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# Essential assessment for quality online learning in higher education

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# Essential assessment for quality online learning in higher education

## **Abstract**

Linking assessment with learning objectives and outcomes has become significantly important in assessing adult learners in higher education. To better understand how adults learn and their expectations for learning, this paper provides a literature review that examines adult learning theory, learner characteristics, and motivation factors that shape our understanding. Additionally, this paper provides an in-depth review on the definition of assessment, types of assessment, formative versus summative assessment, alternative assessment, self-assessment, and the most appropriate and essential implementing principles and strategies in an online learning environment. The resources were retrieved using the University of Northern Iowa Library's online cataloging system - *UNISTAR* as well as resources from two online metadatabases - *Panther Prowler* and *Google Scholar*<sup>™</sup>. The literature review reveals that assessment is not only a key indicator for both teaching and learning; it is also an extended motivator to trigger online learners. While innovative strategies and techniques for effectively using assessment need to be further explored and developed, this paper provides some good practices for aligning assessment with course objectives and learning outcome to ensure quality online learning in higher education.

ESSENTIAL ASSESSMENT FOR QUALITY ONLINE LEARNING IN HIGHER  
EDUCATION

A Graduate Review  
Submitted to the  
Division of Instructional Technology  
Department of Curriculum and Instruction  
In Partial Fulfillment  
Of the Requirements for the Degree  
Master of Arts  
UNIVERSITY OF NORTHERN IOWA

By  
Shu-hsiang Chen  
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This Review by: Shu-hsiang Chen

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Has been approved as meeting the research requirement for the

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## ABSTRACT

Linking assessment with learning objectives and outcomes has become significantly important in assessing adult learners in higher education. To better understand how adults learn and their expectations for learning, this paper provides a literature review that examines adult learning theory, learner characteristics, and motivation factors that shape our understanding. Additionally, this paper provides an in-depth review on the definition of assessment, types of assessment, formative versus summative assessment, alternative assessment, self-assessment, and the most appropriate and essential implementing principles and strategies in an online learning environment. The resources were retrieved using the University of Northern Iowa Library's online cataloging system – *UNISTAR* as well as resources from two online metadatabases – *Panther Prowler* and *Google Scholar*<sup>TM</sup>. The literature review reveals that assessment is not only a key indicator for both teaching and learning; it is also an extended motivator to trigger online learners. While innovative strategies and techniques for effectively using assessment need to be further explored and developed, this paper provides some good practices for aligning assessment with course objectives and learning outcome to ensure quality online learning in higher education.

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## INTRODUCTION

### Background

In most universities and colleges, using distance technologies to deliver curriculum and instruction to students whether on campus or at a distance has gained popularity in recent years. Distance education is defined as “teaching and learning that takes place in an environment where the teacher and student are physically separated, and technology is used to bridge the instructional gap” (Herring & Smaldino, 2005, p. 105). Electronic learning or e-learning is referred to as the process of learning or training that utilizes the Internet and World Wide Web (WWW) for content delivery, interaction, and/or facilitation (Cross, 2004; Herring & Smaldino, 2005; Iahad, Lalatizakis, Dafoulas, & Macaulay, 2004). Rovai, Ponton, and Baker (2008) suggest that “the ideal online learning environment is interactive and place the learner at the center of many remote resources by way of both asynchronous and synchronous communication tools” (p. 2). Ally (2008) describes that online learning can be interpreted as learning with no time zones or no localities, which enables learners to use the Internet “to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience” (p. 5). According to Herring and Smaldino (2005), social interaction could occur both asynchronously and

synchronously at a distance. In an asynchronous distance learning approach, learners can access online materials such as emails, podcasts and/or online discussion messages at any time while the synchronous approach engages learners to interact with one another and with the course instructor in a real-time conversation through distance technologies supports such as online chats, real-time audios, application sharing, webcasts, and videotele-conferences (Ally, 2008; Herring & Smaldino, 2005; Rovai, Ponton, & Baker, 2008).

At the University of Northern Iowa, a learning management system (LMS), UNI's Blackboard, is used to deliver course content to students on and off campus. Although *distance education*, *distance learning*, *online learning*, and *e-learning* are widely used as interchangeable terms; online learning and e-learning no longer apply merely to distance learning because students and course instructor are not necessary physically separated. For this reason, this paper uses online learning and e-learning interchangeably but not distance learning to refer to the online courses that are housed within a learning management system.

### Purpose and Scope

The purpose of this paper is to investigate the types of assessment and strategies that are most appropriate and essential in the online environment in higher education. This literature review explores resources and research studies ranging from 2000 to spring 2010. Key online assessments and strategies within the context of online learning in higher



education are identified. Taking into account essential online assessment and effective strategies, instructional designers and course developers can design online courses geared to achieve quality online learning outcomes.

### Research Questions

To identify the best assessment practices for quality assurance online learning experiences in higher education, a number of specific questions need to be addressed:

1. What are the definitions of assessment in the online learning environment?
2. How can assessment be used to motivate online learners?
3. How does literature from online assessment and adult learning shape quality online course design?

### METHODOLOGY

The methods for identifying and locating resources involved accessing the University of Northern Iowa Library's online cataloging system – *UNISTAR*. Information related to the reviewed topics at *UNISTAR* was discovered in selected books. In addition, *Panther Prowler* and *Google Scholar*<sup>™</sup> were heavily used to locate numerous online databases in order to find related scholarly articles. These online databases include ERIC (EBSCOhost) Academic Search Elite, EBSCOhost Professional Development Collection, GALE Academic OneFile, IEEE Computer Society, Dissertation & Thesis (ProQuest), SpringerLink (Springer

Netherlands), Education Full Text (Wilson Web), Wiley InterScience, and PsycINFO (EBSCOhost).

