In the name of God

Excellence in Managing University Education

Methods and Means of Creative Evaluation

Message from the University Rector

All praise is to Allah alone, and His peace and blessings be upon His messenger and bondman our Prophet Muhammad, his family and his companions..

Innovation in university teaching has become one of the important and vital issues and one of the main pillars of university teaching and learning development.

Since Imam Muhammad bin Saud Islamic University (IMSIU) realizes their duty toward the development of higher education in Saudi Kingdom and toward the activation of their role locally and internationally and since they aspire to achieve the mission of excellence in university teaching and to activate communication and experience sharing amongst faculty members of all scientific disciplines at national and international universities, University vice presidency of Studies, Development and Academic Accreditation, represented by the Deanship for Development of University Education has worked on organizing the International Forum for Innovators in University Teaching (IFIUT) at IMSIU campus.

IFIUT is based on a pioneering idea; to attract outstanding experiences in university teaching locally and globally then to present these experiences to recipient faculty members and likewise in universities in which they can develop their teaching skills and then improvement of Higher Education outcomes. Therefore, they can keep pace with the practical and scientific ambitions of our society.

This Forum and all university initiatives come to coincide with the recognition given by the Custodian of the Two Holy Mosques, King Abdullah Bin Abdul-Aziz, and his Crown Prince, Salman Bin Abdul-Aziz to the development of education, particularly university and higher education. Also, it comes as a result of the continuous support of his Excellency, the Minister of Higher Education and the Chairperson of the University Council, Professor Khalid bin Muhammad Al Ankari.

Message of Vice- Rector of University for Studies, Development and Academic Accreditation

All praise is to Allah alone, and His peace and blessings be upon His messenger and bondman our Prophet Muhammad, his family and his companions..

The International Forum for Innovators in University Teaching (IFIUT) at Imam Muhammad bin Saud Islamic University is one of the most significant events the university organizes. Its importance appears clearly when we consider the Forum's role in developing university education in creative ways that focus on outstanding teaching experiences of innovators from inside and outside the Kingdom. The goal is to present their experiences of different disciplines; thus, faculty members in Saudi universities, in particular and in International, Arab and Gulf universities, in general can get benefits in a way that reflects on their teaching performance at their classrooms with their students.

Accordingly, the scopes include: planning innovative university teaching, creative strategies and methods of teaching, modern technologies in university education, methods and means of creative evaluation, excellent activities and practices of university teaching, excellence in managing university teaching and others.

This leading Forum and all developing efforts exerted by the university in order to promote university teaching and learning at Imam University come with the recognition given by the Custodian of the Two Holy Mosques, King Abdullah Bin Abdul-Aziz, and his Crown Prince, Salman Bin Abdul-Aziz to the development of education, particularly university and higher education. It is under the supervision of his Excellency, the Minister of Higher Education and the Chairperson of the University Council, Professor Khalid bin Muhammad Al Ankari, and the continual support of the University Rector, Professor Sulaiman bin Abdullah Abalkhail whose efforts are endless in developing the educational process and promoting the university and the staff to the highest standards locally and globally.

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Message of Dean of Development of University Education

All praise is to Allah alone, and His peace and blessings be upon His messenger and bondman our Prophet Muhammad, his family and his companions.

The idea of IFIUT has emerged to achieve the mission of excellence and leadership in IMSIU teaching and learning through enriching and encouraging creativity and keeping pace with modern approaches of higher education.

Therefore, the Forum aims to provide innovative, realistic and distinguished experiences in university teaching which are presented by faculty members of different specialties. The experiences include introduction of excellent and creative strategies and methods of university teaching and discussions of teaching and learning related experiments. They focus on excellence in teaching and the most recent approaches in university teaching; in addition to, providing opportunities for (academic) educational and scientific meetings and exchanging creative realistic experiences among faculty members and those who are concerned about developing university teaching and learning nationally and internationally.

In brief, IFIUT is "from and for faculty members". It is all about realistic and excellent experiences in university teaching that are applicable and that are presented, so instructors get benefits in a way that reflects positively on their teaching performance and learning outcomes in all different scientific, humanity and applied majors. In addition to the previously mentioned scopes, the Forum will involve other events; such as, model lectures, workshops, discussion sessions, an exhibition relevant to the Forum in which our associates in success and innovation present examples of their educational and technological products and modern strategies for development in university teaching and learning sectors.

In conclusion, I am always thankful to Allah the Almighty for his blessings then to the Custodian of the Two Holy Mosques, and his Crown Prince for the endless support they give to higher education development in our beloved country. Also, my sincere appreciation is to his Excellency, Minister of Higher Education, Professor Khalid bin Muhammad Al Ankari, for his efforts and

sincere support for IMSIU and to the University Rector, Professor Sulaiman bin Abdullah Abalkhail, for his continues support to the deanship and his assistance to all its developing activities and programs and for his guidance that has encouraged us to work and reach creativity that our country, society and university look for. Finally, my sincere thanks are for Prof. Khaled Al Abdurrahman, Vice- Rector of University for Studies, Development and Academic Accreditation, and the Director of the Forum's Organizational Committee, for his efforts, constant supervision, his leading role in the deanship's achievements, and for his efforts toward the success and excellence of this Forum.

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International Forum of Innovators in University Teaching

It's Face-Time: Teaching with Social Media in the Marketing Classroom

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Abstract

With the rapid growth of social networking and media comes their consideration for use in marketing classroom(McCorkle and McCorkle, 2012). This study examined how the teaching focus shifted from instruction to learning and my development and growth as a university professor particularly using social media (SM) as an education technology. The research methodology for this paper was conducted using quality content analysis procedure of the surveys, interviews, and case studies. This paper addresses the use of LinkedIn, Twitter, and Facebook as essential elements of the classroom instruction and the student engagement. This study also explores the use of micro-blogging (Hricko, 2010) and Wikipedia (Munoz, 2012) as library tools. The results of the study suggest that most social media tools have not (Tuten and Marks, 2012) been widely embraced yet for higher educational purposes. The recommendations of the study provides all stakeholders with useful insight intothe privacy and the integrity concerns of student submissions and discusses various opportunities for engaging social media (Constantinides and Stagno, 2011) as an innovative tool for university professors.

Keywords:

Social Media, Facebook, Twitter, LinkedIn, Micro-blogging, Wikipedia, Marketing Education.

Introduction

SM(SM) generally refers to media used to enable social interaction. For the purpose of this study, the term SM technology (SMT) refers to web-based and mobile applications that allow individuals and organizations to create, engage, and share new user-generated or existing content, in digital environments (Deal-Amen et al, 2010) through multi-way communication. The importance of SM as platforms for social interaction, communication and marketing is growing (Constantinides and Stagno, 2011). SM usage has grown rapidly in recent years, as individuals have incorporated social networks such as Facebook, Twitter, and LinkedIn into their daily activities and businesses have begun to use social tools to interact with consumers (Tuten and Marks, 2012). As Internet capabilities and applications have evolved, the tools and technologies have become more sophisticated, increasingly interactive, highly accessible, affordable, and specialized. This evolved state is known as "Web 2.0" (O'Reilly 2005), a concept that made the evolution of SM possible. Web 2.0 is sometimes referred to as the "read/write Web" and the social Web (Tuten and Marks, 2012). Increasing numbers of businesses in various industries have already integrated or plan to integrate SM applications into their marketing programs. Higher education institutions show increased interest in the potential of SM as a marketing tool.

