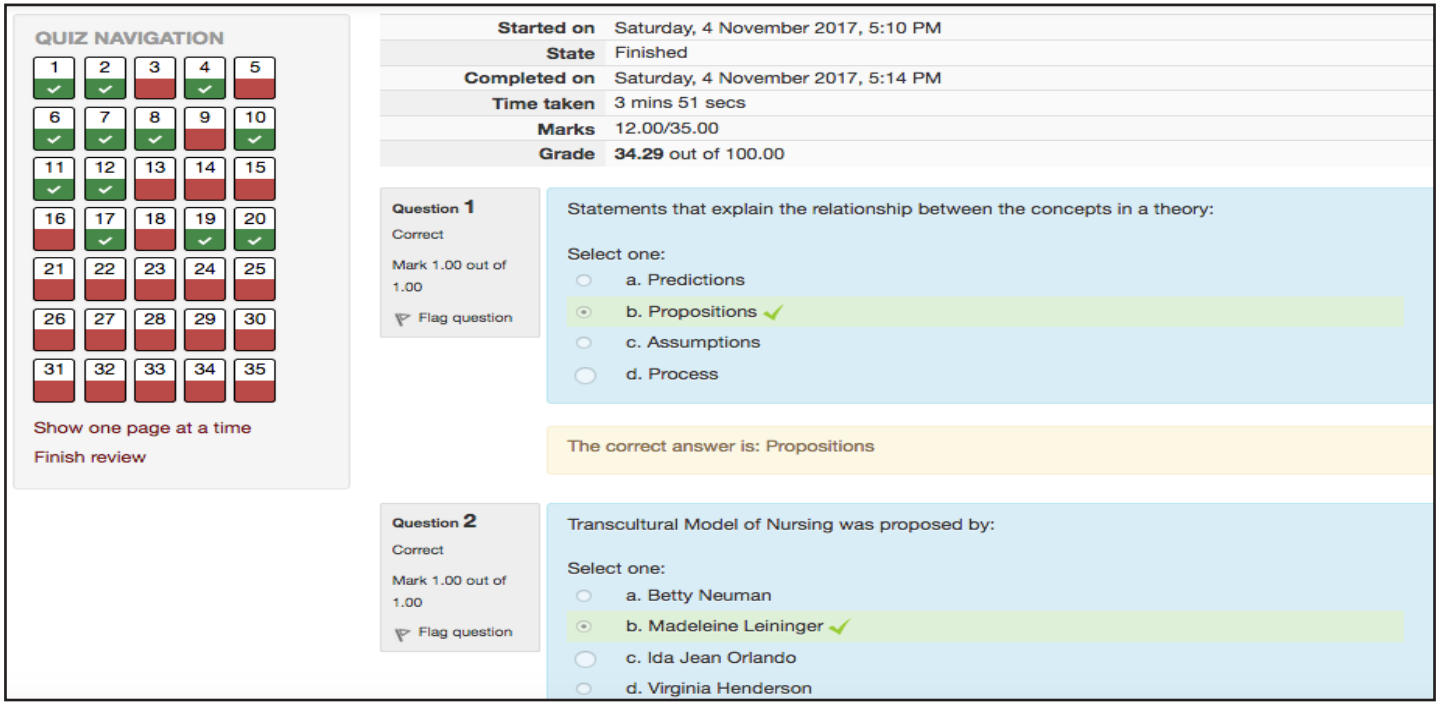

Figure 1. Example of automated feedback in an online quiz

Scoring Rubric for Participation in Graded Discussion Forums

	Yes (1 pt)	**No** (0 pt)
Relevance and Reflection		
1. Posts to the forum are on the topic		
2. Posts are based on assigned readings		
3. Integrates other relevant materials in the ongoing discussion, demonstrating a deep understanding of the issues being discussed		
4. Shows depth of thought (posts are reflective)		
5. Posts stimulate further relevant discussion		
Communication		
6. Meets the required posting contributions to the main discussion thread		
7. Posts promptly and not at the last minute		
8. Responds to needs and questions expressed by others and encourages others to participate in the discussion		
9. Ideas are expressed clearly (grammatical errors few)		
10. Ideas are concisely expressed and posts are well-written		
Courtesy and Collaboration		
11. Reads others' messages and often responds directly to points made		
12. Shows a clear effort to consider other viewpoints and opinions, demonstrating an understanding and appreciation of convergent ideas and opinions		
13. Posts are expressed courteously, demonstrating respect for divergent ideas and avoiding being argumentative and making personal attacks		
14. Considers topic thread in most responses; contributes to the discussion as established by the majority of participants		
15. Responses logically move the discussion forward		
Total score		

Figure 2. Example of an assessment rubric for participation in a discussion forum

Summative Assessment

Assessment of learning occurs when teachers use evidence of student learning to make judgments on student achievement against goals and standards. Assessment of learning describes the extent to which a student has achieved the learning goals, including the standards, and demonstrates what the student knows and can do. Its purpose is summative and gives an "overview of previous learning" (Black & William, 1998). This is the type of assessment that is used to certify learning for reporting to students, the parents, and the system. It takes place usually at the end of a unit, a program, a semester, or a year of study. It is based on teacher moderation to ensure consistent judgment of student achievement and is supported by examples or evidence of student learning. Assessment *of* learning can be used to plan for future learning goals.

Assessment *of* learning enables students to demonstrate what they know and can do. It describes the extent to which a student has achieved the learning goals, including standards. It uses teacher judgments about student achievement at a point in time and is supported by examples or evidence of student learning. Further, it ensures consistent teacher judgments through moderation processes and is used to plan future learning goals.

End of term projects and/or final exams are examples of summative assessment frequently used in the health science courses (See Figure 3).

The case study should have the following outline:

Introduction
- The Health Promotion (Development) Organization
- Rationale for choosing this organization
- Objectives of the case study
- Significance of the case study

The Problem
- What is the problem: anything related to leadership and/or management
- Who are the key persons involved
- What are the causes of the problem
- What are tasks involved

The Proposed Solution
- What are the leadership/management concepts that can be used to address the problem
- Write the action plan in a table format indicating objectives, actions, resources, duration of implementation
- Write the communication plan including how to manage change in the organization given the proposed action plan.

Monitoring and Evaluation
- Expected results
- Indicators of success (process, impact, outcome)

Reflection on the practicum
- What did you learn from the practicum
- How could the experience be improved

Figure 3. Example of an end-of-term project

Integrative Assessment

Integrative assessment allows the learner to demonstrate applied competence and uses a range of assessment methods. This entails providing feedback or judgment on students' ability to be self-regulated learners, to identify and use standards, and to apply their capabilities to future learning situations by being able to articulate their strategies or approaches to responding to a task or situation (Crisp, 2012). As such, students are provided with opportunities to do as follows: (1) make judgments about their own learning or performance through review and critique; (2) define standards and expectations in their response; (3) track

and analyze their approaches to responding to a problem, issue, situation, or performance; (4) integrate prior or current feedback into their response; and (5) engage in a meaningful task that has inherent worth beyond just an assessment activity. More importantly, in assessment of learning, students are rewarded for the quality of their analysis of metacognitive abilities, rather than factual knowledge or specific performance.

Uses of e-portfolio, blogs, or wiki are examples of integrative assessment where the focus is on quality of analysis of approaches to learning (rather than learning itself). Asking students to reflect on what they have learned also adds to their understanding of the lesson as well as its application to their future learning (See Figure 4).

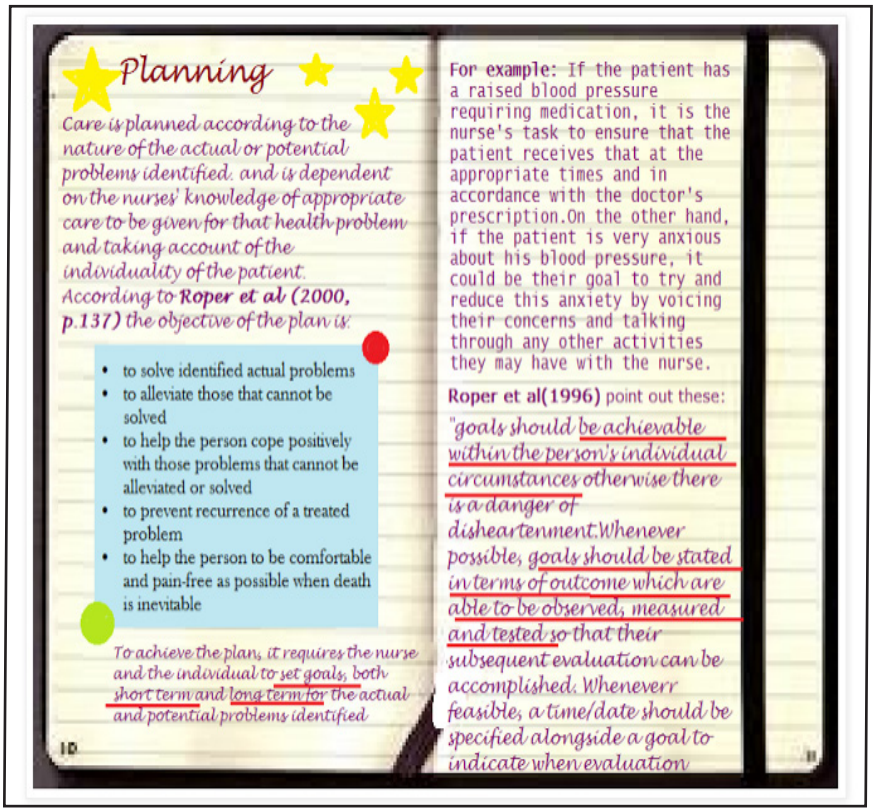

Figure 4. Example of a blog developed by students

ASSESSMENT OF FUTURE LEARNING

Students need to develop as independent learners to be successful in their higher education programs and also in their professional lives post-graduation. Boud and Falchikov (2007) have described the ability to evaluate one's learning and performance as an essential part of "becoming an accomplished and effective professional." Similarly, Biggs and Tang (2007) argue that the ability to make judgments about whether a performance or product meets a given criteria is vital for effective professional action in any field. Tan (2007) also advocates for "self-assessment development practices that can develop and sustain students' self-assessment ability beyond their immediate program of study". However, part of this preparation for the future requires helping students to learn to continuously monitor the quality of their work during the act of production itself, so they can make improvements in real time (Montgomery, 2000; Sadler, 1989).

Whereas assessment of current learning can be done through the use of formative and summative assessments to ensure that students have achieved the learning objectives of specific courses, assessment of future learning involves a higher level of learning outcome and needs integrative assessments to ensure that students who went through the program/s can meet the needs of the industry or field of practice (Crisp, 2012).

Some approaches in assessment of future learning include authentic assessment. Authentic assessment measures student performance in a direct and relevant way to see if the learning objectives were met. Some common examples are projects such as reports, journals, speeches, videos, and interviews where students are challenged to demonstrate their understanding of the subject material by asking them to apply it in their own experience. Authentic assessments help students analyze what they have learned and apply it in their own experience. They do not have to memorize facts for a test, so they can use their creativity to show what they have learned. For older students who can use a combination of writing and speaking, authentic assessment helps them refine their writing and oral presentation skills. Moreover, authentic assessment works great for groups, so students can experience collaborating on projects with their peers. Students are also often asked to make a reflection on the given task and how it impacts on their own work setting.

As an example, students in a theoretical foundations course in nursing were required to create a blog featuring one nursing theory and to discuss its concepts and applications. Students were also asked to comment on how the theory or model influenced their nursing practice (See Figure 5).

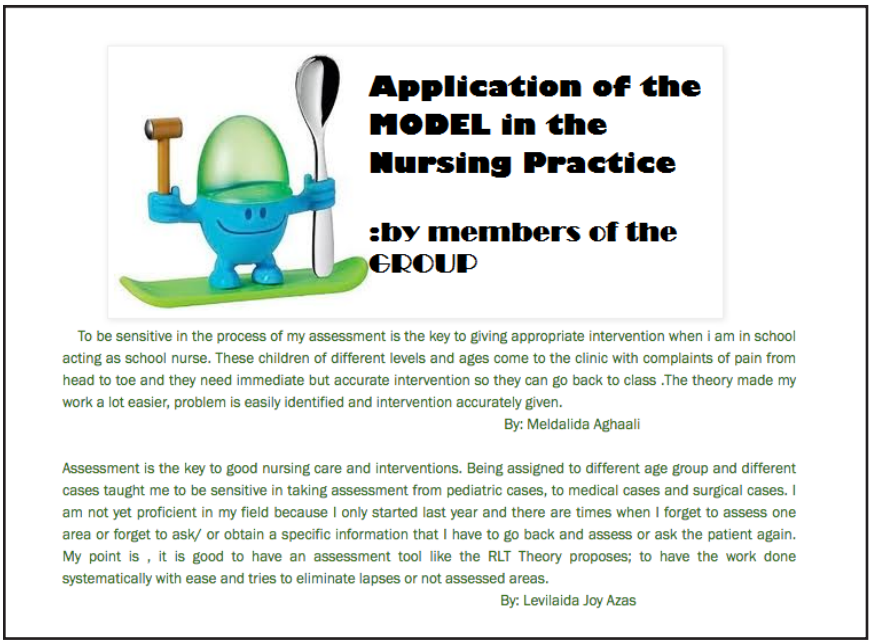

Figure 5 Example of student reflections on a particular activity

CONCLUSION

With a student population scattered worldwide, it is challenging to devise assessment tools and measures that would facilitate immediate and individualized feedback. Through the use of assessment rubrics, automated feedback, and self- or peer- assessments in formative and summative assessment tools, students are encouraged to assess their own learning and that of their peers. The use of e-portfolios encourages authentic learning by having students collect evidence of learning as applied in their different settings and contexts. This also allows assessment of future learning, that is, an evaluation of tasks and competencies needed by the industry and/or field of practice in the near future.

Several reflection questions come to mind to ensure that we make use of all three main purposes of assessment.

- Do our assessment processes allow for a balance of assessment *for*, *as* and *of* learning?
- Do our assessment tools allow for assessment of future learning?
- How can we design integrative assessments that will help future learning?

Assessment of learning outcomes in ODeL is a critical and significant aspect of education. It is not only imperative in monitoring and evaluating student progress but also crucial in influencing program reviews, curriculum modification, policy development, and institution accreditation to make education relevant to society's current and future needs.

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CHAPTER 2

Third Party and Industry-based Assessment Models: Remedies to e-Learning's Dark Side

Alexander G. Flor

ABSTRACT

Is it ethical or even logical for a teacher to grade herself or himself? How responsive is UP Open University education to the demands of the 21st century workplace? How relevant are our programs to the needs of future employers of our students? Is there a relation between online dishonesty and the way students are being evaluated? This chapter attempts to answer the foregoing questions through an analysis of the dominant assessment models adopted by UP Open University programs, which do not differ much from conventional assessment models of brick and mortar institutions. It traces superordinate and subordinate influential factors of the open and distance e-Learning (ODeL) problematique and argues that conventional assessment models contribute to the problems associated with ODeL pedagogy and delivery. It offers third party or industry-based assessment as more appropriate alternatives for ODeL.

DISCLAIMER

This chapter presents observations, views, and opinions that do not necessarily apply to K-12 basic education. Neither do they pertain to the physical and natural sciences as well as courses with established disciplines and standards (languages, mathematics, etc.). These observations relate to terminal assessments (i.e., end of term assessment/evaluation) that decides whether a student or a candidate will be promoted to the next level, passes or fails. In contrast, non-terminal assessments are those designed to generate feedback (i.e., self-assessment questions).

Let me make it clear at the onset that this chapter recognizes the importance of assessment as adjuncts to education and does not disparage the voluminous work done in its name. It is with this belief that the observations and conclusions, views, and opinions contained herein are being shared. That being said, let me begin with my basic argument on why assessment should not be relegated to the online teacher.

THIRD PAIR OF EYES

In the past decade, there has been a shift in my professional practice. I have been involved in a number of development undertakings for most of my professional life. With my participation in UP Open University administration since 2002, the engagements that I chose tended to be more specialized and focused on what we call short-term monitoring and evaluation (M&E) assignments. These are one-to-three-week assignments where one conducts an ex-ante, midterm, final or ex-post evaluation of a development project. As a rule, evaluations of this nature are not conducted by the project itself nor by the agency that sponsors it. And for good reason. A third party could objectively analyze, assess, or evaluate an undertaking. A third pair of eyes, so to speak (the first being the project implementer and the second being the project beneficiary) leads to independent results. Engaging someone to provide an objective assessment makes good project sense.

Let me relate this to the teaching-learning situation where half of the equation is "us," the teacher. The other half is "them," the learners. Current assessment practices are actually evaluations of the performance of both learner and teacher. With the latter doing most of the evaluating in class, the teaching-learning situation does not benefit from a third party

or a third pair of eyes. Since the score given to students is indicative of the performance of the teacher, would it be ethical or even logical for a teacher to grade herself or himself?

CURRICULAR RESPONSIVENESS

The second argument for external assessment deals with curricular responsiveness. The article by Medina (2016) declared the preference of today's employers for graduates from Polytechnic University of the Philippines (PUP) over those coming from the University of the Philippines, Ateneo de Manila University, De La Salle University, or University of Santo Tomas University. The claim, backed up by hard data, came with the remark that unlike students from these top universities, PUP graduates "don't usually display an attitude of self-entitlement."

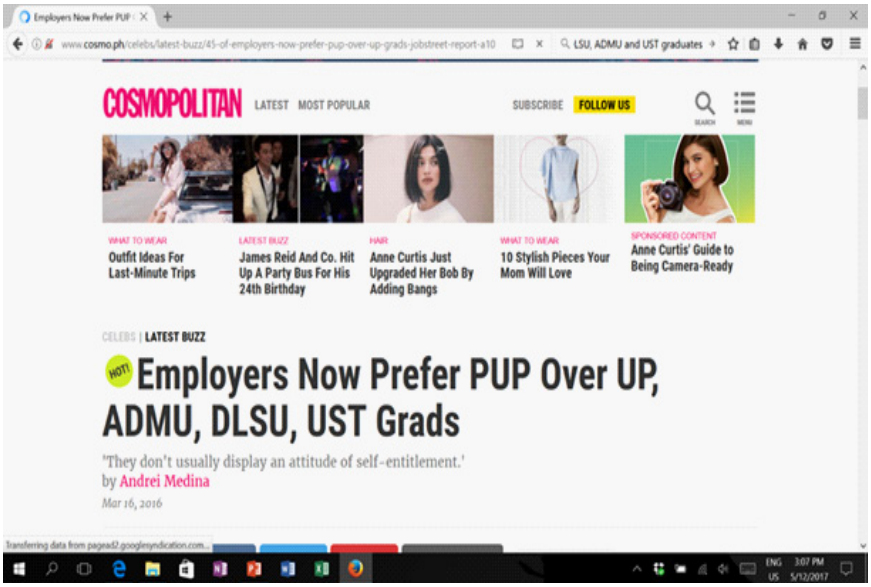

Figure 1. Screenshot of Cosmopolitan's frontpage dated 16 March 2017

Indeed, this pervasive sense of entitlement among millennials, in general, is a universal turn-off not limited to employers. However, this preference may also be attributed to the growing gap between academic priorities and industry expectations.

Is UP Open University education responsive to the demands of the current workplace? We would like to think so. The very basic skills that

our students learn are those that are considered very critical in 21st century education, online learning for example. However, let us frame the question in this manner: How relevant are our programs to the needs of future employers of our students?

To highlight my point, I revert to my recent engagements in M & E, something that employers coming from international development agencies would expect a graduate of development communication to be proficient in, especially a graduate of a professional degree such as the Master of Development Communication. Unfortunately, our curriculum at the moment does not include this particular competency. In its place, we offer training in scientific research, not even policy research. Why is it not there? I suspect it is primarily because academics put the curriculum together. It was our predisposition to academic social science research instead of applied developmental research that shaped the courses that we teach.

PROBLEMATIQUE

Figure 2 is a screenshot shared with the FICS faculty in 2014, which eventually became the basis for a chapter in the book, *Developing Successful Strategies for Global Policies and Cybertransperency in eLearning* (IGI Academic Publishers, 2016).

Figure 2. Screenshot of sample website

It is the front page of a paid service that offers to take online classes and exams for students leading to excellent grades. This is a classic case of classwork by proxy advertised openly on the Web. Through a grant from the UP Open University Office of the Vice Chancellor for Academic Affairs (OVCAA) and the UP Office of the Vice President for Academic Affairs (OVPAA), a colleague and I looked into practices such as this. We were able to trace a *problematique* map where we clustered dysfunctional digital behaviors under three major categories: cheating, cyber-bullying, and cutting corners. Plagiarism, classwork-by-proxy, and employing ghost writers all fall under cheating. Cyberbullying covers behaviors associated with online disinhibitions. The third category of behaviors, cutting corners can best be understood with what we would like to call, *The Gamer's Agenda*.

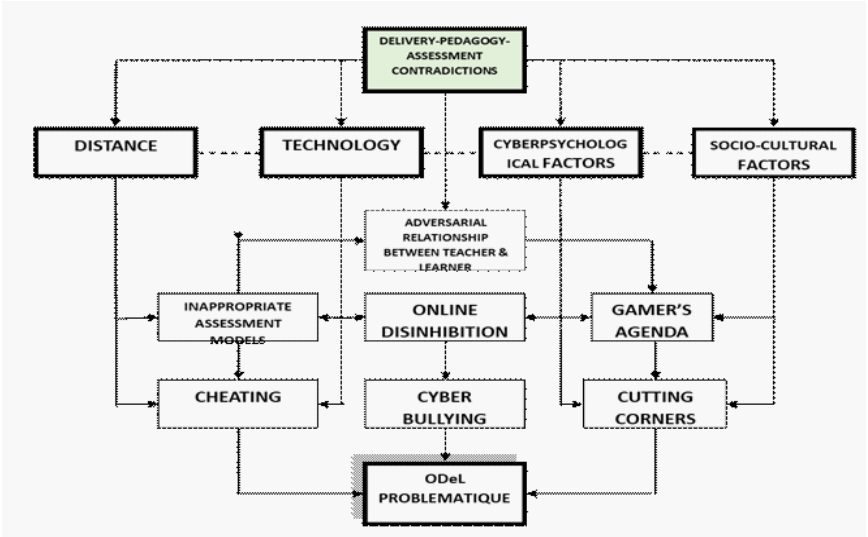

Figure 3. ODeL problematique map

The Gamer's Agenda refers to a tendency among some of our students to think of their online experience as a game between herself or himself and the instructor. She or he scores by outsmarting the instructor and overcoming the difficulties posed by cutting corners.

The *problematique* traces the causal links within this web of influential factors represented by boxes. The box on top embodies contradictions among our online delivery system, online-residential pedagogy and residential assessment practices. These contradictions lead to an antagonistic relationship between the teacher and the learner.

Inappropriate assessment models form part of the *problematique,* which encourage cheating. Also, it influences the participants to assume a gamer's attitude while online that, in turn, results in cutting corners.

Those of us who are familiar with gaming are aware that one of the primary objectives of the gamer is to look for 'cheats' or shortcuts. Once these shortcuts are discovered, one enjoys a bonus of accelerated in-game conquests and actually triumphs over an otherwise extremely difficult sub-routine. Some of our students look for these shortcuts, assuming that these are inadvertently contained within the course site.

SELF-PERPETUATING ADVERSARIAL SYSTEM

Sadly, the *problematique* develops into a self-perpetuating adversarial system between the learner and teacher, the student and instructor. And it shows in the attitudes that some of us online teachers embrace. We become indifferent to students' difficulties. We feel vindicated when we catch them in the act of cheating or cutting corners and acquire a sense of fulfillment when we design a solution to foil their shortcuts. The situation reminds me of a theory in the management sciences, MacGreggor's Theory X - Theory Y. Theory X assumes that the employee, will cheat the employer the first opportunity that she or he gets while Theory Y assumes that the employee will follow the employer if she or he is given the chance to do so. These contrasting perspectives may also be applied to the teaching-learning situation. Should we assume Theory X to be true even among the best of our students? Alternatively, shouldn't we assume that Theory Y is true even among the worst of our students? Fundamentally, was education meant for the student and the teacher to be on opposite sides of an online game competing against each other?

The grade point average (GPA) system has been adopted in our assessments. This in spite of comments from our master's students that a difference of 0.25 in their final grade would send them to bouts of depression. ODeL programs, by definition, should be guided by open education philosophies instead of instructional procedures.

Applying conventional grading systems in a situation where the teacher and the learner are separated and have access to technologies is also problematic. Administering tests traditionally meant face-to-face interactions, but since we are separated from our students, it provides plenty of opportunities (and temptation) for hanky-panky. The prevalence

of plagiarism is to the cut and paste affordances of technology. Hence, measures of cognitive gain may no longer be appropriate or accurate given this environment.

Instilling GPA primacy among online learners is inappropriate within the ODeL environment, particularly in higher education. This too gives rise to oppositional interactions between teachers and students, which in turn influence students to see the online classroom as an arena for a game. Engaging in this cat-and-mouse struggle has become the preoccupation of both students and teachers perennially sacrificing the primacy of learning and instruction.

To quote one of our honor students in her valedictory address: "*Ngayong araw na ito ay patunay na nalusutan natin sila.* (Today is proof that we have out-maneuvered them.) To our Professors, you were successful in giving us a hard time. But thank you, we were pressured to be better students. To the graduates, today is definitely a good time to ask for graduation gifts. This is our day. And today we celebrate that in spite of how much our Professors challenged us, we won over them! Congratulations, fellow survivors!"

FRAMEWORK

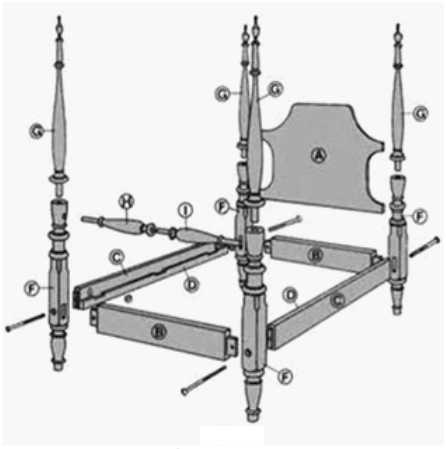

Figure 4. Four post bed

I used the four post bed as an analogy to our educational system that is composed of the following: a delivery subsystem, the curriculum, pedagogy, and assessment. In ODeL, we altered three subsystems, but retained the assessment subsystem of residential institutions. We changed our delivery system when we went online. We adapted our curriculum or content to courses and courseware that were more appropriate to online settings. We adjusted our pedagogies by introducing new tools such as Piazza, Basecamp, and others. But our assessment remained glued to the GPA model. We now have a situation wherein we changed the heights of the three posts but retained the height of one making the bed imbalanced.

POLICY OPTIONS

We can address this imbalance by instituting policy changes. Firstly, if basic education requires traditional assessment models, then we should discourage ODeL in K-12. Higher education (HE), technical vocational education and training (TVET) and nonformal education (NFE) would profit more from ODeL provided these employ authentic assessments. Alternatively, formal assessments should be divorced from the instruction function. ODeL policy and practice should be made genuinely consistent with openness, independence, and constructivism. This may mean deviating from the traditional GPA. But can we offer a course without the teacher giving a numerical grade?

The fact of the matter is that grades did not always exist. No grades were required when the university system began in the sixth century. Four hundred years later, in the University of Bologna, a grading system was still unheard of. Much later in England, the first grade-based assessments were employed on cohort applications for the bar. The assessment was done by the courts and not by the universities. Grades were instituted just three centuries ago by European universities that fostered competitions among students for prizes and rank order.

Obviously, we cannot try these alternatives in our institution at this time by virtue of our policies. We cannot run a class without having a formal assessment afterwards. According to the UP Code, the University cannot offer a course without a final exam at the end of the term. We also have narrative assessments which are similar to the descriptions written for those who solicit recommendations for admission into graduate schools. This is not numerical. There are also peer assessments that we conduct in many of our courses. These evaluations do not foster the so-called emphasis on numerical grades or GPAs. Then, there are third party assessments and authentic assessments.

THIRD PARTY ASSESSMENT

Third party assessment is done neither by the teacher nor the learner or fellow-learners but by a third party organic within the university or affiliated with the industry. The methods could range from tests (scored through quantitative measures), demonstrations and simulations (in the technical or vocational sector, a learner is made to demonstrate how to caponize a chicken or castrate a pig or dismantle an engine) and portfolios.

Consider for instance a student taking Masters in Development Communication here at UP Open University which requires her or him to have academic residency for at least two and a half years or five semesters. If, for every course taken, there were no quizzes, homework, and exams. Instead a student would be asked to produce and write development communication knowledge products to be uploaded in her or his online portfolio. Every semester these portfolios would be populated with knowledge products, textual, or multimedia, learned during the course of the semester. When she or he completes the program, she or he would have an extensive portfolio to present to prospective employers and development agencies.

Third party assessments are done internally within the higher education institution or in another office independent from the faculty. It could also be done externally, conducted by a government body or an accredited institution as in the case of TVET in the Philippines. On the other hand, industry-based assessment is done by industry associations (such as chambers of commerce) or by employers themselves. Table 1 gives the institutional, curricular, and functional advantages of industry-based assessment for the academe, industry, and the learner:

Table 1. Institutional, Curricular and Functional Advantages of Industry-based Assessments

	ACADEME	INDUSTRY	STUDENT
Institutional	The academe will have more a meaningful partnership with industry	Industry will have greater involvement in the educational system	Assessments that truly define the student.
Curricula	University offerings become more relevant	Responsive to industry needs and trends	Will have access to genuine capacity development
Function	Faculty members can focus on generating and sharing new knowledge	Access to more qualified students.	Better equipped to face the world of work

Institutionally, the academe will have a more meaningful partnership with the industry, and the industry will have greater involvement in the educational system. As such, students will be subjected to assessments that truly define them instead of being defined by scores and grades. As far as curricula are concerned, university offerings will become more relevant. For industry, curricula will be more responsive to their needs and industry trends. And students will have access to genuine capacity development provided by updated and practical curricula. The Faculty, in turn, can focus on generating and sharing new knowledge. Industry will have access to more qualified students. In the end, students will be better equipped to face the world of work.

As champions of open education, we must take this learner-centered advocacy seriously and apply it to assessment. Otherwise, ODeL institutions exist as mere alternatives to residential education. Given the constraints, ODeL institutions will remain poor alternatives that employ technology to compensate for deficiencies based on standards dictated by traditional universities.

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CHAPTER 3

Intelligent Tutoring Systems as an Approach to e-Learning Assessment

Roel P. Cantada

ABSTRACT

This chapter explores the diagnostic and formative assessment of learning in Intelligent Tutoring Systems (ITS). Due to the high cost and complexity of developing an ITS, the technology has not been systematically implemented yet at the UP Open University. Careful consideration is needed as to why and where ITS should be deployed in an open and distance e-Learning (ODeL) setting. To help ODeL stakeholders deliberate on this issue the chapter offers an analysis of how assessment feedback, continuous assessment, and adaptive assessment are implemented in an ITS. It looks at how different ITS student models are used to diagnose students' learning difficulties or misconceptions; and how adaptive feedback is automated to correct misconceptions or to assist students in overcoming difficulties. This chapter also provides a survey of the implementation of ITS in the past,considers possibilities for adaptation in the ODeL mode of teaching and learning, and posits potential issues from an educator's perspective. It is hoped that this work will contribute to the discussion on this educational technology and provide a direction for further research and identification of projects for ODeL where ITS would be most effective.

INTRODUCTION

An Intelligent Tutoring System (ITS) is a type of Intelligent Computer Aided Instruction (ICAI) that possesses knowledge of the domain (expert model), the learner (student model), and the teaching strategies (tutor model). ITS can diagnose errors and tailor remediation based on the diagnosis (Shute & Psotka, 2001). This diagnostic ability of ITS is the concern of this chapter.

Three topics on assessment in open and distance e-Learning (ODeL) are relevant to ITS: adaptive assessment, continuous assessment, and assessment feedback. Underlying all three is automation; something that undoubtedly may be addressed by ITS.

PRINCIPLES OF ASSESSMENT IN ITS

The four principles of assessment that are a concern of ITS are: validity, reliability, purpose, and proportionality (Nye, Mitros, Schunn, Foltz, Gašević, & Katz, 2017). The first three principles are well-known in assessment in ODeL and need not be elaborated here. Proportionality, on the other hand, is a term rarely used in the literature on the principles of assessment. It has been described by Nye and colleagues (2017) as an issue of "whether the assessment measures balance each construct relative to their level of importance to the goals for their intended use." The same idea must have been expressed by researchers on the principles of assessment as a concern for the weighting of assessment tasks—a balanced distribution and progression of assessment tasks among topics based on complexity, difficulty, and purpose (Nicol & Draper, 2007; Gibbs & Simpson, 2004; James, McInnis, & Devlin, 2002). There is also a recognition of the scarcity of the amount of time that students can allocate to assessment tasks such that assessment workload should be managed across courses and not just within a course (National Union of Students, 2015; James, McInnis, & Devlin, 2002).