### Keyword Descriptors

A variety of keyword descriptors were used in searching within the above mentioned online databases. The keyword descriptors include: assessment, online assessment, effective assessment, peer assessment, self-assessment, assessment techniques, assessment strategies, distance education, e-learning, online learning, distance learning, self-directed learning, motivation, adult learners, adult education, andragogy, and ARCS model.

### Evaluation of Resources

In searching for applicable articles, the search engines were limited to search peer-reviewed journals only. The *Advanced Scholar Search* feature in *Google Scholar*<sup>TM</sup> was used to set specific criteria. The period was limited from 2000 – 2010 to get the most current research articles. In addition, the basic Boolean search operator “AND” was used to narrow down search results as additional parameters. For example, “online assessment” AND “elearning” AND “adult learner” were used to retrieve articles that met these three parameters.

Credibility, validity, and reliability were used to analyze and to evaluate the resources found. In searching all articles, peer-reviewed journals, date of journal submission, and

journal acceptance rate were used to analyze and to evaluate the articles. The initial resources were selected by reviewing the article abstracts and then determining if the contents were relevant to the keywords. The evaluation of resources was based on: the quality of the content, the relevance to the topic, and the published year from the year of 2000 to the most current year. The citation index searching technique was also used to examine the citation frequency of author's work in other publications.

## ANALYSIS AND DISCUSSION

The advancement and convenience of online learning has gained popularity in higher education. However, to achieve the quality of online learning outcomes would require assessment to reveal how well each online course is served. In order to identify the best assessment practices for quality assurance online learning experiences in higher education, a number of specific questions will be reviewed in this section. 1. What are the definitions of assessment in the online learning environment? 2. How can assessment be used to motivate online learners? 3. How does literature from online assessment and adult learning shape quality online course design?

### Distinguishing Assessment from Evaluation

Assessment is often confused with evaluation. Although Reeves (2000) suggests the terms of assessment and evaluation are often used interchangeably, they each have fastened on variant meanings. Evaluation is the act of ascertaining the effectiveness and judgment of educational programs and products (Reeves, 2000); a process that attempts to judge the reliability, effectiveness, cost-effectiveness, and efficiency. It can be used to improve a program as a formative evaluation and/or used to determine the success of a program as a summative evaluation (Ruhe & Zumbo, 2009; Stufflebeam & Shinkield, 2007). Conversely, assessment is the activity of measuring students' learning and characteristics (Reeves, 2000).

A key component of teaching and learning is an environment that consists of multiple measurements. Assessment should be an ongoing process which integrates throughout learning and teaching (Benson, 2003). The range of assessment covers observation, discussion, and group collaboration throughout the learning process, which enables educators to assess learning outcomes, to fulfill learning needs, and to determine the role of assessments in the online learning environment (Bergstrom, Fryer, & Norris, 2006). Indeed, assessment can assist learners in paying attention to important contents and skills. Therefore, assessment is more than just testing and evaluating student's learning and performance.

### *Defining Assessment*

Researchers have defined assessment as:

- The systematic basis for making inferences about the learning and development of students. More specifically, assessment is the process of defining, selecting, designing, collecting, analyzing, interpreting, and using information to increase students' learning and development (Erwin, 1991, p.14-19).
- An ongoing process aimed at understanding and improving student learning. It involves making our expectations explicit and public; setting appropriate criteria and high standards for learning quality; systematically gathering, analyzing, and

interpreting evidence to determine how well performance matches those expectations and standards; and using the resulting information to document, explain, and improve performance. When it is embedded effectively within larger institutional systems, assessment can help us focus our collective attention, examine our assumptions, and create a shared academic culture dedicated to assuring and improving the quality of higher education (Angelo, 1995, p. 7).

Assessment is also a significant driver as well as a learning indicator for students' learning. As Gunn suggests (2006), assessment can "provide learners with a focus for study activity, give feedback on progress, and measure achievement at given points in time" (p. 256). Rovai, et al. (2008) suggest that assessment can be used as one of the tools that indicate whether learning occurs; "to what degree and whether or not teaching or learning processes should be modified" (p. 79). Bergstrom, Fryer, and Norris (2006) indicate that assessment can "include all activities that teachers and learners undertake to get information that can be used diagnostically to alter teaching and learning" (p.48).

Dunn, Morgan, O'Reilly, and Parry (2004) point out that assessment needs to be designed to be "well informed about the knowledge base, about appropriate and acceptable levels of skills and knowledge and about appropriate analytical, methodological, and theoretical frames of reference and their applications" (p. 25-26). Assessment is essential for

online learning because in order to design and develop suitable assessments in online learning, both instructional designers and course developers “must have a solid understanding of how assessment fits into the scheme of course development as well as the components it comprises” (Palloff & Pratt, 2009, p 5). In addition, the learning outcomes, learning process, and how to achieve them are aspects to consider when aligning assessments with an online course (Palloff & Pratt, 2009).

