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A study of faculty members' perceived utilization of best practices in distance learning course design and delivery and the role of instructional designers

Jiyu You

The University of Toledo

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A Dissertation

entitled

A Study of Faculty Members’ Perceived Utilization of Best Practices in Distance Learning Course Design and Delivery and the Role of Instructional Designers

by

Jiyu You

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Doctor of Philosophy Degree in Curriculum and Instruction: Educational Media

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The University of Toledo
August 2010
An Abstract of

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Best practices have been used in the establishment of distance learning programs for higher education. However, little is known about faculty members’ utilization of best practices in distance learning course design and delivery. Instructional designers play a critical role helping faculty members in the implementation of these best practices in the process of distance learning course design and delivery.

The purpose of this study was to discover faculty members’ perceived utilization of the identified best practices and the role of instructional designers in the process of assisting faculty members to implement the best practices into distance learning courses.

The results revealed that faculty members utilized these best practices in their distance learning courses; however, the degree of utilization differed. The study also revealed that instructional designers play a significant role in providing technical, administrative, and pedagogical support in the design and implementation of best
practices. Analysis of qualitative data also revealed that faculty members wanted more pedagogical assistance. Statistical analysis indicated significant demographic differences regarding learner support, objective-driven design, active learning activities, academic dishonesty policy, student-student interaction, and reflective learning activities.

Suggestions regarding the use of some of the evaluated best practices and approaches that instructional designers can adopt when working with faculty members were discussed. Finally, several topics for future studies were recommended.
To my family for their encouragement, love, and support
Acknowledgements

The journey started in the summer of 2004 when I talked with Dr. Robert Sullivan to enroll in an instructional technology course at the University of Toledo. It has been a pleasant and rewarding experience. My thanks to those who supported me in this endeavor are beyond words.

I would like to express my great appreciation to Dr. Robert Sullivan for his time, effort, encouragement, and expertise in the entire process of the completion of my doctoral courses and dissertation.

I would also like to thank my dissertation committee, Dr. Berhane Tencehaimanot for his valuable advice from writing up the proposal to the completion of the dissertation; Dr. Gregory Stone for his precious advice in research methodology including measurement design, data analysis, and interpretation; Dr. Mark Fink for his expertise in the field of distance learning, and his valuable feedback to improve the quality of the research study.

In addition, I would like to thank the instructional design team who provided insights and suggestions in refining the instrument of this study. Most importantly, I would like to thank those who participated in the study. Without their participation, the completion of the study would have not been possible.
At last but not least, I would like to thank my wife, son, and parents for their love, encouragement, and support on this journey. With their love, I am on the road to another destination in my life.
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Chapter 1

Introduction

Since the invention of the Internet, higher education institutions have realized the value of the web in education (Tomei, 2008), and distance learning in particular. Due to the rapid advancement of Internet technologies, distance education has grown tremendously in higher education. According to U.S. Department of Education, National Center for Education Statistics (2008) in 2006-07, 66 percent of the 4,160 two-year and four-year degree granting postsecondary institutions offered distance learning courses; resulting in a total of an estimated 12.2 million enrollments in credit-granting distance learning courses. The implementation of innovative teaching and learning tools, such as learning management systems, lecture capturing systems, and two-way communication systems, has grown at an astounding speed at universities (Tomei, 2008). To promote effective use of technologies and expand online distance learning programs, universities utilize instructional designers to provide instructional design services to distance learning faculty in course design, development, and implementation. Instructional designers collaborate with academic and technical staff in a community of practice to enhance the quality of distance learning in universities across the globe (Birds, Morgan & O’Reilly, 2007; Jackling, 1989; and Meacham, 1989). All community members, instructional
designers, faculty members, and other support staff need to collaborate and contribute their expertise to plan, design, and implement effective online environments (Bennet, Priest, & Macpherson, 1999; Oliver, 1998; Torrisi-Steele, & Davis, 2000). Promoting best practices of distance learning course design and delivery has become an important task for instructional designers in higher education.

Many institutions have developed standards, benchmarks, and best practices for distance learning programs. These guidelines or best practices focus on the entire distance education system at an institution from infrastructure to teaching and administration. Table 1 summarizes guidelines of distance learning programs.

The eight regional accrediting commissions (HLC, 2007) released a report to reflect current best practices in electronically offered programs. The best practices provide a self-assessment framework for those already involved in distance education. The report addresses five areas of institutional activity relevant to electronically offered degree and certificate programs.

The Institute for Higher Education Policy (IHEP, 2000) also released a report titled Quality On the Line: Benchmarks for Success in Internet-based. In this report, seven categories of benchmarks are identified.

The Higher Education Program and Policy Council (HEPPC, 2000) also released a report titled Distance Education: Guidelines for Good Practice. In this report, 14 standards are discussed and can be applied to public, private, non-profit, and for-profit providers.

All these guidelines or best practices focus on the entire distance education system at an institution from infrastructure to teaching and administration, and they have...
played an important role in guiding higher institutions to establish their distance learning programs. However, as more and more universities have established their distance learning program, quality control has become a critical issue. Therefore, careful attention should be given to the best practices on course design, development, and delivery.

Table 1

*Bench marks, standards, and best practices of distance education*

| Higher Learning Commission (HLC, 2007) | • institutional context and commitment  
| | • curriculum and instruction  
| | • faculty support  
| | • student support  
| | • evaluation and assessment (p. 2)  |
| The Institute for Higher Education Policy (IHEP, 2000) | • institutional support  
| | • course development  
| | • teaching/learning process  
| | • course structure  
| | • student support  
| | • faculty support  
| | • evaluation and assessment (pp.2-3)  |
| The Higher Education Program and Policy Council (HEPPC, 2000) | • faculty must retain academic control  
| | • faculty must be prepared to meet special requirements of teaching at a distance  
| | • course design should be shaped to the potential of the medium  
| | • students must fully understand course requirements and be prepared to succeed  
| | • close personal interaction must be maintained  
| | • class size should be set through normal faculty channels  
| | • course should cover all materials  
| | • experimentation with a broad variety of subjects should be encouraged  
| | • equivalent research opportunities must be provided  
| | • student assessment should be comparable  
| | • equivalent advisement opportunities must be offered  
| | • faculty should retain creative control over use and re-use of materials  
| | • full undergraduate degree programs should include same-time same-place coursework  
| | • evaluation of distance coursework should be undertaken at all levels (pp. 7-15)  |
Most recently, a qualitative study (Bailey & Card, 2009) on South Dakota’s award-winning online university faculty revealed nine predominant best practices for online teaching. Another study (Murphy, 2008) on West Virginia’s higher education faculty members revealed six high quality online teaching practices. Murphy concluded that West Virginia’s higher education faculty adhered to quality online practices as delineated in the literature, but they also disagreed on some of the best practices. He further suggested that online learning is dynamic and a reinvestigation of future quality online practices is necessary. Table 2 provides an overview of the themes revealed in these studies.

Table 2

*Best practices of online teaching*

| Bailey & Card (2009)                  | • fostering relationship  
|                                       | • engagement              
|                                       | • timeliness               
|                                       | • communication            
|                                       | • organization             
|                                       | • technology               
|                                       | • flexibility              
|                                       | • high expectations (p. 154)
| Murphy (2008)                        | • support                  
|                                       | • collaboration and teamwork 
|                                       | • flexibility              
|                                       | • feedback                 
|                                       | • assessment               
|                                       | • adult learning techniques (p. 105) |
Statement of Problem

The growth of distance learning programs is tremendous. A number of best practices have been created and employed by universities and educational agencies. To ensure the quality of a distance learning program, it is critical that distance learning courses are designed and delivered according to a set of best practices accepted by distance learning faculty members. After reviewing the literature on best practices, the investigator found that there is a gap between the existing best practices and the best practices that distance learning faculty members used in their course design and delivery. Based on the literature (Bailey & Card, 2009; Murphy, 2008; Bransford, Garrison, Anderson & Archer, 2000; Brown, Cocking, Donovan, & Pellegrion, 2000; Chickering & Gamson, 1987; HEPPC, 2000; HLC, 2007; Holmberg, 1995; IHEP, 2000; and QM, 2006) 12 themes are identified as best practices of distance learning course design and delivery: (1) encourage contact between students and faculty, (2) encourage cooperation among students, (3) use active learning technique, (4) give prompt feedback, (5) emphasize time on task, (6) communicate high expectations, (7) respect diverse talents and ways of learning, (8) give students opportunities for reflection, (9) provide learner support and resources, (10) adapt course organization and design for online delivery, (11) pay attention to legal, ethical and academic dishonesty, and (12) use objective-driven design concepts. However, the literature to date has had little to say about whether distance learning faculty members have applied these best practices in their distance learning courses.