ITS shares a common characteristic with computerized adaptive testing (CAT): it adapts assessment to individual students and stops assessing when a metric threshold is reached indicating that a student has demonstrated a learning competency satisfactorily. For example, in a test, there is no need for all students to answer all questions (something akin to "covering" the topics). In addition, at a higher level, ITS allocates more assessment on what have been identified as more important

competencies. Unimportant skills like random rote memorization of facts need not be assessed.

A bold conjecture is that ITS-based assessment may even do away with sequestered testing of students, i.e., summative assessment events like final examinations where learning is not allowed (Van Lehn, 2008). The claim is that assessment is done at the same time students are learning in an ITS. A characteristic of adaptive assessment in ITS is the provision of hints, feedback, and the final answer in every step of problem-based learning. This characteristic is also a cause of problems but we will return to that after describing how assessment is done in the step-by-step process of tutoring in an ITS.

STEP-BY-STEP CONTINUOUS ASSESSMENT

Continuous assessment, as understood in ODeL in the course level, is defined by the distribution of final grades among faculty marked assignments and examinations as opposed to end-of-term examination as sole basis of passing or failing a course. Clearly, this is not what we mean by continuous assessment in ITS. In ITS, the continuity of assessment is at the task level, that is, the student is assessed every time she or he completes a step in a learning task. Take note that the path taken by a student for the entire topic being tutored differs per student. So, every time a student answers an embedded question or provides the outcome of a step in a problem, the intelligent tutor assesses the student and uses the result to determine the next step or content that will be presented. In this case, the ITS determines the custom path of learning for that student step-by-step. Another concept of continuous assessment may be the processing of log-data from a learning platform (like a Learning Management System) to find patterns in how students learn, then using that pattern to diagnose students' difficulties (e.g., risk of dropping the course). This approach is done in learning analytics that uses dashboards and traffic light visualization for teachers. However, there is less structure in the log-data as it records every click of the student and interpreting the pattern in that data in terms of what to do next for the student is problematic. In the ITS, the alternate paths are designed in advance and the predictive validity of assessment leads to action on diagnosed issues with student learning. In other words, the so-called labels or target variables (as they are called in predictive analytics) are designed into the structure of the content of the tutoring system.

COMPONENTS OF ITS

What are the ITS components that require this step-by-step assessment? Do note that learning in ITS usually involves problem-based learning which is why we speak of steps to solving the problem.

The four components of ITS are the domain model, learner model, tutor model, and interface.

The domain model is represented in some ITS as a semantic web of some unit of knowledge. This model contains the learning objectives, competencies or outcomes that will be measured in an assessment, and the content of assessment tasks (e.g., instructions for tasks, questions, and answers to questions). The abstract model is usually implemented as a database structure in the ITS software.

The learner model or student model is like a dynamic class record that defines what the student already knows. Some ITS implement this model as a Bayesian Knowledge Tracing (BKT) table in a database that is constantly updated whenever a student works on a step.

Data are then used by the tutor model to determine the next content or problem to be presented to the learner. The tutor model is basically a computer program that evaluates the results of the assessment and performs a pre-programmed decision on how to help the student learn. The last component is the interface where the format of the assessment is determined such as the type and behavior of questions, as well as the timing of hints and feedback. In the early history of ITS, the interface was just a console with text (Carbonell, 1970). Currently the interface may include multimedia web pages, talking avatars in dialogue-based assessments (Olney, 2008), digital whiteboards that can interpret handwriting (Korea Advanced Institute of Science and Technology Artificial Intelligence and Probabilistic Laboratory [KAISTAIPR], 2009), and even robots (Lee, 2016; Lee, & Kim, 2010).

In a face-to-face (F2F) classroom, all the assessment tasks of preparing the content of a test, printing, administering, scoring, and evaluating are done by a teacher; however, in an ITS, the assessment process is distributed among its components.

The process of the assessment of the learner happens in a double loop fashion. There is an inner loop of assessment, hints, and feedback on steps, and an outer loop for tasks (Van Lehn, 2006).

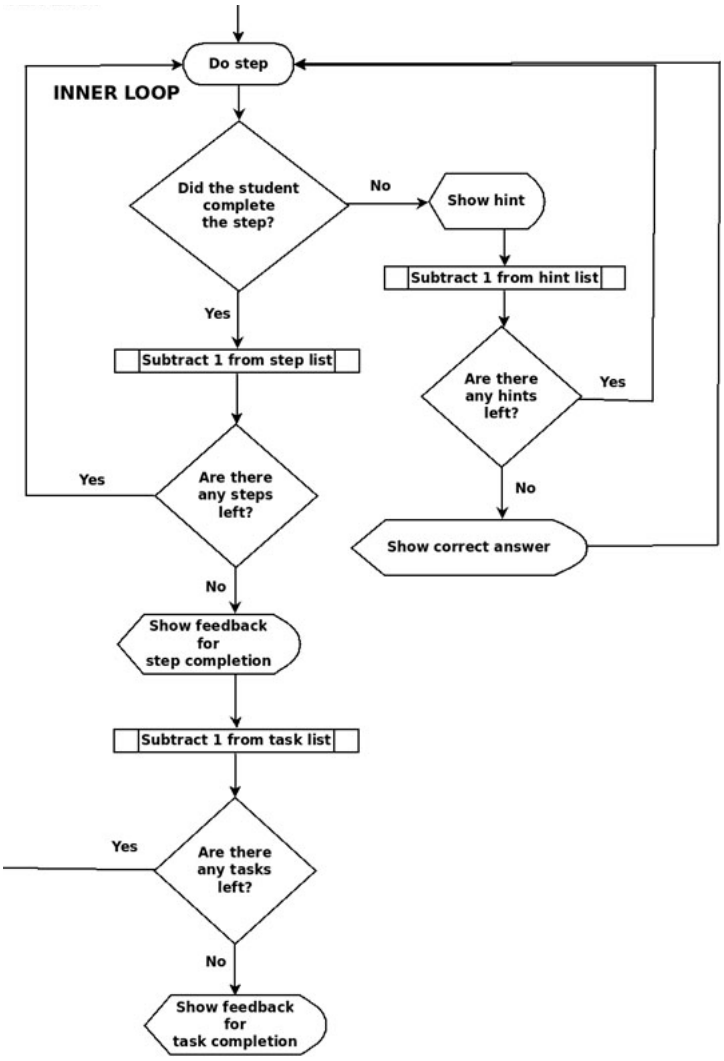

Figure 1. Diagram of ITS double-loop assessment

Note how the inner loop in Figure 1 will continue to give hints until either the student does the step correctly or all the hints are used up, and the bottom-out hint is displayed. The bottom-out hint or last hint tells the student what to do. This can also apply to tutoring systems that present exercises after a non-interactive material like videos is given to a student. In some implementation of this approach, a student is continuously asked questions about the video until a threshold of consecutive correct answers is reached.

When all the steps are completed, the system looks into the learner model for the record of the student then into the domain model for the next topic following rules given in the tutor model.

LEARNER MODELS

A gradebook or class record, even on paper, is an abstract model of student performance in a class. Teachers use that record of scores formatively to evaluate what remedial work to give individual students and what changes are needed in the next content of instruction. It is used for summative evaluation to grant grades and review the content of the entire course. ITS learner models can be thought of as a "fancy" automated gradebook (Van Lehn, 2006). Not only does the ITS automatically mark student performance (not just test answers but also physical (Lee, 2016; Lee, & Kim, 2010) performance and emotion (Feidakis, Daradoumis, & Caballé, 2011; Malekzadeh, Mustafa, & Lahsasna, 2015)) but also does automatic evaluation.

The ITS learner model is more complex than paper gradebooks that are tables of scores evaluated with a grading scale with an arbitrary passing threshold. Examples of evaluation in a learner model are number of consecutive correct responses (N-CCR), knowledge tracing, constraints-based models, and knowledge space models. These models have been used in deployed online ITS, but there are others that will not be included in this chapter (See Sottilare, Graesser, Hu, & Holden, 2013 for a more comprehensive introduction on learner modelling.).

1. Number of Consecutive Correct Responses (N-CCR) - similar to computerized adaptive testing (CAT) in that the test does not have a fixed number of questions,but it differs in the way competency on a skill is determined i.e. when the system stops questioning. Rather than using a statistical formula to determine when to stop, N-CCR simply uses a threshold of consecutive correct response. That is if the threshold for a specific skill is three consecutive correct responses (3-CCR), and the learner consecutively answers three questions correctly the system will predict that the student will get the answer to the next question correctly at least 80% of the time (Kelly, Wang, Thompson, & Heffernan, 2015). It then gives the next set of questions for the next skill, otherwise it will loop or continue to give questions on the current skill until the threshold is reached. Mastery of a task is determined simply by the completion of all skill question sets for the task.

The N-CCR method is reported to be used by ASSISTments (Kelly & Heffernan, 2016; ASSISTments, 2012; Feng, Heffernan, & Koedinger, 2009; Feng, & Heffernan, 2010.). Similarly, Khan Academy is reported to have used 5-CCR (Kelly & Heffernan, 2016), but KA-Lite, the offline open source web server for Khan Academy videos and exercises, appears to use 10-CCR (Tibbles, 2015; Hu, 2011; Faus, 2014).

2. Model, Knowledge, and Example Tracing - ITS that uses model tracing has a domain model that contains generalized rules or procedures on how to solve a problem (think of the list of rules as the answer key, and the tutor checks the student's solutions against this answer key). The rules may have been manually created by experts or generated by the ITS. Note, though, that erroneous solutions may also be modeled as rules (called buggy or mal-rules thus giving the ITS the ability to diagnose misconceptions about steps). We assume that the rules are associated with certain skills expected to be demonstrated by students. The action of students, correct and erroneous solutions as matched against the rules and request for hints are recorded (Pavlik Jr., Brawner, Olney, & Mitrovic, 2013). In model tracing, the students would loop through the steps and given hints until one of their solutions matches a rule.

   Knowledge tracing (see Corbett & Anderson, 1995) looks at the history of the performance of the students in doing the steps. The performance data of students are then used to update a table of probabilities that would determine if they learned, did not learn, guessed, or forgot a step. The table of probabilities is updated with Bayesian Knowledge Tracing methods (see Baker, 2014; Martori, Cuadros, & Gonzalez-Sabate, 2016). The probabilities are used to determine the probability that the student would understand the next question from that skill question set correctly in the same manner that N-CCR tries to predict the student's ability to answer the next correct answer; and the probability that the student has learned the skill.

   One of the problems with these approaches is that generating or manually writing the rules (which determine what is a correct or incorrect step) is painstaking as even simple acts (e.g., dividing a number) could have many rules. To help mitigate this authoring problem, example-tracing has been implemented in some ITS like Cognitive Tutor Authoring Tools (CTAT) (Aleven, Mclaren, Sewall, & Koedinger, 2009). The approach uses an example solution for a

given problem, and the system generalizes the solution automatically into a graph of solutions (called behavior graph; we speak here of a tree graph with nodes connected by edges). The path taken by the student (steps are the nodes) is compared to the solution paths in the graph such that it will allow for alternate solutions other than the one specified in the example by the author or teacher.

3. Constraint-based models - if in model, knowledge, and example tracing, the tutor tries to replicate how an expert would solve a problem, in a constraint-based model one only needs to elaborate on the constraints of a problem, e.g., what syntax and semantics of the answers are allowed (see Ohlsson, 1994 for examples of constraints). When the system sees the student violating the constraints, it assumes there is a misconception and a hint or positive or negative feedback is given to the student. If the answer or solution satisfies the constraints then it is deemed correct (Pavlik Jr., Brawner, Olney, & Mitrovic, 2013). In other words, the system tutors only know the correct approach to the solution and does not know the details of the misconceptions. ASPIRE is an online tutor that uses constraint-based modeling (Mitrovic, 2009; Mitrovic, Suraweera, Martin, Zakharov, Milik & Holland, 2006)

4. Knowledge Space models - an example of an online tutor that uses knowledge space models is the Assessment and Learning in Knowledge Spaces (ALEKS) (McGraw-Hill Education, 2017). ALEKS provides practice questions on a given topic. An artificial intelligent system selects the sequence of questions a student can work on based on answers to previous questions. In fact, before a student can start learning in ALEKS, she or he is asked at least 20 to 30 questions in an orientation activity used to build her or his initial knowledge space. Afterwards, the space is updated during the actual learning period. ALEKS does not provide a grade but a pie chart that visualizes what the system estimates the student knows about the curriculum as far down as concepts. It will also recommend the next topic for the student.

What is a knowledge space? If a knowledge state and its complement are in the knowledge structure, then the union of the state and its complement state is also a knowledge state of that structure. This knowledge structure is said to be a knowledge space (Doignon, & Falmagne,1999). The knowledge state is the “complete set of problems that an individual is

capable of solving in a particular topic" (Falmagne, Cosyn, Doignon, & Thiéry, 2006). The combinations of knowledge states are the elements of a knowledge structure that is visualized as a precedence graph or described in set roster method. The assessor-tutor system's job is to uncover the "state of the student being assessed, among all the feasible states" (Falmagne, Cosyn, Doignon, & Thiéry, 2006). The result of the assessment has two lists: a list of problems that the student can do, and another list of problems that the student is ready to learn (Falmagne, Cosyn, Doignon, & Thiéry, 2006). For a precise mathematical explanation of knowledge space theory please see Jean-Paul Doignon and Jean-Claude Falmagne's books Knowledge Spaces (1999) and Learning Spaces: Interdisciplinary Applied Mathematics (2011).

The given examples of learner modeling show that they have something in common when the ITS performs the task of a marker and assessor of an assessment. They all need to have or generate some answer key to be able to determine the correct answers or approaches to solving the problems posed by the system. They all need to record the result of the assessment per step and summarize it to decide on what would be the next task to present or recommend to the student. All of them also provide hints and personalized and timely feedback. Personalization and timeliness are extremely important principles of assessment in ODeL. But one may think that the machine may provide imperfect feedback because it will fail to comprehend the difficulties of the student. But the same concern is raised against peer feedback (an alternative approach to supplement the limitations of teacher feedback in ODeL). Gibbs and Simpson (2004) conjecture that, "There may be a trade-off between the rapidity and quality of feedback so that, for example, imperfect feedback from a fellow student provided almost immediately may have much more impact than more perfect feedback from a tutor four weeks later." The same may be said of feedback from a machine.

An additional benefit of feedback from a machine is affective. The student may feel less embarrassed to receive negative feedback from a machine as opposed to a human teacher and thus help her or him try again. The recognition of persistence in the face of failure (a design built-in the system), and even the acceptance of failure is something ITS shares with game-based learning. The art form of finding the Goldilocks zone of motivating students to do repetitive tasks without frustrating them is an active area of research in ITS.

If feedback even from a machine is something ODeL practitioners may find positive, hinting from a machine is a double edged sword. ITS researchers know that there are students who will game the system if hints are offered by request (Baker, Walonoski, Heffernan, Roll, Corbett, & Koedinger, 2008). These students will just keep on clicking until they reach the bottom-out hint that tells them what to do or show the answer to a question. This issue needs further research on effective timing and mode of hinting.

Considering the description of ITS behavior so far, we may ask if tutoring systems are limited to task-level assessment. The next section looks at how tutoring systems adapts and interconnects with other larger assessment systems.

BEYOND TASK-LEVEL ASSESSMENT

A related concept that can be considered an outer-outer loop of the assessment system is the design of the Intelligent Tutoring Interface for Technology Enhanced Learning (INTUITEL) adaptive Learning Management System (LMS) (Henning, 2014). In an INTUITEL LMS the units of the domain are not tasks but larger units called learning objects–the LMS resources (e.g., readings, videos, games) and activities (e.g., assignments, quizzes, etc.) that most ODeL practitioners are familiar with. What INTUITEL adapts is the sequence called "learning pathways" by which a student works on the resources and activities (Heberle, Henning, Streicher, Swertz, Bock, & Zander, 2013) based on "didactic factors," (e.g., topic, progress, age, culture, learning styles). In addition, learners can override the recommended learning pathway and the system will recalculate a new set of learning pathways from that decision. Hence, this approach may be combined with ITS as embedded learning objects such that adaptive assessment can be done at the task level and at the course level.

Systems like INTUITEL, CTAT, and ASSISTments try to provide a platform that provides non-programmers reusable tools or component implementation of an ITS to author tutors for multiple domains. The problem with early ITS is that they were customized for specific domains that they tutor. An ITS built to teach Mathematics cannot be reused to teach Language and vice versa.

An open source project that explicitly tries to support multiple learner modeling and hence, different ITS assessments for multiple domains is

the Generalized Intelligent Framework for Tutoring (GIFT) (see https://gifttutoring.org/). An interesting process framework suggested for adoption in the design of GIFT is the Assessment Process Framework (APF) (Orvis, et al. 2017). This is a guide that may be used to develop assessments in an ITS. In ODeL, there are clear process frameworks for developing e-examinations and e-portfolio but not for ITS yet. So, this may be a good starting point for developing a similar framework

Aside from APF the GIFT community also suggests the use of evidence-centered assessment design (ECD) (Sottilare, Graesser, Hu, & Goodwin, 2017) and the experience application programming interface (xAPI) of the Total Learning Architecture (TLA) technology framework (Goodwin, Folsom-Kovarik, Johnson, Schatz, & Sottilare, 2017). ECD is a framework used to support the development of assessments that evaluate performance where paper-and-pencil tests are unsuitable. It also provides processes that look at assessment results as evidence to support or rebut claims about students' learning.

TLA is similar to a student's transcript of records (TORs). TLA goes beyond TORs in that its xAPI may be able to include learning experiences from MOOCs, non-formal training, and any informal learning activity under the banner of lifelong learning. An ITS may be an automated provider of experience points for such a framework.

ISSUES

A major issue with ITS is the cost in terms of money and effort of development. Nye (2014) states that "cost does not appear to be a primary barrier" to the adoption of ITS by teachers, but the context in his research is teachers using ITS and not from the authoring perspective. For a higher education institution like UP, the customization cost will always be an issue given how fast a program's discipline or field changes, preference of faculty for certain perspectives and/or pedagogy, culture, and obscurity (highly specialized field with very few students) of some fields that it does not attract major developers of ITS. There are free open source authoring tools for developing ITS but it does not address the cost in time and effort as development of a tutor is intricate. Domain ontology generators have been developed to automatically create semantic webs of domain but it does not equate to the instruction and feedback needed by the system; the ontology only provides an outline at best.

The problem for the ODeL institution is whether to commit scarce resources to ITS development or customization; or commit the resources to other less costly educational technology with a faster return on investment (at least in terms of student performance). However, one needs to ask if the other technology will be able to adaptively tutor and assess specific competencies that are required to be demonstrated (and assessed as it is being demonstrated) at a distance. Does personalized tutoring and adaptive assessment by a machine at a large scale justify the higher cost of development? What topics and learning goals is it worth investing on ITS? But undoubtedly for a leading ODeL institution like UP Open University, it cannot ignore research in this field, being the leader in distance education in the country.

Another argument for ITS development is like course development: the long front end development has a trade-off with relatively hands-free tutoring and assessment especially in large-scale classes like MOOCs. In other words, there are certain ODeL learning circumstances where partial automation of assessment tasks is unavoidable, and ITS is a good option for accomplishing those tasks.

Teachers may dismiss the technology as a complex flashcard used for rote memorization but ITS has been used to assess not only cognitive knowledge but also metacognition, affect, and practical know-how like troubleshooting electronics and machinery. Also, it can be integrated with online simulations and game-based learning to provide an immersive experience and have those experiences assessed. The experiences may be contrived but assessing performance in an ITS while a student is solving problems on realistic tasks is a lot more authentic than having them answer multiple-choice questions. For some learning goals that require performance, ITS is claimed to be a valid assessment method.

There may also be fear, uncertainty, and doubt about ITS and anything associated with artificial intelligence particularly over the idea that a machine will replace human tutors. Note that this is similar to the fear of distance education (DE) due to the risk of professors losing tenure and being replaced by temporary affiliate faculty. The fear of DE may have basis due to policies of “for-profit universities” in the past but with ITS, it would be foolhardy to replace human assessors and evaluators for all assessment tasks in ODeL. Admittedly, there are a lot of student outcomes that ITS would not be able to properly assess. ITS has assumptions (like decomposition of knowledge, binary correctness and incorrectness of answers, or learning/unlearning, and the precedence

rule) that if broken, will render the ITS assessment unreliable and invalid. For instance, ITS cannot tutor nor assess the dissertation writing process. Learning activities that are difficult to decompose due to the holistic approach (going back and forth in writing) and the need for insight and serendipity breaks the assumptions of ITS. But ITS can tutor and assess how students format their bibliography in a prescribed citation format. ITS can free faculty members from the onerous task of assessing some outcomes in ODeL. Generally, faculty members dislike assessing student works that are tedious and repetitive. Year in, and year out, the students repeat the same errors and the faculty is left to copy-paste feedback mutatis mutandis. The task of assessment is more difficult in ODeL due to the large number of enrolment and the large volume of student outputs. Timely human assessment and feedback become impossible in a Massive Open Online Course (MOOC) with thousands of students. ODeL practitioners should find a creative way to assess by design using ITS in the same manner that instructional design is used to teach by design.

BENEFITS FOR ODEL

A successful ITS is beneficial to ODeL. It supplements the ability of teachers to provide assessment and feedback by designing the ITS assessment up-front in the same manner that instruction is designed up-front. For large-scale classes like MOOCs, partial automation of the assessment process is critical.

In addition, personalization is an important principle for ODeL. ITS's adaptiveness personalizes assessment for each student. Not everyone takes the same assessment, at the same length of time and at the same time, but the assessment can still be valid and reliable.

ITS supports continuous assessment while the student is learning. Timely automation and frequent detailed feedback support students' self-regulation and self-directedness. They do not have to wait for the teacher to find out where they made a mistake in an assessment; they can try again to correct their mistake or to explore alternative solutions. ITS can be used for formative assessments in online courses.

In ODeL, one must constantly look for ways to tip the balance of success or failure of students in their favor. The promise of automated feedback to support self-regulation and reduce alienation of students in distance education is a worthwhile area for empirical research.

RECOMMENDATIONS

The research on this educational technology is increasing probably due to the increasing interest in artificial intelligence. Moreover, under the theme of assessment there appears to be a trend towards convergence of ITS, game-based learning, educational data mining, and learning analytics. Round-table discussions, workshops, and seminars in this area of research in ODeL should be done. National conferences on the topic would help network researchers from different universities in the country determine the state-of-the art of ITS in the country.

There is also the need for an open and free (as in free software) general framework for authoring ITS as the current open source authoring solutions fall short of the openness that open source LMS like MOODLE and Sakai have achieved. Most ITS authoring software would open source part of their tool but there would be an online part left that would prevent users from deploying their own online platform. This is understandable as those who invested in developing these software applications would at least want data from users to improve the software. Therefore, ODeL should consider how it can use open data with other users of an open and free authoring platform without endangering the privacy of students.

Lastly, there is also need to identify priority domains to use as a testbed for piloting intelligent tutors in an ODeL setting. These pilot ITS should be offered as Open Educational Resources (OERs) so that they can be refined by other users.

CONCLUSION

ITS thinkers are concerned with the same issues as ODeL assessment thinkers – principles, processes, frameworks, and assessment products. They are just using a different vocabulary that may afford ODeL practitioners a way to visualize the assessment process and how students think during and after that process. It can provide a language for posing precise hypotheses about assessment that are testable.

ITS goes beyond automation because it exposes abstract and messy ideas about how students think and learn particularly during the assessment. It allows users to instantiate models of assessment for testing and demonstration. Some of these models are drawn from learning theories; others are stochastic. They provide an alternative vocabulary for explaining

why students pass or fail, and how they may be able to overcome failure and correct themselves.

ODeL practitioners can look at ITS through the lens of the distance education theories of equivalency (Simonson, Smaldino, Albright, & Zvacek, 2012) and interaction. Interaction theory states that there are three forms of interaction in distance education: student-teacher interaction, student-student interaction, and student-content interaction (Anderson, 2003). An increase in one form of interaction in an ODeL course may offset a decrease in other forms of interaction, provided they offer equivalent learning experiences. The idea in equivalency theory can be applied. The theory states that one does not need to provide identical learning experiences found in F2F classroom in ODeL, and by extension to the relationships of interactions, i.e. we do not need to provide identical assessment experiences for all students all the time. Equivalent assessment experiences may be used and that does not preclude machines providing the experience. Clearly, ITS is an example of student-content interaction that may offset a drop in teacher presence. But one should look at the relationships of the form of interaction as dynamic over time. There are times when teacher presence and peer presence is high and student-content interaction may be low, and at other times during the course when teacher presence or peer presence is low and student-content interaction is high with ITS.

We ought to see if the claims of ITS on personalization, adaptiveness, and support for self-directedness will find merit in ODeL and MOOCs.

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CHAPTER 4

Towards an Assessment System for Open and Distance e-Learning: The Case of the ASEAN Studies Graduate Program

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ABSTRACT

In this chapter we argue that in Open and Distance e-Learning (ODeL), assessment is at the core and of primary consideration. Assessment is taken as a valuation process that constructs not just the learner's but also the educational institution's identity. The principles of quality and credibility of assessment in an ODeL environment are explored in developing an assessment system at the course and at the program levels of the ASEAN Studies Graduate Program, the framework of which was collaboratively developed by five Open Universities in the ASEAN region. At the course level, the learning outcome, which is a research proposal, shall be assessed through the use of three markers to establish reliability of the valuation process; at the program level, an essay test shall be used to assess completion of three program objectives, and it shall be evaluated by a panel coming from the four other Open Universities. The chapter also addresses two issues related to ODeL: authentic learner identification and scalability of the conceptualized assessment system.

OPEN AND DISTANCE e-LEARNING (ODEL)

Open and distance e-Learning (ODeL) draws from the philosophy of openness, inclusion, resource sharing, access and equity of open learning and learner-centeredness, flexibility, active learning, interactivity, ubiquity, connectivity, and constructivist view of e-learning. These affordances and features are infused with values that underpin the universitas – excellence, academic freedom, humanism, intellectual pluralism, democracy, and service to society. These ethos create the spirit of the university.

Together, all these elements are embedded and facilitated by networked information and communication technologies and make up what is referred to as ODeL. The interweaving of these components can bring about social transformation by producing learners who have the ability to seek new information from different sources, translate this information into applicable knowledge, and communicate this knowledge in various forms and situations. They should be able to work in different cultural contexts as well. ODeL with its affordances can help address the challenges of education in the 21st century, more particularly ubiquitous learning. The emergence of e-mobile culture has enhanced the ubiquitous nature of Information and Communication Technology (ICT) based on the ODeL framework.

Today, industries and communities of practice are turning to the higher education sector for massive, yet more specific and tailor-made courses and programs in their fields. These learners prefer to study part-time and acquire the knowledge necessary to advance themselves in their careers. Likewise, there is a need to recognize the changing learning styles of students. Each year, more and more digital natives are joining the higher education sector. Even digital migrants are constantly being put in a position where they have to adapt to a new technology.

Despite the preponderance of educational resources on the internet and the growing number of privately run e-learning providers, universities in general, and open universities in particular, will always play a central role in the accreditation of student learning particularly for transnational education. Universities can only continue to perform this accreditation role if their ways of assessing their students' learning remain appropriate and credible in the eyes of our stakeholders.

The growth of the internet users and mobile applications in the virtual environment has created the need for authentic assessment addressing the realities brought about by a web-based, technology-driven, and potentially massive teaching and learning situation. To a certain extent, the stage is set for the ODeL framework to work and be maximized.

ASSESSMENT IN ODeL LEARNING

Assessment of learning outcome is a valuation process where the learner's value is judged by the educator. Assessment, as we know, is a process of collecting information and making a judgment, identifying the strengths and weaknesses, the good and the bad, and the right and the wrong, in some cases. It is more than simply giving marks or grades (Rust, 2002); rather, assessment must address all learning objectives, be fair to every learner, and must be transparent to those who will be assessed. Moreover, the quality of measuring instruments to collect the information must be established through reliability and validity measures. Validity is the extent to which a test or instrument measures what it is supposed to measure and reliability is the degree to which an assessment tool consistently measures whatever it measures (Gay, 1987). The more educators provide good assessment, the more students receive good judgment.

While the principles involved in assessment of learning remain the same, there are unique challenges in assessment for ODeL. In addition to the given assessment features, the nature of and potential massive reach of online learning has to be taken into consideration, thus requiring appropriate administration processes. It is recognized that while technology provides us with a huge advantage in reaching our intended learners, it also has vulnerabilities associated with establishing the identity of the person undergoing assessment.

Online exam is a process that allows learners to take the examination from a distance. With today's technology, examinations could be administered through the internet. In the case of Sukhothai Thammatirat Open University (STOU) in Thailand, computer rooms for e-exam are set up in remote campuses where learners take their exams in testing centers nearest them. A system has been put in place where transmission of test answers to the main campus is done instantaneously through the internet (Jeotee, 2014). In Cambridge

University, the exam is uploaded to 'Cloud system' and each station downloads the exam for their examinees. When the exams have been done, they will immediately be transmitted to Cambridge University (Lebus, 2011). Meanwhile, in the UP Open University, the learners are allowed to take online exams at designated Learning/ Testing Centers, Philippine embassies for those who are abroad, and in special cases, in their own homes. Monitoring from UP Open University campus is done through a computer camera installed by the exam taker and approved by the UP Open University proctor.

On one hand, these examples show the advantage of technology; on the other, the online nature of learning environment predisposes the assessment system to some weaknesses such as: learners can easily violate exam rules, save the test for other purposes, allow someone to help them answer the test through the internet system, or cheat in some way. Even as efforts are exerted to ensure credibility of the assessment procedure as seen in the examples cited, there remain serious challenges related to the authentication of the learner's identity in the context of ODeL.

ASSESSMENT OF THE ASEAN STUDIES GRADUATE PROGRAM OF THE UP OPEN UNIVERSITY

To maximize the affordances provided by the web, the UP Open University started to adopt online student support in 2001, went fully online in 2007 turning its courses into resource-based packages, and made online teaching as the main approach to instruction. UP Open University grew together with the internet phenomenon allowing access all over the world of online digitized academic texts.

Given these considerations and realities, this chapter considers an online assessment system for a program that requires an innovative approach to capture the nuances of ODeL applied to a new Master of Asean Studies graduate program (MAS) collaboratively developed by a consortium of five open universities in the ASEAN region and offered beginning August 2014. The five universities collaborating in this program are: Universitas Terbuka (Indonesia), Open University of Malaysia, the UP Open University (Philippines), Sukhothai Thammathirat Open University (Thailand), and the Hanoi Open University (Vietnam).

The Master of ASEAN Studies (MAS) aims to promote regional and global understanding about ASEAN countries from the perspective of ASEAN. With the ASEAN integration in 2015, it is expected to attract students from diverse groups worldwide making ODeL relevant. The unique terms of the collaborative nature of the development and delivery of the program suggest that assessment should consider quality and credibility of online assessment and scalability issues.

ADDRESSING QUALITY ISSUES

The Master of ASEAN Studies program consists of 27 units of coursework, 6 units of thesis, and 1 unit of colloquium. Given the program structure, assessment can be based on module-level, unit-level, course-level, or program-level objectives. As previously discussed, any respectable assessment scheme is informed by the learning objectives, activities, and outcomes articulated in the course syllabus and in the program description. For purposes of this chapter, we focus on course-level objectives as well as on program-level objectives to illustrate the important and unique elements of ODeL assessment.

Being a graduate program, MAS requires a research course. Its uniqueness is that it is a course that will have as its final output an Aseanology research proposal. It requires an understanding of the concept of Aseanology and its implication for and application to research. The research course has five course-level objectives that span the levels of expected competencies involving (1) understanding, (2) application, (3) analysis, (4) critical evaluation, and (5) creation. While the objectives are laid out in the order of least to highest competency levels, the activities required in the course all lead up to the development of an Aseanology research proposal.

Since the research proposal is the ultimate course requirement, it will be the focus of the summative assessment of the course. Learning activities related to the first four objectives need not be graded but assessment will be in the form of giving feedback towards achievement of course objective number 5. It is therefore argued that for a given course, assessment could have a duality of purpose -- assessment in the form of feedback and assessment in the form of valuation.

A valuation procedure will include contributions from three sources: faculty-in-charge (FIC); tutor; and fellow learner under a blind review process. Students will be randomly assigned a fellow student's research proposal for evaluation using a rubric with the additional requirement of justifying the score given. In this manner, students are given another opportunity in the learning process to show what they have learned. Reliability measures could then be derived from these sources to ensure fair and transparent assessment.

At the program level, the student is required to take a comprehensive examination after taking 27 units of courses. The comprehensive examination will assess accomplishment of three of the five MAS program objectives:

- to demonstrate comprehensive understanding, insights, and mastery of ASEAN and the countries comprising it;
- to contribute to an enhanced and heightened ASEAN community's consciousness and awareness of its ties of history, culture and bound by a common regional identity but celebrating diversity; and
- to apply balanced theoretical and practical perspectives in engaging with issues and problems in the ASEAN region.

An essay test is considered an appropriate assessment tool for the comprehensive exam as the process of writing an essay involves analytical, critical thinking, and communication skills which are suggestive of a deep learning approach. It allows students control over the selection, organization and presentation of their knowledge and understanding; and challenges them "to present conditional and metatheoretical knowledge if they possess it" (Boulton-Lewis 1995: 146 as cited by Scouler, 1998).