According to Morgan and O’Reilly (1999), the general purpose of assessing online learners is to provide appropriate supports and feedbacks and to inform learners what they have already learned and accomplished. This, in turn, helps to facilitate and improve their learning. Race (2005) articulates that *assessment* is a primary vehicle that drives learning while *feedback* is a gasoline that keeps the vehicle running, “without either feedback or assessment, or both, not much learning happens” (p. 140). Assessment is crucial for supporting learners’ learning as well as allowing the instructors to modify instructions to best meet online learners’ needs. Thus, linking assessment with learning objectives and outcomes has become significant in assessing online learners in online learning (Palloff & Pratt, 2009).

### Online Learners

Gunn (2006) states the roles of assessment has been long recognized as an extended motivation that triggered adult learners. Assessment has potential benefits to enhance adult

learners' self-direction in any online learning environment where learning activities might be separated by time and/or geography. The National Center for Educational Statistics (2006) (as cited in Rovai, Ponton, & Baker, 2008) reported that between 2004 and 2005, 32% of U.S. adults completed their educational activities via distance education. The Pew Internet and American Life Project (2006) (as cited in Rovai, Ponton, & Baker, 2008) also reported that 73% of American adults (about 147 million) used the Internet for the purposes of: (a) improving abilities, skills, or knowledge to perform well on their job; (b) gathering health-care information; and (c) pursuing hobbies and interests (Rovai, Ponton, & Baker, 2008). All due to the convenience of the Internet, tools such as data transfer, Web authoring tools, search engines, and the wide range availability of home computers and Internet access that collectively provide adult learners a rich online learning environment.

### *The Expectations of Online Learners*

White and Baker (2004) outline several expectations of online learners: (a) supportive services, (b) effective online communication and teaching practices, (c) clear guidance through the online curriculum, and (d) an involved instructor. Understanding adult online learners' expectations will help instructional designers and course developers design quality online courses that help online learners succeed in the online learning environment.



### *Adult Learner Characteristics*

Grupe and Connolly (1995) present ten distinct characteristics of adult learners that make adult learners so unique in the e-learning environment. First, adult learners are different from grown up children. In other words, “adult learners want to be treated as adults” (p.59), their prior learning experience, certain knowledge and personal skills, and work achievements require respect and recognition. Second, adult learners bring valuable knowledge and experience to their learning community, which can be added to build a substantial foundation that helps them grasp new concepts and learn. Third, adult learners desire to use their time efficiently on productive projects. Learning activities that are not meaningful to them will be perceived as a waste of time. Fourth, adult learners view instructor and other adult learners as colleagues or peers; thus, an instructor should play the role of a facilitator rather than a teacher. Fifth, adult learners are more engaged when learning activities are aimed at improving their present skills and will help increase proficiencies to their career. Sixth, adult learners are problem solvers, “adults want to find solutions to problems they face. They are anxious to ascertain the dimensions of a situation and then move to address it” (p.62). Seventh, adult learners have their own learning styles, different learning styles need to be considered in the online learning environment. Eighth, “adult learners are active learners” (p.63); they are active knowledge constructors rather than

passive knowledge receivers. Ninth, adult learners “seek independence and self direction while learning and implementing new concepts” (p.63); the instructor needs to realize that each learner is different and should be reacted accordingly. Tenth, adult learners prefer to have longer, uninterrupted, and productive sessions in their learning environment in which sufficient time is provided for grasping concepts (Royer, 2007). In order to design and develop essential assessments for quality online learning environments in higher education, instructional designers and course developers need to consider adult learners’ characteristics in the designing process.

### *Andragogy*

Andragogy, coined by Alexander Kapp (a German educator) in 1833, is often interpreted as the process that engages adult learners while learning. In the early 1970s, Knowles popularized the term andragogy in the United States and made it a leading brand in adult education theory – the *Andragogy Model* (Knowles, Holton, & Swanson, 2005). The Andragogy Model emphasizes several assumptions in which andragogy (how adults learn) is perceived differently from pedagogy (how children learn). These assumptions include:

#### *1. Adult Learners Need to Know*

This is the core principle in adult learning. Adults need to know why they need to learn something before they are engaged in learning. Once adults discover the gaps between

their actual and desired status, understand why it is important for them to learn, and know what they will gain from learning it, adult learners will invest their energy and time and then be engaged in any learning they choose. Knowles, et al. (2005) identify three dimensions involved in this assumption: (1) how learning will be conducted, (2) what learning will occur, and (3) why learning is important.

### *2. The Learners' Self-Concept*

Adults are self-directed learners and they have their self-concept when making decisions. Adults see themselves as responsible people; they are capable of making their own decision, taking control of their own lives, and managing themselves in learning a particular subject as they need.

### *3. The Role of the Learners' Experiences*

Adults bring their professional knowledge, skills and valuable personal experience to the learning environment. It has been an increasingly important focus area of professional development. Knowles, et al. (2005) note that adults' prior experiences have certain impacts on learning through these means: "(1) creating a wide range of individual differences, (2) providing a rich resource for learning, (3) creating biases that can inhibit or shape new learning, (4) providing grounding for adults' self-identity" (p. 189-190). Dobrovolny (2006) also notes that prior experiences are the foundation for adult learners to construct new

information and to connect new information with their prior experiences. Thus, considering learners' prior experiences is a powerful and significant strategy in adult education.

#### *4. Readiness to Learn*

Adults are ready to learn when their real-life situations have created the needs to learn. For them, learning something that is immediately relevant to their jobs or personal lives is very important. Therefore, directions and supports are two core dimensions which will help improve adults' readiness to learn and to cope effectively with life situations.