Particularly important is the potential of these tools to reach and attract future students. SM, a term describing a wide range of a new generation of Internet applications, has been the subject of intense debate and commercial-interest. Central themes in this debate are the effects of SM on human behavior (Barker, 2009; Kolbitsch& Maurer, 2006), their potential as educational environments (Augustsson, 2010; Kabilan, Ahmad, &Abidin, 2010), and their potential as marketing instruments (Constantinides& Fountain, 2008; Ghauri, Lutz, &Tesfom, 2003; Kim, Jeong, & Lee, 2010; Mangold&Faulds, 2009; Spaulding, 2010). Press articles, research papers and special journal issues in and around the subject are increasing, yet little attention has so far been paid to the areas of behavioral analysis and classification of SM users. While the SM movement is a relatively recent phenomenon the rate of adoption by both the general public and businesses is staggering. According to a recent Pew Research Center report (Pew Research, 2010) 83% of Americans between 18 and 33 years old are already users (Constantinides and Stagno, 2011)of social networking sites (SNS). SM has grown tremendously in the past two years (Porterfield 2010). Sites such as Facebook, MySpace, LinkedIn, Twitter, Digg, StumbleUpon, YouTube, and Blogger are changing the way students learn, promote, and communicate with others. While most students are connecting and have experience using Facebook or MySpace (Hare 2009), many seem unfamiliar with the processes and student use of SM(Figure 1) for professional networking, personal branding, or job search/career development (McCorkle and McCorkle, 2012).Microblogs are ubiquitous participant Web technologies that enable users to interact, message, and share information. Among the most notable services are Twitter, Tumblr, Plurk, Emote.in, Jaiku, and identi.ca. Unlike social networking applications, microblogs seem to be used for quick information feeds. Most micro blogging services combine the mobility of text messaging and push technologies to give users ease of accessing and generating information. As micro blogging evolves, various applications are beginning to offer extensive add-ons and features to enable media-rich user-generated content. Several micro blogging tools allow file sharing, video/audio/music sharing, and multiple streams for sending content to targeted user groups. Users can add tools that extend the characters for posts, synchronize content with other social networking applications, and expand interactivity with other Web services (Hricko, 2010). The rate of technological innovation is staggering. Software tools, such as blogs, wikis, social network sites, podcasts, RSS (Really Simple Syndication) feeds, Twitter, and virtual worlds, are being implemented within not only business but also education settings. Yet questions remain regarding how these tools should be implemented and their pedagogical value in the classroom (Munoz, 2012).There are several possible benefitsassociated with using the tools as educational technologies. First, because the social Web shifts the user experience from one of content consumption (used for reading, receiving, and researching) to one of content production and interaction, students who use these tools should learn actively rather than passively (Hargadon 2010).Second, there is a high rate of adoption of SMamong Internet users, particularly among those under the age of 30. Using these tools in the classroom represents natural extension of how people

are already using the Web. Today's students are "digital natives," a term used by Prensky (2001) to describe those who have never known a world without semantic Web sites, blogs, and virtual digital worlds. Thus, their cultural and communication experiences have largely revolved around digital tools and access to digital resources. Third, the tools offer specific applications for educators, such as providing easily accessible content-delivery channels and enhancing the ability of users to collaborate on projects at a distance. Some studies suggest that SMtools aid student learning because they engage students, facilitate peer learning, enhance communication skills(see Barnes and Tynan 2007; Berlanga et al. 2007; Brownand Adler 2008; Drexler, Baralt, and Dawson 2008; Godwin2007; Lamb and McLaughlin 2007; Renner 2006), and leadto greater teacher effectiveness (see Granitz, Koernig, andHarich 2009). Thus, SM tools offer marketing educators solutions to course management problems and opportunities to meet course objectives. At the same time, these tools offer students engaging and interactive methods of learning, studying, and working (Tuten and Marks, 2012).

Teaching Experience

Goals

As part of the goals of this study, I narrate what works in my classroom. Given that ninety percent of college students have profiles on Facebook(Harvard, 2011), the issues addressed in this study are on student centered education using SM particularly Twitter, Facebook, LinkedIn, Blogging, Wiki, and message boards for case studies, research papers, exams, and the value and relevance of the diversity in teaching.As a University teacher, I emphasize the need to change the way we teach courses generally and introduce innovation tools, techniques and cultural attitudes (Figure 1) as part of a broader curriculum. It would be a mistake to teach an innovation course for undergraduates or graduates. Rather, we should embed innovation tools, techniques, attitudes and perspectives in every class, and introduce new ways to teach as well. We need to teach the students not just thinking paradigms, but also innovation techniques and methods. Trend spotting, scenario planning and customer observation are valuable tools for any innovator, yet these skills and tools aren't taught in many universities or colleges, or are tucked away in (Phillips, 2011) specific-degree-programs.

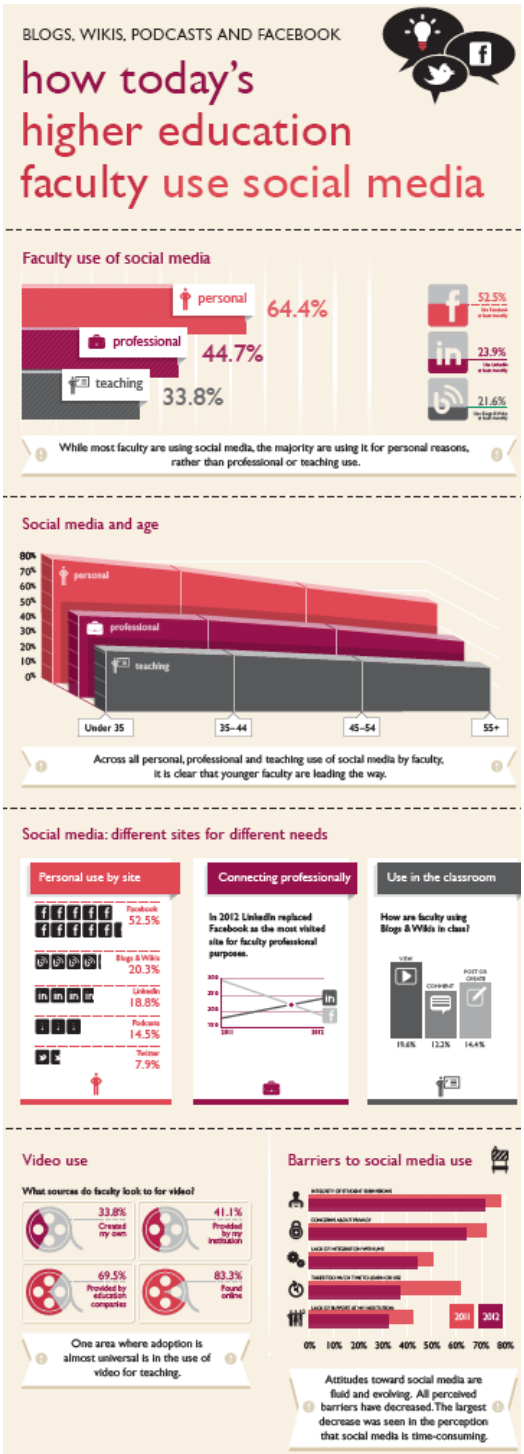

Figure1 - Faculty Use of SM (Pearson, 2012).

