Will W.K. Ma · Chi-Keung Chan
Kar-wai Tong · Heidi Fung
Cheuk Wai Rose Fong *Editors*

New Ecology for Education – Communication X Learning

Selected Papers from the HKAECT-AECT 2017 Summer International Research Symposium

Springer

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ISBN 978-981-10-4345-1 ISBN 978-981-10-4346-8 (eBook)
DOI 10.1007/978-981-10-4346-8

Library of Congress Control Number: 2017934632

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer Nature Singapore Pte Ltd.
The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Preface

The HKAECT-AECT 2017 Summer International Research Symposium on *New Ecology for Education: Communication X Learning* was co-organized by the Hong Kong Association for Educational Communications and Technology (HKAECT) and the Association for Educational Communications and Technology (AECT) on 15–17 June 2017 at the University of Hong Kong. In the wake of the advances in information and communication technology, the Internet and new media enable the emergence of new mechanisms of human networking as well as communication, which are shaped by—yet also share—the development of educational practices. Having witnessed the explosion of information on the web, the HKAECT and the AECT feel the pressing need for colleagues in the fields of education and communication to examine their current and future roles, as they are no longer the ones they used to be and may have to re-define their developments in the process of communication and learning. The Symposium aimed at unpacking the complex interactions between communication and learning, as represented by the symbol "X" in the event title. It provided a platform for knowledge exchanges on education, communications, and technology among educators, researchers, and practitioners who share a common goal to explore better approaches to teaching and learning, along with effective and meaningful media communication through technology advancement.

The Symposium appealed through open calls for paper submissions from a number of areas to address the new ecology for education, including (a) assessment for learning, (b) new media, (c) massive open online courses (MOOCs) and open education, (d) instructional design and design-based research, (e) knowledge diffusion in educational technologies, (f) professional education, teaching, learning and development in the digital era, as well as (g) communication and the media. The encouraging response to the calls reflected the timeliness of the Symposium. In this edited volume of the conference proceedings, selected high-quality manuscripts are broadly categorized around three main themes—the new trends in educational technology (5 chapters), teaching and learning experiences with technology (9 chapters), as well as communication and the media (8 chapters).

It is extremely pleasing that the Symposium successfully invited renowned scholars and learned authors to share their inspirational insights with the audience from a wide range of perspectives about how education and communication have adapted and will further emergent practices in the information age. On behalf of the Symposium Organizing Committee, we take this opportunity to express our gratitude to Prof. Mohan Jyoti Dutta of the National University of Singapore, Prof. Brad Hokanson of the University of Minnesota, Prof. Siu Cheung Kong of the Education University of Hong Kong, and Prof. Robert A. Reiser of the Florida State University for their consent to be our keynote speakers. Our heartfelt appreciation also goes to all chapter contributors and reviewers. Their excellent works and contributions have made this monograph a success in facilitating rich and resourceful exchanges among academicians, practitioners, and professionals.

We cannot thank our partnering institutes and organizations enough for their incessant support and sponsorship, without which the Symposium could not have been realized. They included Centre for Information Technology in Education (CITE) of the University of Hong Kong, Online Communication Research Centre and Department of Journalism and Communication of Hong Kong Shue Yan University, Centre for Learning, Teaching and Technology of the Education University of Hong Kong, Faculty of Education of the University of Macau, Department of Education Studies of Hong Kong Baptist University, and last but not least, the Hong Kong Pei Hua Education Foundation.

Hong Kong
June 2017

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HKAECT

The Hong Kong Association for Educational Communications and Technology (HKAECT; http://www.hkaect.org/) was established in 1989. Its first conference was organized in 1990, addressing "The Role of Educational Communications and Technology in Year 2000", with speakers coming from the United States, China, and Taiwan to discuss the outlook on educational communication and technology. Throughout these years, the HKAECT has held a number of international conferences, symposiums, workshops, and talks with various themes to provide a platform to enable rich exchanges for academicians, practitioners, and professionals in the fields of communication and education to discourse about the shaping and changing issues on education, communications, and technology.