#### *5. Orientation to Learning*

Knowles, et al. (2005) describe that "adults are life-centered (or task-centered or problem-centered) in their orientation to learning" (p. 67). Adults prefer problem-solving learning rather than subject-centered learning. Adults become motivated to learn when dealing with problems they encounter in their real-life situations.

#### *6. Motivation*

Adults become motivated when the internal pressures and external motivators rise in their life. The external motivators are desired for a better job, higher salaries, job satisfaction, a promotion, and so on. However, most of these external motivators come from the internal pressures such as personal satisfaction, self-esteem, and quality of life. Four relevant factors provided by Wlodowski (1985) help explain adult motivation. These factors are "(1) success:

adults want to be successful learners, (2) volition: adults want to feel a sense of choice in their learning, (3) value: adults want to learn something they value, (4) enjoyment: adults want to experience the learning as pleasurable” (as cited in Knowles, et al., 2005, p. 199).

According to Rovai, et al. (2008), *andragogy* is a learner-centered approach; it is a constructivist-based approach for helping adults become active learners. The andragogical approach has permeated online learning because the learner-centered concepts help assist online adult learners “moving from dependency to self-directedness” (p.147), to construct their prior experience, knowledge, and skills through interaction, and to be able to apply new knowledge and skills within a problem-based learning environment.

Moreover, Mason (2006) states that *andragogy* or adult learning theory is an adult learning process that applies theory into practice with self-directed learning, critical reflection, and *learning to e-learn*. In order to meet adult learners’ needs in the e-learning setting, Mason further promotes several considerations; for example, providing flexibility of studying time and place, encouraging self-expression of their ideas, allowing choice of materials and subjects, and integrating learning with activities and assessments all need to be considered. Another consideration suggested by Rovai, et al. (2008) is that adult learners should be surrounded by various resources or materials. Therefore, to ensure that adult learners succeed in an online learning environment, providing academic resources that allows

learners to discover things for themselves; providing communication tools (both asynchronous and synchronous) for easy access; and providing clear and timely guidelines when mistakes are made should be considered.

To summarize, the concepts of *andragogy* help us understand adult learners' learning characteristics. Adult learners need to know how they will be assessed, what will be assessed, and why it is important to be assessed. Viewed from the andragogical viewpoint, in the learner-centered learning setting, it is essential to get learners' input when planning assessment because for adult learners, assessment is a collaborative affair between the instructor and the students. Therefore, it is also essential to provide both assessment and self-assessment for adult learners to evaluate their own learning.

### *Motivation*

Motivation is one of the andragogy assumptions in adult learners' learning process. Knowles, et al. (2005) elaborate, when adult learners believe the new material or new learning might either help them to solve their problems and issues or bring meaningful value to their life, they become most motivated. Ally (2008) also notes that learners' motivations have significant impact on the quality of learning, especially in the online learning environment. Motivation is one of the important factors for learning and has been linked as part of performance analysis as well as learner analysis along with learning strategies in

instructional design and development practice. Therefore, this section will explore Keller's ARCS model for motivating learners during their learning process. Keller's (2008) principles of motivation to learn are *attention, relevance, confidence, satisfaction*; and *persistence*:

- **Attention:** "Motivation to learn is promoted when a learner's curiosity is aroused due to a perceived gap in current knowledge" (Keller, 2008, p. 176). Keller notes that it is very important to gain learners' attention in order to build learners' curiosity and to keep dynamic engagement for efficient learning.
- **Relevance:** "Motivation to learn is promoted when the knowledge to be learned is perceived to be meaningfully related to a learner's goals" (p. 177). Keller claims that learning content, context, and instructional strategies have to connect with learner's goals, learning styles, and prior experiences.
- **Confidence:** "Motivation to learn is promoted when learners believe they can succeed in mastering to a learning task" (p. 177). Keller describes when helping learners build positive learning experiences for success, they come to realize their own abilities and efforts.
- **Satisfaction:** "Motivation to learn is promoted when learners anticipate and experience satisfying outcomes to a learning task" (p. 177). In order to develop

learners' continuing motivation, it is very important for learners to have positive experience on their learning such as the reward gained from the learning experience.

- Persistence: "Motivation to learn is promoted and maintained when learners employ volitional (self-regulatory) strategies to protect their intentions" (p. 178). Keller notes that learners may face some obstacles and difficulties in their learning process so persistence is very important to learners' motivation and to help them overcome obstacles and stay on task.

According to Keller (2007 & 2008), the ARCS model is a problem-solving approach, which is a drive that stimulates and sustains a student's learning. Keller (2007) notes motivation is critical at three levels. These levels are "(1) motivation to learn, (2) motivation to work, and (3) self-motivation" (p. 83). In order to produce a high quality learning system, Keller provides ten steps (Figure 1) of motivational learning system design to guide both instructional designers and course developers.