Instructional designers’ role and work processes in higher education institutions have been explored by many researchers. Most of the literature is from designers’ own
perspectives and is qualitative in nature. Schwier, Campbell, and Kenny (2007) conducted a narrative inquiry and stated that instructional designers play an active, moral, political, and influential role in activating change. They also noted that faculty members working with instructional designers are actually engaging as learners in a process of professional and personal transformation that has the potential to transform the institution. Simeon, Brickell, and Ferry (2007) found that instructional designers play a supporting role in providing advice in the design and development of instructional materials. They further noted that instructional designers also play a leader’s role during and after development of instructional materials. Gunn and Cavallari (2007) proposed a heuristic approach that designers can use to guide themselves in higher education. These studies provide insights for understanding instructional designers’ work in higher education institutions and guidance to professionals in this field.

However, from faculty members’ perspectives, little is known about instructional designers’ role and work process in distance learning course design and delivery. In particular, who chooses to work or not to work with instructional designers, why faculty members interact with instructional designers, how faculty members interact with instructional designers, and whether working with instructional designers help faculty members implement best practices of distance learning course design and delivery in their distance learning courses.

Therefore, it is critical to examine instructional designers’ role and practice in higher education from faculty members’ perspectives.
Significance of Study

This study investigated whether distance learning faculty members have adopted best practices in their distance learning courses via a self-report survey. It provided valuable information and insight on the utilization of best practices in current distance learning courses. This study provided faculty members opportunities to reflect on their current practices in distance learning courses and on strategies to improve their distance learning courses.

This study also sought to determine how distance learning faculty members work with instructional designers in distance learning course design and delivery. The findings would contribute to the body of knowledge in the field of instructional design and technology, as well as distance learning. In particular, they would contribute to the practice of faculty support and development in distance learning.

The findings would help instructional designers to better understand faculty members’ needs and the effectiveness of instructional designers’ work in providing pedagogical and technological support. The findings could also help faculty members who teach distance learning courses to utilize instructional design services regarding pedagogy and technology in a more efficient manner.

The study provided insights regarding relationships between demographic characteristics and why faculty members interact with instructional designers, how faculty members interact with instructional designers, and whether interacting with instructional designers impacts the perceived readiness of faculty in implementing best practices of course design and delivery in their distance learning courses. Such
information is beneficial to academic staff and leadership when planning faculty support and development activities.

**Purpose of Study**

Based on the review of best practices of distance learning course design and delivery, it is important to understand distance learning faculty members’ perceived usage of the best practices in their distance learning courses. It is also critical to understand the work process between instructional designers and faculty members in adopting the best practices in distance learning courses.

First, a good understanding of why distance learning faculty members work with instructional designers and how they work in distance learning course design and delivery allows instructional designers to better serve distance learning faculty members.

Second, a better understanding of faculty members’ perceived adoption of best practices of distance learning course design and delivery would provide valuable information in designing training sessions and preparing individual consultation sessions to promote these best practices among distance learning faculty members, so that these best practices can be applied in distance learning courses accordingly.

Third, a greater understanding of who works with instructional designers and why they work with instructional designers would assist instructional designers to more effectively plan and implement professional development programs for distance learning faculty members.

Finally, a clear understanding of instructional designers’ current practices in providing instructional design services to distance learning faculty members and their effectiveness in terms of best practices from distance learning faculty members’
perspectives would help instructional designers adjust their current practices and improve their competence and skills accordingly. It also would help university administrators to direct limited resources effectively in this respect.

**Research Questions**

To fulfill the purposes of this study, the following research questions were addressed:

1. To what extent do distance learning faculty members perceive that they have utilized the best practices in their distance learning courses?
2. Why do distance learning faculty members work with instructional designers?
3. How do distance learning faculty members work with instructional designers?
4. Do distance learning faculty members attribute any improvement of their readiness in implementing best practices in distance learning course design and delivery to working with instructional designers?
5. Are there relationships between faculty perceptions of utilizing each of the evaluated best practices in distance learning course design and delivery and demographic characteristics?
6. Are there relationships between why faculty members choose to work or not to work with instructional designers and demographic characteristics?
Operational Definitions

Different definitions on distance learning, online learning, distance learning courses, blended or hybrid courses, and web-assisted courses have been developed and used in research and practices. People may not agree with each other on the definitions of these terms. For the purpose of clarifying the terms in this study, the investigator has defined the terms as follows.

Best practices
According to the glossary created by University of Arkansas System, best practices refer to techniques or methods that, through experience and research, have led to a desired result when they are used (http://www.tjiss.net/glossary_b.html). Best practices in distance learning course design and delivery refer to the practices, recognized by researchers, faculty members, academic staff, and educational organizations or agencies in higher education. Applying these practices will result in effective learning in distance education.

Distance learning
Distance learning refers to learning that occurs from instruction at a different place or time (Willis, 1994). Currently, most of distance learning programs in higher education are delivered via Internet tools. In this study distance learning is interchangeable with online learning.

Distance learning course
Howland & Moore (2002) noted that online courses refer to courses in which no more than one face-to-face meeting is required. Allen and Seaman (2003) defined online course as having at least 80% of the course content delivered online. In this study,
distance learning courses refer to courses in which students and instructor are separated by distance and connected via a variety of technology for at least 80% of the course interaction.

**Faculty**

According to the university terminology defined by University of Illinois, “the faculty are composed of persons who teach classes for colleges. Some colleges differentiate between faculty and instructors. Instructors are hired to teach a specific class or classes, while faculty members have contracts with the college that require additional duties beyond teaching.” (http://www.counselingcenter.illinois.edu/?page_id=105 p.x). In this study faculty members refer to instructors who teach courses at the university level, and distance learning faculty members refer to instructors who teach distance learning courses at the university level.

**Hybrid (blended) Course**

Blended courses are defined as having between thirty and eighty percent of the course content delivered online (Allen & Seaman, 2003). In this study, hybrid or blended courses refer to courses in which students complete their learning in a combination of traditional and distance class sessions. Students attend regularly scheduled classes on-campus and also meet online in a virtual classroom.

**Online Learning**

Online learning refers to the opportunity to acquire knowledge or skills in online environments via a variety of online learning activities or events (James & Bailey, 2002). Currently, most distance learning programs are delivered via Internet tools. In this study online learning is interchangeable with distance learning.
Online Distance Education

In this study, online distance education is interchangeable with Internet-based distance education. It refers to distance education programs delivered via Internet tools synchronously and/or asynchronously to students separated from faculty at accredited higher education institutions. All courses must have a start and end date and have stated learning outcomes. It is also called distance education or online education.

Pedagogy

Pedagogy refers to teaching strategies that faculty use for transforming the content or subject matter knowledge in forms that help students’ comprehension (Shulman, 1987). In this study, pedagogy refers to strategies (designing, teaching, and learning) to engage student learning in distance learning courses, also known as e-Pedagogy.

Web-assisted Course

A web-assisted course is taught in traditional (face-to-face) classroom settings and utilizes the Internet to enhance delivery of the course content and/or interaction. No class sessions should be held online. The web is used to supplement content delivery and/or interactions.