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2004	Media Innovations in Education: Input and Outcome in New Society
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Contents

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A New Ecology for Education: Refocusing Educational Technology Beyond Content

Brad Hokanson

Abstract In this new century, much of education in general and educational technology in particular have centered on the delivery of information. Instructional design has, since the last century, focused on increasing efficiency and measuring retention. At this point, however, we need to develop a "new ecology" of learning, one which includes other forms of learning into education and one which develops students who are curious, creative, and capable. In our new ecology of education, we should be focusing on the complex and full diversity of learning, not just on a few simple aspects. We must go beyond content to include the development of skills and cognitive traits such as creativity, curiosity, and persistence.

Keywords Non-cognitive skills · Beyond content · Personality traits · Higher level learning

1 Introduction

Much of the current effort in education focuses on "covering the content". This is seen as the singular essential aspect in our teaching and in our work in educational technology. This focus on the informational content affects classroom teaching and is most evident in digital and online learning. It is a focus on the retention of information, which is often seen through the national comparisons of PISA scores or test results, and which is the lowest level of Bloom's Taxonomy (Bloom & Krathwohl, 1956).

Most modern societies have evolved high stakes testing environments, and educational research, discussion, and instructional design have centered on information retention and retrieval. Learners are tested primarily for their remembering of information, methods are evaluated by their ability to ensure information

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W.W.K. Ma et al. (eds.), *New Ecology for Education – Communication X Learning*, DOI 10.1007/978-981-10-4346-8_1

retention, and discussion always resorts to the idea of learning as remembering. The new ecology must be different, and must recognize other cognitive traits.

2 Levels of Learning

Both the initial and revised versions of Bloom's Taxonomy describe a hierarchy of learning levels ranging from simple remembering to synthesis and generation, and in the revised version (Anderson et al., 2001), further recognizes the cognitive achievements of analyzing, manipulating, and creating new knowledge.

This limited focus on informational content is not the most important aspect of education; it should not be the central aspect of our "new ecology of learning". Nor should it monopolize the ecology of education, forming a monoculture, a single concentration that is dangerous in the biological world as well as in our metaphorical educational ecology. This solitary focus is not a *valid* pursuit of the work of educational technology, as we must have broader and ecological approach to our work.

2.1 Learning Through Design

Design education may help illustrate a different approach to learning. The field of design is often seen as merely an aesthetic pursuit, but should be better described as a life of problem *seeking* and *solving*. It is not just answering a problem, but rather seeking out and finding problems to solve. It can be described as curiosity applied and formalized.

The education of a designer is focused on solving problems, to be sure, but more of *finding and redefining* problems. This is cognitively more complex, and the learning of knowledge that occurs through the design process happens through the *use* of content instead of simply *knowing* the content. Remembering or retention, low-level learning, is replaced by the capability to synthesize information and to generate new ideas. This is "knowing in action" (Schön, 1983). Design does not start seeking a single answer or destination, but by exploring, discovery, creating a solution …and often understanding.

> By experience, delivery and evaluation based on informational content is considerably simpler than a complex form of learning or skill; memorizing the poem is simpler than writing or analyzing; identifying a historical artist is simpler than creating a drawing; teaching about creativity is easier than developing creativity in the learner. It may also detract from true learning; through a "poverty of attention": What information consumes is rather obvious: it consumes the attention of its recipients (Simon, 1971).

2.2 *Beyond Content*

It is important for learners to go beyond content and develop other skills and capabilities. Content, in reality, is a dead end; it is limited by the extent of the information, and by the single answers provided. It develops the false premise that learning is complete when the information is known, and not when learners continue to seek more. When the content information is retained, learning is not complete, which only it is just beginning, as information is dynamic, constantly changing, and dynamic.