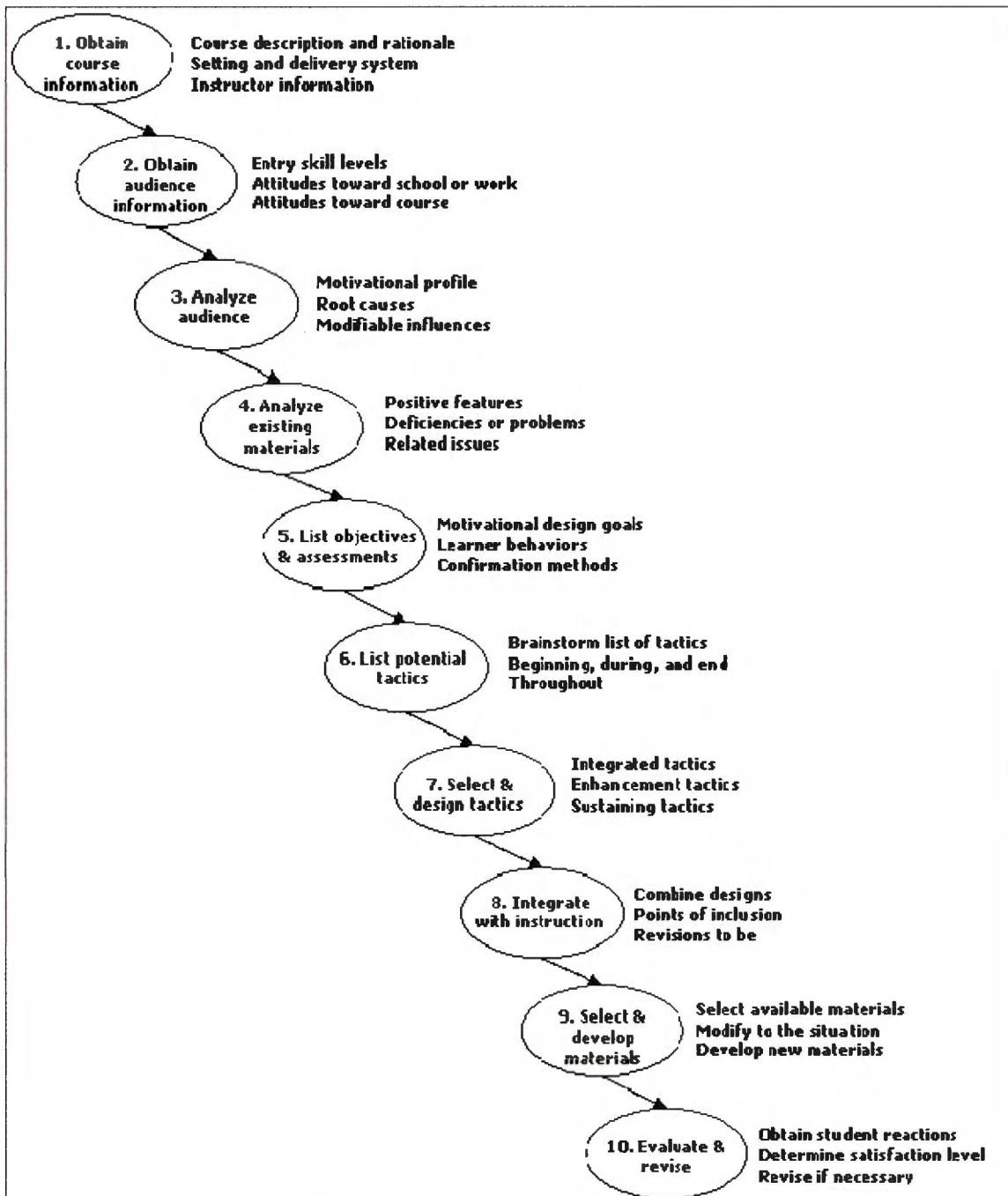


Figure 1. Steps in motivation design (Keller, 2007, p. 89).

## Online Assessment

In the following section, the reviewer will explore why assessment becomes a motivation to students' learning. There is also a need to review how literature from online assessment and adult learning can shape quality online course design.

### *Quality Matters*

*Quality Matters (QM)* is a nationally recognized program designed to evaluate the quality assurance through rubrics for online course design. QM is based on instructional design principles along with national standards of best practice and the research literature. Many universities and colleges across the country use this tool to develop online courses and to train their faculty for using the rubric. QM includes eight broad dimensions (course overview and introduction; learning objectives; assessment and measurement; resources and materials; learner engagement; course technology; learner support; and accessibility) in which Assessment and Measurement list five specific review standards:

- 3.1. The types of assessments selected measure the stated learning objectives and are consistent with course activities and resources;
- 3.2 The course grading policy is stated clearly;
- 3.3 Specific and descriptive criteria are provided for the evaluation of student' work and participation;

3.4 The assessment instruments selected are sequenced, varied, and appropriate to the content being assessed;

3.5 “Self-check” or practice assignments are provided, with timely feedback to students (“Quality Matters,” 2008; “Research Literature,” 2005).

Since assessment is essential to assure quality online learning, the need to explore the roles of assessment is a must.

#### *Formative Assessment vs. Summative Assessment*

In higher education, assessment plays many roles from a narrow purpose (formative) to a broad purpose (summative) (Reeves, 2000). The reasons to use formative assessment are to diagnose student difficulties, to measure student improvement overtime, and to provide students information on their performance. The formative assessment is one of the most significant roles for instructors/educators in facilitating learning and in providing feedback throughout the course. Formative assessment informs the instructor about how well students’ understanding and learning progress have developed within the learning context (Dunn, Morgan, O’Reilly, & Parry, 2004; Herring & Smaldino, 2005; Iahad, Dafoulas, Kalatizakis, & Macaulay, 2004; Lehmann & Chamberlin, 2009; Morgan & O’Reilly, 1999). For learners, assessment is “directed towards providing information about how to improve their performance before the point where a final measurement of achievement is made” (Dunn, et

al., 2004, p. 18). Formative assessment is designed as an indication of all activities in the learning process for learners to evaluate their progress and to use for future improvement. Thus, formative assessment not only enables students to recognize their own strengths and weaknesses in terms of current knowledge and skills, but also guides and helps students become acquainted with their own attitudes, biases, and preconceptions through the course (Dunn, Morgan, O'Reilly, & Parry, 2004; Lehmann & Chamberlin, 2009; Morgan & O'Reilly, 1999).