Delimitations and Limitations

This study was delimited to surveying those who teach distance learning course(s) at two universities. The two institutions provide pedagogical and technological support to distance learning faculty via instructional designers. Therefore, findings of this study are not applicable to distance learning faculty in institutions that do not make instructional design services available via instructional designers, faculty members who only teach web-enhanced courses, and other populations such as K-12 schools.
A limitation is that data were collected via an online survey. The researcher was not able to verify the responses from the participants, and therefore the data can represent a defect of the survey (York, 2003).

**Organization of Study**

The remainder of this research was organized into four chapters. Chapter 2 reviews the current literature, which covers a brief discussions on distance education theories and practices; technology used in distance education, especially the communication tools that facilitate interactivities at a distance; instructional design theories and practices including learning theories; instructional designers and their practices, especially in higher education; faculty support and faculty development; and best practices of distance course design and delivery.

Chapter 3 Methodology briefly discusses the Rasch Model, the design of the instrument, participants, data collection, analysis method, and procedures in the pilot, and the primary studies.

Chapter 4 presents the research findings, that is, answers to the research questions.

Chapter 5 includes the conclusions, discussions and implications, recommendations, and summary.
Chapter 2

Review of Literature

The purpose of this literature review is to provide the theoretical underpinnings and background information that support this study based on related research findings. First, the review included literature about distance education theories and practices focusing on the current practices in distance education. Second, the development of instructional design theories and practices and instructional designers’ roles and work processes are reviewed. Third, the chapter explored faculty support and faculty development in higher education, more specifically on faculty support and development for distance learning faculty members. Finally, the chapter reviewed the best practices of distance learning course design and delivery.

Distance Education

What is distance education?

Distance education has been defined in a variety of ways by many researchers, organizations, and government agencies. The definitions may vary from time to time but the essence never changes, that is the quasi-permanent separation of teacher and learner throughout the learning process (Keegan, 1988; Perration, 1988; Rumble, 1989; Simonson & Schlosser, 1995). Keegan’s definition is viewed as traditional distance
education. The definition contains five main elements a) quasi-permanent separation between students and instructor; b) institutional planning of curricular and learning materials and student support; c) use of media to deliver content; d) two-way communication between teachers and students; and e) absence of learning groups. With the rapid changes of technology, the traditional views of distance education are being challenged. Simonson and Schlosser (1995) noted that distance education entails institutionally-organized educational programs where faculty and students are normally separated in location but not in time; and where two-way interactive systems are used for sharing documents, voice, and video. The models of distance education continue to evolve as distance education researchers contribute to this field.

**Six generations of distance education**

Understanding the history of distance education, especially technologies used in different times in history, will help distance educators incorporate them effectively in practices. Distance education started with correspondence study via traditional postal service in Great Britain in 1840 and expanded to Germany and Sweden in Europe (Schlosser & Simonson, 2005). It was introduced to America in 1873 when Anna Tickmor founded the Society to Encourage Study at Home and attracted over 10,000 students within two decades (Watkins, 1991). In the 1920s, broadcast radio was used in distance education (Schlosser & Simonson, 2005). In the early 1930s, broadcast television was utilized in teaching and in the 1950s, it was used in distance education to offer credit hours (Schlosser & Simonson, 2005). In the 1960s, satellite technology was developed and then was made available for instructional television due to the reduced cost of
broadcasting. In the 1990s, computers and the Internet began to take a primary position in distance education.

Distance education is highly dependent on technologies (Li, 2003) especially for its delivery and interactions (Caladine, 2008). Understanding the changing roles of technologies in education increases our understanding of how media can support instruction. As Peters (2003) noted:

> Media are an essential element of distance education and it cannot happen without it, transmitting the instruction to, and/or from the learner. However, because each medium influences and changes the pedagogical structure, the question as to which carrier media to use for distance education is not only a practical or technical issue but also a pedagogical issue. (p. x)


Technologies used in the first generation were printed materials only. Therefore, these involved limited interactions between instructor and students carried via postal services. The interactions were primarily instructor’s comments or feedback on students’ assignments or tests (Caladine, 2008; Taylor, 2001). Since only a single technology was available, selection of technology was not an issue among faculty members or instructional designers.
In the second generation of distance education, several technologies were available to users. Among the technologies used in this period were video and audiotapes,

Table 3

*Models of distance education: A conceptual framework (Caladine 2008; Taylor, 2000)*

<table>
<thead>
<tr>
<th>Models of Distance Education</th>
<th>Associated Delivery Technologies</th>
<th>Characteristics of Delivery Technologies</th>
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<tbody>
<tr>
<td></td>
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<td><strong>Flexibility</strong></td>
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<td><strong>Highly Refined Materials</strong></td>
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<td><strong>First Generation – The</strong></td>
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<td><strong>Correspondence Model</strong></td>
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<td><strong>Second Generation – The</strong></td>
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<td><strong>Multi-media Model</strong></td>
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<td><strong>Third Generation – The</strong></td>
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<td><strong>Telelearning Model</strong></td>
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<td><strong>Fourth Generation – The</strong></td>
<td>• interactive multimedia</td>
<td>Yes</td>
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<td><strong>Flexible Learning Model</strong></td>
<td>• internet based access to WWW</td>
<td>Yes</td>
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<td>resources</td>
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<td>• computer mediated communications</td>
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<td><strong>Fifth Generation – The</strong></td>
<td>• interactive multimedia online</td>
<td>Yes</td>
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<td><strong>Intelligent Flexible Learning Model</strong></td>
<td>• internet based access to WWW resources</td>
<td>Yes</td>
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<td>• computer mediated communications, using automated response system</td>
<td>Yes</td>
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<td>• campus portal access to</td>
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<td>instructional processes and</td>
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<td><strong>Sixth Generation – Web 2.0 e-learning 2.0 Model</strong></td>
<td>• social software</td>
<td>Yes</td>
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<td>• student creation of resources</td>
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<td>• sharing of experiences and</td>
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and early computer-based learning (Caladine, 2008). The delivery method was predominately one-way, to deliver content to students via audiocassettes or VHS tapes. At this time, it was necessary for instructional designers and faculty members to select media for content delivery.

The third generation of distance education featured audio and video conferences, audio graphic communication broadcast on television or radio (Taylor, 2001; Caladine, 2008). Faculty members and instructional designers could select innovative, two-way communication technologies to design instructional events and learning activities. The interaction between faculty and students was increased as compared with the interactions in the previous generations of distance education.

In the fourth generation, that is the current generation, interactive multimedia, World Wide Web, and computer mediated communication tools are widely used in distance education and traditional face-to-face education (Caladine, 2008; Taylor, 2001). Adult learners who are either house-bound or have full-time jobs are attracted to the flexibility of time and place of this generation of distance education. As Taylor (1995) stated, these technologies allowed students to “turn the teacher on, or off, at will as lifestyle permits.” Students also have unlimited access to online resources and interactions asynchronously throughout a school term. A unique technology in the fourth generation of distance education is the utilization of a course management system (CMS) or a learning management system (LMS). Such systems provide a gateway to access learning materials, participate in online discussions, take online tests, submit assignments, and track learning progress.
The fifth generation is built on the fourth generation by adding a portal system as described by Taylor (2001) and Caladine (2008). Interactive multimedia, World Wide Web, and computer mediated communication tools are still the major technologies widely used for distance education. Caladine (2008) stated:

The portal system provides students with an efficient access point to learning materials and resources as well as records of their progress and host communications with the administrative and support units of the institution. (p.22)

The sixth generation (Caladine, 2008) featured an advanced interactive environment. Social software, rich media, and other interactive technologies are commonly used and the possibility of interactions among students and between faculty and students are dramatically increased. The Horizon Report (NMC, 2007) indicates that six areas will have significant impact on college and university campuses within the next five years: a) user-created content; b) social networking; c) mobile phone; d) virtual worlds; e) the new scholarship and emerging form of publication, and f) massively multiplayer educational gaming. The Horizon Report also noted: “These challenges and trends reflect the changing nature of the way we seek, classify, and perceive information, all crucial activities in teaching, learning, and creative expression” (NMC, 2007, p.5).