This can be described as being *agnostic* to the informational content, as a looking beyond content to goals that are more essential and meaningful.

However, even within instructional design, the process of learning is seen as separate from the material being learned. The process of instructional design, whether in full curricula or individual courses, often separates content from the learning experience by using subject matter experts.

This categorization is a narrow view of the process and of content, where it focused more on the information transmitted and on declarative knowledge. It does not include skills such as writing or dance, and it also does not include noncognitive skills or character traits. One reason for the focus of instructional design on information-based content may be due to a simplistic understanding of learning, or because of the ease presentation and evaluation. It is also supported by a tendency toward quantitative evaluation and analysis both in the field and to the public.

3 The Evolution of Educational Technology

Much of the work in educational technology over the past 30 years has its roots in the Clark/Kozma debates on the impact of different media on learning. From that base, most evaluation of educational processes has centered on the retention of information by learners. That debate centered on the concept that media mad "no significant difference" in retaining information or content. Clark said, "…media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition" (1983, p. 445).

That debate and commentary centered instructional design by implicitly setting the criteria for evaluation and success. For instructional design, media became less relevant, and was removed from the learning equation. The field focused on learning as remembering information, the lowest level of Bloom's Taxonomy. And we, the field of educational technology, have spent our efforts figuratively driving that grocery truck, just trying to make deliveries faster and more efficient.

If we continue to work with that analogy, the quality is judged only on the quantity of groceries that are delivered. We test to see the groceries were actually delivered, not if they were nutritious, or if they were consumed, or even if they

rotted at the front door. These are the more valid aspects of the analogy, an understanding that should encourage us to look at learning more broadly. But in many cases today, success in education is defined narrowly, as how much was delivered and how much was briefly remembered. The validity of evaluating learning based principally on information retention is a given, and is not questioned.

As a result of that debate, the field of instructional design ceased looking at differences in the capability of media, that different media affords different actions, or that a different form of learning may occur through the use of different media. Ignoring these other possibilities has focused on information delivery and not on the construction of knowledge through the use of media in many forms.

3.1 Media and Learning

Olson (1974) held that media *converge* as to knowledge conveyed, but they *diverge* as to the skills they assume and develop. In other words, as a means to convey information, there is a focus, whereas, the media themselves can help diversify the development of skills and capabilities. We learn more from the media than just the informational content.

Of course, this should be a concern beyond the field of instructional technology and it would have an effect throughout education. Most educators know of Bloom's Taxonomy and other descriptors of higher level learning, but teaching effort is often focused most on content and lower levels of learning. Seldom addressed are the beyond-content aspects that have been shown to be essential to the long-term success and development of learners. In our new ecology of education, we should be focusing on the complex and full diversity of learning, not just on a few simple aspects. We often omit character traits such as creativity, curiosity, and persistence, among others.

Teachers often recognize this challenge, and feel hindered by a need to cover the content or to "teach for the test". Our new ecology of learning should build deep learners, those who can use and apply knowledge, and who have the drive to finish the work. They should have the curiosity to find out more and the creativity to do something different. True learning is never done, and continues to grow and evolve.

If we examine capabilities to synthesis and generate ideas, we recognize they are not based on any specific content, but often utilize content in new and different ways. Content is still of value, but must be limited as a focus to learning, and must not be the singular direction for the evaluation of learning.

What are the steps we can take to go beyond content in directing our design of instruction? Using a deeper orientation for learning, for example, such as design or problem-based learning, may lead to a new ecology for learning. It will give us better models, and we could also begin to view simplistic content not as the goal, but rather as a medium for learning. It could be something which can be used to support higher forms of learning. If we view content as that which is helpful in developing skills of synthesis, logic, creativity, and curiosity, it does have value. Content could be a medium for education.