In contrast with formative assessment, summative assessment is used to indicate students' holistic performance, to assess course materials; teaching activities; and learning outcomes from the course. Summative assessment is designed to report and record learners' achievement. It comes at the end of the series of learning activities; end of unit instructions; and end of courses, which cannot be repeated or improved (Dunn, et al., 1999).

### *Principles of Effective Online Assessment*

In order to provide effective assessment in the online learning environment, assessment must be designed and aligned with course objectives and learning outcomes. Palloff and Pratt (2009) propose seven principles to guide assessment design for online learning (p. 30):

1. Design learner-centered assessments that include self-reflection
2. Design and include grading rubrics for the assessment of contributions to the discussion as well as for assignments, projects, and collaboration itself
3. Include collaborative assessments through public posting of papers, along with comments from student to student
4. Encourage students to develop skills in providing feedback by providing guidelines to good feedback and by modeling what is expected
5. Use assessment techniques that fit the context and align with learning objectives
6. Design assessments that are clear, easy to understand, and likely to work in the online environment
7. Ask for and incorporate student input into how assessment should be conducted.

These seven principles of effective online assessment design are explored in detail along with support literatures.

### *Design Learner-Centered Assessments that Include Self-Reflection*

Dick, Carey, and Carey (2005) explain “learner-centered assessment tasks are expected to function as learning events...learners are encouraged to engage in self-assessment on their path to assuming responsibility for the quality of their own work” (p.

145). They indicate the learner-centered assessment is a criterion-referenced assessment, which is important for assessing learners' progress and evaluating instructional quality.

According to Conrad and Donaldson (2004), "reflection and self-assessment are important components for empowerment in any learner-focused environment" (p. 31). In the online learning environment, students need time to reflect and internalize their learning process. Hence, giving sufficient time and opportunities for self-assessment and reflection can be very valuable for learners to make sense of their learning process within the learning community. It is crucial for students to self-assess and to reflect their own learning process because when students are engaged, they will be able to improve their learning skills and self-directedness. For example, when learners are required to reflect on their learning by keeping a weekly journal, they will come to realize what they have learned and what they have not learned as they compare their current levels of learning to the desired levels. Keeping a journal is one of the primary strategies for learners to document their reflections in both formative and summative self-assessment. Therefore, reflection/self-assessment should be one of the major components when designing assessment for an online course. And the students should be given credit for their self-reflection and self-assessment (Ally, 2008; Beson, 2003; Conrad & Donaldson, 2004; Palloff & Pratt, 2003; Palloff & Pratt, 2009; Robles & Braathen, 2002; Roval, Ponton, & Baker, 2008).

McMillan and Hearn (2008) claim that self-assessment is “an essential component of cognitive and constructivist theories of learning and motivation” (p. 42) and is also a key component to strengthen and improve students’ motivation, engagement, learning, and higher achievement in the learning process. Implementing self-assessment in the student learning process can promote intrinsic motivation. Thus, self-assessment empowers students to guide their own learning and to internalize their efforts and goal orientation toward a meaningful learning.

#### *Design and Include Grading Rubrics*

Conrad and Donaldson (2004) suggest using rubric to assess online learners. “A rubric defines the performance levels for each gradable activity element” (p.26); therefore, learners can easily review the elements on the rubric in order to assess their performance and whether or not they meet the criteria. A rubric is an effective approach to assessing online learners because it assesses learners’ behavior in a more detailed manner than a simple grade. The rubric should be provided to learners before the project/assignment begins. In addition, rubrics not only assist learners in understanding what the requirements are for their assignment and what the expectations are regardless of the assessment, but rubrics also help learners evaluate themselves as a basis for self-reflection. A well-written rubric guides learners to define and to create a high-quality assignment or performance that meets

assessment expectations. Since rubrics provide better indications for online learners, they should be provided for all activities such as discussion, participation, assignments, projects, group collaborations, and reflections (Conrad & Donaldson, 2004; Gaytan & McEwen, 2007; Lehmann & Chamberlin, 2009; Palloff & Pratt, 2009; Swan, Shen, & Hiltz, 2006).

### *Include Collaborative Assessments*

Collaborative projects are commonly assigned in online learning since a “collaborative effort helps learners achieve a deeper level of knowledge generation while moving from *independence* to *interdependence*, thus strengthening the foundation of an online learning community...in which the course should be delivered” (Palloff & Pratt, 2009, p. 36). Collaboration can also enhance online learners’ creativity and critical thinking skills through collaborative activities such as working with group projects. Collaborative or cooperative learning is one of the essential online learning elements because it provides learners a high-level learning approach. Collaboration allows learners to use their meta-cognitive skills to gain knowledge of other learners’ strengths, to enhance their thinking skills, and to embrace student-student and student-teacher interaction (Benson, 2003; Du, Liu, & Brown, 2010; Palloff & Pratt, 2009). Collaboration also allows learners to work together with a common goal and the desire to achieve that goal. In addition, working with group members provides learners a real-life experience.