Importance

This paper outlines my role and practice of university teaching as a professor of marketing. Given that one hundred percent of four-year accredited U.S. institutions reported using some form of SM in a recent national study (n = 456)(Barnes &Lescault, 2011), I discuss how I use SM to touch not only the intellect but the very heart and soul of my students by making their learning process enjoyable through writing skills for research papers, and case-study based home-work assignments. Furthermore, how I bring constant progress to the art of instruction by particularly using Facebook, Twitter, and LinkedIn. This paper explored how teaching should focus on giving students a strong foundation for critical and analytical thinking processes and on how teachers can effectively use new innovative techniques using SM for instruction and learning particularly for student retention and excellence. The final sections provide outcomes, conclusions, recommendations and ideas for the future research in creativity and innovation in the university teaching using SM in the field of marketing. In the innovation economy of the future, every person needs to be adept at innovation. It's no longer the case that innovation exists in the Research and Development department or as part of a special initiative (Philips, 2011). Faculty is very aware of SM(Figure 2) and considerable numbers of them use it regularly in their profession and personal lives.

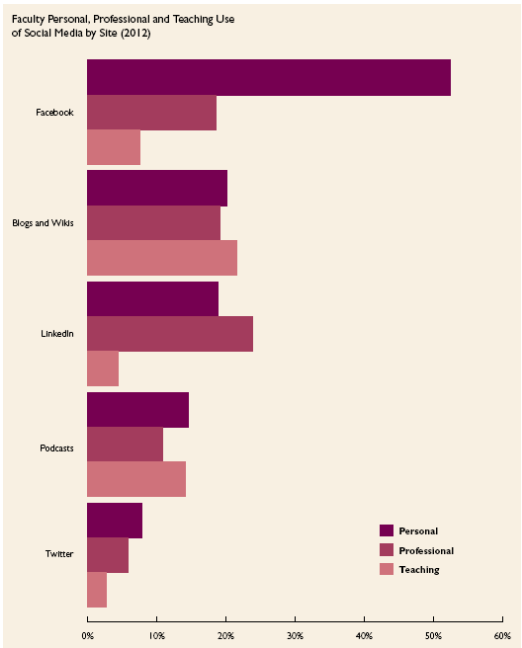

Figure 2 – Faculty Personal, Professional, and Teaching Use of SM by Site (Pearson, 2012)

Levels of adoption for professional and teaching purposes lag behind that for personal use. Facebook is the most-visited SM site for personal use, with over one-half of faculty visiting at least monthly. Daily use of Facebook exceeds the daily, weekly, and monthly use of any other site by faculty for personal purposes. Personal use of Twitter among faculty is generally low, well behind use of podcasts, LinkedIn, and blogs and wikis. Young faculty members use SM at rates much higher than the rates for older faculty—a pattern that holds true for personal use, professional use, and use in teaching. Virtually every measure of adoption and use shows that the youngest faculty is in the lead and the oldest lag behind. Faculty are selective about their choice of SM sites, matching different sites to their different needs; the sites they visit most often for personal use (Facebook), professional use (LinkedIn), and for use for in teaching (Blogs and Wikis) are all different. The use of SM among faculty is fluid and evolving. The mix of sites being used is changing over time— in 2011 Facebook was the most visited site for faculty professional purposes; by 2012 this has been replaced by LinkedIn. Use of Facebook for professional purposes dropped, while the usage of LinkedIn increased over the one-year period. One area where adoption is almost universal is in the use of video for classes. Whether it is used in a class session or assigned for viewing outside of class, faculty is enthusiastic adopters of video. They mostly rely on their own online searching to find appropriate videos, but select from a number of different sources. Online video sources are the most commonly used, but video from educational publishers is also popular. Faculty continues to see significant barriers to widespread adoption of SM for teaching. The top two concerns remain privacy and the integrity of student submissions. The need or desire to separate course and personal accounts was also cited by a large number of faculty as an important barrier. The degree of concern with all measured barriers is decreasing over time, with the largest decrease seen for the issue of the amount of time that it takes. Faculty in every subgroup had far less concern with the time required by SM in teaching in 2012 than they did the previous year (Pearson, 2012).Moreover from a customer attraction perspective particularly college students in the Middle East---by proactively connecting, engaging, and sharing information online in a cost-effective manner, this new sophisticated digital platform called SM will create long-term college customers (Assaf et al, 2012).

Relation to educational theories and research

This research study is tied to SMas it is a relatively new but fast-growing category of online interactive applications. These applications are based on user-generated content rather than supplier-generated content allowing peer-to-peer communication and user participation(Nambisan&Nambisan, 2008; Shankar &Malthouse, 2009).Constantinides and Fountain (2008) identified the SM applications(blogs, online communities, social networks, online bulletin boards and content aggregators) as one of the three components ofWeb 2.0 (O'Reilly, 2005) alongside the Social Effects and the Enabling Technologies. Web 2.0 is broadly seen as the current stage of the Internet evolution. SM has been widely adopted by the public and has become an important factor of influence in buying behavior. User-generated content and peer-to-peer communication have empowered contemporary consumers and reduced their trust in push marketingand traditional forms of marketing communication (Eikelmann, Hajj, &Peterson, 2008; Gro¨nroos, 1994; Karin &Eiferman, 2006; Peppers & Rogers,1993; Thomas, 2007), a trend that began emerging during the 90s (Gro¨nroos,1994; Peppers & Rogers, 1993). Trust in experts as purchasing influencers isalso diminishing and people increasingly base their purchasing choices onpeer opinion. According to a study of Opinion Research Corporation 84% ofAmericans are influenced by online product reviews written by other customers in their shopping decisions. Research provides evidence that an increasing number of organizations are already engaging with SM as part of their marketing strategy (Barnes& Mattson, 2009a, 2009b). Organizations eager to integrate a SMprogram into their marketing strategy need to realize that the SM is changing the decision-making process in the purchasing behavior of customers by adding a new factor that is beyond their control (Constantinides& Fountain,2008). Marketers have also become increasingly aware that the adoption ofSM has increased market transparency and reduced their traditional market power and control over both the media and the communication process. Marketers are forced to find new ways to reach potential customers and communicate with them (Parise&Guinan, 2008). Yet SM marketing is not likely to render other forms of marketing obsolete and must be viewed for the time being as an extension of online marketing. This form of marketing is successful only if it is based on solid foundations: innovative and high quality products, market oriented organizations and well-designed websites (Constantinides, 2010).'Marketing had once been a term that could be spoken only in the most hushed tones in academia' (Edmiston-Strasser, 2009, p. 146) and in the past ideas about the marketing of educational institutions often gained limited support. According to Anderson (2008), an important objection against marketing practices by academics was that it would undermine academic standards of quality and excellence. Government deregulation and increasing competition (Hemsley-Brown&Oplatka, 2006; Jongbloed, 2003; Maringe, 2006) have persuaded higher education institutions to acknowledge the fact that they must market themselves to successfully compete in the national and global markets. Hemsley-Brown andOplatka (2006) concluded that 'the literature on higher education marketing is incoherent, even inchoate, and lacks