**Learning management systems**

As discussed in the fourth and fifth generations of distance education, a unique technology for course delivery is widely used in higher education. That is a learning management system, also called course management system or virtual learning environment (Chang, 2008). Course management systems were launched in the mid-
1990s (Fink, 2007) and became popular in the early 21st century in higher education. The widely used systems are Blackboard, WebCT, TopClass, eCollege, Moodle, LAMS, and SAKAI among many others. Blackboard and WebCT are the two leading commercial systems. Recently Blackboard purchased WebCT and released a new system as Blackboard Learn 9.0 with the best features of both systems. LAMS, SAKAI, and Moodle are open source Learning Management Systems that are increasingly popular (Weller, 2006). Seamless and secure instructional delivery systems serve as gateways to course tools including email, chat rooms, discussion boards, white boards, student page tracking, online assessment, statistical analysis of assignments, course syllabus, schedule, and lecture notes as well (Heinich, Molenda, Roblyer & Edwards, 2000; Russell, & Smaldino, 2002).

New versions of these learning management system products are released every year by adding new features such as Blogs and Wikis to engage learners and allow users to manage their teaching and learning effectively. Practices and theories in distance education will contribute to the design and development of these products.

**Theories of distance education**

Theory tends to be both a tool and a goal. As a tool, it is seen useful as an aid in directing empirical investigation. In other words, it guides research by generating new paradigms. As a goal, it is useful because it provides a means of abstracting, summarizing, integrating, and storing information (Marx, 1965). Theories of distance education serve as guides for further research studies and current practices of distance education. It is critical to review the development of distance education theories and practices to better
understand the importance of interactions between instructional designers and faculty members in distance education.

Theories can present a big picture of a field and they can help educators reflect on current practices from a broader perspective. Therefore, the reflection process allows educators to transfer experiences gained in one context to new experiences and contexts (Anderson, 2004). Distance education is practiced everywhere in the world where technology permits and provides learning opportunities for those who cannot—or will not—take part in traditional classroom education (Holmberg, 1995). Based on the practices of distance education and research studies on learning, a variety of theories were proposed to describe distance education. Keegan (1986) classified the theories into three groups: a) theories of independence and autonomy; b) theories of industrialization of teaching; and c) theories of interaction and communication.

**Theory of independent study - Charles Wedemeyer and Michael Moore**

Both Wedemeyer and Moore emphasize independence and autonomy of the learner in distance education (Simonson & Schlosser, 1995). Wedemeyer acknowledged the independence of the learner and stated that learner independence can be realized via a variety of media formats, methods, and technologies (Saba, 2003). Wedemeyer suggested that teaching is individualized and learning takes place through the student’s activities. Learning activities are designed for students to conveniently complete in their own environments. In the learning process the learners take more responsibility for the pace of their learning progress (Keegan, 1986).
Moore’s independent study theory of distance education was formulated in the early 1970s (Simonson & Schlosser, 1995). There are two elements in his theory: two-way communication and needs of individual learners. Some programs offer greater two-way communication than others; some programs are very structured and others are very responsive to individual learner’s needs. Moore also noted that there is a gap between students and instructors, so the students must take responsibility for their own learning. In addition to the distance of time and space, Moore (1993) introduced a third type of distance—the concept of transactional distance. According to Moore, this separation of teacher and students in distance education leads to special patterns of learner and teacher behaviors, which profoundly affect both teaching and learning: “With separation there is a psychological and communications space to be crossed, a space of potential misunderstanding between the inputs of instructor and those of the learner. It is this psychological and communications space that is the transactional distance” (Moore, 1993, p.22).

Theory of industrialization of teaching – Peters

Peters (1988) formed an industrialized view of distance education. He extensively analyzed distance education organizations in the 1960s and proposed new concepts for distance education research: rationalization, division of labor, mechanization, assembly line, mass production, preparatory work, planning, organization, scientific control methods, formalization, standardization, change of function, objectification, and concentration and centralization (Simonson & Schlosser, 1995).
Peter’s theory gained renewed attention in the recent debate on Fordism, Neo-Fordism, and Post-Fordism. The theory of industrialization of teaching falls into the Fordist category for distance education (Simonson & Schlosser, 1995). The Fordist approach suggests a fully-centralized, single-mode, national distance education provider, gaining greater economies of scale by offering courses to a mass market. Therefore, it will be cost-effective in distance education programs.

**Theory of interaction and communication – Holmberg**

According to Holmberg (1995) distance education is based on learning as individualized activities. Learning can be achieved without the presence of tutors in a face-to-face environment but supported by non-contiguous means that activate student learning.

Central to the learning and teaching in distance education are personal relations, study pleasure, and empathy between students and those representing the supporting organization. Feelings of empathy and belonging promote students’ motivation to learn and influence the learning favorably. Such feelings can be developed in the learning process independently of any face-to-face contact with tutors. They are conveyed by students’ being engaged in decision making; by lucid, problem-oriented, conversation-like presentations of learning materials that may be anchored in existing knowledge; by friendly, non-contiguous interaction between students and tutors, and other staff in the supporting organization; and by liberal organizational administrative structure and processes. (p.175)
In distance education, conversational approaches and general empathy have been shown to be conducive to students’ satisfaction and goal attainment. Courses designed in a way that promotes interaction between instructor and students engage students in learning throughout a term, therefore increasing learning effectiveness (Holmberg, 1995).

All these theories have historically contributed to the practices in the field of distance education. However, Holmberg’s theory on distance education, especially his guided didactic conversation theory, is closely related to today’s practice of online distance education. The guided didactic conversation theory can be easily applied to the practice of online distance education. Many communication tools created with the Internet technologies connect learners and instructors and student services personnel anywhere, anytime. Therefore, in online education, the conversational concept can be easily carried out in distance education programs.

**Theory of online learning**

After discussing the attributes of learning, Anderson (2004) formed a model of E-learning, in which the major variables are displayed and the relationships among the variables are schematized. The author described this model as a first step in theory building of online learning.

Anderson’s theory of online learning focuses on learning interaction (2004). In this model, various forms of student interaction can be substituted for each other, depending on costs, content, learning objectives, convenience, technology, and available time. The substitutions do not result in any decrease in the quality of the learning. As Anderson (2008) noted:
Sufficient levels of deep and meaningful learning can be developed, as long as one of the three forms of interaction (student-teacher; student-student; student-content) is at very high levels. The other two may be offered at minimal levels or even eliminated without degrading the educational experience.

In this online learning model as shown in Figure 1, the web provides unlimited access to content/information, schemes, and opportunities to engage students in three types of interactions at a distance.

Figure 1

*Online learning model (p. 49)*

Distance education theories have played critical roles in guiding distance education practices at different times in history. The practice of instructional design is
eclectic (Monash & Monash, 2008). Instructional design for distance education programs will gain insights from these theories. Students will benefit if instructional designers and distance educators can utilize the best of these distance education theories to guide the planning and implementation of distance education programs in today’s information age and knowledge economy.

**Instructional Design Theories and Practices**

**What is instructional design?**

Instructional design is a system of procedures for designing and developing instructional programs in a consistent and reliable fashion (Gustafson & Branch, 2002). It is a systematic approach (Dick & Carey, 2001; Morrison, Ross & Kemp, 2001; Smith & Ragan, 2005). It is empirical, learner-centered, goal-oriented, and focused on real-world performance with outcomes that can be measured, and a team effort (Gustafson & Branch, 2002; Litchfield & Keller, 2002).

Instructional design is also eclectic (Monash & Monash, 2008). It is based on learning theories, information technology, systematic analysis, and management methods (Smith & Ragan, 2005; Morrison, Ross & Kemp, 2001). It is iterative (Morrison, Ross & Kemp, 2001) as designers need to continuously evaluate their design and make revisions for improvements.