Conrad and Donaldson (2004) portray that “peers often have the best perspective on whether their teammates are providing valuable contributions to the learning community in an engaged learning environment” (p.27). Therefore, peer assessment (or team assessment) should be included as part of the grade on collaborative activities. Through peer assessment, the instructor can highlight the importance of collaboration and cooperation and understand the learners’ conceptual development. Thus, instructors will be able to make fairer judgments on learners’ learning and works based upon the peer assessment (Ally, 2008; Chen & Tsai, 2009; Conrad & Donaldson, 2004; Yang & Tsai, 2010). Thus, establishing clear guidelines for collaborative assessment along with team assessment and peer assessment can help learners to succeed for their group projects/assignments.

#### *Encourage Students to Develop Good Feedback Skills*

Ilgen, Fisher, and Taylor (1979) suggest feedback as an essential feature of the interpersonal interactions needed for learning. They further point out that interpersonal interaction is necessary “for role learning and for the influence of others such as is present in the leadership function” (p.350). According to Van Tiem, Moselley, and Dessinger (2001), feedback is a way for informing people how they perceive others’ behaviors and communications. Providing effective feedback encourages learners to meet higher levels of performance through task accomplishments and to improve their future performance.

Feedback serves two functions during the learning process from an information processing's perspective: the first function during learning is to provide correctness and adequacy of a learner's response or performance; the second function of feedback is to help learners modify performance by providing corrective information on a learner's response or performance (Driscoll, 2007). Because the focus of feedback is critically important in the learning process, Hattie and Timperley (2007) categorize four major levels of feedback that are directly influenced by its effectiveness: (1) The first level of feedback focuses on acquiring more directions or information, or correcting information on a task or product; (2) the second level of feedback focuses on processing of information or a learning process such as to create a product or complete a task; (3) the third level of feedback focuses on self-regulation or self-evaluation; and (4) the fourth level of feedback produces influence on learners' self-efficacy, self-regulatory proficiencies, and self-beliefs, in order to be engaged further on a task. Therefore, feedback can help learners enhance their learning and ability by evaluating their own learning.

Peer feedback activities include questions, responses, questions, and comments to discussion forums and peer reviews of papers and projects. For examples, encouraging learners to provide their constructive feedback when responding to discussion questions, reviewing others' papers; projects; and portfolios, and providing suggestions can help

learners develop good feedback skills in online learning. The qualities of peer feedback play important roles in students learning, which is involved in the peer assessment process. The attributes of peer feedback include reinforcement, encouragement, and friendly suggestion that provide effective and constructive impact on learners' subsequent improvement.

Especially in the online learning environment, providing meaningful feedback is a part of assessment instruments and a central process that helps students understand, apply their learning, and improve their performance (Benson, 2003; Chen & Tsai, 2009; Conrad & Donaldson, 2004; Palloff & Pratt, 2009; Robles & Braathen, 2002).

#### *Use Effective Assessment Techniques*

Palloff and Pratt (2009) suggest that instructional designers and course developers should incorporate a variety of assessment techniques in order to effectively assess students' learning and performance in online learning. Robles and Braathen (2002) define three key components that can be used as part of assessment techniques in online learning. These key components are: (1) measurement of the learning objectives, (2) self-assessment for students to measure their own achievement, and (3) interaction and feedback between and among instructor and students. Moreover, these assessment techniques have to be aligned with course content, learning outcome, and learning content along with learning objectives.

### *Design Effective Assessments for the Online Environment*

Gaytan (2005) suggests a number of effective online assessment techniques. These online assessment techniques include: (a) maintaining constant and ongoing communication with students while providing sufficient feedback; (b) creating a dynamic interactive learning environment along with instructional strategies; (c) modifying traditional assessments in order to meet the requirements of online instruction and assessment; and (d) using alternative assessment.

According to Gaytan (2005), alternative assessments include *authentic assessment*, *performance assessment*, and *portfolio assessments*:

*Authentic assessment* is associated in a real-world environment, to work on ill-defined and complex tasks, and to use various tools and resources in problem-solving. Students should be able to apply their skills and knowledge in new situations in order to show mastery of the outcomes. Web-based simulation activities and real-world case studies can be used as authentic assessment (Hsu & Hamilton, 2010; Lehmann & Chamberlin, 2009; Palloff & Pratt, 2009).

*Performance assessment* is defined as “methods that require learners to demonstrate their capabilities directly, by creating some product or engaging in some activity” (as cited in Reeves, 2000, p. 107). Reeves further explains five key attributes of performance assessment.

They are: (1) focusing on complex learning; (2) engaging higher-order thinking and problem-solving skills; (3) stimulating a wide range of activities responses; (4) involving challenge tasks, and (5) requiring significant time and effort commitments (2000, p. 108). These key attributes of performance assessment can help students produce characteristics such as:

“highly motivated and committed; equipped with a range of portable skills; capable of self-criticism and evaluation; active and reactive participant in the learning process...fairly and reliably assessment; and capable of storing knowledge in long-term” (Gaytan, 2005, p.29).

By using performance assessment, instructors will be able to identify students’ development process when building up knowledge and skills.

*Portfolio assessment* involves the use of electronic portfolios (E-portfolios), which allows learners to showcase their own work and reflect on the production process over a time period. Both the instructor and peers should provide ongoing feedback during portfolio creation. Portfolio assessment allows students to reflect their learning process in a variety of forms. The compilation of E-portfolios not only allows learners to develop their competencies and higher value on their work to demonstrate mastery of all important skills and knowledge learned, but also allows learners to engage in the design and development process with the reflective thoughts as part of the documentation (Chen & Tsai, 2009; Gaytan, 2005; Lehmann & Chamberlin, 2009; Palloff & Pratt, 2009; Reeves, 2000).