theoretical models that reflect upon the particular context of higher education and the nature of their services'. This can be a barrier to higher education marketing efforts since the traditional business marketing fundamentals do not fully address the needs of higher education institutions as they are mostly based on consumptive models (Gibbs, 2002). Gibbs(2002) suggests that higher education marketing has to be viewed from a model of 'collaborative relationships'. Other researchers have argued that a relationship marketing approach best fits institutions of higher education (Helgesen,2008; Klassen, 2002) particularly when regarded from an ethical point of view (Gibbs & Murphy, 2009). For higher education institutions relationship marketing involves building and maintaining a relationship of value exchanges between the institution and the three main customer groups: alumni, current students and future students. The quality of these relationships is positively related to the customers' long-term loyalty (McAlexander& Koenig, 2001).University websites can provide a basis for an engaging user environment(Weiss, 2008) and SM are ideal extensions for relational marketing activities due to their collaborative and interactive nature. Literature on strategic issues, case studies or best practices specific to SM as higher education marketing tools is limited. Nevertheless US universities are increasingly using SM as part of their marketing programs (Barnes & Mattson, 2009a).Hayes, Ruschman, and Walker (2009) describe the use of a social networking system by a university as a marketing tool in their case study; they found a significant relationship between those who logged onto the social network and the likelihood of applying them to the university.Waters et al. (2009) found that non-profit organizations in general are adopting social networking site profiles, but are notusing them to their full potential for relationship cultivation. For example in the Netherlands, like in many European and Western countries, there are a few pioneering efforts by higher education institutions to introduce SM as part of their student recruitment programs. Many Dutch university web sites display links to Twitter or Facebook pages or allow visitors to share information by bookmarking pages as favorites by 'liking it' or 're-tweeting it' (http://www.utwente.nl/medewerkers/).

Several Dutch universities have their own Twitter feeds (e.g. http://www.twitter.com/leidenrechten,http:// www.twitter.com/tudelft), Facebook pages (e.g. http://www.facebook.com/pages/universiteit-utrecht/51128187824), and often YouTube Channels (e.g.http://www.youtube.com/user/tudelft, http://www.youtube.com/user/fdrleiden).The re are also some examples of blogs (http://www.e-learn.nl/, mastersofmedia.hum.uva.nl/) but in general blogging is not part of the SMmix of the majority of Dutch universities. In many of the above examples these applications are not used as recruitment tools but rather as educational tools and are simply meant to improve internal communication. In some cases SM applications have a clear commercial purpose: Tilburg University has recently introduced an online forum aiming at recruiting international students for its bachelor programs (http: //www.talkoftomorrow.com). A similar live chat forum was introduced by the University of Twenty targeting candidate students in 2011

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(http://www.bachelor.utwente.nl/informatie/voorlichtingsdagen.doc/) and in March 2011 the Saxion University of Applied Sciences is planning to launch a new platform for potential students allowing them to receive study information from enrolling students in an interactive way (http://www.sax.nu/Nieuws/tabid/204/vw/1/ItemID/8963/Default.aspx). These tactics are so far only experimental in nature, usually fragmented and relatively recent; in general we cannot talk about comprehensive SM strategies. Furthermore research on the actual effects of SM as recruitment tools is yet to become fully available (Constantinides and Stagno, 2011).

Detailed explanation of the stages

Quality teaching is the use of pedagogical techniques to produce learning outcomes for students. It involves several dimensions, including the effective design of curriculum and course content, a variety of learning contexts (including guided independent study, project-based learning, collaborative learning, experimentation, etc.), soliciting and using feedback, and effective assessment of learning outcomes. It also involves well-adapted learning environments (OECD, 2010) and student support services. As part of my teaching philosophy and as highlighted by Lang (2010), I begin with the end in mind. Meaning, I picture a student walking out of the final exam of my course: I focus on---in what way is that student different from the one who entered my classroom on the first day of the semester? What has the student learned over the course of the past three months using Facebook/Twitter/Linkedin and Wiki?The new teaching and learning paradigms in higher education actually imply following seven-stages:

1.New relationships regarding access to teachers, and a wider range of communication and collaborative working through learning platforms2.Re-designing of curricula3.Bridging teaching and research more intensively4. Re-thinking of student workload and teaching load5. Continuous upgrading in pedagogy, use of technologies, assessment models aligned with student-centered learning6. Creating of innovative learning platforms and providing guidance and tutoring to students with new means and methods7. Assessing impacts and documenting effectiveness of the teaching delivered. With the growing awareness of the scholarship of teaching and the appropriate incorporation of Information and Communication Technologies (ICT) in higher education, there is a needfor university professor to reflect upon and share their practice in the use of SM in teaching and learning using an issue-based model together with,(Table1): Table 1 – Issue-Based Model (Pow 2006)

Dimensions	Lecturers' agreed elements
Pre-teaching	■ Teaching aims ■ Background of students ■ Content and delivery mode
Teaching and Learning	■ Actual mode of delivery ■ Continual adjustment based on students' feedback ■ Unexpected issues with possible (or actual) resolutions
Post-teaching	■ Method of evaluation ■ Pros and Cons

Benzie's (1999) evaluation dimensions that provides most effective and productive approach to facilitating innovative teaching experience (Powe, 2006) sharing (Table 2):
Table 2 – Six Adapted Benzie's (1999) Dimensions that Affect Innovation.