**Instructional design and learning theories**

Many theories have contributed to the growth of instructional design. There are three major learning theories that dramatically influenced the practices of instructional design. They are behaviorism, cognitivism, and constructivism. This research seeks to discover whether interactions between instructional designers and faculty members contribute to
the understanding of best practices in distance education course design and delivery. It is necessary to review different learning theories and their applications to instruction design in distance education. To be regarded as a theory, the concept needs to provide answers to several critical questions – how learning occurs, the nature of knowledge, and the role of students and teachers.

**Behaviorism**

Behaviorism is regarded as the predominant school of thought of learning in the first half of the twentieth century (Smith, & Ragan, 2005). Pavlov’s (1927) “classical conditioning” studied behavior change on animals, which marked the beginning of the behaviorist movement. Skinner’s “operant conditioning” investigated behavior modification, which marked the maturation of the movement (Smith, & Ragan, 2005; Discoll, 2002).

**Cognitivism**

Cognitivism is the dominant theoretical influence on instructional design practice in the second half of the twentieth century. Unlike behaviorism, cognitive learning theory emphasizes factors within the learner. Cognitive learning theory focuses on explaining the development of cognitive structures, processes, and representations (Smith, & Ragan, 2005).

**Constructivism**

Constructivism is popular in education. Piaget, the founder of constructivism, postulated that knowledge is constructed, not transmitted or genetic (Piaget, 2006). There are three schools of constructivism – individual, social, and contextual constructivism. Although different constructivists stress their own beliefs in learning, most of them agree
on the following four characteristics: a) learners construct understanding that makes sense to them; b) new learning depends on current understanding; c) social interaction facilitates learning; and d) the most meaningful learning occurs within real-world tasks (Eggen & Kauchak, 2004). These common constructivist views have implications for online distance learning. Distance learning courses designed in align with constructivist approach engage students and lead to increased understanding of knowledge, mastery of skills, and the ability to learn (Harpe & Peterson, 2009). The use of the constructivist approach is related to improved attitudes, motivation, and thinking and writing skills (Prince, 2004). Distance faculty members need to expand their understanding of this approach in distance learning course design and delivery. This could be done via faculty development conducted by instructional designers.

Faculty Development and Faculty Support

From a broad perspective, faculty development includes all aspects of scholarship: the scholarship of discovery, the scholarship of integration, the scholarship of application, and the scholarship of teaching (Boyer, 1990). It refers to the “total development of the faculty member—as a person, as a professional, and as a member of the academic community” (Crow, Milton, Moomaw, & O’Connell, 1976, p.3). This review only focuses on the scholarship of teaching.

Faculty development refers to institutionally organized programs designed to improve faculty teaching and enhance student learning (Lunde & Healy, 1991; Emerson & Mosteller, 2000). Through a series of activities, faculty members can improve themselves by making planned changes in their expertise, skills, attitudes, career path, or
personal lives for the betterment of the individual, the students, and the institution (Lunde & Healy, 1991).

Changes in distance education are frequent. Today, in higher education, faculty and administrators encounter many changes such as student population, technologies, and paradigms. Moore, Moore, and Fowler (2005) stated that characteristics of the Net Generation need to be considered in designing faculty development programs. The characteristics include: life online, rapid communication, social networking, games and simulations, and digital literacy. Faculty members need systematic ongoing support to develop and maintain their own fluency in integrating technology into online course design and delivery.

As researchers and educators learn more about how learning occurs, teaching practices need to change accordingly. This affects the programs in the field of faculty development.

**Paradigm Change and Faculty Development**

Dittmer (1999) noted that the emerging paradigms around teaching and learning and its implications must be addressed for faculty development. When a new paradigm can explain phenomena better than older ones, the new paradigm will be accepted and widely used. In teaching and learning, constructivism has emerged as the dominant paradigm.

Influenced by constructivism, a variety of issues have been discussed in faculty development programs, such as shifting from teacher-centered to student-centered; from presenting information to promoting three types of interaction: learner-content interaction, learner-instructor interaction, and learner-learner interaction; and from individual learning to collaborative learning.
Faculty Development and Support for Distance Education Faculty

Traditional faculty development for distance education faculty is conducted as part of a training program and delivered as group workshops at a campus lab. The program focuses on using a variety of technology, such as email, a learning management system, a web page editor, presentation tools, or podcasting tools. According to Gunawardena and Zittle (1998), distance education faculty development programs across the nation also include the following common provisions:

- Orientation to the use of technology;
- A presentation on how instructional design must be revised and adapted for distance courses;
- Discussion of the presentation methods and social presence techniques which can be employed to decrease interpersonal distance between the instructor and students;
- A presentation on the importance of formative evaluation early in a course to identify and remedy any problems which may prevent students from fully participating in, and benefiting from, their studies; and summative evaluations to gain end of course input to revise and refine content and methodologies in accord with students’ needs;
- Recommendations to staff to visit each [physical] site at least once to meet students;
- A session on providing on-going support for students. (pp. 110-111)
According to an NEA report (2000), since not all faculty members possess the pedagogical and technical skills for online distance education, continuing support or assistance should be provided to faculty throughout the teaching period.

- Technical assistance in course development is available to faculty, who are encouraged to use it;
- Faculty members are assisted in the transition from classroom teaching to online instruction and are assessed during the process;
- Instructor training and assistance, including peer mentoring, continues through the progression of the online course;
- Faculty members are provided with written resources to deal with issues arising from student use of electronically-accessed data. (p.26)

In a report on best practices of electronically offered distance education programs, HLC (2007) stressed that qualified instructional designers must be on the staff and have an appropriate role in program and course development. A survey conducted by Taylor and McQuiggan (2008) also indicated that online faculty need continuous access to technical advice and assistance, instructional design assistance and resources, and colleagues with experience teaching online. A qualitative research study conducted by Orr (2008) revealed that, in addition to technical support, faculty need greater support for pedagogy efforts. In other words, instructional designers need to play a critical role in distance education faculty development.
The Study of Instructional Designer and Faculty Interaction

To promote effective use of technologies and expand distance learning programs, many universities utilize instructional designers to provide instructional design services to distance learning faculty in course design, development, and implementation.

Instructional designers collaborate with academic and technical staff in a community of practice to enhance the quality of distance education in universities across the globe (Jackling, 1989; Meacham, 1989; Birds, Morgan & O’Reilly, 2007). All community members, instructional designers, faculty members, and other support staff need to collaborate and contribute their expertise to plan, design, and implement effective online environments (Bennet, Priest, & Macpherson, 1999; Oliver, 1998; Torrisi-Steele, & Davis, 2000).

With the rapid development of the Internet and multimedia technologies and their applications in training and education, instructional designers have gained attention in training and education due to the effectiveness of integrating technology into education. Many job titles are used for this group of professionals, such as curriculum developer, learning specialist, instructional technologist, project manager (Liu, Gibby, Quiros, & Demps, 2002), learning technologist (Oliver, 2002), distance education coordinator, instructional technology manager, or web specialist (Surry & Robinson, 2001).

In higher education, instructional designers play unique roles as they apply their knowledge and skills to the improvement of teaching and learning across disciplines (Keppell, 2008). They have enormous potential to influence the policies and practices of
institutions due to their unique position within the institution (Keppell, 2007, 2008; Schwier, Campbell & Kenny, 2007).