We often see ways in which content serves as a medium for deeper learning. For example, practicing the piano provides little new experience with melodies and notes, no new notes or "content", but rather it is an activity that supports the development of expertise and the dedication and persistence needed in many fields. Debussey recognized this in characterizing music as "…the space between the notes."

Similarly, memorizing a poem is not highly valuable for the content of the poem, that is, the specific words, but may be valuable for the considered, deeper examination of what is truly being said, as well as for the discipline of the act of memorization.

Developing an understanding of the use of information or content is where we can develop the higher qualities of education. Education must have more value than is seen by assessing the information retained or remembered. That simplistic understanding that learning can be measuring the information retained is a fallacy; and the system that builds on that direction is ecologically unhealthy. We must seek the diverse learning of a complex ecology. This direction seeks to illustrate a richness that can develop successful learning, and it begins to create both a set of goals for education, and guidelines for instructional technology.

3.2 The Learner

While this can be described as a theoretical direction for the field, it can also be examined through an individual learner. If you could only teach a child one thing, what would you teach them? Would it be one set of facts, or one set of skills, or how to learn? Or would you teach them to be curious, persistent, or creative, to move them forward and to be self-motivated. The positive attributes we must develop in our learners are skills and character traits, and not the content of information. These are traits that will last for lifetime, a sustainable model for learning, and a preparation that needs a new ecology of learning.

4 A New Ecology of Learning

The new ecology requires that we recognize that our larger goals in education, as illustrated by Bloom's Taxonomy and our own hopes are more than just declarative knowledge, information, or facts. We have to begin to evaluate learning and development in ways that are more subjective and inclusive as is being done in design, some schools, and even daycare centers. There are comments about student personalities that are apt measures, that describe leadership, interest, engagement, and teamwork, and through evaluation, learning of social skills and cognitive traits can be achieved. A good goal would be to develop instructional methods for persistence and grit, fairness, and curiosity.

How we design instruction, organize curricula, and how we creative learning experiences is based on the challenges we choose to address, and on our own educational philosophy. Those choices, ways of thinking and learning have developed over years, but still retain much of their orientation from the history and evolution of our field. For innovation to occur, it is important to significantly shift our outlook and re-direct our efforts.

Education builds value not from the details that one knows, and not through a rigid process that is developed to a preordained end result. The value comes through higher order thinking such as synthesis and analysis, and it comes from traits such as creativity. Education and educators must go beyond content to focus on the process, the end results, how everything works, and the thinking and innovative nature of the work.

In the end, the field that is educational technology has the responsibility to improve all education, by the expansion of the use of technology and by the innovative nature of the field. And we know there is value beyond the simple information content. For instructional design, that means we need to reorient our methods. We need to embrace as our role, developing the broader values in education, and separate content from the focus of our work. We need to help education develop as an ecology of learning, one which addresses much more than simple content.

References

Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., … & Wittrock, M. C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives, abridged edition*. White Plains, NY: Longman.

Bloom, B. S., & Krathwohl, D. R. (1956). *Taxonomy of educational objectives: The classification of educational goals*. Handbook I: Cognitive domain.

Clark, R. E. (1983). Reconsidering research on learning from media. *Review of Educational Research, 53*(4), 445–459.

Olson, D. R. (1974). *Introduction, yearbook of the national society for the study of education* (Vol. 73). Chicago: University of Chicago Press.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action* (Vol. 5126). Basic books.

Simon, H. (1971). *Computers, communications and the public interest. Computers, communications, and the public interest* (pp. 40–41). Baltimore: Johns Hopkins Press.

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Brad Hokanson is AECT President 2016. He is also a professor in Graphic Design at the University of Minnesota and serves as Mertie W. Buckman Professor of Design Education for the College of Design. He has taught an ongoing course on Creative Problem Solving at the University of Minnesota since 2000. He has received multiple teaching awards at the University.

Part I
New Trends in Educational Technology

Are Social Media Alternatives to Learning Management Systems When Teaching Online?