Dimension	Description
Attitude	**Refers to the attitude of an individual lecturer towards the use of ICT in teaching and learning:** the extent and strength of attitudes of an individual lecturer had as a determinant towards the use of ICT in their teaching and learning.
Culture	**Refers to the cultural (and structural) responsiveness of an individual lecturer towards change in general:** many individual lecturers tend to minimize their need to change their day-to-day work. To incorporate ICT into their teaching that moves those lecturers from their habitual pattern of behavior is a very significant challenge. However, to some lecturers, innovation and change is the cultural norm and their use of ICT in teaching and learning is more likely to be successful.
Beliefs	**Refers to the basic beliefs about the nature of teaching and learning. These basic beliefs can be consistent with, or in opposition to, those associated with the use of ICT:** many lecturers' day-to-day actions are grounded in basic sets of beliefs about the nature of teaching and learning. When the use of ICT in teaching and learning is in fundamental conflict with their beliefs, the chance of success will be drastically reduced.
Value	**Refers to an individual's value judgment in defining the successfulness of innovation:** Student results and the evaluation of teaching are key measures in determining the value that is placed on a teacher. When the use of ICT has a negative impact on the perceived value of a teacher's work, it is very unlikely to succeed.
Knowledge	**Refers to the sufficiency of knowledge of an individual to appropriately incorporate ICT in their teaching and learning:** Knowledge-in-action is a key determinant to the use or not use of ICT in teaching and learning. This knowledge-in-action must be made accessible to lecturers if the use of ICT in teaching and learning were to be promoted.
Resources	**Refers to the sufficiency of physical resources available to support an individual to overcome technical problems and pedagogical challenges:** Lecturers tend to use resources on a day-to-day basis only when they are readily available. Without physical resources nothing will happen. Lecturers also need support in a number of ways. They need technical support to ensure the smooth use of ICT in the teaching and learning process. They need support as they develop new knowledge-in-action through practice. They also need time for personal reflection and professional development.

The institution should also pay careful attention to the evaluation of innovative practices and monitor the broader impact of innovation on teaching and learning outcomes.

Outcomes

As an educational tool, SM enriches the learning experience by allowing students and teachers to connect and interact in exciting ways. **Educational Tool:** Today's students arrive on campus, fluent in Web and social networking technologies. Educators can leverage this knowledge to enrich the learning experience. With SM, instructors can foster collaboration and discussion, create meaningful dialogue, exchange ideas, and boost student interaction. Enhance **Student Engagement:** Students who rarely raise a hand in class may feel more comfortable expressing themselves on Facebook, Twitter, or YouTube. Social networking platforms enable teachers to establish "back channels" that foster discussion and surface ideas that students are too intimidated to voice out loud. **Improve Communication:** Among Students and Teachers Facebook and Twitter can enhance communication among students and teachers. A great way for instructors to give participation points in addition to in class participation is by having students tweet about something that was discussed in class. **Preparing Students for Successful Employment:** students entering the workforce can use social networking sites to network and find employment. With LinkedIn, students can establish a professional web presence, post a resume, research a target company or school, and connect with other job seekers (Lederer, 2012) and employers. teaching should focus on giving students a strong foundation for critical and analytical thinking processes on how teachers can effectively use innovative techniques for instructions for student retention and excellence. Moving beyond paradigms revolving around improving student success, we should also be thinking more broadly about incorporating SMdynamics into our understandings of social relationships within our societies, communities, and institutions. This will likely be a critical component of our future understandings of social realities generally. Researchers, scholars, and educational practitioners alike need to seriously consider how research agendas about students and institutional practice will be both driven and shaped by SM (Deil-Amen, et al., 2010) in the near future. **Innovation can be one of the main drivers of quality teaching outcomes.** when supported at institutional level. Innovations in teaching and learning can be spurred by a number of factors. Research and development stimulates the search for creative solutions for problems and challenges at various levels and promote new forms of student learning by problem-

solving. Pressure from employers and students (including an increasing proportion of lifelong learners) to deliver learning outcomes more relevant to corporate and societal demands, including skills such as critical thinking, self-management, teamwork and communications, as well as technical or discipline-specific skills. Internationalization can be a powerful driver to spur change and innovation in teaching and learning practices by providing exposure to new and different practices. It can also help institutions to think outside the box in response to new challenges. Preventing student drop-out and attracting disengaged or at-risk students can also lead teachers to innovate in order to better adapt to students' needs. Innovative teaching is often the response to specific situations (e.g. changing student profiles, new job opportunities to fulfill) and can involve the content of the programmes offered, pedagogy, student support, student assessment and/or the learning environment. Innovation typically requires experimentation with alternative pedagogical approaches and alternative teaching practices that mostly occur at the programme or class level. Scaling up successful innovations and ensuring they become common practice requires appropriate provisions and managerial capacities. Other innovations may, by their nature, require concerted action on a larger scale from the outset. Innovation in teaching and learning practices can also present institutions (Figure 3) with some risks:

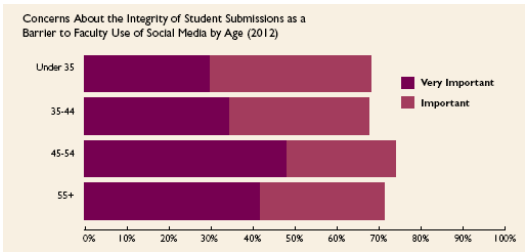

Figure 3 – Faculty Concerns – SM Usage Barriers – Student Submission Integrity (Pearson, 2012).

Being in continuous change mode may lead to uncertainty about the quality and identity of the institution. Going too far in innovation may not only frighten potential students and faculty but also make higher education less accessible (e.g. high-end technology is not universally available and that can disadvantage some students).Significant innovations need careful pre-implementation scrutiny and ongoing monitoring for unexpected drawbacks. Some innovations may also have unintended or unexpected repercussions elsewhere or may falter if changes to other policies and practices are not made.

Evidence and proof of success and effectiveness

Evaluations from LinkedIn---Program Director/Peers:1. "Dr. Nadeem is an excellent educator who is exceptionally familiar with the online modality which results in superior education delivery. He is conscientious and punctual with regard to his assignments and responsibilities." March 29, 2012 **Top qualities:** Great Results, Expert, On Time.Murray-Millson, *Professor of Marketing & E/MBA Program Director at California State University, Monterey Bay.* **2.** "Dr. Nadeem is an exemplary faculty member and colleague. He works well with the staff, his peers, and the senior leadership

at National University." December 19, 2008 Charlene A., *Associate Regional Dean, National University* worked with Dr Mohammed M at National University. **3.** "Mohammed Nadeem is a dedicated, committed and erudite professor who has contributed immensely to the generation and dissemination of knowledge in his areas of expertise. He would be a valuable addition to any Marketing Faculty." October 16, 2008, WasimAzhar, *Lecturer in Marketing, Haas School of Business, Univ of California, Berkeley*.**Evaluations from LinkedIn --- Students:1.**"Dr Nadeem was my professor of Marketing and Entrepreneurship for Cal State University Monterey Bay's eMBA program. Of all my courses, Dr Nadeem's class was by far the most interesting, informative and relavent. His teaching style promotes high-level interaction and allows his students creativity and "outside the box" thinking which stretched each of us beyond our limits and capacity to learn. His years of business acumen and leadership provided real-world examples which applied directly to his instruction. Suffice it to say that Dr Nadeem left his mark on the entire cohort and I for one have used what I learned to my advantage both personally and professionally." March 22, 2012, Tom Scott, MBA, *Student, California State University-Monterey Bay*.**2.** Great Teacher. Great class. The lectures were very informative and lively, no boring power points. Dr Nadeem use innovative "CASE STUDY" approach to cover course material and its finer points. This fosters very good and informative discussion in the class-room. Dr Nadeem teaches with passion and is very dedicated to his profession." October 30, 2008 Neeraj C,*Product Manager, Cisco-Systems*. **3.** "Dr Nadeem is soft spoken and yet highly intellectual teacher. His MBA marketing classes are always recommended by students as a "must do". His ability to promote critical thinking in the minds of his students is phenomenal. Years after graduating, I find myself thinking about marketing theory when patronizing or working with a business due to Dr Nadeem putting me in the habit of critical thinking and learning how to identify business strategies. I too recommend his classes as a "must do"." April 16, 2010**.** Ashish Lakhiani,*Student, National University.*