Essay exams can thus provide evidence of understanding and acquisition of ASEAN consciousness and perspective and thus, meet the standard of validity of assessment. A panel from the other four collaborating open universities involved in ASEAN Studies shall evaluate answers to the essay examination to further ensure quality of assessment and in observance of the principles of fairness and transparency.

ADDRESSING CREDIBILITY AND SCALABILITY

Besides the quality of assessment, the credibility of online assessment and scalability are issues that an ODeL program should address.

A possible step is to require students to register ten fingerprints when they apply to the university as a means to authenticate the identity of the learner undergoing assessment. A proctor shall ask the student to scan any one or two of the ten fingers that will be compared to the fingerprint biography database at the university. Student data such as picture, address, and nationality shall be available for the proctor in processing fingerprint approval. Students who will undergo assessment shall be required to use a camera that will record the whole exam session. Such recording will be consulted in times when there is doubt about the assessment result. In cases where the assessment procedure is of objective nature, a computer program, such as Safe Exam Browser which limits copying, surfing, and saving capacity of the learner's computer, shall be used.

In the context of ODeL, students should be able to undergo assessment anytime and anywhere. Thus, scalability (being able to provide assessment to a big number of students at a time) is another vital issue that needs to be addressed. A means for the MAS program to ensure a fair scalable assessment is to develop an assessment bank where numerous assessment sets can be easily drawn that have similar characteristics, such as same assessment objectives, same number of items, same criteria and same grading scheme.

ONLINE ASSESSMENT AS A VALUATION PROCESS

In this chapter, we argue that in open and distance e-Learning (ODeL), assessment is at the core and of primary consideration. Assessment is taken as a valuation process that constructs not just the learner's but also the educational institution's identity. Thus, preparing quality and credible online assessment requires educators to carefully observe the qualities of validity and of reliability and the principles of fairness and of transparency, as well as an awareness of the security and of the scalability of the conceptualized assessment system.

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CHAPTER 5

ePortfolio-based Assessment

Al Francis D. Librero

ABSTRACT

This chapter is based on a round table discussion that recounted my experiences in managing an ePortfolio system for UP Open University Bachelor of Arts in Multimedia Studies program from 2014-2017. My direct experience with ePortfolios started much earlier, but it was only in 2014 when I began to sustain a system that continues to this day and spans multiple courses. The primary focus of this discussion is the prospect of what ePortfolios can be as a learning tool, how well students have responded to the system, and how the system has given me a clearer and wider perspective of assessment. I have achieved a fair amount of success, but the university is nowhere near being able to take advantage of all possible opportunities. There is still a long way to go, but I hope we can take that road and get far.

INTRODUCTION

A few of us from the Faculty of Information and Communication Studies (FICS) had been exploring the use of ePortfolio systems much earlier within a few BA Multimedia Studies (BAMS) courses, but program-wide adoption was not attempted until the start of the Academic Year 2014-2015. My personal interest in this has always been about the system itself and the things that can be possible as far as creativity, design, and media is concerned, and as well as getting to know the students who otherwise would have very little idea about. Assessment has always been a second priority for me, but I will share as much as I can to the extent of our experiences when it comes to assessment.

THE ePORTFOLIO SYSTEM

For the past three years, our ePortfolio system has primarily been used as an artifact repository. In this context, artifact refers to evidence of learning or skills like term papers, a glimpse of what their projects are in their respective courses, or maybe notes on activities they do outside the University. A lot of these students are talented; maybe they're musicians, photographers, or graphic artists. For these students, the ePortfolio system is not only for academic use, but also for sharing their passion be it through photos, videos, or blogs. Previously, we allowed students to use nearly any blogging platform they wanted, because what Modular Object-Oriented Dynamic Learning Environment (MOODLE) provides has limitations which do not make it an ideal management system. We wanted to address that through the ePortfolio system.

Some universities overseas are more advanced with regard to the adoption of ePortfolio systems. In these institutions, an ePortfolio system can typically be an integral part of a learning management system (LMS). MOODLE, for example, works particularly well in tandem with Mahara, an open source ePortfolio system. Unfortunately, while UP Open University can follow suit, we still lack the capacities to do so.

Figure 1 shows the log-in page of the Mahara installation of Athabasca University. The page enumerates the installation's purposes, which are to showcase academic achievements, professional development, readiness for university work, ideas for course development and revision, and research progress. I have seen only a few of ePortfolios from other universities, but they all share similar objectives which revolve around being a repository of evidence of learning and a showcase for peers, teachers, and institutions.

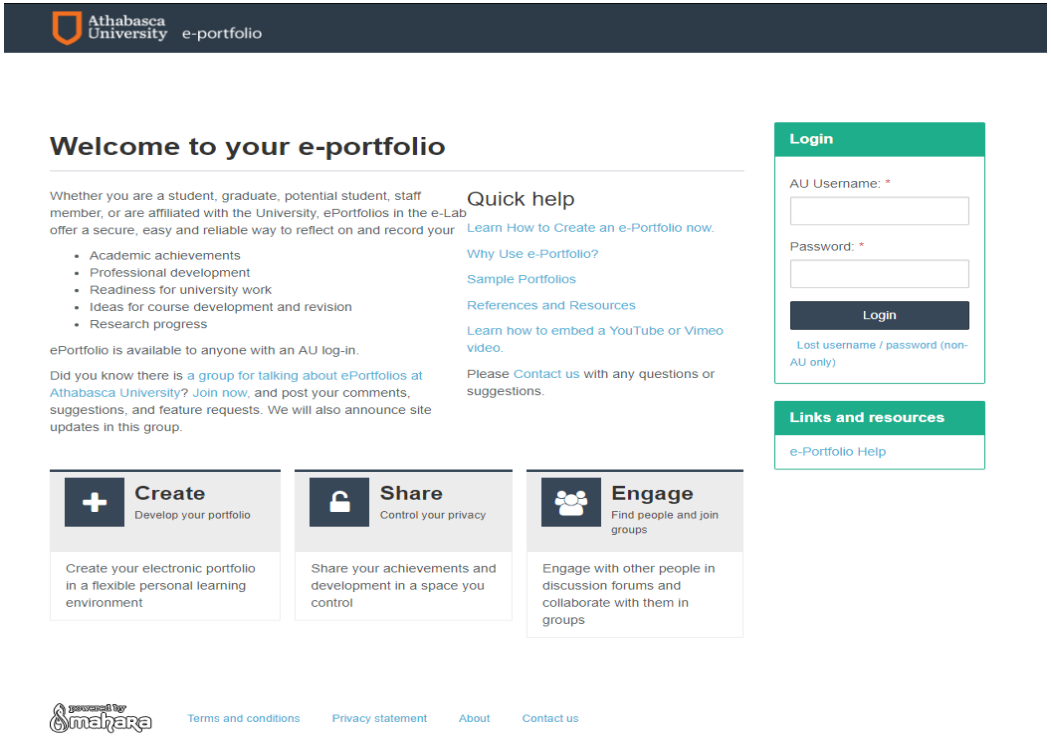

Figure 1. Front page of Athabasca University's ePortfolio system (https://portfolio.elab.athabascau.ca)

Figure 2. Auburn University's ePortfolio Office of University Writing website. (wp.auburn.edu/writing)

The goals of FICS for operating an ePortfolio system are quite similar. Within those goals are a lot of possibilities and opportunities. The Faculty has made a bit of progress, but it has a long way to go.

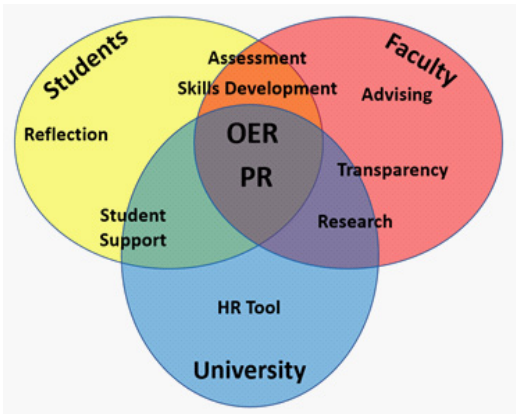

Figure 3. Opportunities in all facets of the university

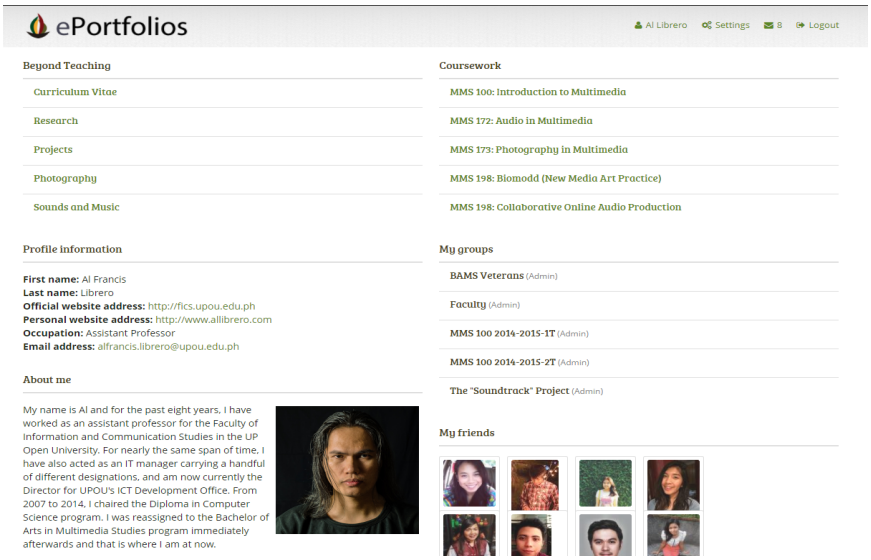

Figure 4. My profile page in UP Open University's experimental Mahara-based ePortfolio system

STUDENT PERCEPTIONS ON THE EPORTFOLIO SYSTEM

I conducted a preliminary student survey (Librero, 2016) which had 75 respondents who used our Mahara-based ePortfolios system. The respondents, and presumably, the survey, were made up of students from BAMS, the Bachelor of Educational Studies (BES), and the Associate in Arts (AA) programs. Nearly three-fourths of the respondents used the system for at least two courses – enough for them to make informed opinions. They pointed out a number of benefits from the system:

1. displays both aptitude and practical skills
2. promotes practice of writing in different styles
3. engages students more effectively than quizzes and examinations
4. allows improved guidance by providing a better glimpse of the students' profiles.

However, disadvantages from the system were also cited:

1. requires additional skill/s
2. limits creativity due to system restrictions
3. has technical issues
4. requires maintenance and provision of support for additional content management system

Weighing the benefits and challenges, almost 95% of the respondents bought into the system, acknowledging the net benefit it allows. They just need more guidance in order to address the cited disadvantages.

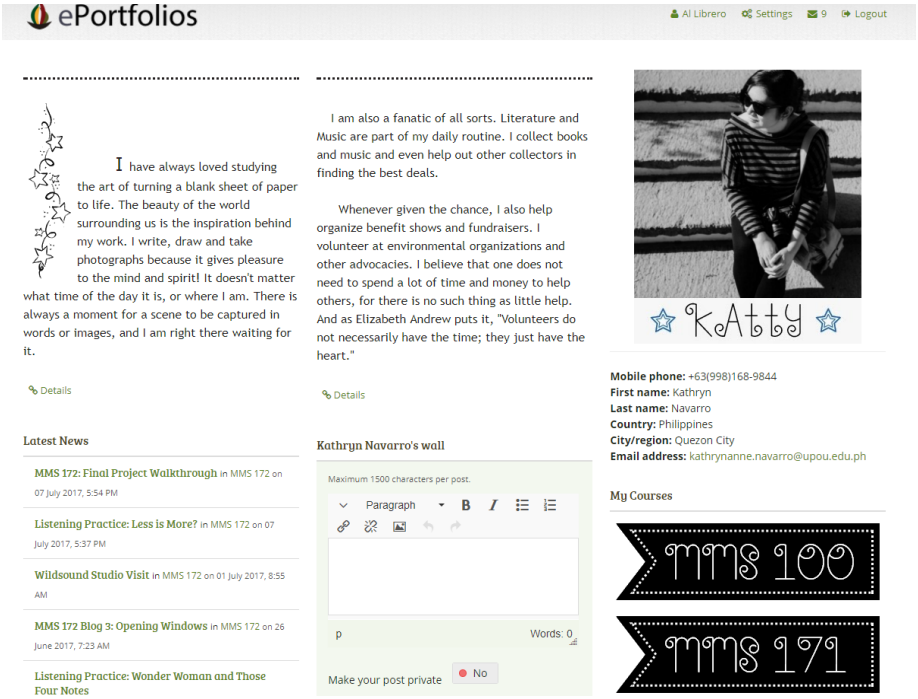

Figure 5. A student profile page in UP Open University's experimental Mahara-based ePortfolio system

BENEFITS

Based on my experience from running the system for three years, the ePortfolio has proven to be an effective platform for self-reflection, allowing deeper perspective on what and how much a student has learned. In my courses, blogging has always been a significant part of assessment as it is one of the major student requirements. Being able to track students directly over multiple courses, I can see how students improve their writing over time. For instance, in MMS 100 (Introduction to Multimedia), students really did not know what they were doing, but by the time they were taking MMS 173 (Photography in Multimedia), a higher course, some of them exhibited a more polished style of writing or, at least, could draw more from their experiences. They became better at expressing themselves or articulating their thoughts.

More importantly, the ePortfolio system is an effective platform for learning by doing, at least as it's framed in Kolb's Cycle of Experiential Learning (See Figure 6) (Gibbs, 1988). For example, when I require a final project, it is not enough that I see, hear, or read the project. For MMS 173, I quickly moved away from final examinations to final projects backed up by documentation through their ePortfolios. Anybody can make a project up. Given the learning environment, it would be easy to take certain liberties and a teacher would have a difficult time understanding the students. A documentation comprised of a series of blog entries and a detailed walkthrough of a student's production process provides a much clearer indication of not just the project results, but also the overall competency throughout the process. As a student articulates these steps in the ePortfolio, I get a clearer picture of each student's learning experience regardless of how the projects turns out.

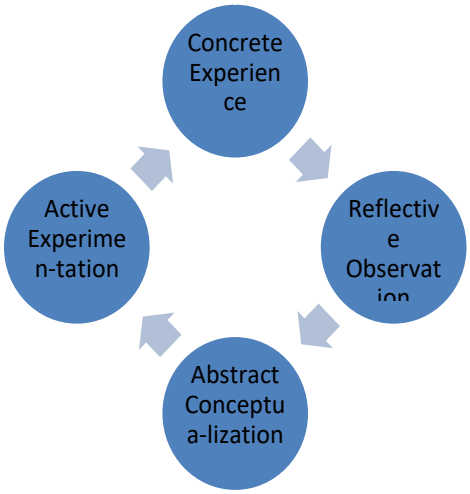

Figure 6. Kolb's Cycle of Experimental Learning

Though it would be easy to believe that having artifacts in the open could facilitate cheating and plagiarism, there are times when it is actually the opposite. I have had a few cases in which students themselves brought to my attention possible similarities of their work to that of their peers, and assured me that cheating was not at play. I do not have the expertise to give a conclusive explanation, but perhaps harboring the very belief that it is too easy to cheat heightens students' need to be more vigilant in protecting their work.

An area which I recognize but have yet to fully explore is the use of ePortfolios as a tool for academic advising. It first came to mind when I noticed that the students started using the ePortfolio to reflect not just on their studies, but also on other matters that affect their performance – from personal backgrounds, interests, priorities, real-life difficulties to grand aspirations. An ePortfolio has the potential to become a complete package from which a student can be evaluated and advised as to how they should proceed with their studies and what to focus on with their capstone. Ambrose and Ambrose (2013) conducted a study along this line, albeit in a blended environment. The study recognized the importance of taking advantage of technologies such as an ePortfolio system in adopting a different paradigm for advising. The prevailing transactional method of students emailing advisers, who in turn replies accordingly could be replaced by a transformational method, wherein students come in prepared and pre-engaged by advisers through their ePortfolios. The entire process could potentially be more comprehensive and efficient, and through a broad assessment and discussion of an ePortfolio's content, students can receive deeper, more meaningful advising.

CHALLENGES

Unfortunately, there are also matters that are yet to be solved within the ePortfolio system. Peer evaluation, and whether or not it can be useful in the learning process, is yet to be studied because there are not much data to work with. It is apparent that students, in general, have not had much practice in peer evaluation for it to be part of their culture. An effective means of encouraging the practice must be discovered and adopted.

Program-wide self-reflection is another issue. The idea is that after students are done with all their coursework, they could go back to look at everything they have loaded on the ePortfolios and then reflect on them, or at least review them on their way to their capstone. There has been little success in carrying this out.

Even with ePortfolios, there is a linearity in learning and assessment that is predominant in UP Open University, or at least in the BAMS program. A student would submit a requirement which will be graded accordingly by the teacher. However, aside from the occasional chance for a student to act on any feedback given, this would be the end of it. This often leads to students not investing themselves in their ePortfolios. I have come across cases where students will abandon their work for years and get back to it only when another course requires its use.

Creative and technical skills are limiting factors when it comes to building ePortfolios. The problem is that BAMS (and possibly any other UP Open University program) does not sufficiently cover all the skills that are relevant, as it is not formally part of any curriculum. The students have to learn and consolidate these skills on their own. As of the moment, I am able to use ePortfolio building as an application of the lessons in MMS 100 (Introduction to Multimedia). However, this action may not be enough as it may be beneficial to BAMS students only. Those from the other programs may be at an even greater disadvantage when they find themselves having to use the ePortfolio system as part of their course requirements.

OVERCOMING THE CHALLENGES

The FICS has been using a Mahara-based system, which can be strict when it comes to publishing and laying out content. On one hand, it may seem flexible for users with limited experience; on the other, some students with more experience in Web design may find the system too restrictive and can get in the way of their creativity. That is why other than keeping updated with the evolution of Mahara, it will also be prudent to explore other platforms which could serve as an ePortfolio system. For example, I have already begun looking into the new Google Sites to take Mahara's place. Its feature set at the time of this writing pales in comparison with Mahara; however, the relative ease of generating good-looking and responsive Web pages is particularly appealing. It also entails less administrative responsibilities, making for easier maintenance, as long as Google's G Suite for Education remains available to users.

First-hand experience has clearly dictated that putting a system in place while offering little to no guidance does not work. Students and teachers alike must understand and appreciate what ePortfolios can offer in comparison to the currently prevailing methods of teaching in UP Open University. A comprehensive guide, such as what the Sweetland Center for Writing in the University of Michigan (https://goo.gl/SKvpqD) offers would be a good start.

Furthermore, ePortfolios must be a formal part of the university's LMS, having the requisite support staff. This can help assure continued operation, as well as assistance to users in the form of technical support and training.

NURTURING AN ePORTFOLIO CULTURE

Institutionalization of the ePorfolio system and the subsequent incorporation of ePortfolio-based assessment in the curriculum, if adopted more aggressively, are actually only the first few steps in the grand scheme of things. Teachers themselves will have to learn how to design and build ePortfolios for themselves and their students; this entails a lot of discussion and hands-on training. With that said, I do believe that the underlying issue to be solved is not technical in nature.

We will have to be open to modifying our teaching methods. Otherwise, my fear is that we will have the tendency to revert back to older tools, as they are the ones which we are more accustomed to, and therefore, can employ with relative ease and convenience. Nguyen (2013) put forward the idea of an ePortfolio system's capacity to support a different paradigm and act as a living portal. An ePortfolio can continually be interpreted and reinterpreted by students and viewers, including teachers. It implies the end result of richer ePortfolio content. This, in turn, would allow teachers a wider and clearer picture as far as assessment and academic advising is concerned. This is something that we, as a university, must want to embrace.

What I see as the most important task in a long term goal (not just adoption, but includes sustained use) is the development of a legitimate ePortfolio culture. Teachers must lead by example in maintaining their own ePortfolios and regularly writing at least short blogs. Students must openly share comments and suggestions amongst each other, as they would in social networking sites. While institutionalization in UP Open University would not mean mandatory use across all programs, everyone must accept the idea that ePortfolio development should be embraced as much as we did the LMS, social media and all the other online applications we use for our day-to-day operations.

I rediscovered something that I overlooked a few years ago when I started looking into ePortfolios - the concept of ePorticulture (Shada, Kelly, Cox, and Malik, 2011); the act or custom of learning; intellectually and professionally developing; transmitting knowledge through the creation; and reviewing and assessing authentic, reflective, and integrative student work shared over time in electronic portfolios. The concept is the combination of ePortfolio-building, agriculture, and horticulture. There are four steps in cultivating crops which can be analogous to ePortfolio development. First is preparing the soil, where you get stakeholders to

buy into the system. Second is planting seeds or transplanting plants which is analogous to the formal institutional adoption and valuation of the system. Third is growing and maintaining plants as building skills and motivation, and keeping the system up and running. The final stage in the cycle is harvesting where actual ePortfolio pages and artifacts are created and shared through the system.

Essentially, the trick is to get people to buy into the whole thing. If you are a teacher, the first factor you'd think of might be the students' attitude towards the system. However, in my experience, adoption on their part is not much of a problem. Ironically, the issue is at the institutional and Faculty levels. This is not about convincing people that using ePortfolio for assessment is a good idea. This is about the university, or more specifically, the Faculty actually adopting the system, making them believe that it is to their best interest to get into it, and then actually use the system. Learn by doing, then lead by example -- that happens to be another key. I wouldn't be confident about ePortfolio-based assessment had I not gotten into constructing it myself. The challenge is worth the effort. I hope that, in time, more people will not just feel the same, but invest their time and effort to embrace it as well.

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CHAPTER 6

Blogging as a Tool for Formative Assessment and Reflective Learning

Alvie Simonette Q. Alip

ABSTRACT

The students' ability to integrate concepts, perform specific skills, and reflect on their own learning are often more successfully measured using non-traditional or alternative assessments such as learning journals. "A learning journal is usually a vehicle for reflection" (Moon, 2003), and teachers can use journal writing to meet specific goals like polishing skills (Hopkins, 2010). The blog or Web log is a type of Web page that is simple to create and disseminate, and is used as a form of online journal (Mason & Rennie, 2010). Through an online interview of the faculty-in-charge (FIC), this paper describes the use of blogging in evaluating the Advance Ecology (BIO 260) students' understanding of important ecological concepts, review on what they have learned, and develop their writing and analytical skills. Results show that blogging can be used as an alternative tool for formative assessment and reflective learning, but generally entails additional time factor for the students and the FIC.

INTRODUCTION

The Ohio Department of Education (ODE) defines assessment as a process of collecting evidence on what students know and can do. Assessments may be classified as pre-assessment (before the education process), formative (during the education process), or summative (after the education process). They provide information and bases for revising lessons according to student performance.

The focus of this chapter will be on formative assessment. According to McManus (2006), "formative assessment is a process used by teachers and students during instruction that provides explicit feedback to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes." An assessment performed over the course of a lesson determines student progress and allows the teachers to adjust their instruction and the students to reflect on their learning (Ohio Department of Education).

Reflective learning is the process of internally examining and exploring an issue of concern. Experiences can prompt reflections on an issue, and can create and clarify meaning in terms of self, resulting in a changed conceptual perspective (Boyd & Fales, 1983). Critical thinking, self-awareness, and analytical skills are also developed in reflective learning. Furthermore, it helps students "to understand better how theory can be applied in practice or where practice is consistent with concepts and theories" (The Higher Education Academy).

Reflection is important in higher education as explained by many theories, the two leading theorists of whom are Schon (1983) and Kolb (1984). The reflective practice is defined by Schon in two capabilities: reflection in action while doing something, and reflection on action after an action has been done. Kolb, on the other hand, developed the theory of experiential learning and produced the cyclical model for reflective practice where individuals learn from experience. The model is known as the Kolb Cycle, the Learning Cycle, or the Experiential Learning Cycle, and is comprised of four stages as shown in Figure 1. To experience successful learning, "the learner must make the link between the theory and action by planning, acting out, reflecting, and relating it back to the theory" (Davies, n.d.).

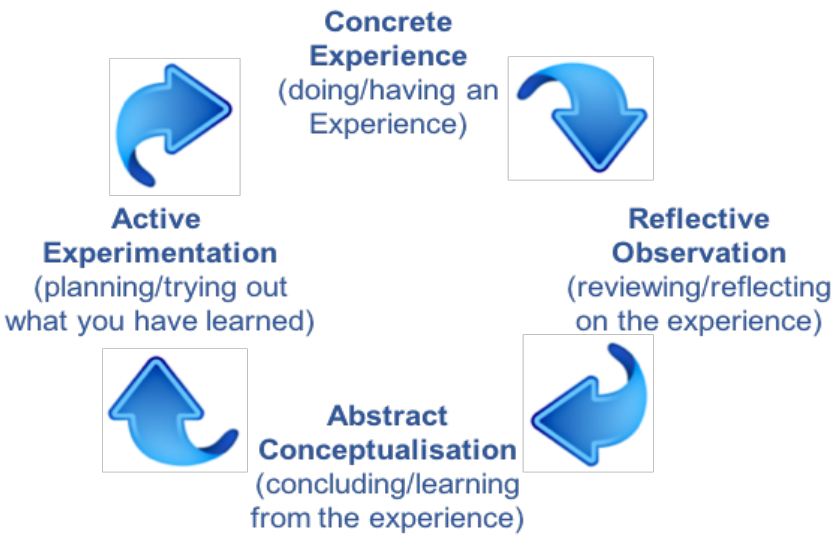

Figure 1. The Kolb Cycle

Reflective learning can be assessed in various forms that provide structure wherein thoughts and recollections are recorded and can be reviewed. These forms include a reflective portfolio, essay, diary, log, or journal.

The journal was identified by Ibe (1997) as one of the non-traditional assessment tools. According to Hopkins (2010),

> "Teachers can use journal writing to meet specific goals, or the purpose can be wide open. Some teachers check journal writing and work on polishing skills; others use journals as the one 'uncorrected' form of writing that students produce. Some teachers provide prompts to help students begin their writing. Others leave decisions about the direction and flow of student journals up to the students." (Hopkins, 2010; par. 1)

Learning journals are increasingly used in higher education as means of facilitating or assessing learning. A learning journal is characterized as: diverse; mostly in written format; generally reflective and accumulated over a period of time with the intention to learn; flexible as it can be structured or unstructured; a useful back-up to learning; accentuates favorable conditions for learning such as space, time, and reflection; and applicable not only to literary but also to all disciplines (Moon, 2003).

The blog or Web log is a "a type of Web page that is simple to create and to disseminate and that is used as a form of online journal" (Mason & Rennie, 2010). It is also defined as "a web page that serves as a publicly accessible personal journal for an individual", and is typically updated daily and often reflects the personality of the author (Beal, 2017).

The goal of this chapter is to describe the use of blogging as a potential tool for formative assessment and reflective learning of Advance Ecology (BIO 260) students. Specifically, the objectives are to: (1) determine the advantages and disadvantages of using blogging; and (2) describe the Faculty-in-charge's observations on students' experiences with blogging.

METHODOLOGY

The information and data needed were collected from existing documents and databases (e.g., Office of the University Registrar database, UP Open University website, course guide); interview of the BIO 260 FIC; and viewing of the blogs created by BIO 260 students.

DISCUSSION

The BIO 260 FIC used the blog to evaluate the students' understanding of important ecological concepts, reflect on what they have learned, and develop their writing and analytical skills. The blog is 20% of each BIO 260 student's final grade. Ten blog entries were required of each student, for a total of 200 points. The blog entries can be time-based, module-based, or topic-based, and were evaluated based on presentation (30%), grammar (35%), and correctness of understanding of the concepts (35%).

Below are sample blog links from BIO 260 students:

- http://berdengbabaesaabudhabi.blogspot.com

Figure 2. Screenshot of sample blog of a BIO 260 student

- http://bio260joaquinpalencia.blogspot.com

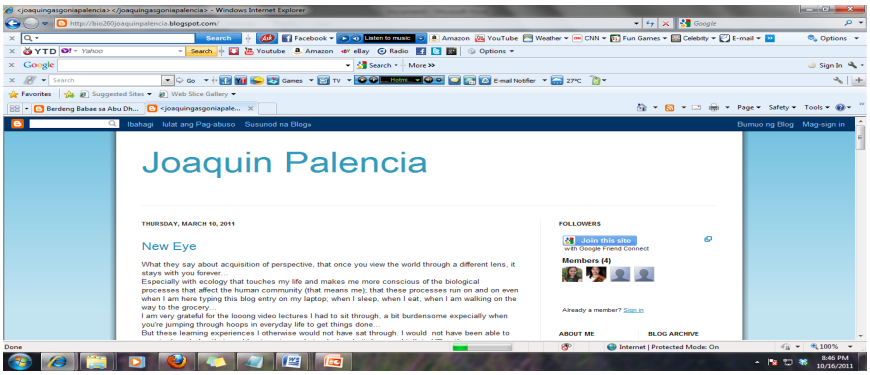

Figure 3. Screenshot of sample blog of a BIO 260 student

- http://jason81ecology.blogspot.com/

Figure 4. Screenshot of sample blog of a BIO 260 student

FIC's Observation On Students' Experiences With Blogging As A Formative Assessment Tool

"Assessment is the engine that drives student learning" (Cowan, 2005). One important role of assessment is helping students understand how they learn for them to improve their own learning and thinking skills. The BIO 260 FIC described his students' experiences with blogging as a formative experience below:

> *When students are asked to reiterate their learnings/understanding of the content, and put them into action, they will be able to see whether or not they have learned it correctly... it's actually a visualization of their conception of the contents... visualization of their conception can help them re-check whether it is correct or not... so once seen as misconception, they can easily rectify it...* (R.B., BIO 260 FIC)

FIC's Observation On Students' Experiences With Blogging As A Reflective Learning Tool

The activation of prior knowledge and knowledge construction, deconstruction, and reconstruction are enabled in learners through reflective learning. In doing reflection, the students benefit through learning from experience, developing metacognitive skills, developing the skills of professional practice, exercising responsibility for their own learning and actions, building capacity to restructure or reframe

knowledge, and continual improvements in practice (Curtin University, n.d.).

Several authors are in agreement in describing blogging as a means of encouraging more introspection and deep thinking among students while they engage themselves in writing on their blogs or giving comments on someone else's blogs (Armstrong et al., 2004; Chan & Ridgway, 2003; Poling, 2005; Stiler and Philleo, 2003 as cited by Goh, Quek & Lee, 2010).

The BIO 260 FIC described his students' reflective learning experience below:

> the things that they are putting into the blog are actually reflections of the contents...and as I observed, they are even putting additional information.. over and above the things discussed in the class... Likewise, it allows the students to determine whether or not they have weak writing and analytical skills.. and as the teacher, it will help me identify the type of support that I need to provide to students... (R.B., BIO 260 FIC)

Students' Experiences with Blogging as a Formative Assessment and Reflective Learning Tool

Active learning is encouraged through a well-designed assessment tool, especially when its delivery is innovative and engaging (Cowan, 2005). Online learning journals like blogging can provide assessments that illustrate student progress during an instructional unit or over a longer period of time. Through blogging, reflective learning is being practiced as students integrate and apply their thoughts to their course concepts (Palloff & Pratt, 2009). Blogging allows the students to process information in a more personal level and at the same time gain different perspectives, thus making the course content more relevant to them (Davi, et al., 2007; Kerawella, et al., 2008; Xie et al., 2008).

A student is said to have a meaningful learning experience if she or he can make sense of her or his own learning and is actively engaged in the learning process. Such experience is expressed by one student:

> ... it seems this is my first course where I have to read and read and read. I'm not complaining. There's no use. I actually learned a lot. From experience, I seem to learn more on my own. (J.A., Cross-enrollee, BIO 260 student)

Table 1 shows the FIC's observations on the advantages and disadvantages of using blogs as part of the BIO 260 course requirement. Blogging enhanced the students' reflections on the subject matter, though it entailed additional time to blog and to read scientific articles, and may discriminate some students who still need to develop blogging skills.

Table 1. Advantages and Disadvantages of Using Blog in BIO 260 Course

ADVANTAGES	DISADVANTAGES
1. Available 24/7	1. Internet connectivity dependent
2. Deal for interactive learning	2. Learners are tempted to just copy and paste the explanation of the concept, and assume it is their understanding
3. Enhances reflections on the subject matter	3. Requires additional time for learners to come up with an entry
4. Has potential for developing learners' skills	

The availability of blogging is in line with the 'anytime and anywhere' feature of online and distance e-Learning (ODeL). Moreover, the other advantages of blogging specified above implied that a sense of community is fostered among students as they learn together in discussing, exploring, and discovering their course content (Glogoff, 2005). According to Raffo (2012):

> *Blogs provide a forum to hone writing and communication skills, critical thinking and research skills, and competency in technology, while promoting a student-centered and self-directed learning environment (p. 43).*

On the other hand, the disadvantages of blogging have something more to do with the technical and practical issues. Internet access is one of the basic requirements for ODeL students to have, and their accessibility to a fast Internet connection is dependent on the availability of a good Internet service provider in their location. Whereas, in blogging their entries, the students need to be provided with practical tips on blogging and the ethical issues that comes with it. As posit by Xie et al. (2008), "students essentially become more skilled reflective thinkers and learning

experiences are strengthened through their blogging experiences." In short, the more students continue to blog, the more their reflective skills increase.