Interactions between instructional designers and faculty members refer to the process through which instructional designers provide pedagogical and technological support in distance learning course design and delivery to distance learning faculty members. These interactions can take different forms, including individual consultations, face-to-face workshops, online learning sessions (Fink, You, & Mold 2006; Moore, Moore, & Fowler 2005, Truman-Davis, Futch, Thompson, & Yonekura, 2000) and community of practices (Leung, 2007; Lave & Wenger, 1991; Webster & Mertova, 2007). When interactions occur, faculty members are likely to consider the ideas discussed, especially the best practices in distance learning course design and delivery, and therefore to adopt them in their own course design and delivery. A recent study at community colleges also indicated that when faculty received training incorporating online pedagogical strategies, the online teaching practices were transferred to their online classes (Davis, 2009). For example, students taking the courses designed with the best practices as guidance will experience less frustration in finding assignment due dates and requirements, and locating files on course sites; therefore, they may spend more time on learning rather than on clarifying assignment requirements, due dates, and directions in locating files. Students will be more engaged with learning activities that promote student-student interaction, student-faculty interaction, and student-content interaction. However, instructional designers still do not know what methods distance learning faculty members prefer to use in receiving pedagogical and technological support in distance learning course design and delivery.
Although instructional designers are available to distance learning faculty members, not all of them utilize instructional design services. Little is known to instructional designers about who interacts with them and why they interact with them. Is gender a factor? Does professional rank matter? Are faculty members in one discipline utilizing instructional design services more than others? Are years of experience in teaching distance learning courses a factor?

**Best Practices for Distance Learning Course Design and Delivery**

After reviewing literature on best practices of traditional classroom instruction and on standards, guidelines, and benchmarks of distance learning programs, the following 12 best practices are identified for distance learning course design and delivery.

1. Encourage contact between student and faculty.
2. Encourage cooperation among students.
3. Use active learning techniques.
4. Give prompt feedback.
5. Emphasize time on task.
6. Communicate high expectations.
8. Give students opportunity for reflections. (Brockbank, McGill, Beech, 2002)
9. Provide learner support and resources. (IHEP, 2000; QM, 2006).
10. Adapt course organization and design for online delivery. (Gagne, 1985; Horton, 2006).
11. Pay attention to legal, ethical and academic dishonesty. (IHEP, 2000; QM, 2006).

12. Use objective-driven design concepts. (Deubel, 2003; Merrill, 2002).

**Encourage contact between students and faculty**

Student-faculty contact in this study is defined as the interactions between students and the course instructor inside the course management system used to conduct the distance learning course.

Chickering and Ehrmann (1987) stated that frequent student-faculty contact can motivate student learning. Faculty concern can help students get through hard times and continue completing coursework. Research on effective teaching and learning emphasized the importance of student-faculty contact (Endo & Harpel, 1982; McKeachie, Pintrich, Lin, & Smith, 1986). Endo and Harpel examined the effects of four different aspects of student-faculty interaction such as frequency of formal interaction, frequency of informal interaction, quality of faculty advising, and helpfulness of faculty on a variety of student outcomes after four years. The results supported the importance of student-faculty contact to the intellectual and personal/social outcomes of college students and their satisfaction with their educational experience.

In addition, a study of 1,500 students who took a first-year engineering design course over a period of two years indicated that faculty interacting with and providing constructive feedback to students were significantly and positively related to students' self-reported gains in several design and professional skills (Bjorklund, Parente, & Sathianathan, 2004). For students to have a positive learning experience, faculty members
must interact with their students and use a constructivist approach to extend students critical thinking skills (Palloff & Pratt, 1999).

In fact, both the Institute for Higher Education Policy and the Higher Education Program and Policy Council (IHEP, 2000; HEPPC, 2000) have included faculty and student interaction as a standard or benchmark in distance/online learning programs. The best practices developed by the eight regional accrediting commissions (HLC, 2007) also stressed the importance of appropriate synchronous or asynchronous interaction between instructor and students and among students.

In distance learning courses, student-faculty interaction can be realized in a variety of ways with several technological tools. Email, discussion boards, chat, whiteboards, Blogs, Wikis, audio, and video conferencing can be selected, depending on learning objectives and student characteristics.

Develop reciprocity and cooperation among students

Constructivists agree on the following characteristics of learning: (1) learners construct understanding that makes sense to them; (2) new learning depends on current understanding; (3) social interaction facilitates learning; (4) the most meaningful learning occurs within real-world tasks (Enggen & Kauchak, 2004).

According to Chickering and Ehrmann (1987) learning is enhanced in a team effort. It occurs in a collaborative and social environment. Sharing ideas and providing feedback to others’ ideas deepens one’s understanding of the topic discussed. Johnson, Johnson and Smith (1990) reviewed over a hundred studies on cooperative learning and
found that cooperative student learning groups increased productivity, developed committed and positive relationships, and enhanced social esteem.

**Encourage active learning**

According to Bonwell and Eison (1991), active learning is defined as anything that “involves students in doing things and thinking about things they are doing” (p. 19).

Some general characteristics of active learning include: (1) students are involved in more than listening, (2) less emphasis is placed on transmitting information and more on developing students’ skills, (3) students are involved in higher-order thinking (analysis, synthesis, and evaluation), (4) students are engaged in activities (e.g., reading, discussing, and writing), and (5) greater emphasis is placed on students’ exploration of their own attitudes and values (Bonwell & Eison, p. 19).

According to Chickering and Ehrmann (1987) students do not learn much by listening to teachers, memorizing theories and rules, and spitting out answers to assignments. They must talk about what they are learning, discuss it with others, write about it, relate it to their past experiences, and apply it to their daily lives.

A study that compared conventional passive lecture and the student-centered, highly collaborative format also showed that the active learning instructional method had a positive effect on student performance in an introductory chemistry class (Oliver-Hoyo, Allen, Hunt, Hutson, & Pitts, 2004).
Active learning can be accomplished individually, but it is more effective when it is used in a cooperative setting (Batts, 2008). Research studies support the use of active and cooperative learning strategies in higher education (Johnson & Johnson, 1989).

In distance learning, many active and cooperative learning activities can be implemented. These activities include threaded discussions, role-play, online debate, case study, simulations, and problem-based learning etc.

**Problem-based learning (PBL)**

Problem-based learning (PBL) represents a segment of cooperative or collaborative learning that falls under a hierarchy of active learning. It is not an instructional strategy, but a process of conveying learning. PBL is intuitive, reflecting the way in which the mind actually works (Rhem, 1998). Students approach learning using their own specific learning strategies, based upon their own particular combination of previous experience and prior cognitive knowledge.

PBL is a path an instructor can take toward designing instruction. Students, by this approach, create their own learning strategies toward solving problems (Duch, Groh, & Allen, 2001). In the classroom, PBL can be viewed as a social system where all students enter the activity on an equal basis, but where resources used to solve problems are different (Burch, 2001). PBL requires an organized, cooperative effort in accordance with the students’ own learning styles and cognitive backgrounds. Burch also stated that how students organize their cooperative efforts to learn and the anxiety they encountered mirror real life circumstances.
PBL is an effective instructional approach, but not without risk. To maximize the effectiveness of PBL, learning risks must be minimized. The literature (Duch, 2001) indicated that the following elements are essential to the successful use of PBL: problem design, the role of the instructor, and group dynamics. Successful implementation of these core elements will enable PBL to be an effective approach in teaching.

**Distributed problem-based learning (DPBL)**

PBL is also widely used in distance education. This type of learning is also known as distributed problem-based learning, which refers to the use of this strategy in an online collaborative environment. Naidu (2003) discussed five phases of distributed problem-based learning: (1) presenting the problem, (2) posting of participants’ first perceptions of the problem, (3) exploring the problem and their initial perceptions, (4) revising their first perceptions, and (5) preparing and posting a critical reflection. In phase 1, the instructor outlines the problem, describes the learning process, and defines the learning tasks. In phase 2, participants articulate their perceptions and thoughts, state their conjectures (causes, effects, and solutions), identify data collection strategies, and collect and share data with peers. In phase 3, participants explain and justify perceptions, expand their conjectures, revise the action plan if necessary, and gather and share additional data with peers. In phase 4, participants identify any new issues related to the problem, revise conjectures, adjust the action plan, and gather and share data with peers. In the last phase, participants present their critical reflection that synthesizes the learning process.

Problem design, the role of the instructor, and group dynamics are critical in distributed problem-based learning. In addition, selection of appropriate technological tools is a critical aspect in distributed problem-based learning. Successful implementation
of these core elements will enable DPBL to be an effective approach in distance education.