Recommendations

I see there is an urgent need for librariesto investigate ways in which micro-blogs can expand interaction within the workplace and with patrons. Guidelines to manage content generation and delivery need to be established to make management of such tools less burdensome for library staff. An investigation of the various microblogging tools is important to determine which tool would best suit the purpose that the library intends for the use of the microblog. While some services are more popular than others, these services may not be the best microblog application for the library. It is recommended that libraries use a combination of microblog applications to serve both public and private functions. It is also recommended that libraries target the patron groups that might be best served through the integration of this technology in library services. Some patrons may not be willing to use this technology for their information needs. Overall, microblogs offer a rich media for libraries to explore in expanding access and delivery of information services. The potential of these tools to build information learning

communities will impact library services, particularly in terms of outreach and instruction. Expanding library services to place-bound users through the use of microblogging tools increases additional access points to the library (Hricko, 2010). A wiki can be used as a collaborative library for any research paper assigned in marketing. Instructors might also suggest that students use a wiki to develop a study guide for exams and utilize the technology to complete group assignments. Instructors could use a wiki to create a marketing textbook (Workman 2008) or glossary, publicly create and share a research report (Cronin 2009), and collaborate on work with a business or other class. In conclusion, wiki technology is a malleable tool that can be utilized in a number of ways within the marketing curriculum. The results of the assessment measure illustrate that integrating this type of technology has the potential to increase research output and can improve a student's digital literacy related to wikis. At a minimum, students should leave class recognizing that wikis are far more than just Wikipedia; it is a versatile tool that they can use today in the classroom and tomorrow in the workforce (Munoz, 2012).More formal and quantitative research is needed to measure the benefits and skills developed from participating in LinkedIn or any other SM. Can a LinkedIn assignment as described in this paper or other assignments using blogs, Twitter, Facebook, or Google+ truly develop transferable professional-level skills in social networking, personal branding, or job search? More specifically, can these assignments, completed in one semester, provide the benefits championed by Granitz and Koernig (2011) and presented in Table 2? While this paper provides some initial guidelines and exploratory insight for developing more SM/networking assignments or projects, a pre- and post-measurement research design may be needed. A simple post hoc review of former students connected to the professor on LinkedIn revealed that more than two thirds have continued to update their LinkedIn Profiles after graduation and into their careers. Most of these students have joined additional career-related Groups and some continue to post regular Status Updates. More formal longitudinal research is needed to determine if the assignments presented in this paper provide continuing benefits beyond a particular course and throughout a professional career. Are the job search/career skills learned using LinkedIn sustainable and transferable to the student's continued personal branding, job search, and marketing career beyond the marketing classroom? Are the SM/networking skills learned using LinkedIn adequate and transferable to other SM or to marketing a company/product brand? If the answers to these two questions are found valid, then social networking using LinkedIn and other SM may provide an invaluable laboratory for developing the professional support skills needed by all marketing or business students for their personal branding and company/product branding (McCorkle and McCorkle, 2012).Research regarding the use of SM for marketing purposes is still in its infancy. These media tools are relatively new phenomena, with a history of explosive growth in fast-changing environmental and technological contexts. It could be useful for recruiting officers to closely monitor the behavioral developments of the student market regarding their SM use and the role SM plays as an information source in their selection of a course of study and university(Constantinides and Stagno, 2011).

Personal use of SM was measured using the Social Techno graphics scale, which is a nominally scaled variable. This limited the insights about personal use to simply whether one had or had not used a tool. The measures for personal use and classroom use of SM were different, which limited the comparisons that could be made between the two uses. These are issues (Tuten and Marks, 2012).that should be addressed as researchers pursue future studies on the educational applications of SM.

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Methods and Means of Creative Evaluation

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University Student Evaluation: The Use of E-portfolio Reflective Narratives

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Abstract

The experiences related to developing electronic portfolios contribute to the overall excellence in teaching and learning. The purpose of the present study is to investigate the effective use an electronic portfolio with graduate students who were pursuing a master's degree in education in a major research university in the United Arab Emirates. 40 electronic portfolios of graduate students were included in the careful analysis of the e-portfolio development process and the reflective narratives following Forawi & Wonderwell (2003). This is an innovative technique that has not internationally been widely used and with rare use in the UAE. Description of how best the e-portfolio is utilized in the teaching and learning, along with areas of attainment is presented. A major result indicates that use of electronic portfolios is considered a pragmatic tool to assess graduate students' performance, reflection and use of technology.

Keywords:

Electronic portfolios; Graduate student experiences; Narrative reflections; Assessment and evaluation.

Introduction and Background

Standard-based and performance-based assessments have increasingly been emphasized in schools in many parts of the world. The United States have national standards for technology as well as for various teaching subjects that provide accountability measures that impact teaching and learning. Teacher education programs ought to be responsive to the direction of performance education. Urgently, in the developing countries, such as UAE, there is an even greater need to introduce and implement the use of portfolios to provide quality education to its children, and compete globally. It has been reported that electronic portfolios, as performance assessment, differ from traditional assessment in that they are broader in scope and more authentic (Campbell, Melenyzer, Nettles, & Wyman, 2000; Forawi, & Liang, 2005; Zawacki-Richter, Hanft, & Bäcker, 2011). In using new technologies such as portfolio, the assumption seems to be that we can substitute one medium for another—keeping the benefits of traditional print formats while adding a host of new conveniences. In a previous research study (Forawi & Wonderwell, 2003), it was found that pre-service teachers' learning and teaching skills had been impacted by the use of electronic portfolios. Participants of that study developed understanding of learned materials and technology use through their portfolio's reflective narratives. They were able to show progress in their learning and readiness to become teachers.

Our experiences with new technologies would suggest that one technology cannot be

so easily swapped with another. The introduction of a new tool into human activity often changes that activity in ways unanticipated and sometimes profound (Barrett, 2003; Chang, & Lee, 2010; Irving & Bell, 2004; Pan, Lau, & Lai, 2010). Yancey (2009), indicated that the reported benefits of the electronic portfolio development process are similar to those that have been recorded for developing hard-copy portfolios, but the enhanced medium offers additional ways for developers to display unique talents and abilities. The rapid movement toward all forms of web-based communication makes it likely that, in the future, this particular electronic medium will play an important role in the communication of teacher knowledge. However, we know very little about the implications of using the web for portfolios.