CONCLUSION

The study reveals that blogging is a potential tool for formative assessment and reflective learning. However, there are advantages (e.g., available 24/7, ideal for interactive learning, enhance reflection) and disadvantages (e.g., Internet dependent, tendency to copy concepts, time constraint) in using blogging as assessment tool. The FIC also observed that using blogging as an assessment tool may discriminate some students (e.g., no Internet connection, little background), but making blogging as part of the course requirement not only compelled students to develop their blogging skills and reading scientific papers, but it also engaged them to deeper learning and more meaningful learning experiences. By critically reflecting on the course content and how they can be connected with their personal experiences, blogging allows the students to attain a sense of ownership over their learning. Moreover, the results indicate that blogging also fostered a sense of community as students engaged in sharing their ideas with their classmates throughout the course delivery.

RECOMMENDATIONS

The teachers should ensure that the assessments they will be using will give their students the opportunity to be active and reflective participants in their learning. They should also use assessment tools that will help students identify and understand how they learn to enable them to improve their own learning and thinking skills.

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CHAPTER 7

Connected and Separate Knowing as an Assessment Framework in Evaluating the Online Learning of Diploma in International Health Students

Myra D. Oruga and Jelaine R. Bagos

ABSTRACT

This cross-sectional study explored Connected Knowing and Separate Knowing in web-learning as an approach in evaluating the learning of online Diploma in International Health (DIH) students in IH 213 (Health Promotion for Equity and Sustainable Development) course at the UP Open University. Among the objectives of the study was to evaluate their learning in the course by determing their learning style -- the use of Connected Knowing and/or Separate Knowing in web-learning. A total of 80 DIH students accomplished the questionnaire online via Google Forms from August 2014 to April 2015. Results point to the need for professors to encourage the use of integrated approach -- both Separate Knowing (detached and critical) and Connected Knowing (attached and appreciative) in studyng their lessons and discussing subject matter with their professors and co-learners. To achieve this, the professor herself or himself must also use the approach and design appropriate assessment techniques that would not only gauge students' learning but would also help them grow and be proficient in both modes of learning.

INTRODUCTION

It is essential for teachers to know the ways by which students learn, and adjust their techniques in teaching and assessing the learning of students. Belenky, Clinchy, Goldberger, and Tarule (1986) examined the epistemology, or "ways of knowing", of a diverse group of women, with focus on identity and intellectual development across a broad range of contexts including, but not limited to, the formal educational system. While conceptually grounded originally in the work of William G. Perry (1970) in cognitive (or intellectual) development and of Carol Gilligan (1982) in moral or personal development in women, the authors discovered that existing developmental theories at that time did not address some issues and experiences that were common and significant in the lives and cognitive development of women (Love & Guthrie, 1999). In this study, the epistemology concept of Connected and Separate Knowing is not only confined to addressing women's learning but also applied to men's learning as there are very limited studies in the area. Specifically, the study sought to:

1. determine the socio-demographic characteristics of the respondents;
2. evaluate the learning of respondents using connected and separate knowing; and
3. correlate the socio-demographic characteristics of respondents to their learnings.

FRAMEWORK

Clinchy (1989) explains that the heart of Separate Knowing detachment. Furthermore, separate knowers are aloof from the object being analyzed. Separate knowers take an impersonal stance; they follow certain rules or procedures to ensure that judgment is unbiased. In contrast, connected knowers easily recognize disagreement but do not deal with disagreement by arguing. They are not dispassionate, unbiased observers. The heart of Connected Knowing is imaginative attachment. Connected knowers are uncritical. Generally, women are connected knowers while men are separate knowers.

Separate and Connected Knowing are classified as procedural knowledge. *Procedural knowledge* reflects recognition that multiple sources of knowledge exist, and that procedures are necessary for evaluating the

relative merit of these sources. *Procedural knowers* focus on methods and techniques for evaluating the accuracy of external truth and the relative worth of authority. The transition to *procedural knowledge* was experienced by many women in the study, initially, as a regression or crisis of confidence, as the inner voice of subjective knowing became critical both of external authorities and internal subjective knowledge (Love & Guthrie 1999). However, what followed was the recognition that insights and information outside of personal experience could have a bearing on knowledge. *Procedural knowers* sought to understand authorities, focusing on reasoned reflection rather than absolutism, (Love & Guthrie, 1999) and evaluate information that could be interpreted in multiple ways through the use of context-specific procedures (West, 2004).

Belenky, and colleagues (1986) describe two alternative modes of procedural knowledge: *Separate* Knowing and *Connected* Knowing. *Separate* knowers tend to be adversarial and focused on critical analysis that excludes personal feelings and beliefs. Academic environments often favor this form of *procedural knowledge*. *Connected* knowers, on the other hand, seek to understand others' ideas and points of view, emphasizing the relevance of context in the development of knowledge and the fundamental value of experience. Most *procedural knowers* in the study were economically privileged, Caucasian, young college students or graduates.

Marrs and Benton (2009) studied the relationship between Separate and Connected Knowing and approaches to learning. In their study, they found out that connected and separate ways of knowing were related to deep and achieving approaches to learning. Two hundred forty-one (72 men and 169 women) white or caucasian and Mexican-American community college students in the Southwestern and Midwestern United States completed the *Attitudes Towards Thinking and Learning Survey* (ATTLS) and the *Shortened Study Process Questionnaire* (SSPQ). No significant differences in Separate Knowing and Connected Knowing were found between White and Mexican-American students. However, men scored higher than women on Separate Knowing and lower on Connected Knowing. In addition, both Connected Knowing and Separate Knowing were significantly related to a deep approach to learning while only CK was significantly related to achieving approach.

Relationship of Connected Knowing. and Separate Knowing to the learning styles of Kolb, formal reasoning, and intelligence was studied by Knight and colleagues (1997). The study which was composed of

three separate studies revealed the following: study 1 (126 females, 117 males) found that males who were more connected were more likely to describe their style as emphasizing feeling rather than thinking (i.e., scored higher on Concrete Experience). Study 2 (59 females, 39 males) and study 3 (56 females, 58 males) found no relationship between Connected or Separate Knowing and formal reasoning and vocabulary or abstract thinking ability, respectively.

A study by Enns (2012) on *Integrating Separate and Connected Knowing: The Experiential Learning Model* explains that there are differences between Separate and Connected Knowing as previously explained by Belenky, and colleagues (1986). It also suggests that the Experiential Learning Model (Kolb, 1981, 1984) is a useful framework for integrating traditional, separate knowing, and connected, collaborative learning. The strengths of the model and a list of activities and examples associated with various learning positions were also identified.

METHODOLOGY

Eighty (80) Diploma in International Health (DIH) students who served as respondents of the study were selected through cluster sampling. To collect data from the respondents, an online survey via Google Forms was carried out from August 2014 to April 2015. The questionnaires used for Connected and Separate Knowing were tested for validity and reliability resulting in Cronbach's alpha of 0.8. Analysis of data was done using SPSS version 20. Mean and frequency were computed and relationships of the variables were determined using Spearman's rank correlation.

RESULTS AND DISCUSSIONS

Table 1 shows the socio-demographic profile of the respondents and their percentage distribution. Seventy-one percent (71%) of the respondents were between 35-38 years old, and 29% were between 39-42 years old. 78% were single while 22% were married. There were more male respondents (81%) and more who were non-medical doctors (69%). Respondents were mostly pharmacists, nurses, or therapists. Lastly, 66% of them are based in the Philippines (local).

Table 1. Distribution of respondents by socio-demographic characteristics

SOCIO-DEMOGRAPHIC CHARACTERISTIC		PERCENTAGE (%)
Age	35-38	71
	39-42	29
Civil Status	Single	78
	Married	22
Gender	Male	81
	Female	19
Occupation	Non-Medical Doctor	69
	Medical Doctor	31
Location	Local	66
	Offshore	34

Evaluation of the Learning Style of the respondents in terms of Separate and Connected Knowing is shown in Table 2. Constructs measured in this study were relevance, reflective, and interpretation for Separate Knowing; and interactivity, tutor support, and peer support for Connected Knowing. Results of the study revealed that students are often either separate and/or connected knowers. It can be implied from the results that more women use Connected Knowing while more men use Separate Knowing in online learning. Studies revealed that men are more comfortable than women with the adversarial style. Some men's responses to questions about Connected Knowing reflect an ambivalence similar to the women's attitudes toward argument. They ought to try harder to enter the other person's perspective, but it is difficult and uncomfortable for them so they do not do it much (Clinchy, 1989).

Table 2. Evaluation of the learning style of the respondents in terms of Separate and Connected Knowing

LEARNING TYPE	CONSTRUCTS MEASURED	MEAN	VERBAL INTERPRETATION
Separate Knowing	Relevance	4.19	Often
	Reflective	3.85	Often
	Interpretation	4.10	Often
Connected Knowing	Interactivity	3.94	Often
	Tutor Support	3.91	Often
	Peer Support	3.86	Often

Table 3a shows the correlations between Separate Knowing and socio-demographic characteristics of the respondents. Study reveals that among the socio-demographic characteristics, civil status and gender have significant correlations to being a separate knower. In terms of gender, the finding is similar to other studies which revealed that males are more of a separate knower while females are more of a connected

knower Clinchy, 1989; Marrs & Benton, 2009). Separate Knowing often takes the form of an adversarial proceeding. The separate knower's primary mode of discourse is the argument. Separate knowers think of contrasting position and then argue it. In a class discussion, however, female students often refuse to argue with their teacher or classmates (Clinchy, 1989). A possible reason for this is that women have been taught since early childhood to speak in "small, soft voices" (Rich, 2012.). Rich (2013.) says women are taught about unfemininity of assertiveness. They are uneasy with the prospect of having to defend their opinions against each other. In terms of civil status, it can be implied from the result that single students can be more of a separate knower than the married ones since their limited life experience can lead to their being argumentative rather than being more understanding and empathic (Knight et al, 2000).

Table 3a. Correlations between Separate Knowing and respondents' socio-demographic characteristics

SOCIO-DEMOGRAPHIC CHARACTERISTIC		P-VALUE	INTERPRETATION
Age	SEPARATE KNOWING	0.1056	Not significant
Civil Status		0.034	Significant
Gender		0.020	Significant
Occupation		0.789	Not significant
Location		0.988	Not significant

Table 3b shows the correlations between Connected Knowing and socio-demographic characteristics of the respondents. The study reveals that among the socio-demographic characteristics, only gender has significant correlations to being a connected knower. According to studies, women tend toward Connected Knowing, while men tend toward Separate Knowing (Clinchy, 1989; Marrs & Benton, 2009). A connected knower believes that in order to understand what a person is saying, one must adopt the person's own terms and refrain from judgment. Women could recognize disagreement, but they do not deal with disagreement by arguing separate knower's mode of discourse. When a woman disagrees with someone, she does not start arguing in her head, instead she tries to imagine herself into the person's situation; she allies herself with the other person's position even when they disagree with it. Instead of looking for what is wrong with the other person's idea, women usually look for why it makes sense, how it might be right. While the voice of Separate Knowing is argument, the voice of Connected Knowing is narration (Cinchy, 1989).

Table 3b. Correlations between Connected Knowing and respondents' socio-demographic characteristics

SOCIO-DEMOGRAPHIC CHARACTERISTIC		P-VALUE	INTERPRETATION
Age	CONNECTED KNOWING	2.089	Not significant
Civil Status		0.768	Not significant
Gender		0.010	Significant
Occupation		0.657	Not significant
Location		0.800	Not significant

CONCLUSIONS AND RECOMMENDATIONS

Results revealed that the two ways of knowing are gender-related with more men than women showing a propensity for Separate Knowing and more women than men showing a propensity for Connected Knowing.

This goes to show that the students in the course, both men and women, must be encouraged to use the integrated approach—both Separate Knowing (detached and critical) and Connected Knowing (attached and appreciative). According to Clinchy (1989), this integral approach helps students develop systematic, deliberate procedures for understanding and evaluating ideas, and developing new ones. It makes them think and creates a learning situation that is more meaningful to them. Teachers would play an important role in helping their students develop this flexible way of knowing that is both connected end at separate.

According to studies, to help students achieve this learning approach, teachers or professors must also use an integrated approach -- they should first be more liberal in terms of student's ideas, rather than be excoriating. Teachers must first make connections with their experiences (e.g., their own failures) and the students' efforts. Once the teacher had established a connection, the student could tolerate or even welcome the teacher's criticism. Criticism will then become collaborative rather than condescending. This approach would help students adopt both Connected and Separate Knowing in studying their lessons and discussing subject matter with their professors and co-learners.

Considering men's inclination toward separate knowing and women toward connected knowing, the professor of the course could also design appropriate assessment techniques which will not only gauge students'

learning, but would also help them grow and be proficient in both modes of learning--they will be critical and at the same time understanding or emphatic. Assessment tools such as online discussion forums and debates, among others, can be used to encourage discussion among students regarding the topics in the course. The discussion in a form of conversation and exchange of ideas or debates will serve as a perfect platform for students to freely narrate or argue their ideas and positions and exercise their use of both connected and separate ways of knowing.

Both teachers and students must value Connected Knowing, as well as critical thinking. Separate Knowing is of great importance. It allows people to criticize their own and other person's thinking. On the other hand, Connected Knowing allows people to understand first the context of the knowledge source before thinking critically or evaluating the statement. Separate Knowing and Connected Knowing are both powerful ways of knowing.

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CHAPTER 8

Peer Assessment as a Tool for Co-creation of Academic Text in ODeL

Grace Javier Alfonso, Margaret Jarmin Suarez, and Cherry B. Bundalian

ABSTRACT

Open and distance e-Learning (ODeL) in higher education has been transforming our traditional view of learning not just in the delivery of courses but also in the method of teaching, learning, and assessment. Just like in the traditional setting, peer assessment is also an integral part of online learning. Peer assessment in the learning process must enhance interpretation and reflection, develop critical thinking skills, and accept peer criticism. Aside from providing better understanding of students' needs, development, and achievement, effective and reliable peer assessment can also be a tool for co-creation of academic text. As such, peer assessment is also a means for knowledge sharing and creation among teachers and learners. Thus, peer assessment should be perceived as 'assessment for learning' more than 'assessment of learning'.

WHAT IS PEER ASSESSMENT?

According to Brooke and Andrade (2013), peer assessment is defined by the following:

> "simply a matter of students giving informed feedback to one another on an assignment. Effective peer assessment is related to clear standards and is supported by a constructive process of critique. Peer assessment is a valuable tool because feedback from peers can be delivered with more immediacy and in greater volume than teacher feedback. Peer assessment should happen during the learning process, on works-in-progress, and be followed by opportunities for students to use the feedback they received to revise their work" (Brooke & Andrade, 2013; p. 1)

Thus, peer assessment should not be a process by which peers determine grades for one another.

Peer assessment enhances student interpretation and reflection. Students are able to observe their peers' work and learning process, and therefore come to a better understanding of how their peers learn. In the process of peer assessment, students are capable of learning how to make judgment, criticize peer work, and accept peer criticism, thereby developing their critical thinking skills (Lan et al., 2007; Kwok & Ma, 1999).

Brooke and Andrade (2013; p. 2) also listed the guidelines for effective peer assessment as follows:

1. Determine the criteria on which the assignment will be assessed (what counts).

   This can be done by the teacher alone, or preferably by co-constructing a checklist or rubric with students.

2. The teacher groups students into small peer feedback groups.

   Two to four students can be grouped based on ability level.

3. The teacher may take an assignment and use the Ladder of Feedback protocol to ask clarifying questions, state what she or he

values about the assignment, list what concerns her or him about it, and ultimately make suggestions (not mandates) that may be used to improve the assignment.

4. Students receive a checklist or document that reminds them how to deliver effective peer feedback. The Ladder of Feedback is a good choice of a checklist for students to use as a quick reference.

5. The teacher clarifies the assignment to the students. Clarification includes peer assessment of performance and the timeline for that assessment.

6. The teacher actively monitors the progress of the peer feedback groups.

   Students will need a lot of support when they are first introduced to peer assessment, and less as they become accustomed to it.

7. The teacher monitors the quality of feedback.

   The teacher ensures that her students are using the constructive feedback protocol (possibly the Ladder of Feedback).

8. Peer feedback is checked for reliability.

   The teacher may compare she or he feedback on an assignment with a student's feedback to check for alignment and provide further support and instruction if needed.

9. The teacher provides feedback to students on the effectiveness of their peer assessment.

10. After students have generated effective peer feedback, it should be used to guide student revisions of works-in-progress.

Similarly, Yeh and colleagues (2008), state that "peer assessment becomes a popular and effective approach to enhance students' critical thinking skills and make them reflect more about their and others' work." The study they conducted showed how web-based peer assessment systems were developed and applied to assist in assessing peers' works in several school or university activities. The application of peer assessment encouraged the students to deeply reflect, evaluate, and comment on

peers' work. It was also noted, based on some studies, that peer feedback will considerably "strengthen students' academic writing skills as well as foster meta-cognitive awareness on learning processes" (Gibbs et al. 2004, Nicol et. al 2006, Jensen, 2017).

PEER ASSESSMENT IN ODEL

Open and distance e-Learning (ODeL) is a worldview of teaching and learning that is grounded on three (3) main aspects: the access, equity, and resource sharing philosophy of open learning; the learner-centered and flexible technology mediation in distance education; and the connectivity, ubiquity, and interactivity approaches of e-Learning, while being supported by the values that underpin the university ethos – academic excellence, academic freedom, intellectual pluralism, and service to society (Alfonso, 2014).

Just like in a traditional education setting, peer assessment is also an integral part of an online learning environment. A study that looked at the benefits of the group or self-evaluation integrated in an open and distance learning system particularly states that group discussion is a vital aspect of study skills in an open and distance learning environment which involves self, peer, and group participation (Usuji, U.S.A.,2012).

Peer or group self-assessment of assignments, projects and/or tests can improve the learning experiences of the students (Usuji, U.S.A., 2012 cited in Boud 1995; Brown & Knight, 1994; Gibbs, 1992; Brown, Bull & Pendlebury, 1997; Brown & Glasner, 1999; Brown & Dove, 1990). Again, this can be utilized in helping the students develop critical thinking during the evaluation process.

Though peer-assessment is recognized as one of the useful tools for evaluating learning and skills development in an open and distance e-Learning setting, there are also challenges in this kind of assessment. For one, learners may not have enough knowledge and experiences to evaluate their peer's work. Another concern is the reliability or quality of learner's feedback. It is important that the learners accept accountability and provide careful comments; however, not everyone gets involved (Hadaddi, et al., 2017).

In this course of the UP Open University, peer assessment was introduced in several online courses under the Bachelor of Arts in Multimedia Studies

(BAMS) program. One of the major courses under BAMS program that employs peer assessment as a tool for co-creation of academic texts is Videography in Multimedia (MMS 175). In this course there is an emphasis on the teacher and learner as multimedia researchers and co-creators of academic text. MMS 175 focuses on the process and techniques of producing videos with focus on the visual language. Principles of videography are discussed extensively to provide a framework to ground the capturing of images in the student's video outputs. The theorizing on videography as form of research, documentary, and narrative-telling brings students in to higher level of innovation, creativity, and critical thinking fit to critique and evaluate their works and the works of others.

Furthermore, the course focuses on capacitating students in knowing what images to capture. The importance of the concept, "know how to see", and automatically use these principles of visual design as part of the process of capturing the moving images through video footage is emphasized. Course outputs of the students are largely concentrated on principles of design that highlight the importance of taking up the aspects such as frame, shot, sequence, scene, time, pace, rhythm, mise-en-scène, and montage among others which are present in all video works.

The course navigates the students through the process of generating videos as part of multimedia productions. As an exercise, they are asked to produce a short video using montage of short takes, and a short video making use of long take. This emphasizes that the doing of videography highlights its praxis. The way multimedia productions capture process, emotion, concept, and story under the different genres are showcased in this course. There are six (6) genres employed in this course: learning objects, informational materials, documentaries, animation, experimental, and narrative. This course addresses the development of skills and awareness of theorizing in multimedia production. Going through this exercise-driven course design brings the students in doing their exercises through open fora, synthesis papers, reflection papers and short video exercises to finally prepare them for the peer assessed final video production.

THE PEER ASSESSMENT PROCESS

As part of the course requirements, the students are required to produce their own video output. A very brief version of the annotation or write-up of their work and the URL of final video production in the forum in

myPortal are shared with their fellow learners. Viewing is scheduled, and the same forum is used to give insights on their classmates' productions. Furthermore, the forum is a venue for sharing and inviting their classmates to watch each other's work.

After watching the video productions of their classmates, students are required to submit in the assignment bin their "Top Ten" choices, with reasons for each choice. This is considered the final assignment in the course.

INSIGHTS FROM PEER ASSESSMENT

Students' Insights

The top ten choices of the students are listed and ranked accordingly. Out of the list, the top five video productions are selected. in this particular instance, insights of the students on the top two videos were obtained.

Top 1 video:

"The narration in this video is what makes it unique against the other video productions in this list. The cuts were done in tune with the narration and the whole production had a rhythm to it that gave it a good sense of flow. The angles taken were also very interesting as well as the blurry and moving shots. Overall this is an excellent production but I think a more muted approach in color editing would make the visuals more in tune with the audio."

"The short film was relatable; he was able to apply all the good elements to create a good video – depth of field, panning, zoom, colors, looking space, extreme close up and lastly his storytelling and/or narration fits the video."

"Works that tugs the audience's heartstrings like this is something I've always admired. This is an excellent video, good audio quality; elements of design can be noted."

"The video had an indie feel to it. It was raw but it looked professional. I can see that he applied the different camera shots and camera movements that were taught to us."

"I love how he has used the right scenes to emphasize the message that he is talking about. Coupled with great videography, I believe he was effective in bringing out emotions from the video itself and channel it to the feelings of the people who are watching it. I was moved by the poetic prowess of the video creator and the message that is being sent out by the video."

"A video that is mainly aimed at showing a poet's deep inner conflict is an interesting and melancholic piece for the entertainment and engagement of the viewers. Subtitles are perfectly matched to the clips that bring visual and vivid artistic interpretation to the lines of the poem. The use of pitch black screen times is also clever for this can create a subtle but felt feeling and experience. The narrator's voice is great, his is handsome and probably many girls will fall in love with the voice."

"Long shot, medium shot and close up shots are some of the shots being applied in his film.

1. In terms of camera movements, there are some follow shot having a bit small of unsteadiness in his camera, although the application of smoothness is still there.
2. He uses more on panning and tilting
3. In terms of Camera Placement
4. Application of Low and High angle shots
5. In terms of Composition
6. He applied the rule of thirds
7. And the depth of field composition"

Top 2 video:

"The plot is simple but it is incredible in a way that many of its viewers can relate to it. The story of expressing our feelings will always be a timeless experience for us human beings. Stop motion animation is indeed a challenging genre. From what I saw from this clip, there were numerous picture frames that were employed to accomplish this project. Only a truly dedicated video creator can do this for the job calls for an uncanny eye for detail. The use of Pokémon music is also a good idea as this production can appeal to those who still have their hearts as a child."

"The video was playfully silly and feel good at most. I am not discounting the effort of the creator but I am just saying that I felt good all the time that I was watching the project. Kudos for putting the effort in this

awesome project and the typical romantic setup made it look cheesier but refreshing to watch."

"I like the video because it seems like I am watching a live game in a different way. I love how creative she is organizing all her collections so she can show it in her video."

"I picked this video because of the effects and camera shots that were incorporated in it. There were minimal movements from the inanimate objects themselves which did not make the movements look smooth but the changes in focus and angels were clean."

"Good background music, good angles used, and much effort was given to complete this wonderful video. I am giggling like a kid while watching this video. I love and enjoyed it so much!"

"I have always been fascinated with stop motion animation video, and I admire the people behind it. Paola's shot were clear; depth of field is on point also her close up shots. Storytelling and post video editing was cool. The over the shoulder shots, and the depth of field were applied."

Teacher's Insight

Upon reading and evaluating the insights and comments of the students on their classmate's video outputs, the following realizations were concluded in the application of peer assessment:

- Peer assessment promotes different perspectives in learning

  Peer assessment also called peer grading, peer review, or peer evaluation is commonly used in teaching whether it be a face-to-face or online mode of education. It is a process of evaluating another person's work that does not only involve one's own opinion but also critical thinking based on certain criteria and rubrics. It is beyond mere looking—it is seeing with careful attention to and respect for the work. We think that it is mostly from the teacher that the learning emanates; but with peer assessment, we see students as source of knowledge and learning too. Students are able to assess others' and their own work the same time realizing things they did not know before, thereby gaining new learnings from their classmates. Students are able to impart knowledge to each other.

- Peer assessment validates teacher's assessment

  The learning of the student can be efficiently evaluated and presented through different forms of assessment like peer assessment. In a traditional setting, it is the pen-and-paper form of assessments that the teacher mostly relies on. Results of the peer assessment may imply several things such as which part of the learning process needs improvement and which practices are effective.

- Peer assessment reflects student's strengths and weaknesses

  The process of students evaluating one another reflects their own learning of the concepts based on how the learner uses it in commenting on others' work. On the part of the teacher, it gives an idea on how the students looked at and takes effort to give comments and suggestions to improve peer's work. There are students who apply critical thinking skills to focus not just on the technical aspects but also give emphasis or importance on the message or content and the quality of the work as a whole. It also identifies students who know how to pay attention to details and those who do not. It also shows the learners who might need help or support in improving either the theoretical or the technical skills.

- Peer assessment enhances the process of learning

  Careful integration of peer assessment in a course can enhance students' learning in numerous ways. It gains and builds support community; it promotes thoughtful and reflective discussions among learners; and most importantly, it fosters more capacity for higher critical cognitive skills and valuable judgement. Through eliciting suggestions for further improvement, students are able to boost each other's confidence using constructive criticism.

CONCLUSIONS AND RECOMMENDATIONS

Peer assessment is part of the direction of more openness in assessment design. This is going towards openness where there is learner participation and use of measurement parameters created by a homogenous population which in this case is a class on videography. This is consonant with our times of creating digital teaching and learning communities. This chapter focuses on a process of evaluation and assessment that

is grounded in an ODeL environment. This gives space to learners as co-creators of academic text together with their faculty to make use of a teaching and learning process considered as part of open pedagogy.

This process of assessment brings us closer to measuring knowledge creation, innovation, and creativity through this open teaching and learning course design that is activity-based. Learners who have been closely honed throughout the course become familiar with videography through practice and praxis. The learners, as they become videographers, are likewise turned into reviewers, critics, and evaluators allowed by this course design that maximizes the connectivity, interactivity, and ubiquity of digital technology, and digital pedagogy as well.

Open and Distance Learning (ODL) allows this openness maximizing the affordances of e-Learning as experienced in ODeL as platform and space for multimedia as research and production of content. However, it is even more than that, since the works produced are both art and science as well. Multimedia enhances the teaching and learning experiences of both open universities and traditional brick-and-mortar higher education institutions as they integrate ODeL and peer evaluation as one of the forms of assessment. Multimedia merges oral, visual, and written texts, and dictates new methodologies and modalities. This is a call for a continuing study of peer evaluation as a form of assessment in this ever changing digital environment and it is an important part of a multi-modal evaluation and assessment design.

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CHAPTER 9

Getting Results, Not Testing: Assessment in an Online Setting

Benjamina Paula G. Flor

ABSTRACT

This chapter submits that the use of traditional pen-and-paper tests in online learning is counterproductive. The physical absence of the teacher is opportunity enough to cheat or circumvent the process of learning. Twenty-first century learners, especially online ones, are independent and should not be monitored. More authentic assessments are necessary for students to generate knowledge products that emanate from their experience which made sense in formal education. As adult learners, they should be left to explore their creativity. This chapter is an attempt to showcase authentic assessment methods used in DEVC 202 (Development Communication Concepts and Approaches). These approaches include writing a journal, oral examination, and reflection synthesis piece. Such methods enjoin students to dig through their instructional materials deeply without force, but make them realize what their learnings are. Students are taught how to learn rather than what to learn. In the end, students begin to nurture their higher order thinking skills using instructional materials provided these are substantiated by their rich experiences as professionals in whatever field in which they are engaged. Giving the chance for students to think for themselves not only stimulates critical thinking but allows them to "go out of the box" to make sense of what has been learned not taught. Thus, the study assumes that online teachers should consider more authentic assessments methodologies given the changing profile of online learners. For online teachers, results - not scores - should matter.

An online teacher is faced with issues and challenges in providing quality education. This is because spatial separation of the teacher from the learner implies cheating or the propensity to ask for help in doing the course requirements especially when sitting for an examination. Given the nature of online education, a pen-and-paper assessment becomes counterproductive on the assumption that rote or lower order thinking skills have little value in addressing the needs of the 21st century learners.

Conventional examinations are easier to formulate and check. Questions are entirely dependent on the whims and caprices of the teacher and may not be anchored on the course objectives. While the method could be an expression of academic freedom, it limits students' ability to express themselves. Essay questions could address this limitation but difficulty in checking poses a problem although there are now application softwares that can do this.

With a class size of 140 or more students per semester, the teacher may think twice about administering essay examinations. The past seven years with the UP Open University made me consider changing the way of assessing students' performance in DEVC 202 (Development Communication Concepts and Approaches).

It is a fact that examinations can make students' life dreadful. As Anderson (2003) points out, assessment formats largely rest on teachers' decision-making. The teacher has the liberty on what to ask, how to ask, or what students should do in classroom assessment. Moreover, in conventional classrooms, numerical grades are mostly the basis to rate students' performance. But how valid are examination items to warrant such grades? One might say using the "Table of Specifications" can guarantee the learning strands that need to be learned. Standards have been developed per subject and a rubric that goes with it as bases for assessment.

Initially, DEVC 202 requires students to complete three Tutor Marked Assignments (TMAs), write their reflections on the assigned readings through a journal, participate in three discussion forums where students have to react to each other's post, and accomplish a written examination. The thought of formulating, administering, and checking the written examination was daunting. On the other hand, if there will be no examinations, there is no way of knowing the student's take away from the course. Thus, a more authentic form of assessment came to mind

in the form of a journal. However, since this is not to be submitted, there is no opportunity for the teacher to assess.

According to Burke (2009) authentic assessment involves three concepts: authenticity, assessment, and evaluation. Authenticity means real, genuine, or true to life. In terms of pedagogy, assessment is the process of gathering quantitative and/or qualitative information and organizing them into an interpretable form for easy judgment and decision-making. Evaluation, on the other hand, is a systematic process of judging the worth or merit of something (personnel, program, or policy) based on appropriate criteria that are clearly defined and articulated. Thus, we assess student performance, not evaluate.

Burke describes authentic assessment as not assembling disconnected pieces of information but rather doing a meaningful task that embeds content to provide connection between school-based ideas and real world experiences. It requires students to apply or synthesize information learned and to perform or demonstrate their understanding of the material according to specific criteria. Authentic assessment has the following features: emphasis on metacognition and self-evaluation; learning that transfers; positive interaction between assessor and assessee; quality products and performance; clear standards and criteria of excellence; and meaningful performance task.

In online learning, learners are autonomous and independent. They talk mostly to their learning materials.

According to Wedemeyer (1969) as cited by Moore (1973), the traits of autonomous learners are as follows:

1. like to plan ahead - a day, a week, a month - and longer;
2. usually stick to a plan, modifying it as they go along, but never abandoning a plan without improving it to serve their convenience and to help them “keep at it”;
3. organize their lives to make the best possible use of time, the most critical ingredient of successful independent study;
4. realize they can’t start a new activity (learning) without giving up something else that formerly took the time now set aside for study;
5. enjoy reading, writing, listening, and discussing;
6. have open minds to learning new things;
7. enjoy questioning, testing, and analyzing;
8. are not afraid of being different;

9. likely to form generalizations, look for principles, and find the basic structural ideas in any subject;
10. have developed skills in note taking, remembering, and relating; and
11. work cooperatively with others, but enjoy being "on their own" in learning.

These characteristics of learners do not develop overnight but should be taught especially under an innovative education delivery mode.

Given the characteristics of authentic assessment, I added two more requirements in DEVC 202: authentic assessment through a 15-minute oral examination online via Skype and a Reflection Synthesis Piece (RSP) in addition to the journal described as follows:

The Journal. Students are expected to keep a record of learning for the entire semester. Any notebook will do, but I recommended a hardbound record book. This journal is where students keep their notes and execute their activity sheets. They need not post their responses in the portal as indicated in some of their activities. Their assignments, posts, and dates of postings in the discussion forums should be noted down in their journal. They will bring this journal during the Finals as a "passport" to take the exams. Being in a digital environment, students were allowed to use WordPress or blogging to record their reflections. Uniform Resource Locators (URLs) instead were sent to me for information and access. The journal is for the students to keep as future reference or repository of knowledge gained from the course. The student must take this exercise seriously, which constitutes 20% of the total markings.