Ana-Paula Correia

Abstract This study explores the use of social media in a graduate online course as an alternative to the traditional learning management systems. It uses a qualitative research approach relying on interviews and document analysis as data collection methods. Findings show that students appreciated the flexibility of the mash-up LMS and the opportunity to learn about different learning technologies while using them to support their own learning. Facebook allows students to get to know each other better on a personal level and Edmodo kept the online conversations organized and easy to follow. As far as improving the online learning experience, students suggested an increase in number and frequency of synchronous sessions along with the use of additional content in audio and visual/video formats.

Keywords Social media · Learning management system · Online education · Higher education

1 Introduction

In today's world, the prominence of online learning is unquestionable (Liu, Kalk, Kinney & Orr, 2012). Social media have a wide use inside and outside the education field. The aim of this study was to analyze the use of social media in an online course in the context of higher education. Instead of using a specific learning management system, the course instructor relied on different social media tools to create a "mash-up" learning system that put the student at the center of the learning and teaching process and constituted an alternative to the traditional learning management system.

The concept of "learning management system" (LMS) grew up in the 90s from the development of the Internet and multimedia products. Since then, these systems

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W.W.K. Ma et al. (eds.), *New Ecology for Education – Communication X Learning*, DOI 10.1007/978-981-10-4346-8_2

such as, Canvas, Moodle, and Blackboard, have evolved and been adopted by many universities around the world. Also known as "learning platforms", "distributed learning systems", or "learning management systems", these systems combine a variety of teaching and management tools to create highly structured online learning environments. LMSs are scalable systems that can be used to support a wide variety of educational experiences, from courses and programs to virtual universities (Coates, James & Baldwin, 2005). Although there are many differences between LMSs, most of them offer similar features:

- Synchronous and asynchronous communication (e.g., e-mail, chat, synchronous communication, and discussion forums);
- Content development and distribution (e.g., learning resources, learning object repositories, and links to online resources);
- Formative and summative evaluation (e.g., project submission, multiple choice tests, participation records in discussion forums, and teacher feedback);
- Management of the learning and teaching process (e.g., registration, schedules, office hours, and teacher consultations).

Clearly, there is something seductive about LMSs that despite their complexities of installation and use, almost all universities feel compelled to adopt them. Access, cost, and quality are the three main reasons that lead to this adoption. Another important reason is that LMSs offer an unimaginable ability to control and regulate the learning and teaching process in the name of "quality control" (Coates, James & Baldwin, 2005).

The alleged "order" created by LMSs regarding learning and teaching appears to be one of the most compelling reasons for their rapid adoption in North American universities, it is also a target of much criticism. Not only LMSs perpetuate the control of universities, but also support the fact that the teacher is at the center of the learning and teaching process and maintains an almost absolute control in these online environments (Coates, James & Baldwin, 2005). Additionally, many LMSs are exclusively centered around technical and budgetary issues leaving pedagogical issues out or sending them to the background. Following are some of the most common unfavorable views of the use of LMSs in higher education:

- Used mostly in a utilitarian way. It can be said that the LMSs are based on a simplistic understanding of the relationship between teachers, students, knowledge, and learning. In fact, the textual nature of the first LMSs helped to strengthen teaching concepts such as transmission of decontextualized knowledge, limited opportunities for application of knowledge and skill development and a strong emphasis on text-based communication;
- One of the most obvious limitations of LMSs is the easy support of forms of assessment that can be corrected automatically, such as multiple choice questions tests. This poses a serious question concerning the fact that this type of testing and feedback, which is already dominant in higher education becomes

even more prevalent. Consequently, authentic assessment approaches like portfolios, projects, experiments, and demonstrations may be less used;
- In cognitive terms, there is interest in investigating the impact of LMSs on how students: (1) explore and contextualize course content; and (2) summarize, synthesize, and make judgments about their own knowledge. However, not enough research on the degree of involvement of students with teachers, peers, and content through the use of LMSs has been conducted;
- Restrictions on content migration are also seen as a major issue with LMSs. The question that arises here is whether these restrictions limit the diversity of teaching approaches, design elements, and topics selected by teachers. Without control over source code that supports the LMS, pedagogical choices may no longer be made by the teacher;
- The cost associate to LMSs' implementation is substantial since they require to be installed, configured, customized, deployed, and maintained at the vendor's data center or at a client location.