As suggested by Forawi, Almekhlafi, and Al-Mekhlafy (2012) that the use of electronic portfolios helps incorporate technology into K-12's learning and allows student teachers to share their work with peers. However, she added that a portfolio without standards is just like a multimedia presentation, or a fancy resume or a digital scrapbook. There is a great need to address whether the experience of creating an electronic portfolio contributes to the development of reflection and overall teaching excellence and, if so, how this improvement occurs. Research indicates that electronic portfolios are robust with many purposes: these can be for learning, assessment, and employment (Barrett, 2003; Bhattacharya, 2001; Chuang, 2010). The flexibility of the web, video streams, animations, Flash, Splash, and other programs provide the portfolio developer with multiple tools to present her/his artifacts and reflections. There is a lack of research in developing a valid and reliable rubric to measure students' experiences with portfolios, though. The present study investigated use of portfolios with pre-service teachers at their senior year and incorporated a rubric that is designed to assess students' experiences with portfolios and provide evaluative measure for their graduation.

Another study, Zawacki-Richter, Hanft, & Bäcker (2011), provide another example of the effective use of programmatic portfolios. It investigated an internet-based advanced studies course to show how the portfolio method, as a competence-based form of examination, can be integrated in a blended learning design. Within the framework of a qualitative analysis of project portfolios, the study examined which competencies are documented and how students reflect on their competence development process using portfolios. Also, Chuang's (2010) study explores how the use of weblogs within the portfolio framework affected the portfolio development of student teachers, and how the weblog-based electronic portfolio (WBEP) shaped student teachers' reflective practice during the student teaching practicum in Taiwan. This study further stated the two most prominent features of the WBEP platform on participants' reflective practice, the personal editorship and dialogues with others. Additionally, blog publicity promoted mandated dossier-like portfolios with which to evaluate performance with respect to external evaluation requirements.

The purposes of this study were to (1) describe the process of developing an electronic portfolio with graduate students,

(2) examine the evaluation and assessment of use of electronic portfolio, and (3) investigate the graduate students' reflective narratives in enhancing performance, performance and use of technology. The assumption is, according to Forawi & Liang, 2005, that if electronic portfolios are to be used with students and pre-service teachers, they need to be successful in accomplishing their goals, worth the time spent in creating them, and advance learning and completion of programs.

Methodology

Participants were 40 education master's students at a research university in Dubai, UAE. As part of the course assignments, students were required to build a web-based electronic portfolio incorporating reflective narratives of the best artifacts that show their learning. The students chose the best assignments that reflect their best learning. The electronic portfolio included in-class activities, inquiry peer teaching, teaching field experience journals, educational philosophy, reaction papers and reflective narratives. The students provided two types of reflective narratives. One reflective narrative related to each individual artifact they developed in the course. The second reflective narrative related to their overall experience in creating the portfolio. Artifacts or assignments included in the e-portfolio expand from various experiences related to the course.

The course or module had two main purposes for incorporating the electronic portfolio. (1) To allow students to better learn materials covered in the course. (2) To assess students' ability of using technology to create the electronic portfolio. The instructor developed a rubric to be used in assessing students' learning and technology mastery in building the electronic portfolio. The portfolio rubric included appropriateness of artifact selection, adequacy of reflection writing, appropriate standards, and use of the appropriate format, software, and mechanics. The researcher collected data from the students' overall score of the electronic portfolio and their reflective narratives. The overall scores were used to validate and explain students' learning and use of technology. The analysis of the reflective narratives was used to qualify participating students of developing the electronic portfolio. The researcher used the second method, reflective narratives analysis, to generate the results of the common trends and themes of students' experiences.

Participating students were instructed, in two sessions, of how to build a web-based portfolio and what requirements does it include. Some of the students had experiences creating Web pages using OneNote, FrontPage Netscape's, etc. Scalability is managed with the web-editing programs, such as those mentioned, which make it possible for a browser to open files and navigate the portfolio with relative ease regardless of the development platform used. Each student had an account with enough memory space on the university's server to accommodate the portfolio and other projects. The training session included saving and giving names to files; choosing color scheme and background color; choosing an image; adding text, graphic, or table; linking pages. Other electronic options were Windows NT environment, HTML, other software program that is web-based.

Methods and Means of Creative Evaluation

Data Analysis & Results

Data collected from the 40 students' electronic portfolio scores and reflections were analyzed in this section to arrive to the results.

Scoring Rubric Validation

In the rubric, a -4 point Likert scale was used for item 1-7, and the total maximum score a student can get is 30 points. The average item score ranged from 3.67 to 3.08. The total point average was 23.55. According to the total accumulated scores for each item, the instructor also gave each student a letter rating that corresponds to the total obtained numeric score they obtained in the rubric. Among the 40 students, 11 were rated as outstanding, 24 were satisfactory, 3 needed improvement, and one student received unacceptable letter grade.

Group comparison was conducted using independent sampled t-tests to determine if there was a significant difference in average of the obtained 7 item score between male and female students. For calculation purpose, the average of the 7 item scores were added together as dependent variable, and gender (male, female), and were used as independent variables in the sampled t-test. The statistical results indicated there was no significant difference between male and female. Table 1 presented the t-test outcome and the mean difference between groups.

Table 1 Group comparison between gender and average obtained scores

	Gender	N	Mean	t	Sig. (2-tailed)	
Item Mean	Male	12	3.87	1.71	.210	.301
	Female	28	3.50			

Item Analyses and Internal Reliability

One of the basic criteria for the content validity of an instrument is, "at least a moderate level of internal consistency should exist among the items; i.e., the items should tend to measure something in common" (Nunnally, & Bernstein, P. 103, 1994). In order to examine the internal consistency of each items, and the overall internal consistency of the rubric, item analysis was conducted to determine the contribution of each item to the composite score and coefficient alpha. Item analyses indicated that each of the 7 items had positive contribution to composite score. No negative contribution was found among the 7 items for the composite score of the electronic rubric. The reliability coefficient alpha was .701, indicating the instrument was internally consistent. Table 2 presents the internal consistency information from item analysis.

Table 2 - Internal Consistency Reliability of Items for the Electronic Rubric

Reliability Statistics	Item Total							Name
	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Point
Maximum score	4	4	4	4	4	4	4	30
Item mean	3.48	3.39	3.32	3.57	3.64	3.90	3.79	27.00
Variance	26.71	28.77	28.38	27.24	28.12	29.59	29.66	8.72
I Discriminatio	.7111	.6668	.5571	.7800	.7900	.3911	.6627	.883
Alpha	.7043	.7032	.7232	.7000	.6966	.7554	.7333	.853
				.7099	.7557	.7701		.756

In the present study, there were more female and elementary major students than male and secondary major students. This probably represented the population composition in college of education across the country. When we examined further if there was significant difference between gender and major in obtained scores in the rubric, independent t-test results did not indicate statistical difference. However, we did find that male students scored higher than female students by .239 points in average, secondary major students score higher than elementary major students by less than 1 (0.083) point in average.