Oral Authentic Assessment (AA) via Skype. Students have to sit for an oral examination based on a specific schedule on the following dates: 7, 14, 21, 28 or four Saturdays during the month of October. The semester started on 9 August and would end on 11 November. This implies that students must have gone through all the materials before they sit for the AA. Questions were formulated based on the objectives of the course, mostly applied but theoretically - sound. Students were given 15 minutes each for the AA. They were to choose a number between 1 to 30. The AA will start from 8AM to 5PM. In case the student will not be available on the designated date and time, they have to notify me one week ahead of schedule so I can make another time for them especially if there is a time difference since some of our students are offshore (USA, Canada, Italy, Qatar, etc). Students are instructed to invite me using my Skype ID. Since there could be many using the same skype ID, they have to

make sure that I accept their invitations prior to sitting for their AA. This constitutes 25% of the grade.

Reflection Synthesis Piece (RSP). This is another form of authentic assessment given as an end-of-term project. It illustrates and projects student's learning connected to real life experiences or one's practical understanding of the course. The RSP paints a picture of student's synthesis of the course and at the same time focuses on one's passion or what one has bias about. It gives the teacher an idea on what students prioritize in life and an indication of how substantial the learning was. RSP highlights in less than three minutes a video, a haiku, a poem, an infographic, a short story, a plug, a poster, a dance, a painting, a comics or any communication material that conveys a personal take on the course. The RSP can also serve as an instructional material for lessons in class. The same can be shared with other students who are not in the same class and can be used as exemplars to explain the course in a simpler, practical, and concise point of view. RSP constitutes 30% of the grade.

While a Final Examination is allocated some points (10%), the Faculty-In-Charge (FIC) reserves the right to waive this requirement depending on the collective performance of the class especially in the discussion forums. Students are expected to respond and comment about their classmates' posting. In this manner, students learn from each other. Final examination will be administered at the designated Learning Centers (LCs). There are two versions of the Final Exams: one for in-country students and the other, for overseas students. Overseas students shall take the Finals on a mutually agreeable, prearranged time, and place. In-country students who, for unavoidable reasons, cannot take the exam on the given date will be allowed to take the overseas version instead also on a mutually agreed upon date. The finals constitute ten percent (10%) of the grade. The tutor or proctor present shall examine the DEVC 202 journal before distributing the examination sheet.

In sum, authentic assessment measures constitute 75% of the total grade. This implies that students have to comply with all these requirements in order to pass the course.

Since the purpose of this chapter is to describe how authentic assessment measures are conducted in online learning specifically in DEVC 202, it will attempt to explain step-by-step how each assessment tool is carried out and rated. Rubrics are usually used as metrics to measure qualitative performance. However, in these authentic assessment measures, impact

on the senses is central in gauging the unique crafting of knowledge products that students have produced to illustrate their learning. This could sound subjective, but in the long run what is being measured are experiences and realizations that are personal in nature. Regardless of the field, students who have seriously read, analyzed, and synthesized the readings would have realizations that could spontaneously flow out of their minds and are reflected in their spoken or written words, drawn pieces or creation of outputs that give a reader goose bumps, make her or him shed tears, or affect her or his perception on or attitude towards development issues. Such effects show how students have turned their learning into something that they can be proud of and something that they can put in their portfolios.

CONDUCTING THE ORAL EXAMINATION

In the context of DEVC 202, oral examination is labeled as the AA, a 15-minute encounter of the teacher with the learner via Skype, the first and only virtual meeting for the semester. With 140 or more students, 15 minutes of engagement is equivalent to 495 minutes or 8 hours per day for 33 students, and at least four days to accommodate everyone. Step-by-step procedure:

1. Identifying the schedule
    - Set the dates for the AA at the start of the semester and indicate this in the Course Guide. UP Open University examinations are usually scheduled on a Saturday but since there may be members of the Seventh Day Adventist, exams can be conducted at 7:00 AM or at some other agreed upon time. The reason for fixing the date early on is for students to program their schedules and be ready at the designated time since they will only be given one slot to sit for the AA. In case they lose their turn, they will have to wait for a vacant slot should the assigned student fails to show up for the AA.
    - Prepare a time schedule for each student. Generally, order of examination is done alphabetically for easier tracking.
    - Provide Skype ID and ask students to invite the FIC at least a week before the AA schedule. It would be better if the invitation can be done earlier to avoid problems like not receiving acceptance of request due to wrong Skype ID details.
    - Allow time negotiation for offshore students in case of time differences.

- Allow students who missed their slot to sit down for the AA whenever they catch you online, which means the FIC is ready to receive a ping.

2. Looking presentable on camera

- Wear make-up even early in the morning; it indicates that the FIC means business.
- Wear an attire that communicates professionalism, thus simulating a conventional classroom setting where teachers have to look presentable.
- Put on an attractive top that looks good on screen; since the exam is mostly done sitting down, the FIC can wear shorts or loose pants or skirt or something comfortable for the eight-hour exam.
- Make sure that the room is well lit so that students can see the FIC clearly.
- Ensure that Internet connection is stable and the microphone is functioning well.
- Look cheerful, warm, welcoming, and accommodating; the aura can ease tension and reduce anxiety in meeting the FIC for the first time.

3. Setting the tone or breaking the ice

- Greet the examinee warmly and ask how they wish to be addressed (by full name or nickname) and the correct pronunciation of their name (i.e., "How do I call you?" "How do I pronounce your name?")
- Ask for their location ("Where are you now?" Normally, the response would be "at home" or "at office")
- Follow-up with finding out where they live ("Where do you live?")
- Let the conversation be as friendly as possible for the next two minutes to avoid intimidating the examinee.
- Ask if the examinee has her or his journal with her or him.
- Ensure that the examinee feels at ease before asking the first question.

4. Asking the question

- Inform the examinee on the number of questions to choose from (e.g., "I have 30 questions").
- Ask the examinee to pick a number between 1 to 30 (e.g., "I'd like you to pick a number between 1 to 30"). Usually, examinees choose a number that corresponds to their birthday or a lucky number like 7 or 9. Sometimes, three consecutive students may

pick the same number, which implies that students would have shared the question. When in doubt, give a different question.
- Read the question and write it on the chat box for the examinee to read and think about.
- Wait for clarifications or for the answers while observing the examinee's face.

5. Observing non-verbal cues
- Examinee starts smiling sheepishly or looking surprised: this means she or he is not prepared to answer the question.
- Examinee starts rolling her or his eyes: this means uncertainty about the answer.
- Examinee opens journal and says, "I know I wrote it somewhere." this means examinee has written it down but could not easily locate it. Give time to look for the notes. This is not cheating since it indicates doing the homework by writing down notes and reflections in the journal.
- Examinee starts explaining and seems to be lost for words: provide some leading questions or situations that encourage her or him to continue.
- Examinee cannot answer the question: give another chance by picking a different number. This is no different from taking conventional examinations where some questions cannot be answered.

6. Ending the conversation
- Ask another question; the answer to which should be written on the chat box. Cut and paste the response in the FIC's excel file to document the response (e.g., "How would you define development communication in your own words? Write it on chat and send it to me now.")
- Inform the examinee if she or he passed the AA. Passing the AA is like joining a beauty pageant, which makes it worth remembering. The exchange of information could be the longest 15 minutes of the semester.
- End with a big smile and words of encouragement.
- Ask examinee if she or he has any question for the FIC. If there is none, bid the examinee goodbye.

7. Grading the performance
- When responses are not theoretically grounded but close to the concept, it means that the examinee knows the answer

but cannot fully explain it. This should not be taken against the student. Follow-up questions can be given to elicit a more appropriate answer by relating it to the student's experience. In this manner, she or he learns from the FIC and her or his experience as exemplars becomes memorable.

- In case the examinee is bluffing or not answering the question correctly, give the corresponding points.
- Remember that this is the first virtual face-to-face meeting. Certainly, the examinee feels nervous and could experience mental block.
- Conversations can lead to student's desire to leave a good impression on the FIC where they would try to articulate the concepts as applied in real life.

THE REFLECTION SYNTHESIS PIECE

Creating the RSP gives students freedom to express their thoughts, feelings, and learning through a knowledge product. This is a higher order thinking skill that mirrors what the students have learned in the process of engagement.

Step-by-step procedure:

1. Describe the expected output in the Course Guide.
2. Let the student decide on what knowledge product to produce (poem, song, dance, etc).
3. Avoid showing exemplars or sample work done by previous students so as not to influence their creativity.
4. Give students enough time to synthesize the course contents by analyzing their journal, re-reading their materials, and going back to their discussion forums.
5. In grading a performance, go over the material. One could readily sense the student's realization upon reading, seeing, or hearing the output. Getting goose bumps or crying while watching a video or reading a poem implies the students' deeper understanding of the discipline. The choice of subject and framing reflects how they understood the concepts, foundation, and philosophy of development communication. These lend credence to the shaping of would-be development communication practitioners.

Here are some examples:

Richard Joseph H. Bulanhagui

Development Communication, Oh, mighty one!
Ever helpful and caring to everyone...
Never stops offering to the not yet done.
Escapes the hunger and the oppressed bun.

Oh, glorious! Oh, glorious! Devcom!
Where did you come from?
Amidst the problems and norms,
You built up the things that were worn.

From Quebral to Flor,
Who have opened the door.
To communication floor,
For humanity and the store.

I will never forget my journalism class,
Where I found out the development task.
In which I can be fully blast,
Development Communicator that surely would last.
Never will I forget my first immersion,
Seeing people suffering from malnutrition.
Saving money for damn foundation,
Of bag of rice and sardines donation.

To see the world perish is not that I want.
I want to seek help for the poor and the blunt.
I want to scatter light to those dim in front.
I want to bring it better to the life of the peasant.

Maybe I am not a great harvester.
Not a great science or development broadcaster.
But as long as I am living, to this roller coaster.
I will bring harmony to the poorest dweller.
May this hope of peace never last.
The advocacy of the environment that shall to pass,
The conflict issues of the tribal wars,
I hope this would end before I'll be buried in grass.
Devcom 202 is a great starter.
For the aspirants of a fruitful master's.

This will mark the end of semester.
Where I will leave this poem for the Alma Mater.

"Pagtuklas"
Capili, Kristen Amaris D.

Hindi niyo ba napapansin na ang tanging pagkakaiba ng mga salitang bulong, tulong, at sulong ay nasa simula't nag-iisang letra?

Na ang kusa at dusa ay tila magkatunog ngunit labis na magkalayo ang diwa?

Na ang kubo at subo, na halos iisang bigkas ngunit magkaibang kahulugan ay kolektibong nangangahulugan na ang bawat mamamayan ay may pangtaong karapatan.

Sa mundong nagkakaubusan ng pasensya't katarungan at ng perang hindi malaman kung saang lupalop ang pagkukuhanan,

Ano at sino'ng naghihirap para sa kapakanan ng ating kapwa at ng Inang Bayan?

Kung malalim ang pagnanais nating umahon sa kahirapan, sa kabuhayan man o usapang kalikasan at kalakasan.

Maliban sa tapang na araw-araw nating kailangan, malasakit na walang pag-aalinlangan at wastong gamit ng utak ang dapat nating gawing puhunan.

Matapos ang pag-iisip na masinsinan, minabuti kong piliin na itong landas ang tatahakin. Dahil sa kasalukuyan kong araw-araw na pakikipagsapalaran, hindi ko maramdaman ang katuparan m ula sa aking kinauupuan.

Komunikasyon: isang solusyon tungo sa pag-unlad; isang bokasyong pinaniniwalaan kong walang katulad.
Mahirap, ngunit magsisikap. Mahirap, ngunit may mabuting hinaharap. Mahirap, pero ito ang aking pangarap: Maging susi sa pagtupad ng mga pangarap ng mga kapwa nating naghihirap.

"What It Is Not"
Lorelli Monica Diaz

I
Now that we're almost at our semester's end Development
communication – how do we comprehend? Here is a succinct poem to
explain what it's ought. To understand what it is, let us see
what it's not.

II
Dev comm as we call it does not seek for fame. Image-building and
publicity are simply not its aim. Stimulates public knowledge and
understanding of planned change
And uses appropriate media tools to broaden its range.

III
Mass communication alone, it should not be considered as.
Various methods it explores so it fulfils what it does.
A short film, a dance, not an approach to be discarded
As long as the message is well-delivered, received and regarded.

IV
Dev comm does not have a "boss" it needs to impress
Rather societal problems that it needs to address.
The information and the receivers matter the most
And how the messages improve lives from coast to coast.

V
Development communication is not merely a profession. It is the
offspring of commitment to growth and of true compassion.
It's a calling, it's hard work, an intervention and a process
That is ultimately aimed at rousing societies towards their progress.

"THE DEVCOM 123"
Ariesha Faith Dimaano

One,
We only have one world to live,
And I hope we don't only have apathy to give,
Problems as poverty, unemployment, malnutrition, inequality,
There are much much more but would we want plenty?

All these realities point to underdevelopment, Molenda and Di Paolo
taught us what problematique meant,
The goal is to write all situations and identify,
Link everything to each other and keep asking why.
As what "the Moth and Development" implied,
Development is a process and the struggle to achieve it is tight,
It has to be like a two-way street,
Where the DevCom worker and its audience would always have to
agree and meet.
Two,
There are two words in this field we
That is development and communication,
The former seeks to better the society's current fate,
The latter bridges the gap with the power to inform, influence, and
educate.
Defining communication comes in theories and models,
Some from Shannon, Weaver, Berlo and Lasswell,
ut Kincaid's convergence model is my personal favorite,
As it best highlighted information sharing to reach mutual
understanding and agreement.
Communication is also expressed through all forms of media,
But it's always important to choose what best fits the DevCom study
and data,
Consider the barriers that come with it too,
Take it as a challenge and there's something you can do.

Three,
DevCom has three major values,
It is pragmatic, value-laden and communication with a purpose,
As former Chancellor Samonte would put sense,
DevCom is "communication with a conscience."
An important pillar in honing the future,
DevCom has been visible in other disciplines' nature,
Take economy as an example,

Where much is information-based and shifts to networking
with people.
Dynamic and progressive, DevCom practitioners have areas of
practice to dedicate himself,
All of which determines one edge,
To continue the journey for positive social change.
As an aspiring DevCom practitioner myself,
This passion has been put on hold on a shelf,
Now that I found my chance,
May I be able to take this stance:
If I really consider this as a calling,
May I be able to put meaning to all the learning.

CONCLUSION

These results are more significant compared to answering an examination because they leave a mark in the hearts of learners as they continue with the program. Out of 140, 102 submitted the RSP and took the AA. This is a very good indicator of less than 30% attrition rate. Admittedly, many students of the Master in Development Communication come from various disciplines such as nursing, education, information technology, law, etc. They do not have a full understanding of development issues nor how they could be catalyts of change. Going through the authentic assessment measures made them realize that development communication is a noble undertaking and that being a development communicator can make a difference in an erstwhile chaotic world.

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CHAPTER 10

Constructivist Reflections on Online Assessment

Consuelo dL. Habito and
Susan Janette G. Ealdama

ABSTRACT

Assessment is an important measure of learners' construction of knowledge as contextualized by personal experiences and the environment. Digital assessments can be incorporated in the learning modules, happen in real time using various modes, enhance test items with embedded multimedia materials, be accessed anytime and anywhere with specific restrictions, and garner immediate or real-time feedback. Moreover, statistics generated from quizzes implemented within MyPortal provide student performance data that can serve as points for reflection and correction. This chapter aims to analyze current practice in online assessment using MyPortal, UP Open University's learning management system. These statistics in MyPortal are divided into two sections: the quiz information and the quiz structure. These are the important quiz information statistics: average and median grade, standard deviation, skewness, kurtosis, coefficient of internal consistency, error ratio, and standard error. Quiz structure statistics pertain to statistics on each test item such as facility index, standard deviation, random guess score, intended weight, effective weight, discrimination index, and discrimination efficiency. The statistics provided for each test item can contribute to the overall improvement and effectiveness of the online assessment considering that the quiz statistics are available in real time. These data must be recognized as important inputs especially if the assessment contributes to measuring learners' ability and skills. These are important features of a digital assessment that should be harnessed for quality assurance.

INTRODUCTION

Technology-assisted learning allows learners and teachers to navigate and choose relevant topics related to the course. The constructivist approach to learning recognizes that learners do not acquire knowledge, but rather construct it. It is knowledge that is contextualized which means it is based on their personal experiences and continuous construction of hypotheses about their environment. Therefore, the constructivist approach to learning can be applied in the construction of online assessments. This forms part of reflective learning, a process where instructors look back on their teaching style; its effect on their students; and how their practice can be improved for better learning outcomes.

This chapter aims to analyze current practice in online assessment using MyPortal, UP Open University's learning platform that uses the MOODLE learning management system (LMS). It begins with an overview of assessment, then describes online assessment using quizzes in MyPortal, explains the models of reflection in online assessments, and gives in-depth insights into constructivist reflections on assessment using online quizzes. The availability of quiz statistics in MyPortal provides an opportunity for feedback assessment and continuing improvement of test items.

REVIEW OF RELATED LITERATURE

Overview of Assessment

Generally, there are three types of assessment: assessment for learning (formative), assessment as learning (interim), and assessment of learning (summative) (Western and Northern Canadian Protocol for Collaboration in Education, 2006). There are various methods to provide diagnostic feedback to determine end-of-course achievement. They have a more narrowly defined focus on specific knowledge or skills and are designed to give an analysis of a student's specific strengths and weaknesses, suggest causes for their difficulties, and offer recommendations regarding instructional needs and available resources. Figure 1 shows some examples of these types.

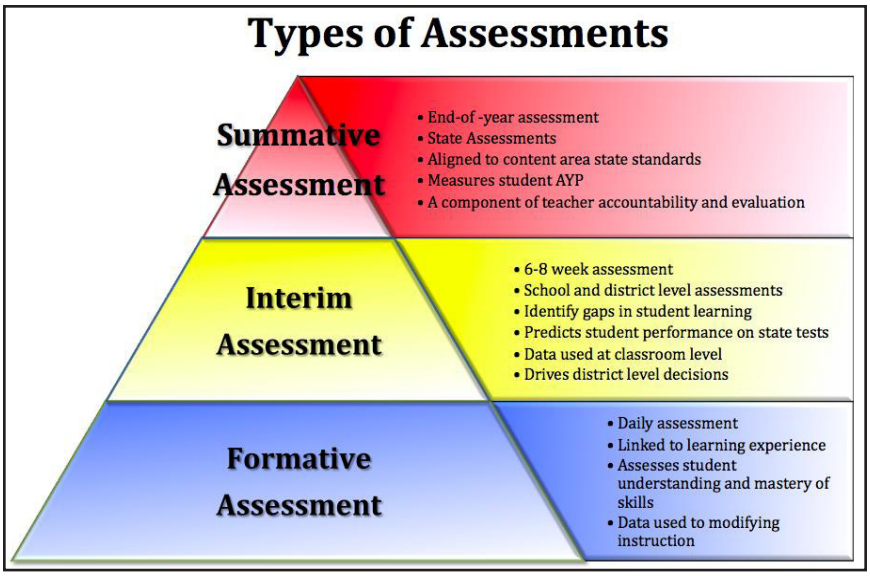

Figure 1. Types of assessments (edulastic.com)

When online assessment is used, there is a foundational need for extensive stakeholder inquiry, understanding, professional growth, and cost analysis of information technology (IT), as identified in research (Howell & Hricko, 2006). Assessment is no longer limited to being just a tool for measuring a student's knowledge of a course content. In addition, assessment is now also seen as essential in the wider scope of the learning process. These new methods make it possible to assess student performance before, during, and after a course is conducted. Figure 2 shows how Bloom's Taxonomy of Learning is used as a guide in choosing the appropriate online assessment method. It is arranged according to the level of difficulty - from simple knowledge acquisition, to comprehension, to application, and to complex analysis, synthesis, or evaluation.

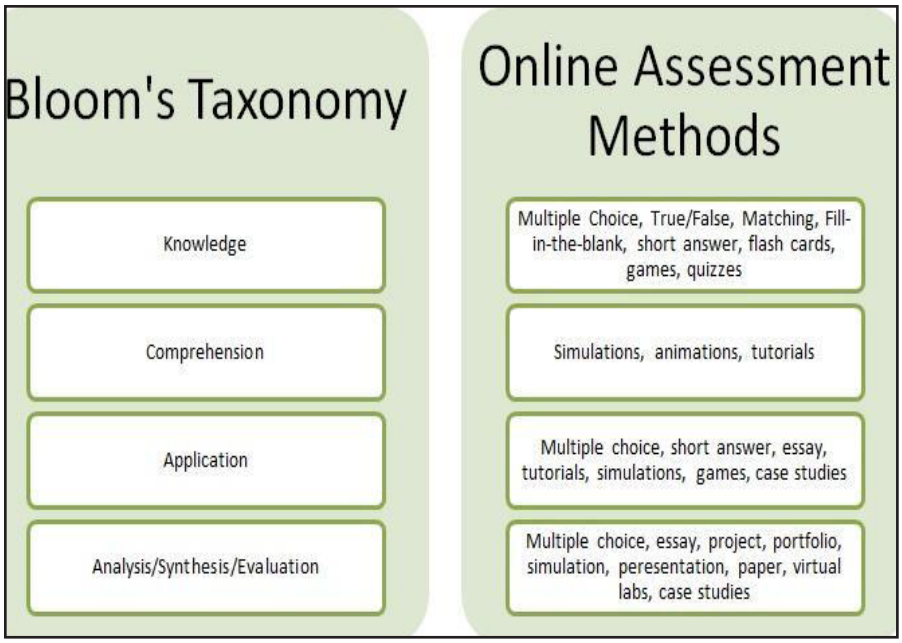

Figure 2. Bloom's taxonomy vis-a-vis online assessment methods.
(http://sites.psu.edu/onlineassessment/gather-evidence/)

Another key feature of effective online assessment designs is its need to use multiple measures through time. Doing a wide range of assessment methods gives students a chance to be evaluated holistically. It decreases the probability of penalizing students who happen to be weak in responding to just one or two teacher-preferred assessment forms.

Technology in online assessment also offers greater quality than (F2F) assessments. Figure 3 highlights the benefits of online assessment: it is embedded in learning (timing), is universally designed (accessibility), is adaptive (pathways), is in real time (feedback), and enhanced (item types).

Figure 3. Future of assessment.
(https://tech.ed.gov/netp/assessment/)

Online Assessment using Quizzes in MOODLE (MyPortal)

MOODLE provides a wide range of options for designing, constructing, and implementing online assessment. This section focuses on the use of quizzes in MOODLE.

Quizzes are effective ways of formative and summative assessments. In MOODLE, test items for the course can be stored in a question bank (Figure 4). This can easily be accessed by the teacher in creating quizzes for specific lessons or modules.

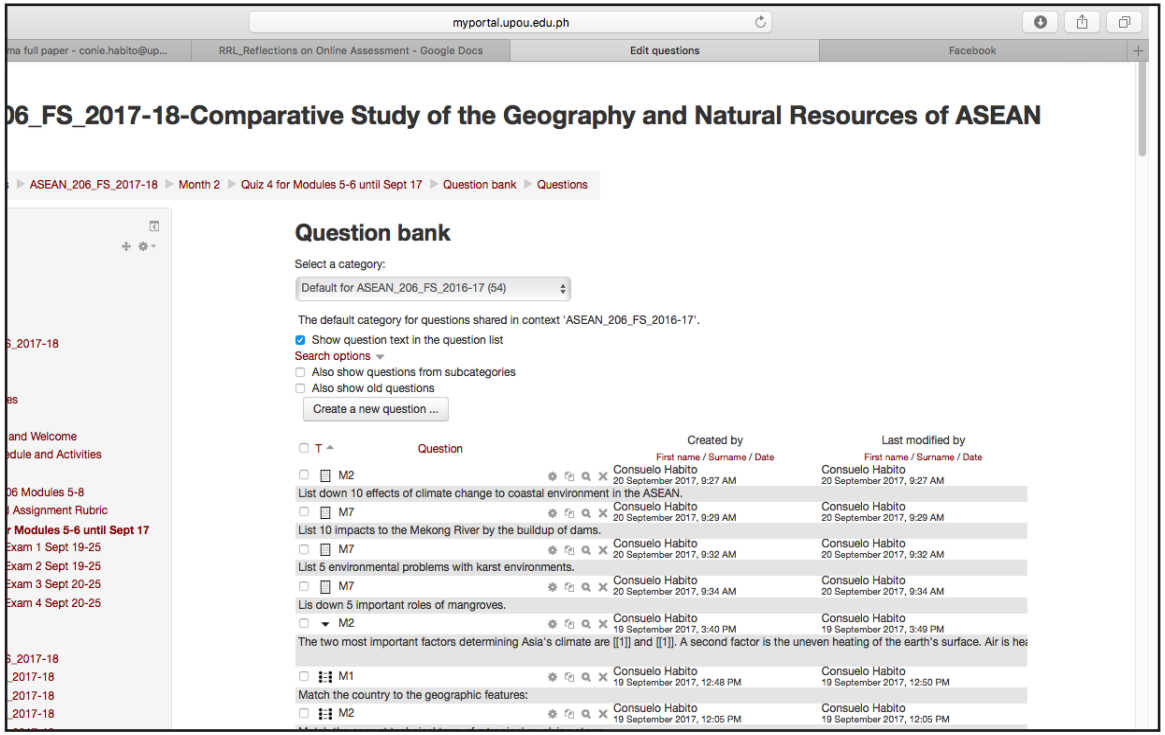

Figure 4. A screenshot of a MOODLE (MyPortal) Question Bank in ASEAN 206

New questions can be easily formulated from a drop-down list of examination types. These can be in the form of drag and drop onto image, essay, matching type, multiple choice, select missing words, short answer, true or false, and other types (Figure 5).

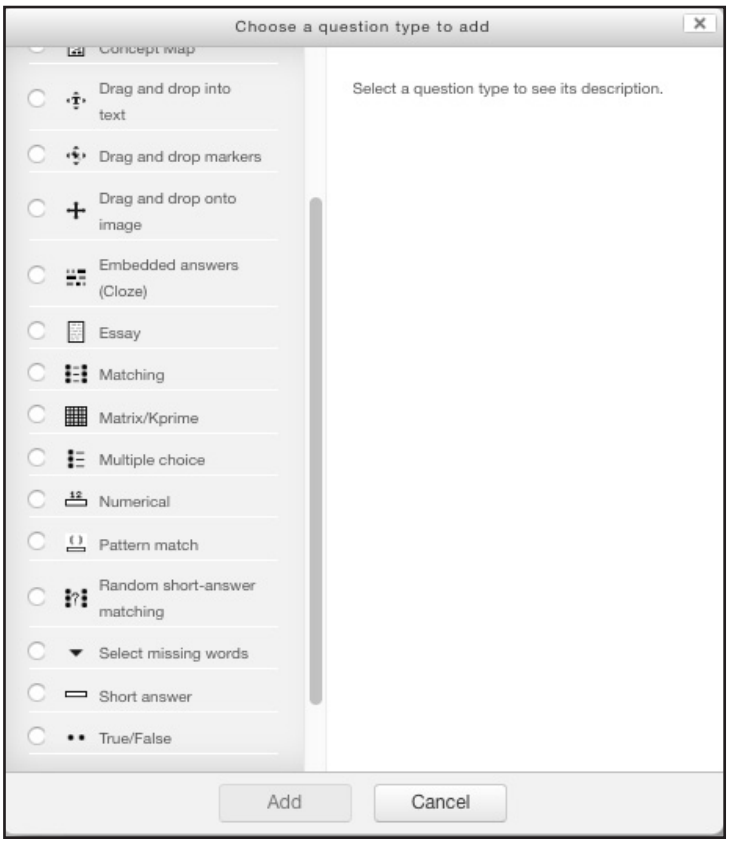

Figure 5. A drop-down list of exam question in MOODLE (MyPortal)

MyPortal affords the teacher the flexibility to set various options for the administration of the quiz. For instance, the date and time when the quiz is opened and closed, the total grade and number of attempts allowed, layout of the quiz, and question behaviour of the quiz can be modified according to the requirements of the teacher (Figure 6). However, the teacher must prepare the test items in advance and store them in the question bank. Test items can then be added to the quiz bank as needed.

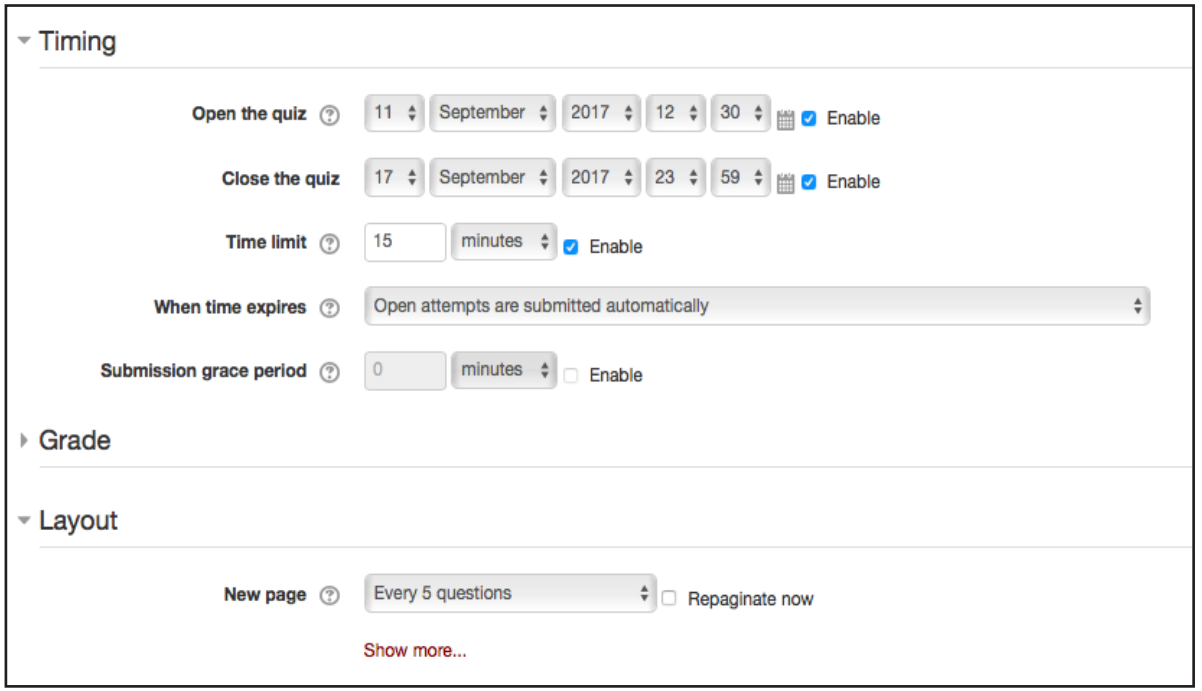

Figure 6. Timing, Grading and Layout Options of Quiz in MOODLE (My Portal)

Another key feature of the MyPortal is the opportunity for students to receive immediate feedback after a quiz or assessment is completed. As the test question is being constructed, the answers to the test items are also provided by the teacher. Hence, the students get immediate feedback on their performance. Learners can also get feedback from objective type questions with choices ranging from during the attempt, immediately after the attempt, later when the quiz is still open, and after the quiz is closed (Figure 7).

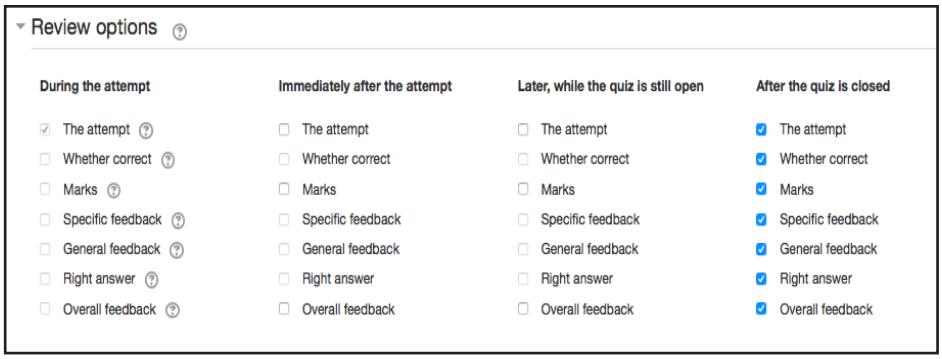

Figure 7. Review Options in Quiz in MOODLE (MyPortal)

Aside from objective type test items, essay questions can be formulated with the same options as objective test questions. Response options of students can range from the type of response format, whether students are required to enter text or text input is optional, input box size (5-40 lines), to whether attachments are allowed or required. However, based on experience, one hour and a half is the maximum time limit for an essay type of examination. Technical difficulties have occurred when an essay type of examination is set beyond one and a half hours, as this can cause the computer to go on sleep mode or being logged out from the course site. If only one attempt is allowed, then the student is barred from re-opening the quiz.

Models of Reflection in Online Assessment

Online assessments like MOODLE (MyPortal) is still fairly new as it only started in 2002. Due to the novelty and newly-developed online assessment options, it is important to pause and reflect on their advantages, disadvantages, and future possibilities.