**Give prompt feedback**

Feedback in this study is defined as clear communication parameters established by faculty members and informational or acknowledgement responses to a student’s inquiry in a timely, constructive, and supportive manner. Such feedback can occur anytime during a semester. Examples include responses to a student’s inquiry to clarify an assignment requirement, an answer to a student’s question on a specific test item, or constructive comments to a specific assignment that a student submitted to the instructor.

Research indicated that the use of prompt feedback in higher education showed positive relation to student achievement and satisfaction (Chickering & Ehrmann, 1996; Dunkin, 1986, McKeachie, Pintrich, Lin, & Smith, 1986). Newberry (2001) also insisted that feedback must be timely, because timely feedback is valuable for the establishment of social presence in distance learning courses.

Prompt feedback in distance learning is critical to a satisfactory learning experience. Chickering and Ehrmann (1996) stated that students tended to feel isolated and disconnected from their class if faculty members did not provide prompt feedback to their inquiries. In addition, Berge (2000) suggested that providing clear feedback may bring real advantages to those who normally do not speak up in a face-to-face class. These students may find it more comfortable to share their ideas and ask questions in an online environment with online synchronous and asynchronous communication tools.
Berge also stated that supportive, student-centered feedback made students relate more directly with an instructor who discussed, reflected, and posed questions.

In fact, the Quality on the Line report conducted by The Institute for Higher Education Policy (IHEP, 2000) identified feedback to students in a timely, constructive, and non-threatening manner as the most important benchmark regarding teaching and learning.

In distance education, there are a variety of ways of providing prompt feedback to students. Email can be used to provide individual feedback, while discussion forums and chat rooms can be used to provide feedback on class-wide issues and class discussions. Quizzes and Assignments tools on a learning management system provide convenient channels for providing timely feedback to students’ tests and assignments.

**Emphasize time on task**

Time on task is usually defined as engaged time on particular learning tasks (Berliner, 1990). Research on this topic focused on the actual amount of time spent on learning tasks and its effects on learning achievement (Kristmanson, 2005).

Blankson (2004) indicated that strategies that emphasized time on task were important to faculty when designing and teaching their courses. The data in that study also revealed that 66.4% of the participants considered time-on-task as a high priority. Wellman and Marcinkiewicz (2004) also found a significant correlation between improvement in scores and a greater number of “hits” on content pages and practice quizzes in a course management system. However, the number of “hits” on a course page may not reflect the actual engaged time of tasks.
In distance learning, a course management system can provide students with tools for convenient access to course content, student-instructor interaction, and practice quizzes. According to Ohio Learning Network (OLN, n.d.), distance learning faculty members need to clearly lead their students through the administrative, procedural and technical aspects of the course, including guidelines and time commitments of their tasks. Students can use this knowledge to organize their own participation and plan their learning activities, reading course materials, communicating with the instructor, and interacting with other students.

**Communicate high expectations**

Expecting students to perform well can become a self-fulfilling prophecy in education. All students, the poorly prepared, the unwilling to exert themselves, and the bright and well-motivated, are expected to perform well in their academic work (Chickering & Ehrmann, 1996). Research studies showed schools that established high expectations for their students and provided the support to achieve the established expectations had high rates of academic success (Howard, 1990; Levin, 1988).

Research studies also indicate that course workload and difficulty are positively correlated with student ratings (Centra, 1993; Marsh & Dunkin, 1992). That means students rated highly those tough courses that require more time and effort to complete coursework.

**Respect diverse talents and ways of learning**

We are facing diverse student populations in higher education. Students bring different talents and styles of learning to classrooms. Brilliant students in the seminar room may not do well in the lab or art studio, while students rich in hands-on experience may not do
so well with theory (Chickering & Ganson, 1987). Opportunities need to be made available to students to show their own talents and their own ways of learning. By understanding diverse abilities, talents, and learning styles, instructors can develop more effective learning activities for students.

Technology can enable us to more easily develop and use content and learning activities that appeal to diverse students. Presentation tools such as PowerPoint, Inspiration, etc., aid students with a visual learning style to process information better. These tools also provide the visual novelty that the human cognitive system needs to pay attention for extended periods (Grasha & Yangarber-Hicks, 2000). Presentations that highlight important concepts with different fonts and colors enable students to capture important information easily. Communication tools such as email, discussions, and blogs, not only provide communication channels for student-to-student, and student-to-instructor interactions, they also allow students to reflect on their own learning, receive feedback, and collaborate on projects. These tools allow students to excel in their own way of learning as long as they are motivated to learn.

**Give students opportunity for reflection**

Reflection is defined as “the process of internally examining and exploring an issue of concern, triggered by an experience, which creates and clarifies meaning in terms of self and which results in a changed conceptual perspective” (Boyd & Fakes, 1983, p. 100). Reflective learning is holistic; it involves every part of a learner’s experience: familial, personal, or practical (Brockbank, McGill, Beech, 2002).

A three-stage model of reflective learning was described and used in nursing education (Scanlon & Chernomas, 1997). The three stages of reflection include
awareness, critical analysis, and new perspective. Awareness initiates the process of reflection. It is the cornerstone of reflection. Without awareness, reflection will not occur. The second stage, critical analysis, involves critical self-exploration of the concept, situation, or event. The third stage, new perspective, emerges as an outcome of the analysis or as subsequent to applying new information. The new perspective will indicate the learner’s understanding of the concept, situation, or event.

Reflective learning allows students to think more deeply about topics, theories, or concepts that are being explored, resulting in deeper learning.

**Provide learner support and resources**

Learner support and resources are considered important for distance learning courses. The Center for Excellence in Learning and Teaching of California State University at Chico provided unique rubrics for online instruction (ROI), and the rubrics include three criteria in the learner support and resources category for quality online courses: (1) course contains extensive information about being an online learner and links to campus resources; (2) course provides a variety of course-specific resources, and contact information for instructor, department and program; and (3) course offers access to a wide range of resources supporting course content. [http://www.csuchico.edu/celt/roi/](http://www.csuchico.edu/celt/roi/).

Quality Matters (2006) also included learner support as an important standard for quality online courses. Without prompt and quality learner support and resources, students will not have a satisfactory learning experience in distance learning.
Adapt course organization and design for online delivery

Course organization

If course materials are well-organized, students can easily navigate inside the course. Bailey (2008) noted that course organization and web sites are important for student learning. Presently distance learning courses are delivered with course management systems (Blackboard, Angel, and Moodle etc.). These systems provide instructors with tools to create the navigation mechanisms easily. Although courses differ, it is very helpful in any course to have a clear structure of course elements. At the course level, a clear structure that includes the basic components should be available to students on the course menu and/or the course homepage. These components usually include: (1) getting started, (2) detailed syllabus, (3) communication tools, (4) course content, (5) assignments (that are deliverable via the digital drop box), (6) quizzes or exams, (7) resources, and (8) student grades. The course contents area can be organized into small, manageable modules or units. Breaking content into small units can increase student awareness of the conceptual structure of the course and also allow for greater flexibility in pacing their learning. At this level, course content should be designed to engage learners. Gagne’s nine events of instruction (1985) provide a basic framework for instructional design. The nine events include (1) gain attention, (2) inform learners of objectives, (3) stimulate recall of prior learning, (4) present the content, (5) provide learning guidance, (6) elicit performance (practice), (7) provide feedback, (8) assess performance, and (9) enhance retention and transfer to the job.

Bruner (1966) also proposed that a theory of instruction should address four major aspects: (1) predisposition towards learning, (2) the ways in which a body of knowledge
can be structured so that it can be most readily grasped by the learner, (3) the most
effective sequences in which to present material, and (4) the nature and pacing of rewards
and punishments. Effective methods for organizing instruction will result in simplifying
learning process, generating new propositions, and increasing the manipulation of
information. Therefore, instruction designed according to this theory will increase student
understanding of the information.