### *Ask for and Incorporate Student Input*

Asking learners to participate in the creation of assessment criteria is valuable because “involving students in the development of assessments helps to move a learner from the role of student to that of reflective practitioner...begin to reflect on their learning process, thus transforming how they perceive themselves as learners” (Palloff & Pratt, 2009, p. 42).

When learners are involved in the development of assessment, they are being taught skills in self-direction toward a greater ability. More importantly, learners can contribute their inputs and then create a cycle of learning that supports their growth as learners (Palloff & Pratt, 2009).

Morgan and O’Reilly (1999) suggest six key qualities for good assessment practice in the online learning environment. These six key qualities are:

1. A clear rationale and consistent pedagogical approach.
2. Explicit values, aims, criteria and standards.
3. Authentic and holistic tasks.
4. A facilitative degree of structure.
5. Sufficient and timely formative assessment.
6. Awareness of the learning context and perceptions. (p.30-32).

Morgan and O'Reilly (1999) recommend that when an online course is designed with these six key qualities, the assessment will be aligned with the course as a whole. Because when assessments and assessment techniques are aligned with course objectives and learning outcomes, both instructor and learners are more likely to enjoy the learning journey and will be satisfied when the learning outcomes are reached. The more directions and engagements are provided in the ongoing assessment process, learners will be more likely to demonstrate meaningful learning performance and outcome in the learning process.

Since assessments play important roles in motivating online learners as well as evaluating their own learning, Palloff and Pratt (2009) claim that "a variety of assessment techniques should be employed to effectively assess student performance online" (p.40).

While designing and planning instruction for online learning, assessment should be considered and aligned with course objectives and learning outcomes. Hence, it is essential to consider these seven principles of effective online assessments for planning online courses in a higher education setting.

## CONCLUSIONS AND RECOMMENDATIONS

This literature review reveals why assessment plays an important role for adult learners' quality assurance of the online learning experience. Conclusions and recommendations based on what I have learned are discussed to answer the research questions.

*Research Question 1: What are the definitions of assessment in the online learning environment?*

Based on the emerging findings from the literature, assessment is a key component that should be integrated within the teaching and learning environment. Assessment is a teaching tool that indicates whether or not learning has occurred. Assessment is also a learning tool that signals learners' progress and needs for improvement; more importantly, assessment reinforces motivation to sustain learning. Assessment should consist of multiple measurements that assess not only students' achievements but also the learning itself. Therefore, assessment should be an ongoing process because students rely on continuing feedback for making inferences for their learning and understanding (Erwin, 1991; Angelo, 1995).



*Research Question 2: How assessment can be used to motivate online learners?*

It has been identified that a learner-centered constructivist-based approach will help adults become active learners, to move from dependence to self-directedness if learners are motivated. When adult learners believe the new material or new learning will help them solve their problems or issues, or bring meaningful value to their lives; they will become most motivated. Therefore, assessment can be used as an extended motivation to trigger online learners. Researchers also suggest that learners' motivations have significant impact on the quality of learning, especially in the online learning environment. Motivation is an important factor for learning and has been linked as part of performance analysis and learner analysis in instructional design and development practice. When online learners know how they will be assessed, what will be assessed, and why it is important for them to be assessed, the learners become most motivated.

*Research Question 3: How does literature from online assessment and adult learning shape quality online course design?*

Andragogy and adult learning theory suggest that adult learners are capable of self-directed learning, critical reflection, and learning to e-learn. In designing assessment for adult learners, the principles that need to be considered include: providing learner-centered assessments that include self-reflection; distributing grading rubrics; designing collaborative

assessment with team assessment and peer assessment; incorporating timely and meaningful feedback; using assessment techniques; and encouraging learners' inputs on how assessment should be conducted (Palloff & Pratt, 2009). Likewise, assessment techniques reviewed in this literature show that online assessment techniques should include: providing constant and ongoing communications with learners; providing sufficient ongoing feedback; creating a collaborative and interactive learning environment along with instructional strategies; modifying traditional assessments that align with instructional learning objectives and outcomes; and incorporating alternative assessments. Hence, it is essential for instructional designers and course developers to implement the principles and techniques discussed for effective online assessment when designing a quality online course in higher education. Instructional designers and course developers must have a solid understanding of how assessment fits into the learning contexts where course objectives, learning outcomes, and assessment indicators are aligned.

Palloff and Pratt (2003) believe that “instructors need to take their best teaching practices out of fact-to-face classroom and use them online... good assessment practice is part of good teaching practice” (p. 94). Therefore, these six key qualities for good assessment practice should be followed as part of course design.

Other innovative strategies and techniques for effectively using assessment to ensure quality online learning in higher education need to be more fully explored and developed. More studies need to be conducted in terms of examining the ways to ensure online learners' success and the interplays with online assessments. It is important for researchers to continue investigating these following questions: What criteria need to be considered when assessing online learners? What key elements should be considered in providing effective feedback along with essential online assessment? How can assessment empower learners to take their responsibility for their own learning in the online learning environment? How can good online assessment practice help instructional designers and course developers produce quality assurance in online course? What trends and issues arise in the use of good assessment practices within an online learning environment? These important questions remain to be investigated.

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