"Reflection involves taking our experiences as a starting-point for learning. By thinking about them in a purposeful way—using reflective processes—we can come to understand them differently and take action as a result" (Jasper, 2003). The Reflective Cycle proposed by Gibbs (1988) is a never-ending process where theory and practice constantly interact with each other (Bulman & Schultz, 2013). It evokes autonomous reflexes to challenge suppositions, explore novel approaches and ideas, link practice with theory, and utilize critical and analytical thinking skills. When applied to reflections in online assessments, the Reflective Cycle encourages systematic thinking about the phases of online learning. It also allows for multiple perspectives on a given feature of online modes, thereby providing equilibrium and accurate judgment. The key questions it poses – "What?", "So What?", and "Now What?"—offer an opportunity for the teacher for reflection, analysis, and improved action (i.e., better assessment questions for students).

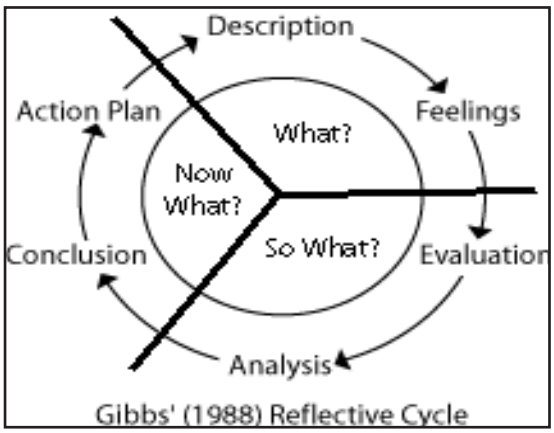

Figure 8. Gibb's Reflective Cycle

CONSTRUCTIVIST REFLECTIONS ON ASSESSMENT

Applying Gibbs' Reflective Cycle, the constructivist nature of online quizzes is shared from a practitioner's point of view.

In F2F modes of instruction typical in traditional university settings, formative and summative assessments are a major part of the requirements for a student to pass the course. In large classes consisting of about 80-100 students, it is very challenging for a teacher to mark essay questions or even to manually check a 100-point objective type

of examination of all the students in the class. Thus, objective types of questions are more commonly used than essay questions due to the relative ease in marking. In practice, constructing and implementing exams for F2F classes are rarely evaluated on their appropriateness or relevance nor assessed in terms of difficulty and their use to differentiate strong from weak learners. Their usefulness is often considered achieved once the examination is marked and recorded.

On the other hand, statistics generated from quizzes implemented within MyPortal provides student performance data that can serve as points for reflection and correction. Did the quiz achieve its purpose? Is the result of the quiz due to differences in ability of the students or is it due to chance effects? Did the grades from the quizzes indicate the true abilities of the learners?

Quiz statistics generated by MyPortal offer a wealth of information that can be used and analyzed by teachers. These statistical data in MyPortal are divided into two sections: the quiz information and the quiz structure. The following are part of the list of important quiz statistics report: average and median grade, standard deviation, skewness, kurtosis, coefficient of internal consistency, error ratio, and standard error. The quiz information statistics recommends ideal standards. For example, kurtosis, which is a measure of the flatness of the distribution of scores, should be in the range of 0-1. A value higher than 1 means that the quiz cannot distinguish poor from excellent students. A coefficient of internal consistency (CIC) value of more than 75% and an Error Ratio (ER) of less than 50% would indicate that on the whole, the quiz can distinguish poor from excellent students and is a good measure of their abilities.

To improve the quiz overall, the teacher must look at the quiz structure statistics and perform the necessary correction. Statistics for quiz structure pertain to statistics on each test item such as facility index, standard deviation, random guess score, intended weight, effective weight, discrimination index, and discrimination efficiency. Thus, improving each test question can redound to the quality of the quiz as a whole.

There are two important statistics for each test item. These are the facility index and the discrimination index. The Facility index (F) shows the mean score on each test item. If the facility index score ranges from 35-64%, the test item is about right or suitable for the average student. If F is more than 80%, the question is easy and if it is less than 20%, the question is

difficult. F scores are indicative of the overall difficulty of each test item in the quiz. Given this F score, the test item can be changed or modified in order for it to be just right, and not too easy nor too difficult to answer. The other important measure of a test item is the discrimination index (DI). DI is defined as "the correlation between the weighted scores on the question and those on the rest of the test". It can distinguish weak from proficient students. This analysis helps teachers to identify poorly-written questions or items and replace these with better-crafted questions.

CONCLUSION

In applying the Gibbs' Reflective Cycle, the "What?" recognizes the existence and usefulness of online assessment in the form of quizzes in MyPortal. Assessment is an important measure of a learners' construction of knowledge as contextualized by personal experiences and the environment.

The "So What?" presents a reflection on the overall quality of the online quiz in MyPortal in the form of quiz statistics. Data as revealed in the quiz statistics can now be used as part of a feedback loop to improve the quality of the quiz and likewise enhance the learning process. This feature is a big advantage over the pen-and-paper type of examination as practiced in F2F instruction typical of traditional universities.

The "Now What?," online quizzes and the quiz statistics can form part of big data, and its usefulness in the analysis improvement of learning cannot be over emphasized. While quiz statistics may vary from one student cohort to the next, the statistics provided for each test item can contribute to the overall improvement and effectiveness of the online assessment. These data must be recognized as important inputs especially if the assessment contributes and measures learners' abilities and skills.

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CHAPTER 11

Assessment Feedback in ODeL: Does It Really Count?

Liza C. Carascal

ABSTRACT

Two issues about assessment have always been a concern of anyone who are involved in student assessment: students not receiving the results on time, and the seemingly insensitive feedback the students receive for their own work, thus, making feedback no longer useful and effective. Recognizing the issues, educators have now started giving attention on how assessment feedback is given and received as formative assessment rather than relying only on summative assessments. Making meaning of feedback and transforming it into insights that can support good decisions and actions is a challenging work. We often get caught up with limited perspectives and emotional reactions. We get triggered by some particular phrase that immediately hooks our attention and in the process, we miss something really important and that matters. Making feedback matter requires looking and considering multiple perspectives, seeing it in various contexts and different frames. Consequently, while there are advocates, there are also criticisms that surround assessment feedback. It could be worth presenting some relevant analyses of some research evidence on the subject as well as some result of interviews and focus group discussions with educators and students to rightfully determine if indeed assessment feedback really matters.

INTRODUCTION

There have been extensive studies regarding teaching and learning but only a negligible number has been investigated on the impact of feedback on student achievement, particularly in open and distance e-Learning (ODeL). This chapter attempts to contribute to the discussion in understanding the purpose, impact, and framework of feedback in the ODeL context. Some thoughts gathered from related studies and the teaching practice are reflected in this article.

UNDERSTANDING ASSESSMENT FEEDBACK IN ODeL

Assessment feedback is an important element of any learning process whether in ODeL or F2F setting. It comes in different forms, providing students the opportunity to reflect on their own learning. In Hattie and Timperley's article (2007), feedback is defined as "information provided by an agent (i.e., teacher, peer, book, parent, self, experience) about aspects of one's performance or understanding." From the information, a student can reflect on herself or himself after an experience to assess how she or he has performed. The ways of providing assessment feedback vary, particularly in an ODeL setting where communication is usually done using current technologies and communication systems. Those in the academics have recognized the need for information about their students achieving the objectives of the course and expected learning outcomes. Oftentimes, instruction and feedback are intertwined, where the instructor provides feedback to a student about what she or he has done well or not, and then gives instruction on how to improve work on given task.

Winne and Butler (1994) noted that "feedback is information with which the student can confirm, add to, overwrite, tune, or restructure information in memory, whether that information is domain knowledge, meta-cognitive knowledge, belief about self and tasks, or cognitive tactics or strategies".

Relatedly, Kulhavy (1977), pointed out that feedback does not always have to be taken positively by the receiver. Some feedback are acknowledged by the receiver as they are given resulting to further action to improve while some feedback are simply ignored.

Still, more studies have supported that assessment feedback that is given on time, focused on the objective, and very specific enables students

to undertake possible modification and improvement of their work, thus gaining better insights. Feedback also provides opportunities for students to assess their own skills and capabilities. Feedback can be provided individually or by groups not only by the instructors or tutors but also through self- and peer assessments.

Meanwhile, Tait (2000) noted that there are a variety of ways and strategies to address student needs in support to the materials provided in the course while helping students gain full understanding and develop the expected skills. Student support services such as regular tutorials, communication media using current technology, counselling, student groups, administrative support, such as an institutional feedback system are critical and necessary in the context of ODeL. Continuing discussions on the subject would provide a venue to further review other ways to provide quality student support services. However, we should not be surprised if there are ODeL institutions that are insensitive in addressing student needs. These practices may include assessment results and feedback which are not returned and given on time, inadequate enough for students to know how well they are doing on specific task, and not specifically focused on the objectives. These feedback are certainly not effective since they fail to address what the students really need. It is of prime importance that instructors take into consideration that students may not have the opportunities to engage instructors for further explanation on the feedback they received (Bedford, 2006).

In practice, assessment feedback should be given within the learning context in order to connect the gap between what the student learns (and does) and what is aimed to be learned (or to do). Further, Hattie and Timperley (2007) reiterated that feedback is not just given, but it can also be sought and even detected without the intention of seeking it. In Hattie's (1999) extensive studies on learning, it has been clearly shown that giving feedback is one powerful force on student achievement, along with "direct instruction, reciprocal teaching, and students' prior cognitive ability". A study on the impact of feedback in an ODeL setting showed considerable variability where some type of feedback are more powerful than others (Deci, et.al., 1999). It also revealed that the greatest impact are on those feedback given to small chunk of work with comments on how to do it better to improve performance. Meanwhile, meaningful online feedback which provides reinforcement to students usually requires technology-driven communication media. Evidence-based practice in ODeL shows that constructive online feedback which students find most effective are those which relate to the learning goals.

On the contrary, structured instruction, use of rewards, negative measures such as penalties, and some other extrinsic rewards do not reveal any positive effect in enhancing student achievement. Referring to Deci and colleagues (1999), extrinsic feedback was found to "undermine learners' taking responsibility for motivating or regulating themselves". Bedford (2007) pointed out that students are demotivated to move forward with the absence of carefully-delivered feedback comments. Expectedly, any learning activity which includes feedback should be meaningful so that students will be encouraged to connect with the lesson and the course goals. Chetwynd & Dobbyn (2011) further support the earlier claim that in the ODeL context, quality student assessment feedback has a vital and crucial role on student retention as well as in guiding students to develop skills on self-regulation.

When providing information on correct rather than incorrect answers, feedback is also effective. However, it has the most impact when students are clear about the specific goals and are given challenging tasks that are low in complexity.

Assessment feedback is now being referred to as any academic process or activity (both in ODeL and conventional modes) that contributes to the improvement of student learning by allowing students to reflect on their current level of attainment. It is expected to be responsive to the department or unit's expectations of their programs and disciplines. However, specific details of giving and receiving feedback may then vary across units in the University and at different stages.

Instructor Feedback

Effective assessment feedback in ODeL demands a good working teacher-student relationship, one that is based on mutual respect and trust. Since instructors need to provide students with quality feedback to enable them to reflect on the work they have done, providing assessment feedback that are non-evaluative and using encouraging words would help motivate students to think about the areas that need improvement and how they can still improve their performance. Consequently, quality assessment feedback provides students a clearer view of the expected learning outcomes.

Student to Instructor Feedback

In the same way, feedback from students provides the instructors or any academic staff the opportunity to reflect on the course content and their teaching pedagogy including the way they deliver the course. Thus, feedback is an effective and meaningful part of the teaching-learning process that provides multi-level benefits.

Student to Student Feedback

While instructor feedback benefits students with important information which helps them achieve the learning goals, students can also work together and mentor each other. The use of student to student assessment feedback in an online course is students get to assume the usual responsibility of the instructor where they assess and critique work of fellow students. However, a crucial point in this kind of feedback is that it should be focused on the learning goal. It is imperative that students are provided with rubrics to guide them about quality and timely assessment feedback. Instructors should encourage students to be fair and to give positive feedback so that they will be encouraged to do better. Asking students for their timely and quality student to student feedback also gives them the opportunity for self-reflection as they are able to evaluate their own standards with that of the other students in their class.

Feedback FOR Learning

Where feedback is aimed to allow students to improve learning, students expect it not to be given only at the end of the semester or module with written comments on where they have gone wrong. Feedback has to be a two-way communication which encourages students to improve performance on their submitted work during the term - whether formal, informal, graded, or non-graded. In addition, students also need the opportunity to provide instructors some valuable information about their learning and level of attainment in order to achieve the intended learning goals. Thus, feedback is an on-going process of dialogue and reflection. According to Kintsch (2009), instructors in ODeL need to guide their students to check on their current level of attainment on a given task,

providing them hints to fully understand what went wrong and what to do to improve their work. Instructors must provide students with additional resources, allowing students to try other ways or strategies - even complex ones. With greater focus on the content, assessment feedback helps improve student work including challenging problems even without tutor or instructor support.

Formative feedback serves as "feedback for learning" it is given to the students during the course of a module for them to use it to enhance and improve their performance. This kind of feedback could also "feed forward" to the subsequent modules or courses. Shorter feedback provided to students to assess small tasks proves to be helpful in maintaining continuous dialogue between students and instructors and tutors, because it enables students to become more reflective in the learning process.

Feedback On Learning

On the other hand, "feedback on learning" or summative feedback is usually a set of comments given by the instructors or tutors for the work done by students at the end of the course or module.

Most ODeL institutions use end-of-term evaluation in order to determine student satisfaction, level of teaching, and learning (Cowan, 2002). This kind of feedback from students is likewise valuable as the instructors' feedback that students receive. As instructors reflect on their teaching, this kind of feedback informs the instructors on how students feel about how they give feedback. This process is useful in enhancing the teaching and learning experience of both students and instructors. Therefore, it becomes very crucial in ODeL to establish an effective communication system between students and teachers through a two-way system of providing feedback. This feedback process is an integral component of the teaching process, and it seems to be a common practice in ODeL. This may be because many ODeL students are not used to the online environment and organization of distance learning where there is limited social contact between learners.

With all the instructors' and tutors' responsibilities giving feedback on written work and other submitted requirements seems like an endless burden. However, according to Hattie (1999), "students look forward to feedback just for them, just in time, and just helping them move forward."

This encourages the tutors or instructors not to worry on how students would receive feedback. So, how can they provide feedback that students would welcome, reflect on, and eventually utilize?

Assessment Feedback and Course Design

Thinking about feedback from a wider spectrum of the course design and formative assessment structure would certainly ensure that it is useful and sustainable for the academics. Feeding forward focuses on this aspect which encourages students to think how they might use their learning from the summative assessment in their next course or module. Also, it has now become imperative for instructors to take advantage of feedback (which includes students' answers and solutions to the given tasks) as much as students do. Student assessment becomes of great value when both students and teachers learn from the experience. Recently, it has been observed that minimal feedback on assessment is given as it is used only as external evaluation instrument rather than a feedback device. Combined with effective instruction and assessment design, feedback can be a powerful element in enhancing learning in ODeL.

Framework for Effective Feedback

Hattie and Timperley (2007) presented a framework in which feedback can be considered to minimize the gap between current level of attainment and expected learning outcomes. In this framework, meaningful and quality feedback needs to address the three major concerns of ODeL students: Towards what direction are we going? (What are the objectives?), How do we get there? (Are actions being undertaken to meet the objectives?), and What steps to be undertaken to make better progress?. These questions can also be translated to feed up, feedback, and feed forward. With this model, the teacher and the students work to minimize the discrepancy between current understanding and the learning goal. The student should show increased effort, with the teacher using better strategies, or the goal. Here, the teacher can provide appropriate challenging task on an identified and carefully selected platform with less complexity and assist students through effective learning strategies. The instructor can give feedback on the task level what, on the process level (how) addressing self-regulation (maybe a checklist for the student), and self-level (not necessarily related to task)

of the student. Feedback on processes and self-regulation are usually most effective while feedback on task is effective when it contributes to improve process or self-regulation. However, focusing much on task feedback may encourage students to work only on the goal but not on the strategies to reach the intended outcome. It would be helpful to provide directions for information (where to find the right knowledge) and strategies (feedback on process). Feedback using numerical or letter grades are somehow ineffective than the written or verbal feedback comments on what the student can and still needs to do. Feedback to help on students' self-regulation becomes powerful when combined with feedback on task. The students must also be willing to look at their learning skills to become effective learners. For ineffective learners, it would be useful to elaborate instructions on poorly understood concepts or performed task (task-oriented).

Effective feedback may vary according to student preferences. Some ODeL students welcome feedback that are indirectly and implicitly delivered, and is directed to the group or the whole class. Others are comfortable with feedback directed to individual students and is given in a more direct manner especially when feedback comment relates to effort shown by the student. The timeliness of giving feedback and the openness of students in receiving feedback are also important elements which impact feedback. A virtual classroom climate that encourages peer and self-assessment and allows learning from mistakes would prove to be effective for feedback to work. Assessments should not only provide snapshots of learning but should aim at providing valuable information that can be useful to both teachers and students to address the three questions (feed up, feedback, and feed forward).

PRINCIPLES OF GIVING EFFECTIVE FEEDBACK

As previously noted, communication is a two-way process that leads to appropriate action. In the context of developing competence in both ODel and F2F settings, it would not be too much to describe feedback as "the fuel that drives improved performance". However, to drive improved performance, there are a number of basic principles to keep in mind.

From my years in the practice of student assessment and the result of a focused group discussion with colleagues, it has been gleaned that feedback is an integral element of the student assessment process. The

following principles on giving feedback could serve as a guide in ensuring that assessment feedback in ODeL really counts:

1. The student's engagement on and with assessment feedback should be highly promoted. Feedback should be an indispensable part of the two-way communication in teaching and learning and 'continuing dialogue' among teachers, students, and the assessment material. It can be claimed that student - student and student –teacher collaboration impact learning. This means that learning activities must include meaningful feedback to students, assessing work against the given criteria among students themselves, provide constructive feedback comments to each other's work, provide clarifications on student's inquiries after receiving feedback, work again on the task and eventually succeed.

2. Assessment is for learning. Feedback is for the receiver, and not for the giver – careful consideration to the recipient on how your comments will be received. It should be targeted to enhance and improve learning. This is better than when feedback is heavily judgmental. Constructive feedback, should recognize and articulate the strengths of the students and encourage them to improve on areas where they are weak. Positive feedback would definitely increase their self-esteem which is what they need to start moving forward.

3. Feedback must be clearly and timely communicated. When assessment result is issued months after assessment, feedback becomes irrelevant since it is no longer addressing the students' current needs. Some universities, include in their academic policies students' submitted work two to three weeks after submission to enable students to get greater benefits from the teacher's feedback.

4. Feedback can be instantaneous especially in the ODeL setting. The use of computer-marked assessment format can provide immediate feedback. Certain types of online worksheets such as the multiple choice type allow students to do the exercises at their own time and pace and receive immediate feedback (prepared by the teacher).

Feedback much more effective when given instantaneously since students can quickly compare and analyze their thoughts against the given answer key.

5. Assessment feedback can be given before work is assessed. Some ODeL teachers practice this method of giving feedback. For example, as soon as the students submit their work, the teacher issues handouts of model answers or post them in their course site with some discussions on where students could have problems. Students can read the information while they can still remember their own solutions to the questions and can instantly benefit from feedback. In assessing student's individual work, specific comments can be given but would no longer address the general points that were already given earlier.

6. Feedback can be participative. Assessment feedback can be given to students in groups using the course management system. This would help students to realize that mistakes are inevitable and they can use the opportunity to learn from the successes and failures of each other. It is an ideal practice which have been proven helpful to give students enough time to ask questions about the feedback they received.

7. Feedback quality should be maintained. Convenient as it is to just put checks or cross marks, these marks do not really provide real feedback. Students are usually discouraged in finding cross marks on their work. Even brief written comments such as "not quite, why don't you try using this method..." would be better to alert students to things that can be improved.

   Feedback is effective when it is given as comments about and which demonstrates students' specific behaviors on a given task. Giving examples where possible is an appropriate feedback. Instructors should also carefully review the content of the feedback, and how it is being given as well as the alignment of verbal and non-verbal messages. A meaningful and effective feedback must support the expected student learning outcomes and professional advancement.

8. Determine which audio- or video tapes or other social media platforms can be used as tools for giving feedback. In some courses or in large classes in ODeL, it is somehow difficult to give long explanatory

comments on a student's work. For example, in my mathematics class, it is convenient to talk about the solution to a certain problem, referring to the codes written on the student papers. This kind of delivering feedback provides the benefit of the dynamics of the teacher's own voice to emphasize important points. An added advantage is the fact that replay is allowed until students have fully understood the feedback. For the teachers, the same material may be just as relevant to use in the future.

CONCLUSION

"I appreciate the teacher's feedback on my submitted work. It made me understand the ways I could have done the task."

- Undergraduate ODeL student

"When I read the feedback, I gained a bit of confidence about what I can do, and I showed progress in my class performance."

- Graduate student, PhD Program

According to students, feedback is most useful when they are given the time to reflect on it and think on how they can improve from reflecting on the feedback comments. Students gain confidence to do independent and reflective learning. In ODeL practice, the academic staff, particularly the tutors, are an important support to students in reflecting holistically on all the feedback they received across the course - where they are doing well and what exactly needs to be improved.

In conclusion, assessment feedback on ODeL provides students a valuable resource that can engage them to take proactive ways to enhance and move forward on their own academic development. As an ODeL practice, student assessment feedback is an integral part of the instructional process. Moreover, assessment feedback as an effective teaching tool can help every academic practitioner to shift perspective from a simple correction and marking of student's work to promoting collaboration among teachers and students, thus, helping students to move forward in their own learning. Making assessment feedback count in ODeL will certainly create a culture of feedback, feed students' interests, and develop their passion.

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CHAPTER 12

Network Analysis in Assessing Interaction in an Online Colloquium Course

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ABSTRACT

The colloquium, as a class format, has been widely used in graduate programs where experts present their views on a specific topic normally held in a class setting where face-to-face interaction can be observed and monitored. This chapter is an exploratory study that assessed student interaction in an online graduate colloquium class. It used a combined methodology of applying network analysis that looks into the interaction patterns and a self-report questionnaire on the students' preparedness for an online colloquium course, their role as moderator and participant in the colloquium, and their perceived overall usefulness of the colloquium approach.

INTRODUCTION

The use of the colloquium as a class format has long been used in residential learning. In the field of open and distance e-Learning (ODeL), however, use of this pedagogical approach which maximizes peer interaction among learners is yet to be explored.

In an article published in 2006 by the Capella University, the colloquia philosophy and how it is seen as an effective approach when incorporated in the doctoral program was presented. The article, titled "The Colloquia Philosophy: Scaffolding for a Transformative Learning Experience," discussed how doctoral learner motivation changes as the learner progresses through Tinto's three stages of development (Rose, 2005). The first stage centers mainly on developing a connection with colleagues, faculty, and support resources; the second stage concentrates on acquiring academic skills needed particularly for coursework and comprehensive examination; and the third stage focuses on designing and completing the dissertation research. These three stages are bridged by the colloquia learning experience "through an organized curriculum that recognizes the developmental aspect of the doctoral education experience" (Capella University, 2006).

As this colloquium class format is still new in ODeL, studies on how this pedagogical approach can be further developed need to be conducted for ODeL institutions to maximize its potential. This exploratory study aimed to assess student interaction in an online colloquium class that was intended to prepare doctoral students for their research-based dissertation. This was done by using a combined methodology of applying network analysis that maps the interaction patterns among the participants of the course and a self-report questionnaire that measured the graduate students' preparedness for an online colloquium, their assessment of their experiences in playing both moderator and participant roles in the colloquium, and perceived overall usefulness of the colloquium approach.

THE COLLOQUIUM AS A CLASS FORMAT IN A DOCTORAL PROGRAM

In the Doctor of Communication Program of the UP Open University, students are required to take a course wherein they participate in a student-managed online colloquium. The course, titled 'Colloquium on Communication Research,' requires that the students complete a theory and practice course and research methods courses. The course on colloquium is the last course taken by the students prior to the conduct of their dissertation.

Being online, student-led, and a culminating course elevates expectations of the Doctor of Communication Program as it hopes to address knowledge acquisition, critical thinking, and skills development through a collegial exchange of ideas. As colloquium members, the students are assigned two roles - as moderators/lead discussants/resource persons and as participants. At the beginning of the course, students select and propose a specific seminar topic that she or he shall plan and implement during the rest of the semester. As this is a colloquium on communication research, topics are expected to focus on research tools, methods, approaches, issues, and practices that are relevant to the students' research topics. Each student is then given a week to be a moderator/lead discussant/ resource person; while for the rest of the semester, she or he will be as participant in she or he colleagues' colloquia.

On one hand, as a moderator/lead discussant/resource person, the student is expected to make a presentation and propose issues for discussion; hence the students have to choose a topic that they are familiar with to allow them to articulate the topic of interest and identify the most relevant research issues. As participant, on the other hand, the student provides insights and comments on their colleagues' topic presentations. Each colloquium block is capped off by a written documentation of the interactions in the session which the student moderated. The online colloquium class is presented in Figure 1.

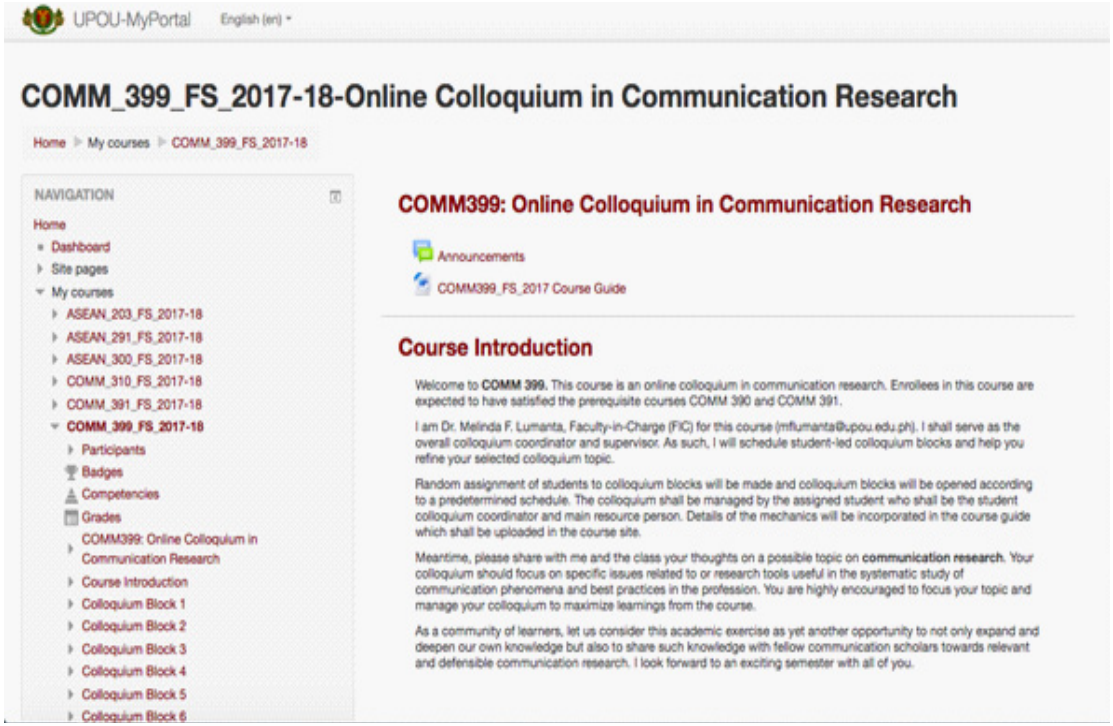

Figure 1. Website for the colloquium class

INTERACTION IN AN ONLINE LEARNING COMMUNITY

The emergence of distance education introduced a new perspective on how interaction in a learning situation occurs. Anderson (2003) identifies student interaction, teacher interaction, and content interaction as the three modes of interaction in distance education. He states that:

> *"Deep and meaningful formal learning is supported as long as one of the three forms of interaction (student–teacher; student-student; student-content) is at a high level. The other two may be offered at minimal levels, or even eliminated, without degrading the educational experience." (*Anderson, 2003; par. 11)

The online colloquium course investigated in this chapter was designed with increased level of student-student interaction, and minimal student-teacher interaction, it being student-led and managed. Student-content interaction was ensured as relevant reading materials were introduced by the moderator at the beginning of a colloquium block. The student's role as both moderator and participant in the course was introduced to increase learning through a community of learners, a distinctive feature of online education.

De Schutter, Fahmi, & Rudolph (2004), through a thorough literature review, explored the role of the moderator in making an online discussion productive. In their article, they discuss the importance of the moderator when it comes to encouraging the following activities:

1. **Participant access and motivation.** Participant's access to and knowledge about software is a pressing factor in making an online conference productive (De Schutter et al., 2004). Moderators need to provide participants with enough information (i.e., agenda and objectives of the conference, description of what is expected of the participants, an outline of recommended pre-readings, and preparatory materials) to enable them to participate effectively in the conference. De Schutter and colleagues (2004) also emphasize the need for an online conference moderator to know how to balance between the two approaches to conference moderation which are: the facilitatory approach (encouraging exchange of experiences among the participants) and guided approach (occasional steering and re-focusing of discussion).

2. **Online socialization.** Putting the participants at ease while promoting social interaction among them is imperative in creating a learning environment through online conferencing. These could be achieved by the moderator through a number of strategies, such as personally welcoming them or asking everyone to introduce themselves (De Schutter et al, 2004; Green, 1998). It is also important for moderators and participants to practice "netiquette" (De Schutter et al, 2004; Green, 1998) in which they respect others' opinions, beliefs, and values; not dominate the discussion; and encourage and acknowledge others' contributions.

3. **Information exchange.** An "asynchronous, educational, text-based conference" (De Schutter et al, 2004; Green, 1998) should have a number of participants ranging from 10 to 15. Furthermore, ensuring that these participants are given access to technology which enables them to share information that's not just about the course, but also about using the technology, is recommended (Salmon, 2002, as cited by De Schutter, et al, 2004).

4. **Knowledge construction**. The moderator is also expected to encourage discussion by asking open-ended and thought-provoking questions (Green 1998, as cited by De Schutter et al, 2004), summarizing the content of the discussion and the contributions of the participants, and eliciting feedback about the content and process of the online conference (De Schutter et al, 2004). The moderator, responsible in stimulating participants' interest and encouraging discussion among them, should be provided access to a tool that allows her or him to track student participation. She or he should also have access to relevant materials (i.e., details of the conference objectives, relevant text passages, definitions, illustrations, references, and hyperlinks) which can be "cut and pasted" into the conference text box at appropriate moments.

In the case of the online colloquium course being explored in this study, all the students were able to take on the role of a moderator. Hence the investigators looked into the nature of interaction among the colloquium participants through a network study. This was supplemented by a perception survey to determine the students' experiences in performing both the moderator and participant roles in the colloquium.

INTERACTION NETWORKS

Cadoc-Reyes (2012) explains how cognitive interpretation, which happens when learners exchange information with peers, leads to the "internalization, modification, objection, or further reification of information." Accordingly, sharing and exchanging of resources, posing challenging questions, and giving constructive feedback among peers (Yang, Yeh, and Wong, 2010, as cited by Kuboni, 2013) could be best attained when both the instructor and learner innovate in terms of monitoring individual and group performance and "knowledge sharing in virtual classroom discussion forums."

Network studies are used to analyze relationships and interactions in the social system of an online classroom. Studies have shown that social networks greatly influence the flow and process of knowledge generation in online learning communities (Wang & Li, 2007). According to Knoke & Yang (2008), "a social network is a structure composed of a set of actors, some of whose members are connected by a set of one or more relations." Based on the assumption of network theory that focuses on the interaction and relationship of individuals in a given system, social network analysis is popular in viewing patterns of ties among "nodes" or actors and how these patterns affect the relationship among individuals in a given system or network. These ties and nodes could be depicted through a sociogram: a visual representation that could be automatically generated through softwares like UCINET, Pajek, ORA, GUESS, and Cytoscape.

A number of social network metrics is used in network analysis to determine the degree of influence a network and its actors demonstrate. Hanneman and Riddle (2005) and Knoke and Yang (2008) describe these metrics as follows:

- **Betweenness.** Betweenness views the social network in a micro level. It looks into how pairs of actors are connected through an actor that lies between them. These actors, called the "bridge," are in an advantageous position as they connect two active nodes and their absence would result in an end to the connection between the two nodes. Basically, betweenness determines the number of "information paths" an actor has and who connects different groups of nodes in the network (Gruzd, 2016).

- **Closeness.** Closeness also views the social network in a micro level. However, unlike betweenness, closeness determines the length of path an actor has from the rest of the actors. According to Hanneman & Riddle (2005), the actors who are in an advantageous position are those "who have shorter path lengths from other actors, or those who are more reachable by other actors at shorter path lengths."

- **Degree Centrality.** Degree centrality also views the social network in a micro level. It measures the number of ties each actor has in a network and is distinguished based on "in-degree" and "out-degree" measures. An actor who receives many ties (in-degree) are usually called "prominent" or actors with "high prestige" (Hanneman & Riddle, 2005); while actors who demonstrate high out-degree measures are called "influential actors."