A multi-year survey study conducted at a large US Midwestern university on the uses and perceived benefits of using LMSs to support classroom teaching showed that "instructors and students value tools and activities for efficient communication more than interactive tools for innovating existing practices." (Lonn & Teasley, 2009, p. 686) It looked like that students focused their responses on *how* LMSs were being used rather than if they were being used. If LMSs were being used to support constructivist-based models of learning, then additional tools "to scaffold more interactive forms of instruction and learning may be required for success" (p. 693).

In sum, the LMSs seem to offer an "all-or-nothing" solution for institutions, teachers, and students. For example, LMSs are usually linked to academic calendars and learning experiences bounded in time (e.g., quarters and semesters), as well as students of the institutions they serve. This situation severely limits the continuity of learning beyond a particular class and restricts the exchange with students and teachers from other institutions. Students are not free to choose the best/preferred tools for learning and teachers hamper their teaching approaches to what the LMS can technically accomplish, which undermines the learning and teaching process. Bush and Mott (2009) explain that the monolithic and rigid nature of LMSs mirror the way that content has traditionally been made available for teachers and students (e.g., books and other resources, including online courses) in a policy of "all-or-nothing" or "take-or-leave it." As the online teacher moves away from traditional teaching practices and turns into a "guide on the side," students take on more responsibilities for coordinating and regulating their own learning (Bergel, 2009). It is at this juncture in time that alternatives to traditional LMSs arise in order to overcome some of these limitations and provide a flexible online learning experience and a more student-centered one.

2 Social Media as Alternatives to Traditional LMSs

Despite the fact that social media are being highly used as a form of socialization (Madge, Meek, Wellens & Hooley, 2009), more and more college students are looking for these tools, on its own initiative, to achieve their educational goals (Roblyer, McDaniel, Webb, Herman, & Witty 2010). These tools (e.g., Facebook, Twitter, Instagram, Wikipedia, DropBox, Edmodo, YouTube, Snapchat, and Google+) combine self-created profile pages with other features such as chats, blogs/forums, sound and video sharing, text and image to promote and enhance the interaction between its users/learners. They can not only exchange information and content, but also create content in a collaborative way. Social media is defined broadly as any website or application that allows for any of these activities, meaning communicate, share, and create content. Social media reinforce a sense of belonging in online communities and foster collaboration and knowledge co-construction, which makes them a strong alternative to traditional LMSs.

There are several ways to utilize social media in education. Examples are: the creation of a closed group on Facebook to support or extend a course, a debate on a particular topic on Twitter, a blog on Blogger to promote sharing and discussion of ideas and perspectives. Other advantages of using social media in education are, as follows:

- Students actively participate in their own learning, which means that the teacher is not in total control of the learning and teaching process. Teachers act as "guides" in this process and students are encouraged to take an active role in the regulation of their own learning. Teachers' role in these environments can also include support for dialogue and providing constant feedback on students' performance;
- The collaborative work increases motivation and engagement among students, which generates higher levels of academic performance and more opportunities for feedback and revisions. These activities, in turn, promote critical thinking, and greatly increase the diversity of knowledge and experience between students and teachers. Social media not only allow sharing of knowledge, but also the collaboration during problem solving, and even the development of innovative thinking (Alvarez & Olivera-Smith, 2013).