The outcome of item analysis of the rubric indicated that each of the 7 items and the total point score contributed positively to the composite score of the total rubric as a measurement. The item discrimination index ranged from .883 to .400. This suggested that each item individually contributed moderately or highly to discriminate student's performance and the total obtained score in the rubric. Each item played a positive role to the measurement as a whole. The reliability coefficient alpha of the rubric was .701. Given only 40 students were included in the sample, we conclude the instrument is internally consistent and reliable in measuring the content the instructor designed to measure.

Graduate students' portfolio scores and reflections were analyzed for common patterns and themes for learning. The major items required in the science portfolio were used as guidelines for analysis to ensure consistency among the participating students. These major items included: lesson file, philosophy of teaching and learning, journals, and weekly self-reflections. The students selected the assignment or artifact that best reflects their best learning. The assignments are established to meet certain objectives related to course's goals and

should be aligned with national and state science and technology standards.

A major finding of the electronic portfolio scores showed an overall high mean scores 0.80. Majority of participating graduate students (80%) scored at the satisfactory rate. Few students had an outstanding rate (3) as scored by the electronic portfolio rubric. Students were able to fulfill requirements of the electronic portfolio as described in the methodology section. Only three students scored below 60% to show a need for improvement. None of participants' electronic portfolios were rated "not acceptable." These results were found be consistent with other scores of assignments of the course. All participating graduate students included complete number of artifacts, appropriately used technology and aligned artifacts to module objectives.

A second set of results showed several themes related to student reflections and experiences on building the electronic portfolios. These themes showed reflective learning and progress. Many results were derived from the analysis of students' reflective narratives. The following are examples of themes derived from the reflective narratives.

Difficulty of Technology Use

Many students indicated in their reflections that they had to struggle with technology to build their portfolio. While they are reminded of the importance of the reflective aspect of their portfolio many have spent a great deal of time figuring out technical problems such as liking pages, saving work without losing some of it, and using the appropriate types of documents and font. Other statements positively showed how much gain students had by creating the electronic portfolio.

"I think that the development of the e-portfolio was challenging. But I gained more knowledge of the use of technology."

"I was able to use different software in developing my portfolio. The process was difficult but I learned a lot from it. The use of web-based portfolio was helpful"

"I benefited so much from creating the electronic portfolio despite the frustration I had with it in the beginning."

Becoming Professional

Some participants recognized that they are ready to become a teacher and start their career after reflecting on their teaching field experience at the portfolio stage. Reflecting on such experiences in the portfolio showed that students arrive to their conviction about teaching and learning. This was evident in the following good example.

" I had too much fun teaching [name of school]. I was nervous at first because I was not sure what to expect. I thought that I might have trouble controlling the classroom, but I did not. Now reflecting on that experience I feel that I am anxious to get out there and start teaching."

Valuable Learning Experience

Some students were able to reflect on their previous tsks and assignments in this course by providing a deeper understanding to what they did.

"I enjoyed the class which provided me with valuable learning experiences. There were

people from every racial and cultural background."

"Writing this report (Lesson Plan Examination) was a good learning experience because it provided me an opportunity to compare and assess the target lesson plan with different teaching methodologies that we read about and were taught during this module."

Participating students reflected on the above statements on their learning experiences in class. These experiences considered of a great benefit to their learning, attitude and future teaching. They perceived their challenges and success after having the time to reflect upon them. Some participating teachers showed gain of more scientific knowledge when reflecting on those experiences.

"I believe that this e-portfolio has developed my ICT skills and developed my educational knowledge through various teaching and learning strategies and skills."

"At the very beginning, it seemed to be a very difficult job since I lacked both the time and skills to do it but by passing of time I managed to manipulate my time and skills to do it in the best way I could."

"I was a little nervous and scared about teaching in a REAL classroom of students. To tell the truth, I have never even taught an entire 50 minute-class period to my peers, let alone to children before our experience at [name of school]. Now I am reflecting on this experience and I could say that it was probably one of the best experiences of my college career."

"Compiling this electronic portfolio for EDU502 /Teaching and Learning module is undoubtedly a unique learning experience for me. This is for the first time that I have worked on building an electronic portfolio and have completed such a portfolio. That this kind of portfolio is extremely useful goes without saying. It provides a very clearly documented evidence of the achievement of the learning outcomes of this module."

"This artifact was a paper that I wrote about my experiences teaching at the local elementary school. I chose to include this artifact because it shows that I can reflect on my teaching experiences so I can grow as an educator."

Becoming Reflective Educator

Several students indicated that their experience in developing this e-portfolio allowed them to become more of reflective students.

"Throughout our examination of lesson plans, we had to reflect on the psychological theories and the methodology that directed these teachers to write their lesson plans this way. Consequently, this would help us modify our teaching strategies to reach the best practice we could to be effective teachers."

The majority of students came to the conclusion that they better understood the taught materials after reflecting on their assignments and connecting them to the class objectives. This was evident in several of their e-portfolio statements.

Conclusions & Implications

The analyses of the UAE graduate students' reflective narratives indicated a deeper understanding of students learning as well as the course instruction. Overall, the development and use of the electronic portfolio allowed pre-service teachers to better understand the tasks submitted to their programs and increased their technology skills. It was also evident, from this study, how the student learning has improved due to the direct reflection that they made through the development process of the electronic and reflections portfolio. Thus, this study has provided valuable results regarding the effective model of developing and reflecting by through the use electronic portfolios. However, more studies investigating different populations and factors relating to use of electronic portfolios in the region are still needed. The literature review showed a great need for addressing whether the experience of creating an electronic portfolio contributes to the development of reflective teaching. This is particularly important in a country such as the United Arab Emirates where education has shown major developments. Assessment in particular is an area that seen to have made major contribution. Recently, Dubai has entered the global spotlight by participating for the first time on the Trend of International Math and Science Study (TIMSS). Participants of this study developed understanding of learned materials and technology use through creating electronic portfolios and providing reflective narratives. They were able to show a progress in their learning and readiness to become teachers. Other students acknowledged the fact that, as a result of developing the e-portfolio, they learned new ways to showcase work, became reflective educators, and have a deeper understanding for knowledge and skills presented on the assignments and tasks. The present study supported our previous research findings that the use of electronic portfolio and writing of reflections increased teaching and learning of science and positively impacted teacher education programs in the USA. Reflection is a highly valued attribute of students and teachers. Without the disposition to reflect on their performance, students and teachers are less likely to improve their practice or to be able to see the links between theory and practice. While some research state that only 20% of teachers are naturally reflective (Zawacki-Richter, Hanft, & Bäcker, 2011), it is believed that this habit of mind is so important that we must try to teach all students how to reflect on their practice.

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