- **Network density.** Network density views the social network in a macro level. It indicates the "overall connectivity" in the network (Gruzd, 2016) by measuring the strength of the ties which are present in the network over the number of possible ties in the same network (Knoke and Yang, 2008). Low density indicates that not much power is exerted in the network, while high density means that the network has potential for greater power (Hanneman & Riddle, 2005). The denser a network is, the higher the connection within the network. Hence a denser network has greater potential in exhibiting higher information flow among actors. The formula for density is as follows:

$$\text{Density} = \frac{\text{Total number of ties}}{\text{Total number of possible ties}}$$

INTERACTION ANALYSIS IN AN ONLINE COLLOQUIUM

The study focused on the online colloquium course which had a total of 15 enrolled students. Two sources of data were used. The first was the conversation threads in the students' colloquia wherein interaction among the students were plotted and analyzed using the UCINET software. In particular, the network's properties (degree centrality and density) were determined to analyze student interaction in all of the fifteen colloquim blocks.

The second data source was a three-part survey questionnaire which aimed to determine the students' perception on the usefulness of the online colloquium in preparing them for their dissertation. Of the 15 students enrolled in the course, 14 answered the questionnaire. The researchers attempted to analyze the two roles (moderator and participant) performed by each student through a set of 16 questions presented in a Likert-type perception survey: the first part determining the students' perspectives as moderators of their own colloquium and the second part determining the students' perspectives as participants in their colleagues' colloquia. A third part consisting of a Likert-type question also measured the degree to which the overall design of the course has helped prepare the students for their dissertation. This was followed by an open-ended question asking the students to explain their answer to the third part of the survey.

Degree of Centrality and Network Density

The UCINET software was used to determine the colloquium network's degree centrality and network density. For the perception survey, frequency distributions and measures of central tendency were used to describe the students' answers. Likert-type questions categorized under De Schutter and colleagues (2004) four categories (participant access and motivation, online socialization, information exchange, and knowledge construction) were presented in the first and second part of the questionnaire. Code numbers one (1) to five (5) were used for the variables being measured wherein the higher score (5) indicates a stronger agreement to the variable being scaled. Means of parameters were obtained to interpret the level of agreement using Likert-type scale with equivalent rating measurements.

The interaction of students was mapped through the use of UCINET software wherein a sociogram illustrates the ties and connection in the network. Figure 2 presents the matrix table which was generated to analyze the presence and absence of ties among the students and the density of the colloquium network. A value of "1" indicates presence of ties, otherwise, no tie was observed. A total of 169 actual ties was observed.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1	A		0	1	0	1	0	0	1	1	1	1	0	0	1	0
2	B	1		1	1	1	1	1	1	1	1	1	1	1	1	1
3	C	1	1		1	1	1	1	1	1	1	1	1	1	1	1
4	D	0	1	0		1	0	0	1	1	1	0	1	0	1	1
5	E	1	1	1	1		1	1	1	1	1	1	1	1	1	1
6	F	1	1	1	0	1		0	1	1	1	0	0	0	1	1
7	G	1	1	1	0	1	0		1	1	1	1	0	1	1	1
8	H	1	1	1	1	1	1	1		1	1	1	1	1	1	1
9	I	1	1	1	1	1	1	1	1		1	1	1	1	1	1
10	J	1	1	1	1	1	1	1	1	1		1	1	1	1	1
11	K	1	1	1	0	1	0	1	0	0	0		0	1	1	1
12	L	0	1	1	1	1	0	0	1	0	0	0		1	0	1
13	M	0	1	1	0	1	0	1	1	1	1	1	1		1	1
14	N	1	1	1	1	0	1	1	1	1	0	1	0	1		1
15	O	0	1	1	1	1	1	1	1	1	1	1	1	1	1	

Figure 2. Matrix generated using UCINET

In general, the value of network density observed was 0.80 or 80% of all the possible ties present in the network. The higher the network density, the stronger the connection among the actors in the network which also indicates that the information exchanges in the network was high and that students were able to actively exchange and share information with each other.

Figure 3 illustrates the interaction of the students who participated in the colloquium. It shows actors C, H, and E (in red) as the actors with the most number of ties in the network. Measuring the in-degrees and out-degrees of each actor in the network, actors C, H, and E were identified to be possessing the highest number of both in and out degree measures, hence, they are considered as the actors who played an important role in sharing and receiving information in the network. In addition, actors N and O (in blue) are seen to have a significant in-degree values, making them the prominent actors in the network; whereas actors B, I, and J (in green) are noted to have high out degree values which implies that these actors are the influential actors in the network.

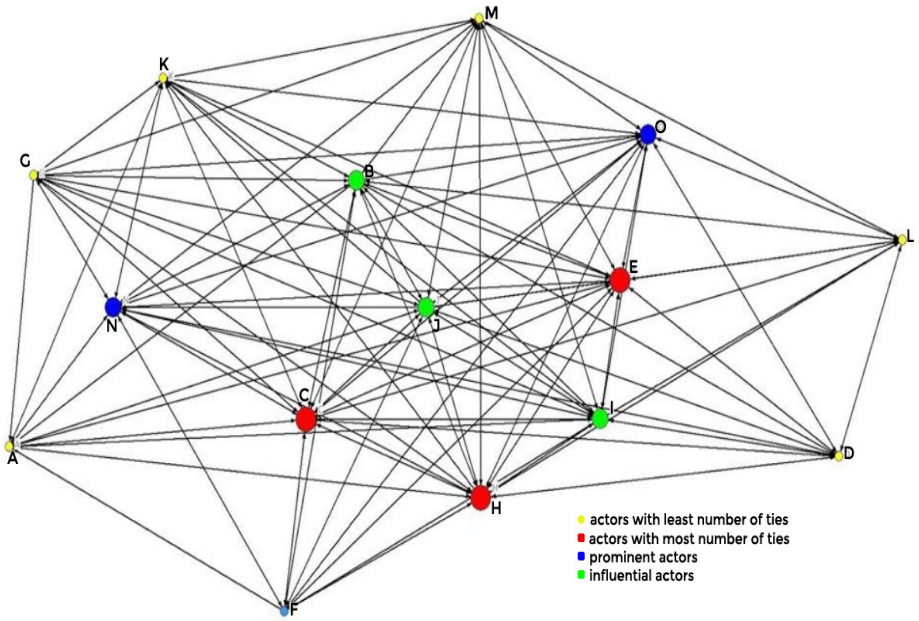

Figure 3. Network of Interactions

Usefulness of Online Colloquium

The first and second parts of the questionnaire used a Likert-type scale to measure the students' level of agreement on how the online colloquium course helped them as both colloquium moderators and participants. Results indicated a high score on De Schutter and colleagues' (2004) four categories: participant access and motivation; online socialization; information exchange; knowledge construction, with the first category getting the highest score of 4.41.These results were supported by the students' answers in the open-ended portion where most answers fell under the knowledge construction and participant access and motivation categories. On the question measuring the degree to which the overall design of the course in a colloquium format has helped the students prepare for their dissertation, a mean score of 4.43 was generated; indicating that the online colloquium course was perceived by the students as very helpful in preparing them for their dissertation.

With the use of a combined methodology of applying network analysis and self-report questionnaire, the results indicate that indeed a pedagogical approach that maximizes interaction among learners in an online learning community positively contributes to knowledge construction. The mapped interactions in the online colloquium revealed that its network density is high, implying that there is a strong connection among the students which enabled them to actively share and exchange information among themselves. This leads to knowledge construction which is at the core of a doctoral research or dissertation and the end-goal of a colloquia approach as a developmental process.

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CHAPTER 13

Chronicling the Institutional Challenges and Adjustments in Administering Examinations in UPOU

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and Melinda F. Lumanta

ABSTRACT

Since UP Open University evolved from the traditional distance education to an open and distance e-Learning institution, changes in instruction, course delivery, and assessment also occurred. Through the years, UP Open University has utilized different forms of examinations from the usual sit-down proctored examination to a computer-based examination. This chapter chronicles the different forms of examinations, the issues and challenges encountered in administering these examinations, and the establishment of an examination service program that centralized the administration of academic examinations.

INTRODUCTION

In its early years, UP Open University's student support was handled by the Office of the Vice Chancellor for Student Support Services (OVCSSS) which planned, proposed, and implemented policies pertinent to student services in support of delivery of instruction to distance learners. Face-to-face tutorials, as a form of instruction delivery and course examination, were conducted at the Learning Centers (LCs) located all over the Philippines where tutors served as proctors for the courses they handled. Examinations were taken simultaneously on the same day.

With the two institutional reorganizations in 1998 and 2003 and the rapid developments in Information and Communication Technology (ICTs), the administration of student support services also evolved through time. LCs, which were charged with conducting examinations, were administratively supervised by the Office of the Vice Chancellor for Academic Affairs (OVCAA). Figure 1 shows the tasks of the UP Open University Student Support Services from 1995 to 2013 as illustrated in a timeline.

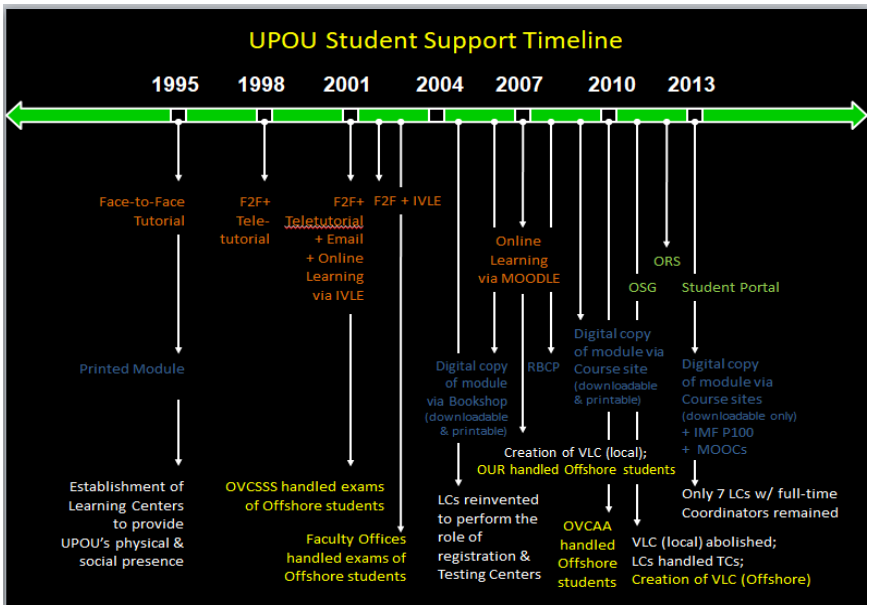

Figure 1. UP Open University student support services (1995-2013)

During the introduction of online tutorials through the Integrated Virtual Learning Environment (IVLE) in 2001, some of the issues brought up included the diversity of the students and their presence at different locations in the country and abroad. UP Open University started accepting students based abroad, and since then, these students have continuously increased every year.

During the First Semester of 2003-2004, the OVCSSS began administering examinations for students based abroad with proctors coming from Philippine embassies, consulates, and the University of the Philippines (UP) alumni group. An initial attempt featured a student that took an online exam using an email facility with a specified exam duration of three hours. Without the use of a webcam, instant messaging was employed to remind the student of the remaining hours.

With the approval of the UP Open University reorganization in September 2003, the responsibility of handling examinations of offshore students was given to the Faculty Offices. Offshore examinations were proctored in Philippine diplomatic embassies or through an educational service provider. University of the Philippines alumni often served as exam proctors. In a few cases, online exams were conducted synchronously with students being monitored through a web camera. Under this arrangement, the approval of the faculty-in-charge (FIC) was sought prior to exam administration.

In implementing this scheme, the Faculty Offices made use of existing technologies such as Yahoo Messenger (YM) for invigilating examinations while strictly complying with a given set of university guidelines for both the proctors and the students. For instance, the Faculty of Education (FEd) conducted online examinations via email/YM beginning the Second Semester 2003-2004. A web-based online examination in cooperation with the UP Open University's Management Information System Office (MISO) was piloted for five overseas students from July 28 to August 1, 2006 to address some of the issues in the first type of online examination.

In 2007, the Office of the University Registrar (OUR) piloted a number of innovations that addressed the examination needs of offshore learners resulting in the creation of a Virtual Learning Center (VLC). According to Dr. Melinda dP. Bandalaria, then Head of the Office of the University Registrar, the innovations included the mechanisms for ensuring the integrity of the examination process including the conduct of online examinations. One of the mechanisms was the creation of the guidelines

in proctoring examinations. Part of these guidelines in the conduct of online examinations were the requirement and positioning of camera, ascertaining the identity of the student and the maximum number of examinees a Proctor can handle at a single session. Another innovation was the creation of "Community site for Offshore students" that served as a venue for announcements, sending messages, and socializing with fellow students. Other mechanisms required the development of an exam portal, procedures to prevent cheating and other acts of academic dishonesty, and the training of online exam proctors. Faculty members then administered online examinations either through this mechanism developed for offshore students, through a learning management system (LMS), or through mechanisms that they have developed on their own.

The Virtual Learning Center (VLC) for offshore students was eventually handled by a full time coordinator in 2011. Existing mechanisms for online examination have been used until today. VLC has catered to the unique examination needs of overseas students considering time zone differences and geographical locations.

INSTITUTIONAL ATTEMPTS AT ADMINISTERING EXAMINATIONS

The organizational, environmental, and technological changes that spurned a rethinking of the administration of examinations at UP Open University, necessitated a flexible and accommodating institutional approach.Through the years, UP Open University has experimented with the implementation of various forms of examinations administered in a decentralized manner primarily through the LCs. In the process, UP Open University considered the unique requirements of distance learners and the nature of the examination as crafted by the faculties-in-charge.

Sit-down proctored examinations

Sit-down proctored examinations are administered at the accredited UP Open University Testing Centers or LCs locally and abroad with a designated proctor or examiner. These exams include pen-and-paper tests and computer-based tests where the students use a laptop to encode answers or log in to the Online Examination System (OES) at the exam venue. Up until 2017, UP Open University maintained seven UP Open University LCs located in Baguio, Manila, Diliman, Laguna, Cebu, Iloilo,

and Davao in the Philippines. These LCs coordinate with the 17 Testing Centers in the Philippines which mainly operate as examination venues and which are mostly universities and educational institutions.

Examinations abroad are coordinated by the Virtual Learning Center Coordinator (VLCC). At Present there are 62 Testing Centers located in different countries. Usually, these are the Philippine Embassies and Consulates abroad.

Figure 2. Sit down proctored exams

Online proctored examinations

Online proctored examinations are taken by a student at a designated time and under the supervision of a proctor. This exam is conducted using an internet and a webcam. This can be administered through an online platform such as email, YM, Skype, or Google Hangout, and GoogleDocs. This type of examination is conducted with permission from the faculty-in-charge (FIC). The requirements include a reliable internet connection which can support a three-hour examination for both the proctor and the examinee. This set-up includes the pre exam preparations like setting the camera, sending the exam file, and others. The student should have an external webcam that can support the webcam views as indicated in the screenshots below.

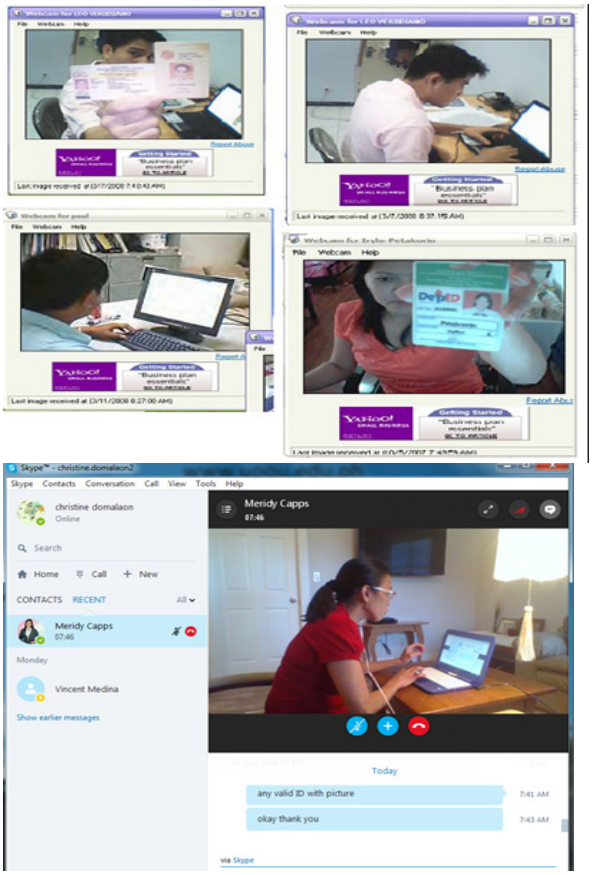

Figure 3. Online proctored examinations

Online examinations administered by the faculty-in-charge (FIC).

Other FICs use the existing online examination systems of MOODLE (quiz module) or other online platforms. UP Open University's LMS platform administers online examinations within the online classrooms. Students can take an exam at any time during the designated period.

Take home examinations are non-proctored exams which consist of a set of exam questions to be answered for a certain period time. This is normally FIC-administered.

Online non-proctored exams are administered through the OES developed by the Faculty of Management and Development Studies (FMDS). Students can take the online exam at any time during the designated exam period.

ISSUES AND CHALLENGES IN CONDUCTING EXAMINATIONS

In conducting examinations for students through the years, UP Open University has identified a number of issues and challenges that were considered in the planning and implementation of other future assessment mechanisms.

Security of Exams

In any form of examination, security has been an issue in most cases. The conduct of examinations in UP Open University undergoes long processes and is handled by different individuals from the FICs who constructed the exams to the proctor supervising the conduct of examinations. Compared to sit-down exams, online exams pose some major issues. One of these is the authenticity of the identity of the student taking the exam. Online proctors do follow certain guidelines to check the authenticity of the students; however, there were times when student's internet connection was disconnected for more than the allowable time. Online proctors usually nullify the exams when this occurs and an incident report is prepared and submitted to the concerned Faculty Office for appropriate action.

Transmittal of Examination Documents

Examinations in UP Open University require a lot of time and preparation. Once the FIC has transmitted the exam questionnaire to the Faculty Office, the questionnaire will be forwarded to the Dispatch Unit for reproduction and sending to the examination venues. Copies of the examinations should be received by the proctor at least a day before the indicated schedule. These preparations pose different problems, such as delay in the receipt of exam materials from the FIC and delay in the delivery by the courier service.

Technical Difficulties

The implementation of online examination means dependence on an efficient internet connection. Slow or poor interconnectivity has been a problem for some students in the Philippines and abroad. For example, in 2012, a student based in Ethiopia was not able to continue his examination since his internet connection was always disconnected. The platforms used were email and YM. Furthermore, there was no clear video to show that he was the one taking the online examination. As a result, his examination was rescheduled and taken through a sit-down proctored exam. Another example was on the use of OES portal. There are some cases of difficulties including a student's failure to submit the exam as the time expired ahead of the schedule and a system error where the student's submission did not reflect in the Administrator and FIC accounts.

Time Difference

Due to time differences between the Philippines and the countries where some students are based, the schedule of the exam needs to be adjusted. The proctor in the Philippines administers the online exam and adjusts the schedule to suit the time of the students based abroad. For example, Philippine-based online proctors give the test in the evening in order to accommodate students whose time falls in the early morning hours in the country where they are based. Another example is the sit-down exams whose schedule in other countries is not the same as that in the Philippines since there is a need to consider the availability of proctors as well as the weekend activities in other countries. For instance, weekend in the Middle East countries begins on a Thursday, so exams are administered on this day.

Human Error

Since many individuals handle exams, susceptibility to human errors have been experienced, among these are missing pages of exam questionnaires and inadequate number of examination papers for the examinees. During the early beginnings of online examinations when exams were being administered through YM and email, human error became inevitable. At one time, a proctor accidentally sent the wrong examination paper to the student and an incident report was prepared to address the issue.

RECONCEPTUALIZATION OF UP OPEN UNIVERSITY LEARNING CENTERS WITH RESPECT TO ADMINISTERING EXAMS

The UP Open University LCs have played a crucial role in providing support to learners through the years. One such support provided by the LC is the facilitation of examinations. Most of their present support to students in examinations focus on proctoring examinations, sending back examination papers to Faculty Offices, safeguarding the integrity of exams, and coordinating with testing centers and proctors before the scheduled exam. The LCCs serve as coordinators of examinations among the network of testing centers under them.

With the changes in technology and new trends in Open and Distance Learning (ODL), the role in the delivery of support to students has changed too and will need to consider reconceptualizing its role in order to cope with these environmental changes. In an article by Lumanta and colleagues (2017), it was proposed that the LCs set up be reconceptualized into a hub concept where the hub serves as the center of an activity, region, or network with a set of spokes that connect to a specific set of activities, services, and organizations. Through this reconceptualization, the task in administering examinations of the LC would be left behind and would require the creation of a unit or an office that will be in charge of this service that is provided to its students.

SETTING UP AN EXAM SERVICES PROGRAM

The idea of an Exam Services Office/Unit/Program came up during an organized forum conducted with the UP Open University's Learning Center Coordinators and Faculty Secretaries. The three-day forum was organized to address the need to reconceptualize the tasks of the LCs. One of the recommendations was the possibility of an assignment and examination unit which will be tasked to come up with guidelines on choosing testing centers, designing a set of criteria in selecting proctors, ensuring the quality and security of exams, to coordinate with individuals and institutions, and scheduling examinations.

A report on what transpired during the forum was submitted by the UP Open University Exam Task Force and among its recommendations was the establishment of a UP Open University Examination Unit to oversee the administration of exams. The UP Open University administration

favorably considered this recommendation and immediately after started a program that will be responsible for a centralized examination system.

In the first semester/trimester 2017-2018, the UP Open University Examination Services (ES) started its operation. Headed by a Program Development Associate, the UP Open University ES is responsible for the overall administration and operation of academic examinations done at the University. This includes examinations conducted in both online and sit-down proctored examinations in courses as well as admission exams to degree programs of the university. It is also mandated to scout for, evaluate, and maintain the pool of examination venues and proctors; supervise and collect examinations; coordinate with students and proctors regarding examination matters; and ensure the integrity of examinations in compliance with university rules and regulations.

Currently, the UP Open University is being manned by a skeletal staff of four whose tasks are to make examination arrangements and orient and train proctors. One of them is in charge of students who take exams within the Philippines while the other is in charge of students who take exams abroad. The two other staff take care of administrative matters as well as assist the staff in charge of exams in the Philippines and abroad.

Initially, the program started with different activities like organizing the meetings with the people who will be assigned to the different tasks, setting up the meetings with other individuals and offices involved in examination, putting up its own email address, designing standard forms, and drawing up policies and guidelines. It has also started to create and establish networks of exam venues and proctors.

Like other newly established office or unit, the Program has encountered challenges and difficulties which became the bases to improve its system to serve UP Open University students better in the future.

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CHAPTER 14

Development of an Online Exam System: The FMDS-UPOU Experience

Joane V. Serrano, Rita C. Ramos, and Carla Alyssa G. Cabrera

ABSTRACT

"Open learning is a vision of an educational system in which education is accessible to every individual and with minimal restrictions." (Alfonso, 2017; p. 1)

This chapter shares the experience of Faculty of Management and Development Studies (FMDS) in developing the FMDS Online Examination System. It also tries to examine the issues and challenges on the development and implementation of the online examination system encountered by the teachers, assessment expert, developer, as well as the students enrolled in graduate online courses.

BACKGROUND

The Faculty of Management and Development Studies (FMDS), as one of the three Faculty of Studies of the University of the Philippines Open University, recognizes the importance of an assessment system that is accessible, credible, and reliable. Assessment system is one of the important topics which occupies a major place in the concerns of state and private universities due to the increasing number of admitted students (Alsamarai, et al 2014).

FMDS is a collective of various disciplines that deal with international health, nursing, environment and natural resources management, land valuation, land use and planning, research and development, social work, public management, and Association of Southeast Asian Nation (ASEAN) studies. As a Faculty with a varied and wide range of programs, the FMDS caters to students across the country and in different parts of the world. As FMDS opens its doors to serve the global community of learners, scholars, and workforce, it is also committed to adhere to the highest standards of academic excellence, service, and social responsibility. With this commitment in mind, the FMDS faculty and staff strive to explore ways to improve its instructions including its assessment system. The rapid advancement of technology in recent years has had a positive effect on the learning processes, especially the assessment component. This prompted FMDS to maximize the affordances of modern Information and Communication Technology (ICT) to help address the diverse needs of its students in terms of assessment.

According to Idemudia and colleagues (2014), "The incorporation of Information and Communication Technologies instruments in education and training has developed new paths of delivering, accessing, and the progression of helpful awareness." At present, there are approximately 300 FMDS students based abroad who benefit from the Online Examination System (OES). The utilization of the electronic examinations system is considered a good indicator of the development of methods used to evaluate the performance of students in the universities (Alsamarai, et al 2014). Furthermore, the FMDS OES is the first Faculty-wide examination system that has been developed.

THE DEVELOPMENT OF THE FMDS ONLINE EXAM SYSTEM

FMDS recognizes the importance of developing an online exam system (OES) that considers the varied locations of its students. It also recognizes the need to properly plan assessment practices to meet global standards. OES is now an essential tool among universities as it is more convenient to use for the students and faculty members alike (Sarrayrih, 2016). According to Ana and Bukie (2013), an online exam system is an effective way to measure the student's knowledge.

FMDS also acknowledges many challenges of the traditional paper-and-pencil type of examination. Aside from entailing a tedious process, paper-and-pencil type of examination runs counter to the principles adhered to by UP Open University as an open and distance e-Learning (ODeL) institution. Among the challenges of a paper-and-pencil type of examination are: it is time-consuming and costly in terms of printing and reproducing exam papers; it is risky to send out to different parts of the world due to a chance of it being lost; and it is delayed in terms of sending the answered questionnaires to the checkers. Unlike computer- or web-based tests, paper-and-pencil type of examination does not have real-time updating of exam, random item selection, exam banks, and automatic scoring (Millsap, 2000) thus making feedback a lot harder and slower.

Before the establishment of the UP Open University's examination unit in 2017, UP Open University did not have a centralized office or unit that takes care of examination arrangements. Administration of exams was usually done through the following: individual initiative of faculty-in-charge (FIC) through MyPortal, UP Open University's learning management system (LMS), or through other online platforms; online proctoring through document sharing software or system (i.e., Skype, Google Docs and other document sharing platform); and sit-down, proctored exam in Learning Centers (LCs) and Testing Centers.

The FMDS OES was developed based on a recommendation by the Taskforce to develop assessment framework and guidelines for FMDS. The taskforce was constituted on 13 January 2015 by the Dean as part of the thrust of FMDS toward quality assurance of its program offerings. The development and implementation of the FMDS OES was part of its Diploma in Research & Development (DRDM) program.

The FMDS OES was developed by a team who worked together in collecting or gathering data related to FMDS exam administration. The assessment team consisted of the following:

a. **Team Leader.** The team leader was responsible for initiating the e-assessment system, coordinating efforts, and monitoring progress of the OES;
b. **Assessment Expert.** The assessment expert was responsible for ensuring that assessment principles are followed;
c. **Technical Experts.** The technical experts were responsible for developing the e-assessment system, and for giving technical feedback or comments; and
d. **Faculty-in-charge (FIC).** The FIC works with the learner and is responsible for pilot testing the system and gathering feedbacks.

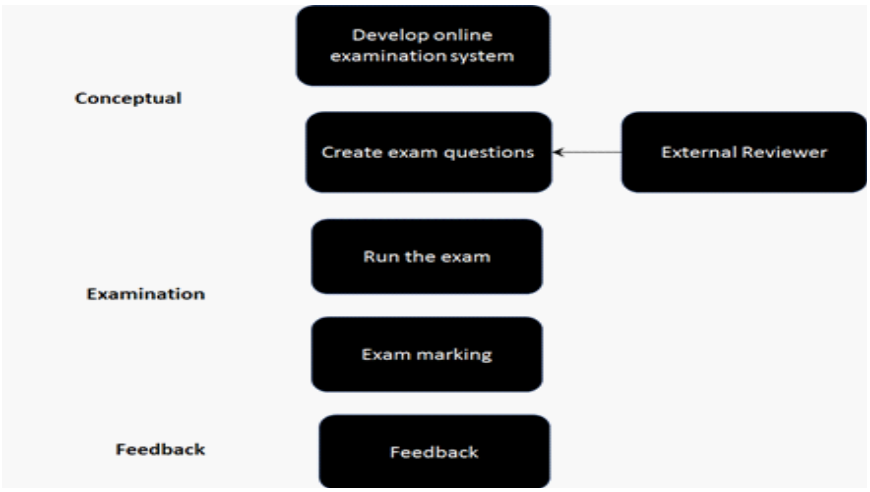

Figure 1. Framework in developing the OES

The Earlier Versions of the FMDS OES

FMDS first used the OES in 2015. It was developed primarily for the following reasons: to minimize the sending out of several paper-based exams to offshore students, thus cutting down the expenses on the part of the university; to increase the administrative efficiency since the tasks of printing, reproducing, and sending out of exam papers are no longer carried out; to decrease the workload of FICs in terms of marking exams especially for multiple-type of exam since scores are automatically computed by the system; and to reduce the risk of exam leakage.

The development of the first online examination (See Figure 1) version had the following features:

a. Creating or Formulating Exam (e.g., essay, multiple choice, True or False)
b. Administering exam
c. Exam marking
d. Feedbacking

The first version of the OES had applications – MyODBC connector and the Online Exam application–that needed to be downloaded and installed in the student's computer (See Figure 2). These applications were needed to run the OES. This version also had the screen lock feature which disallowed students to open other computer programs and/or access other websites, thus strengthening the credibility and integrity of the online examination.

Figure 2. A screenshot of the installation of the first version of OES

The second version of the OES, on the other hand, required students to download the Online Exam application only (See Figure 3). It used a combination of desktop and web-based applications. Face-to-face proctoring could also be used in this version.

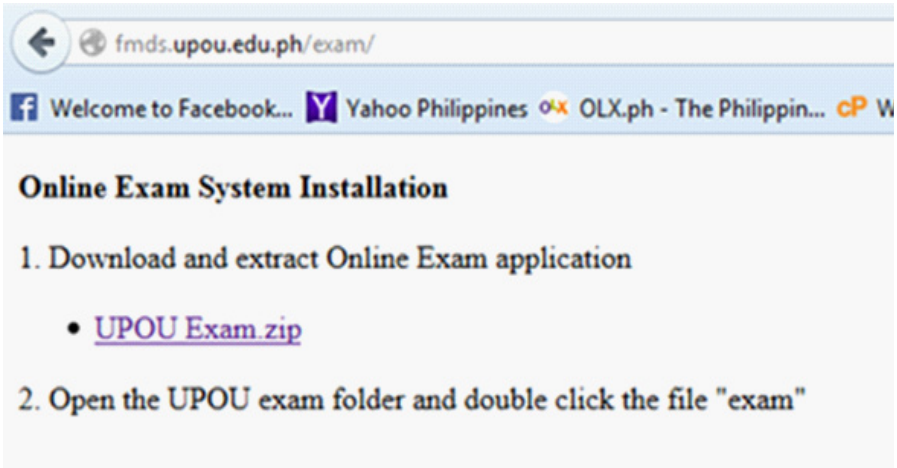

Figure 3. A screenshot of the installation of the second version of OES

Upon logging in in the second version of OES, the screen lock feature would automatically activate and the students could not browse other web pages (See Figure 4).

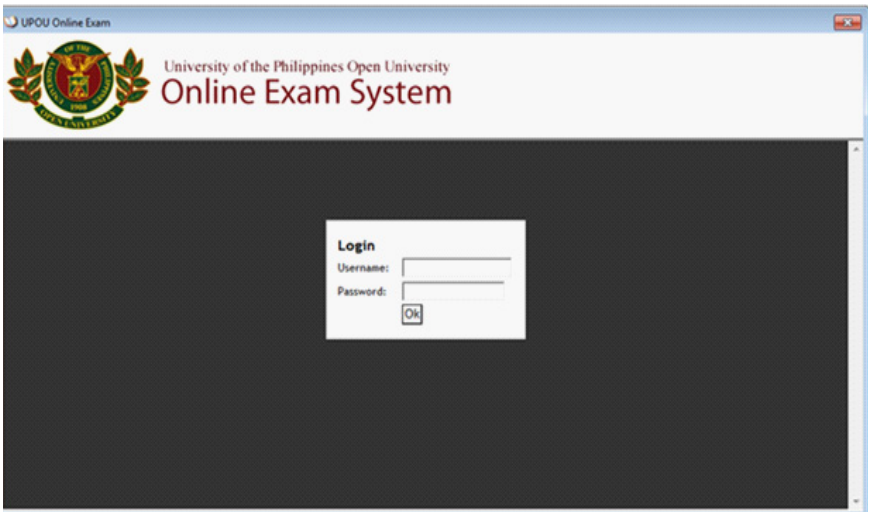

Figure 4. The log-in page of the second version of OES

Meanwhile, the third version was purely web-based. Proctoring could also be done online via Skype (See Figure 5). This version of OES had more practical features than the first two versions.