In this context, the idea of this research study started from a persistent dissatisfaction with traditional LMSs. The course instructor envisioned an online graduate course in instructional design with a continuous flow of interactions between students, teacher, content, and self. In addition, she wanted to implement a project-based pedagogy that required a constant coordination of team projects and intense communication among design team members. Based on the identified requirements, the traditional LMS did not seem to be the best support to provide students with a high-quality learning experience.

The idea of creating an online course that utilizes the potential of social media for learning and teaching emerged, and thus was born the mash-up LMS or modular

LMS (Culatta, 2010). In the case of this study, the mash-up LMS consisted of a combination of Edmodo (edmodo.com), Facebook (facebook.com), Dropbox (dropbox.com), Skype (skype.com), and e-mail. Mash-up, in this context, means the reuse, remixing or combining of various forms of social media (Lessing, 2008) to achieve determined learning objectives.

The learning and teaching process that takes place learning environments supported by social media is the result of multiple exchanges between participants who alternate roles between student (the one who learns) and teacher (the one who teaches). As Alvarez and Olivera-Smith (2013, p. 318) explain, "in these environments, learners actively take responsibility for and regulate their own (collaborative) learning, meaning that the teacher is no longer in full control."

The objective in this particular study was to create an online learning experience according to the needs of students and adapted to the specificities of instructional design as a study area. In this way, it avoided the monolithic approach of using a LMS, just because this was the only system offered at the higher education institution where the course instructor worked.

3 Methods

A qualitative methodology was used in this research study. The 14 students who participated were enrolled in an online course graduate (master's degrees and doctorate) in instructional design offered in a public university in the United States.

The participants group was quite diverse in terms of age, professional experience, study areas (education, design, human–computer interaction), and ethnic origin. They were part of a convenient sample as the author was the instructor for this graduate course at the time of the study. The data collection took place from May to July 2012.

3.1 Data Collection Methods

The methods used for data collection were: online interviews and document analysis of: (1) online interactions, (2) reflections written by the students, and (3) project presentations done by design teams via Skype. Below are some examples of the questions asked to the students:

- What have you learned the most in this course?
- Have the Facebook group added to the learning experience? Yes or No? Please provide an explanation to your answer.
- How was your experience on using a mash-up LMS (Edmodo combined with Facebook, Skype and e-mail)? Do you think this approach should be used again? Yes or No? Please provide an explanation to your answer.

- What existing elements were critical to your successful learning in this course?
- Which parts of the online course do you think were most in need of improvement? Why? How can these be fixed in the future?

As far as the students' reflections, they were asked to discuss their insights about the design project they were involved in as well as the overall online learning experience. They were encouraged to share stories about their experiences in this course in terms of their own learning, understanding of the field of instructional design and growth as practitioners.

3.2 Data Analysis Methods

For data analysis, an iterative and inductive process of analysis was used to formulate a set of qualitative accounts. Through a careful analysis of the data, trends and discrepancies were found and emergent categories were organized by topics.

Using Microsoft Word, data chunks were copied and pasted from the interview transcriptions, students' reflections, and online interactions into a matrix of categories generated during a preliminary analysis. Finally, each data chunk was transformed into a coding system. Through this process codes were refined (merged into broader sections or broken into less inclusive codes) and redundancy was eliminated. If necessary, new categories were created.

4 Findings

Overall, the findings show that students appreciated the flexibility of the media mash-up and the opportunity to learn about different learning technologies while using them to support their own learning. Facebook allows students to get to know each other better on a personal level and Edmodo kept the online conversations organized and easy to follow. As far as improving the online learning experience, students suggested an increase in number and frequency of synchronous sessions along with the use of additional content in audio and visual/video formats. The next paragraphs describe the most important findings.

4.1 Positive Aspects of the Online Learning Experience

Students identified the opportunity to interact with their peers and the teacher, and to learn *about* and *with* different learning technologies as positives aspects of the online learning experience. Other gains of the experience were the opportunity to deepen their knowledge in instructional design and the hands-on activities that