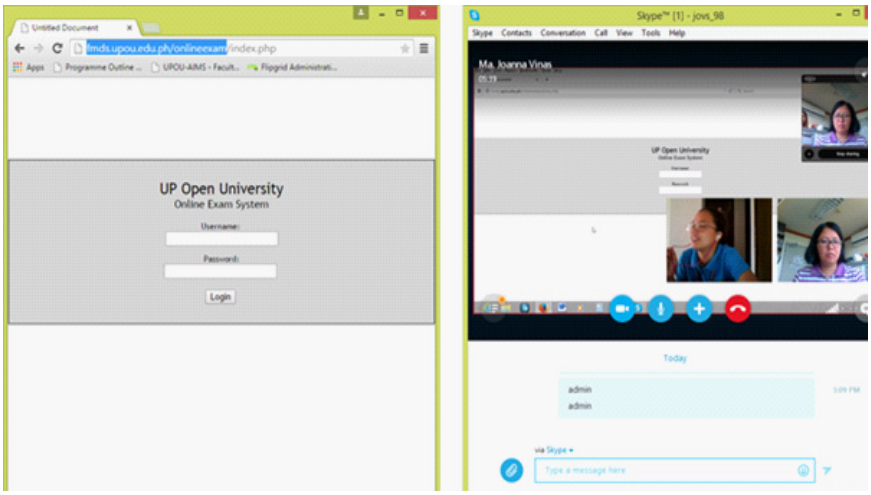

Figure 5. Log in page and online proctoring via Skype of OES version 3

The Enhanced OES

As part of its continuing effort to improve the examination system, the FMDS re-developed the OES into an Enhanced Online Exam System (EOES) to further improve the quality of the first OES. It ensures the integrity of examination through new features such as the use of new webcam image capture and improved interface.

The development of the EOES aims to develop a more credible exam system through the use of webcam image capture to monitor the examinee. This feature captures the image of the examinee every five minutes. It also aims to increase the integrity of the OES with an improved layout and interface. The OES creates better mobility with improved scheduling to cater students from different time zones. These features of the OES were programmed to ensure reliable, valid, and fair examination, so as security and integrity.

As stated in the Educational Testing Services (2013), assessment practices must be reliable, valid, and fair. Reliability produces consistent scores among different testing conditions or versions used while validity measures the traits such as knowledge or skills which the test intended to measure. Lastly, fairness illustrates that no group of students is either advantaged or disadvantaged due to factors such as language and/or content of the questions.

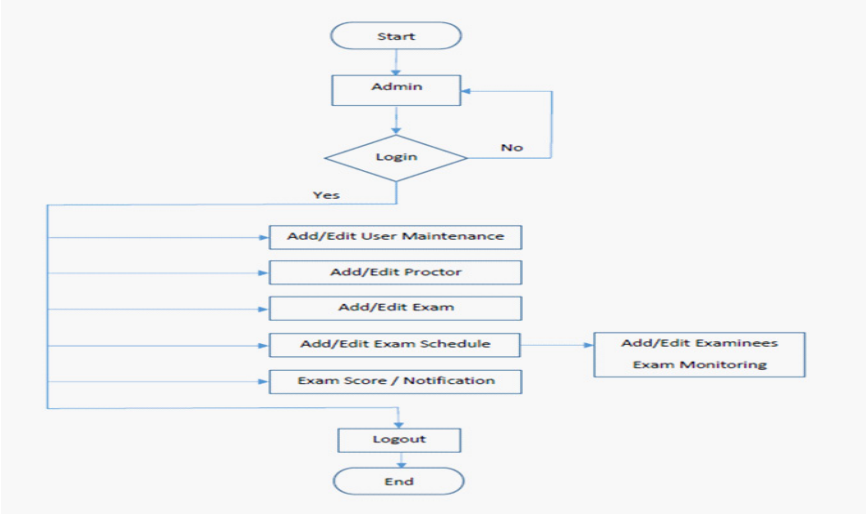

Figure 6. System flow of the admin access

Currently, FMDS is using the EOES (2016-2017). It has new system features, interface, and system functions and access. Some of the added features are the Student View, Time Zone Scheduling, Exam Schedule E-notification, and Image Capture and Psychometric Analysis.

The administrator or FIC can see the student's view of the examination. This feature can help the administrator or FIC know whether the questions and items are properly laid out prior to final scheduling of examination. Additionally, the time zone scheduling feature eases the scheduling process since it gives a selection of different time zones, thus taking into consideration the fact that UP Open University students are geographically dispersed. Students are automatically notified of their exam schedule through Exam Schedule e-notification which serves as a reminder to students of the date and time of exam schedule. Meanwhile, the image or video capture continuously monitors the student while taking the test. The image captures the frontal view of the student to ensure that the student herself or himself is the one taking the test. IP address can also be checked.

The new system access includes the Administrator Access, Faculty Access, Proctor Access, and Student Access to ensure and uphold the security of the OES since each type of access has certain limit of access and functions. For instance, the Administrator Access has a hold for the overall access to all features specified and the maintenance of the system (See Figure 6). The Faculty Access can only add or edit an exam,

add or edit exam schedules, add or delete examinees, assign the proctor, view exam results and the captured images, and lock or unlock an exam. Furthermore, the Proctor Access can only lock or unlock an exam. Lastly, the Student Access can view exam schedules and answer the exam.

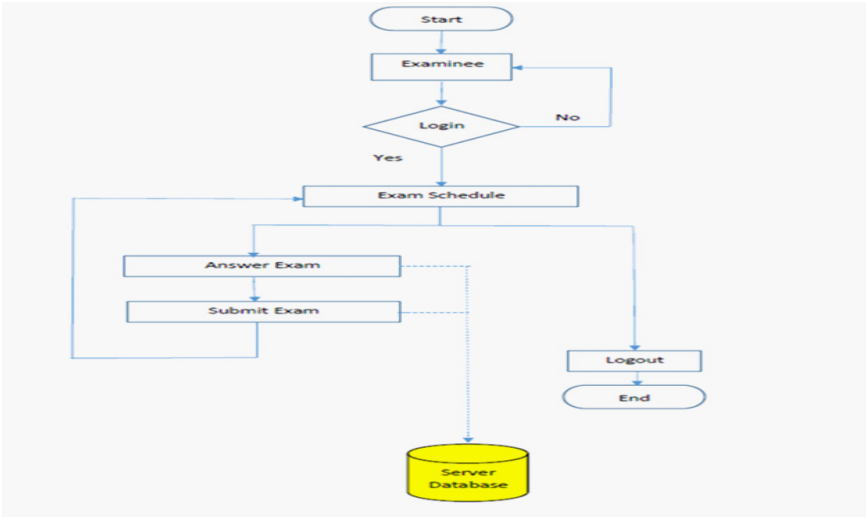

Figure 7. System flow of the student access

The Student View feature allows the FIC or the one encoding the exam to see how it looks from the student's end (see Figure 7). Exam time is automatically converted based on the student's time zone in the Time Zone Scheduling field. Manual converting or computation is not needed anymore which was also a problem in the previous versions because of wrong time conversion. In this version, the system does the computation. As seen in Figure 8, another new feature of the current version is the e-mail notification of exam schedule. An e-mail blast consisting of the exam schedule and some reminders will be sent to the examinees. Meanwhile, one of the new and most important features of this version is the Image Capture. When the FIC chooses the "Webcam Required" feature, the student will not be able to open the exam until the webcam is enabled from the student's end. Also, image of the student is saved in the system every five minutes.

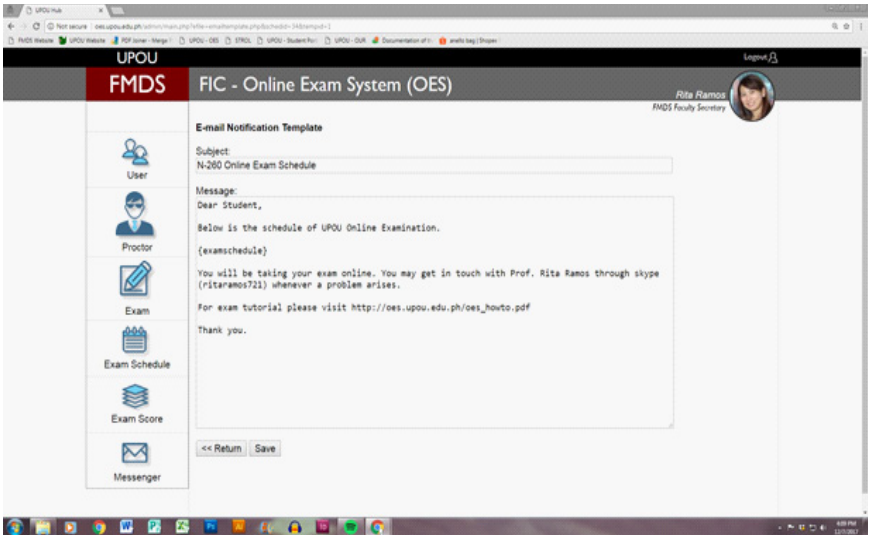

Figure 8. E-mail notification feature of the Enhanced OES

Limitations of the EOES

Despite the marked advantages of the EOES, there is still a need to improve on video capture and monitoring. The frontal view captured continuously may not be enough to maintain the integrity of the examination. Hence, it is recommended to have a wider angle of video monitoring, so it can monitor the entire screen of the computer or laptop and surroundings . It can even sense the movement of the keyboard and mouse. Additionally, continuous screenshots of the screen are imperative to monitor whether the student is navigating to other sites and documents.

EXPERIENCES AND REFLECTIONS

The FMDS OES has been a great help in reducing cost of papers and other materials used in reproducing paper-based exams and of shipping or courier fees. The risk of exams being lost is also reduced. The efficiency of the administrative work and staff is also increased. Despite the OES being “easy to use and efficient, the success of implementation depends on the culture of the campus and using appropriate change strategies” (Baleni, 2012).

The constant development and improvement of the OES through the years is attributed to the observations provided by students, FICs, and proctors.

The problems encountered by the students in the first version were as follows: failed internet connection, empty exam file, and "frozen" screen. In the second version, students tended to forget their password; some of them used their LMS password. The second version had a wider reach. More students from different parts of the world started using it. The exam areas were Chicago, Bahrain, Dubai, Riyadh, and the Philippines. Since it was already web-based, majority of the problems encountered in the second version were related to internet connection failure and server glitches (See Figure 9).

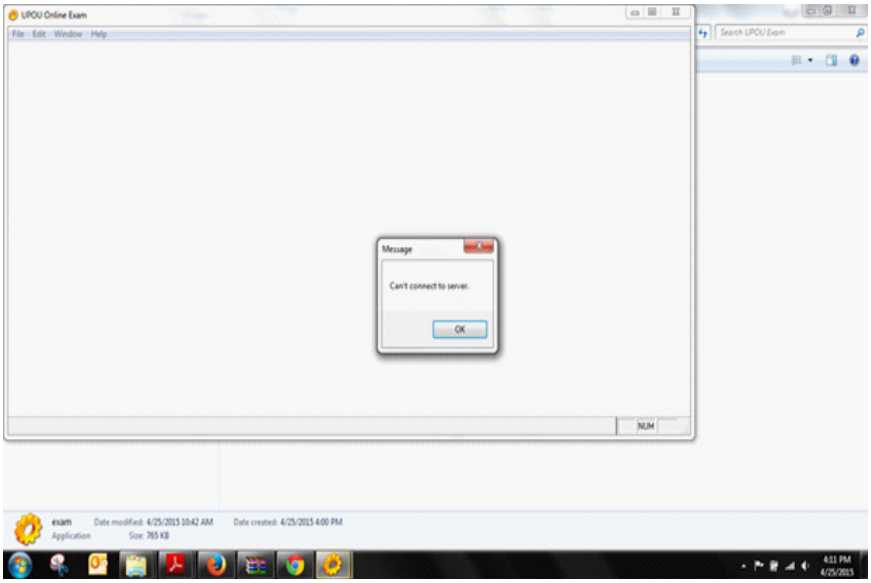

Figure 9. Failure to connect to the internet

The initial implementation of the FMDS OES was time-consuming. The assessment system must be carefully and continuously monitored before, during, and after examination for further observations and improvement of the system. Students must be briefed about the system, the technical skills required on their part, and what is to be expected. Lastly, proctors should also be given an orientation about the system and how they should ensure that students are all logged in; they should also remind students to call the proctor's attention when experiencing technical problems.

Meanwhile, close coordination among members of the team (i.e., learning center coordinators, proctors, FICs, programmer, troubleshooter/ technical support) must be implemented. The members of the team must be also oriented on the importance of security measures and be familiarized with the system or software. Also, problems or system glitches encountered must be documented and reported to the programmer.

Rigor of the Development Process

It takes time, patience, and commitment in developing and refining the FMDS OES. Time is required in pilot testing both in small and large groups of students. Added to this is the challenge of diversity and the big number of students who initially took the exam through the System. Diversity refers to the context of the students' geographical location, cultural or personal factors, and technology related matters The geographical location also connotes time differences which require monitoring beyond Philippine time. Internet connectivity was also one of the early concerns and obstacles in some local places in the Philippines. Nonetheless, the use of internet in embassies and consulate offices was one of the earliest difficult problems of students based abroad. The interplay of cultural and personal factors such as the level of acceptability of this new mode of examination was one of the difficulties encountered. Shifting to online exam from paper-and-pencil was not easy to implement. There was a resistance both from the students and FICs. Detailed instructions and technical assistance paved the way to a certain degree of acceptability of this new mode of examination system. The flaws and problems encountered related to the implementation of the OES served as the basis for refinement. The attitude of persistence and positivity helped the team to go on and further refine the OES alongside the challenges previously mentioned. The FMDS OES is a work in progress as the team continues to strive for quality and further improvement .

Commitment to Openness and Innovation

Since the students are from different parts of the globe and many are part-time students, the FMDS OES is indeed one of the concrete translations of openness as this allows one to take the examination without going to examination centers. Students can take their examination at home or even in their workplace. This lessens the expenses of both the student and the institution without

compromising integrity and quality especially in some countries where safety and security in travelling to examination centers are both issues for the UP Open University students. Further, the continuous video captures and viewing of students' answers are two of the features that uphold the integrity of the OES.

The commitment to innovation is one of the springboards of this initiative which contributes to strengthening the mission and vision of UP Open University as a leading university in online learning.

Progressiveness

The FMDS OES can be used on either proctored or non-proctored exam. Previously, paper-and-pencil test was used and this required the dispatch of the examination paper to different parts of the country and the world. Thus, this involved the following factors: manpower, money, and time. However, with the OES, these factors were greatly reduced. Examination papers are no longer needed to be reproduced and sent to different parts of the country and the world. The student needs only to log in and take the examination. Consequently, the FIC can immediately check the exam without waiting for weeks as compared to paper and pencil tests.

The examination system is just the tip of the iceberg in assessment. The FMDS OES is quite different from other exam systems since it provides psychometric analysis, both basic and advanced. This includes item analysis, item difficulty, and item discrimination. This will help the FIC analyze items in a very critical manner and later improve the identified items. The advanced method such as adaptive-based testing is one way of maintaining the integrity of the exam. With this adaptive-based testing, each student may have her or his own sets of exam according to her or his ability. Thus, credible and reliable individual outputs can be produced.

The development of an e-assessment system has proven to be a challenge. Such system must undergo intensive pilot testing and the examination carefully monitored to avoid problems. Students must be technologically adept to avoid problems, speculations, and fear of system malfunctioning during an exam. Also, invigilators need proper training. High level of coordination among team members is also required. Lastly, assessment type is limited but can be expanded to wider choices as the system is improved.

RECOMMENDATIONS

It is highly recommended that a user manual be developed. The contents of which should include coordinating e-examinations; preparing learners to use the online exam system; administering online exams; providing technical support or troubleshooting for the exam system and guidelines for invigilators; and more importantly, the system must be continuously improved.

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CHAPTER 15

Towards an Assessment Framework for ODeL: Surfacing Quality Dimensions

Melinda F. Lumanta and Liza C. Carascal

ABSTRACT

In this culminating chapter, it is suggested that quality considerations in every aspect of an assessment system in an open and distance e-Learning (ODeL) institution be incorporated in a multi-level, multi-function assessment framework. Levels of assessment are often discussed as assessment at course level, assessment at programme level, and assessment at institution level. Assessment at each level serves various and distinct purposes often referred to as, but not limited to, assessment of learning, assessment as learning, and assessment for learning.

Quality assessment is a process, engaged in by an institution, of evaluating its activities with the end in view of continuous improvement. In higher education, assessment, as concept and practice, may be viewed from a multi-level and multi-functional perspective to include assessment of learners within the course, assessment of programme and its alignment with mission of the institution, and assessment at the institution level as it addresses the needs of its various stakeholders. In this chapter, the authors attempt to identify dimensions that may lead to the development of a quality assessment system in the context of ODeL.

INTRODUCTION

Assessment in its various forms has traditionally been discussed in the context of classroom-based education. More recently, however, with the introduction of open and distance e-Learning (ODeL), greater focus has been directed at quality considerations of an assessment system brought about by the unique circumstances of openness, distance, and technological advances. Variously referred to as distance education, open learning, distributed learning, flexible learning, and e-Learning (Alfonso & Garcia, 2015; Keegan, 1980), this teaching and learning approach capitalizes on independence of learners and increased flexibility in teaching methodologies necessitating greater openness in assessment at various levels. While in the past, quality assessment was based on a set of "fixed criteria" applied to the entire educational system, there is greater recognition now for a more adaptable set of "flexible criteria" (Reisberg, 2010).

In ODeL, the issues related to quality assessment are usually addressed in terms of technological innovations that impact on the teaching and learning process. The affordances of open learning, distance education and e-learning combined in the ODeL framework (Figure 1) include: "access and equity, resource sharing, learner-centeredness, flexibility, active learning, interactivity, ubiquity, and connectivity" (Alfonso, 2015). It becomes imperative, therefore, that in a quality assessment framework these are taken into consideration.

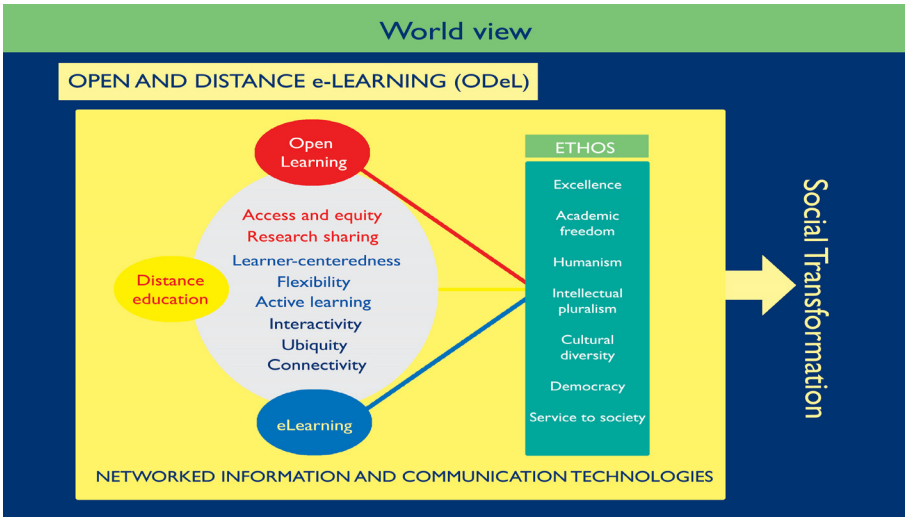

Figure 1. ODeL Framework (Alfonso, 2015)

LEVELS AND FUNCTIONS OF ASSESSMENT

Levels of assessment often refer to the course, programme, and institutional levels. Miller and Leskes (2005) conceptualized levels of assessment from student to institution resulting in five levels of assessment. The first three of these refer to student and course level assessment where summative and formative assessment are employed. The authors discussed assessing student learning within courses, assessing student learning across courses, and assessing courses.

Evidence–based practice in teaching and learning engages various assessment information to monitor and/or assess student achievement and effectiveness of teaching, instructional programmes, or even the entire institution. These assessments provide guidance for possible adjustments in future instructional decisions, can be categorized into multiple types and levels, and can be considered in the University's comprehensive assessment system. Currently, data-driven decision making as an ongoing process of analyzing and evaluating data informs educational decisions related to planning and instructional strategies at various levels. However, institutions would also use information that are not directly linked to student learning (e.g., teaching load, facilities, external collaboration) and include them in a comprehensive analysis of the academic environment, particularly at the programme and institutional levels.

In assessing student learning within courses, formative assessment is utilized in determining the students' individual learning while summative assessment is used to identify how well they are meeting the goals of the course (Rahman & Ramos, 2003). Data gathered are usually sequential, since evidence is collected during and at the end of the course to monitor progress, thereby summing up a semester of learning. Evidence of student learning can be used for feedback to the course instructor's ability to communicate with and motivate her or his students. The instructors' duty also extends to assessing the quality of their teaching and evaluating the effectiveness of the pedagogical theories that they utilize (Rahman & Ramos, 2003). Although grades are used to evaluate students' work, these only represent average estimates of the overall quality and provide negligible information about students' strengths, weaknesses, or ways to improve. Analytical assessment, which can be structured through different tools such as using detailed rubric and written audio or video feedback, can reveal the exact concepts a student finds challenging. In ODeL, software systems (e.g., Learning Management Systems) are often

used to support flexible learning and to perform a variety of functions such as designing assessment tools, marking rubrics, assessment feedback, and timetable of course activities, among others.

In assessing student learning across courses, summative and formative assessments would address how well students are learning during the progression of a particular programme or over the years of offering at the college or faculty. Evidence is sourced from the embedded work in individual course, student e-portfolios that assemble student work in a number of courses, projects, or even relevant external exams such as a licensure exam. Given the requisite formats and data, students may be able to collect the progress of their own learning across courses (Miller & Leskes, 2005). Assessment results are useful as summative or formative feedback for students to understand their progress over time. Likewise, these are also used as feedback to programme faculty on how well the students are meeting the goals and expected outcomes.

In assessing courses, data gathered from course assessments could be seen as formative feedback for instructors to make adjustments in their teaching, or summative feedback to help the instructor or the committee in charge of the course to make informed planning strategies (Rahman & Ramos, 2003). Instructors and committees are expected to set expectations, establish common standards for multi-section courses, understand how the course fits into a cohesive learning continuum, and use the evidence to improve teaching in the context of ODeL environment, including course design.

Programme level assessment is defined as "the systematic and ongoing method of gathering, analyzing, and using information from various sources about a programme and measuring programme outcomes in order to improve student learning as it aligns with the institution's mission and goals" (University of Central Florida, 2008). Assessment at this level intends to focus on the learning, growth, and development of the students not as individuals, but rather, as a group. Similarly, programme level assessment looks into whether the programme fulfills its aim for the curriculum by providing an understanding of what the graduates know, what they can do with this knowledge, and what they value as a result of this knowledge.

In an ODeL context, a number of factors (e.g., selection and/or production of assessment instruments, conditions for assessment, supervising and authenticating, and managing procedures for possible revision and

re-assessment) should be considered when doing programme level assessment. Particularly useful and important is the end point data as a summative gauge to determine how well the programme achieves its goals and objectives. Evidence of student learning from multiple sources (e.g., at admission, programme midpoint, or at the end of the programme) and levels also contribute to programme level assessment. In some ODeL institutions, selected assignments are re-scored (second reading) by programme faculty to assess the general education programme's success in achieving institutional goals, such as communication skills, critical thinking, and ethical responsibility, among others.

Finally, institutional level assessment is undertaken either for improvement of internal operations and management (i.e. resource allocation, faculty hiring, faculty and staff development, collaborating, and networking) or fulfilment of external accountabilities. Results of the former can often also serve the latter purpose. According to Morgan and Taschereau (1996), assessment at this level is a comprehensive approach for profiling institutional capacity and performance as various factors come into play in this level of assessment. These factors are: 1) "the forces in the external environment (administrative and legal, political and economic, social and cultural)"; 2) "institutional factors (history and mission, culture, leadership, structures, human and financial resources, formal and informal management systems, and an assessment of performance)"; and 3) "inter-institutional linkages" (Morgan & Taschereau, 1996).

At institutional level assessment, a significant body of evidence coming from multiple sources are necessary to address questions such as: "What do the institution's academic programmes add up to in terms of student learning?," "How well are the goals and outcomes for student learning achieved?," and "How can institutional effectiveness be reported to the external stakeholders?" (Miller & Leskes, 2005).

These evidence can come in the form of documentation that show how well the students are meeting institution-wide goals. Summarized data aggregated by course, by programme, or by student cohort, supplemented by results from relevant exams (admissions exam, licensure, etc.) would largely contribute to the institution-wide assessment. Hence it is important for institutional leaders to work in close collaboration with the faculty and staff, student affairs, and other professionals when designing a comprehensive programme of institutional assessment that address the following concerns: 1) the mechanisms being used to gather evidence of student learning and to provide feedback to students; and 2) the

system of communication made to provide students' access to needed resources and others.

Assessments in ODeL are no less valid and reliable than assessments in the traditional setting. The assessment instruments are expected to be appropriate and the criteria clearly defined and capable of generating evidence for the objectives and outcomes to be assessed. However, identifying or creating assessment tools for ODeL can be quite challenging, considering that assessors are not in direct contact with the student whose performance is the most valid method of assessment. To ensure the reliability of the flexible learning provision of ODeL, assessment decisions must be as consistent as possible, subject to some internal checking, both in the course and programme levels. Moreover, appropriate training of the people involved in the assessment should be required (SQA, 2000). Support for student assessments should also integrate a variety of approaches such as flexipacks, scheduled tutorials, electronic-support modes, tutor-marked assignments, supervised workplace, or testing center assessments. With the introduction of information and communications technology (ICT) to student assessment, flexible learning programmes, which involve educators from both the conventional and ODeL modes, find enhanced flexibility, authentication, and security. Issues on communication, delivery, and administration, are also addressed. However, the concern with flexible learning environments is it has been constantly changing and responding to global initiatives and the advances in technology.

QUALITY ASSURANCE (QA) IN HIGHER EDUCATION

Quality has always been a concern of higher education institutions. UNESCO (1998) has referred to quality in higher education as a "multi-dimensional concept" that encompasses all academic functions and services ranging from "teaching and academic programmes, research and scholarship, staffing, students, facilities, faculties, and services to the community and the academic environment".

Quality assurance in higher education, on the other hand, has been characterized as a continuous improvement of academic processes. It is the means towards assessing the potential of educational institutions in effectively performing and delivering these functions and services (Friend-Pereira, Lutz, & Heerens, n.d). Conducted either through internal self-evaluation or an external review body (UNESCO, 1998),

quality assurance uses a set of agreed upon standards which may vary in terms of scope, depth, emphasis, and review components (Southard & Mooney, 2015).

In the literature, several quality assurance frameworks have been articulated. Often, these are associated with assessment and accreditation. Currently, there are several accrediting bodies, institutes, consortiums, and trade associations established especially for distance learning in higher education worldwide (Southard & Mooney, 2015). With the common goal of ensuring quality in distance education, they take initiatives in developing sets of standards, criteria, guidelines, or benchmarks which can address the uniqueness brought about by distance education in higher education.

For higher education institutions in the ASEAN context, the ASEAN University Network (AUN) developed the AUN-Quality Assurance Framework which focuses on assessment at the programme and institutional levels (ASEAN University Network, 2016). Programme level assessment constitutes a total of 15 criteria which include: Expected Learning Outcomes; Programme Specifications; Programme Structure and Content; Teaching and Learning Strategy; Student Assessment;Academic Staff Quality; Support Staff Quality; Student Quality; Student Advice and Support; Facilities and Infrastructure; Quality Assurance of Teaching and Learning Process; Staff Development Activities; Stakeholders Feedback; Output; and Stakeholders Satisfaction. Institutional level assessment, on the other hand, constitutes a total of 22 criteria which include the following: Vision, Mission, and Culture; Governance; Leadership and Management; Strategic Management; Policies for Education, Research, and Service; Human Resources Management; Financial & Physical Resources Management; External Relations & Networks; Internal Quality Assurance System; Internal & External QA Assessment; IQA Information Management; Quality Enhancement; Student Recruitment and Admission; Curriculum Design and Review; Teaching and Learning; Student Assessment; Student Services and Support; Research Management; Intellectual Property Management; Research Collaboration and Partnerships; and Community Engagement and Service.

In the field of open and distance learning, the Asian Association of Open Universities (AAOU) Quality Assurance Framework has been developed (Belawati & Zuhairi, 2007; Darojat, et al, 2015). The framework sets out important guidelines for each of the ten strategic issues identified in the distance education system: Policy and Planning; Internal Management;

Learners and Learners' Profiles; Infrastructure, Media, and Learning Resources; Learner Assessment and Evaluation; Research and Community Services; Human Resources; Learner Support; Programme Design and Curriculum Development; and Course Design and Development.

A cursory glance at these existing quality criteria shows that there are obvious commonalities and overlaps when categorized along the levels of assessment (Figure 2). Most quality assessment criteria are concentrated at the institutional level suggesting the importance of institutional leadership and the organization's commitment to ensuring quality.

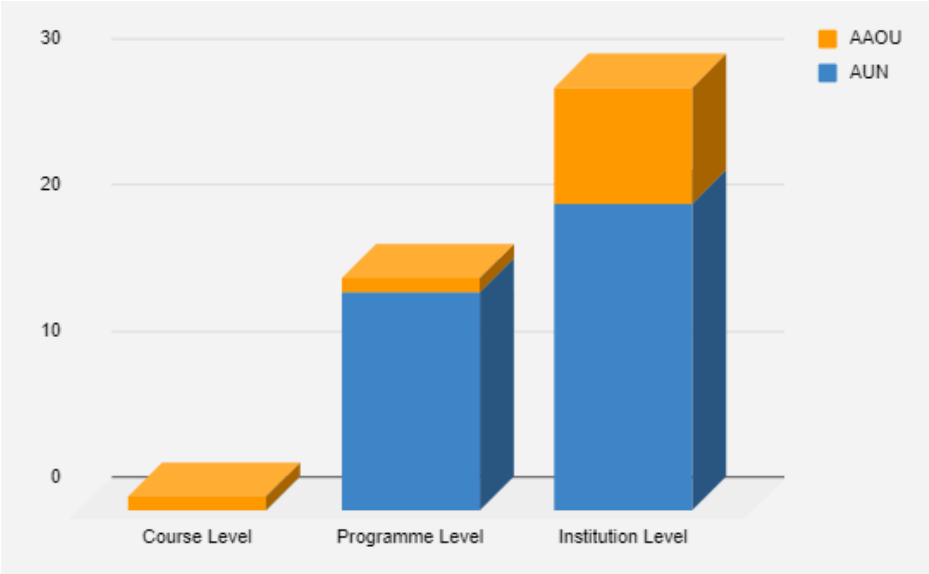

Figure 2. Distribution of quality criteria from the AUN and AAOU QA Frameworks

And while these have been shown to be sufficient for most teaching and learning situations, the evolution of higher education institutions coupled with technological advances highlights the need for quality considerations appropriate in a networked and digital environment.

SOME QUALITY CONSIDERATIONS FOR AN ASSESSMENT FRAMEWORK IN ODEL

With the changing concept of higher education, new conditions and structures have been introduced in teaching and learning. In distance education, Kanwar (2013) observed that quality standards got refocused to course preparation, quality of materials, assessment in the form of feedback and interactivity from earlier emphasis on faculty, infrastructure and facilities, entry requirements, prescribed curriculum, attendance and evaluation procedures to assess the institution's performance. Moreover, with the emergence of information and communication technologies in the 1990s, these quality standards were once again refined resulting from personalization and interactivity features of distance education.

Faculty role, course management, coursework, and even library and learning resources in distance education could be entirely different from traditional education, as the former makes use of and requires more electronic access than the latter (Stella & Gnanam, 2004). As a result, this range of new conditions presented by distance education has cast doubts on the validity of existing quality assurance systems in higher education. While there are those who argue that distance education is already being considered as a long established form of higher education and thus can be treated just the same as traditional education, there are also those who assert that with the uniqueness in its mode of educational delivery, distance education might find existing quality assurance mechanisms insufficient (Stella & Gnanam, 2004).

In the case of an ODeL institution, the affordances of open learning, distance education, and e-learning bring to the fore the need to include the influence of the technology dimension in a quality assessment framework. Further, we venture to say that these have to be incorporated at all levels of assessment.

To get an indication of the inclusion of such dimension, we reviewed the existing quality assessment criteria by locating the words "access and equity," "resource sharing," "learner-centeredness," "flexibility," "active learning," "interactivity," "ubiquity," and "connectivity" in their descriptions. Initial appreciation of the results reveal that these affordances are present to some extent in the various criteria and across assessment levels. The affordances related to access and equity, resource sharing, learner-centeredness, flexibility, and active learning are reflected in quality criteria at programme and institution levels. Interactivity,

ubiquity, and connectivity, which are associated with e-learning as in the ODeL framework (see Figure 1), have not been found to be explicitly reflected in the criteria we examined.

Indicative of these initial results is a need for greater focus to be given to the influence of technology on quality assessment criteria at course, programme, and institution levels. As technology permeates all levels of assessment, more so in an ODeL context, it is proposed that future quality assessment framework development include the potential influence of technological affordances.

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ABOUT THE COVER

The cover shows assessment as the building blocks of learning with links emphasizing the dynamic interplay between thought and action. This interplay is a continuous process of understanding, interpretation, and application. The icons in the blocks represent the practices, thoughts, and goals of assessment in UP Open University.