Another aspect of course organization is the aesthetic appeal of a distance
learning course. Distance learning communicates visually (Horton, 2006). However, this
aspect is often ignored or treated as unimportant by many instructors. Inappropriate
design can make learners frustrated when navigating the course.

**Legibility**

Legibility refers to the ability of students to read text and recognize images (Horton,
2006). Font, text and background contrast, and white space are some of the issues that
need to be addressed in distance learning courses. One simple guideline is to choose a
font with the proper size (10-12 pt) in high contrast with its background. Keep the color
and style consistent in the course. Legible font styles include Verdana, Arial, Helvetica,
and the general san-serif face. These types of fonts are also available in web browsers
and Adobe Flash (Horton, 2006). Because too much text is boring and difficult to read on
a computer screen, including white space in pages is very helpful.

**Visuals**

An image is worth a thousand words. This is true in distance learning course design. First, a
distance learning course site is primarily a visual experience. In order to help students
easily identify a course tool or area, thumbnails should be visually consistent and
appropriate to the functions they represent. For example, use a group of people talking to each other to represent a discussion area, and use an envelope to represent an email tool. Many faculty members have adopted this practice, since a set of icons not only adds aesthetic appeal to the course, but also provides easy navigation for students through the course. Experienced multimedia artists are able to design icons that convey the course theme to students. Second, both static and dynamic computer-generated visuals can enhance student learning in computer-based instruction (Alesandrini, 1987) and online distance learning. Research indicates that appropriately designed graphics aid memory by making abstract concepts concrete (Paivio, 1986; Rieber & Kini, 1991), and are particularly helpful when used with textual information to illustrate spatial relationships (Peeck, 1987). Graphics can be used for decoration, representation, organization, interpretation, and transformation in instruction (Morrison, Ross, & Kemp, 2001).

There are two types of digital visuals that can enhance student’s abilities to conceptualize complex ideas: static and dynamic/interactive (Hai-Jew, 2009). Still images include still pictures, clip art, diagrams, and screenshots, etc. Dynamic or interactive visuals include image maps, animated agents, and flash-based interactive activities that allow learners to interact with the content. The decision to use any type of these visuals will be determined by whether they actually enhance students’ learning, the availability of these visuals, and the cost of producing them (Morrison, Ross, & Kemp, 2001).
Pay attention to copyright issues and academic dishonesty

Copyright law

One of the major laws that affect higher education is the copyright law, since professors use many copyrighted works for instruction, especially in their distance learning courses (Lipinski, 2003). The copyright law that is in effect is the one revised in 1976 with several enactments. It was released in October 2007. It is also known as Circular 92. The owner owns the copyright for the life of the author plus 70 years after the author’s death. The copyright holder has exclusive rights to (1) make copies of the work, (2) prepare derivative works based on it, (3) distribute copies of the work to the public by selling, hiring, or lending, (4) present the work publicly, in the case of audiovisual productions, and (5) in the case of sound recordings, play or perform the work publicly (http://www.copyright.gov/).

No one is allowed to reproduce copyrighted works without the copyright owner’s permission. However, for accredited, non-profit institutions, fair use guidelines and the TEACH Act apply. Fair use guidelines give non-profit institutions opportunities to use some copyrighted materials without expressed permission from the copyright owners for educational purposes.

Fair use

Fair use guidelines provide non-profit institutions opportunities to use some copyright materials for educational purposes without expressed permission from the copyright owners. However, institutions must consider four factors in determining whether a use of
a copyrighted work is within fair use. The factors set forth in Section 107 of the U.S. Copyright Act are (1) the purpose and character of the use, including whether such use is of a commercial nature or is for non-profit educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work. (http://www.copyright.gov/fls/fl102.html)

The technology, education and copyright harmonization (TEACH) act

According to the Office of Legal Affairs of the Department of Education, the Technology, Education and Copyright Harmonization (TEACH) Act was enacted in November 2002 as an amendment to the Copyright Act of 1976. Found in section 110(2) of the Act, it covers both distance learning and web-assisted instruction. Accredited non-profit institutions are exempted from liability when delivering copyrighted work to students officially enrolled in a course via a password-protected network. However, it does not cover making textual materials available to students.

The copyrighted work covered by the TEACH Act must be: (1) part of a systematic mediated instructional activity, (2) at the direction of or under the actual supervision of the instructor; and (3) an integral part of a class session. All copies must be lawfully made copies. The institutions must take measures preventing users from retaining copies beyond the class, and may not interfere with technological protections taken by the copyright owner (Diotalevi, 2003).
**Deter academic dishonesty**

Academic dishonesty is not new in higher education. A large-scale study of cheating in higher education surveying 5,000 students in 99 universities and colleges showed that three fourths of the respondents acknowledged that they engaged in academic dishonesty (Bowers, 1964 cited by McCabe, 2001). This study was replicated in 1997 and a moderate increase in cheating was reported (McCabe, Trevion, & Butterfield, 2001). Before the existence of the World Wide Web, students had to find articles related to their assignments from a limited pool of resources like books and magazine or journal articles in a library, and then copy them by hand. Now, students can simply copy and paste others’ online writing into their assignments. Students can also easily locate papers via search engine or from web-based paper mills for a fee or for free. In distance education, there is a perceived increase in the prevalence of academic dishonesty (Kemmedy, Nowak, Raghuraman, Thomas, & Davis, 2000), and this perception has become a threat to distance education. What can distance learning faculty do to deter academic dishonesty in distance education?

First, develop a clear policy on academic dishonesty (Christe, 2004; Simonson, Smaldio, Albright, & Zvacek, 2003) and make it available to students. Second, build assessment into the course design with authentic assessment strategies, such as threaded discussions, collaborative projects, and e-portfolios (Bobak, Cassarino, & Finley, 2005). When assigning individual written papers, an instructor can require students to submit drafts in phases before the final submission. Third, use available technologies to prevent students from cheating. Different applications are available within a course management
system or from a third party vendor. These applications can provide instructors with several tools. Examples include limiting time for an online test along with randomization of questions and choices for each question, utilizing Respondus Lockdown Browser to lockdown students’ testing environment during a test, and utilizing testing services. Many other applications like Turnitin, EVE, and SafeAssign can also detect plagiarism by comparing students’ essays to electronic databases.

McMurtry (2001) discussed eight effective methods for combating e-cheating (1) take time to explain and discuss your academic honesty policy; (2) design writing assignments with specific goals and instructions; (3) know what's available online before assigning a paper; (4) give students enough time to do an assignment; (5) require oral presentations of student papers or have students submit a letter of transferal to you, explaining briefly their thesis statement, research process, etc; (6) have students submit essays electronically; (7) when you suspect e-cheating, use a free full-text search engine like AltaVista or Digital Integrity; and (8) consider subscribing to a plagiarism search service, like Plagiarism.org or IntegriGuard (p.x.).

**Use objective-driven design concepts**

There are several levels in the curriculum of a higher education institution: colleges, programs, courses, and lessons. The curriculum is designed in accordance with an institution’s mission, vision and goals. In the course level, goals and objectives should be aligned with the goals of the academic program and college. Many research studies (Deubel, 2003; McKeachie, Pinrich, Lin, & Smith, 1986; Merrill, 2002) indicated that objective-driven design concepts enhanced the instructional effectiveness of the courses designed by this approach.
A critical task in instructional design is to design or select instructional strategies and learning activities. Instructional strategies and learning activities should be designed in alignment with instructional goals. Merrill (2002) coined the term “strategy-by-instructional-goal” interaction, which refers to Gagne’s content-by-treatment interaction. He stated that “the goals of instruction are primary in determining an appropriate instructional strategy for a particular instructional goal” (p.101). He further explained that:

- a complete instructional strategy consists of knowledge structure consistent with, and appropriate for, the knowledge and skill being taught,
- a presentation consistent with, and appropriate for, the kind of knowledge or skill being taught,
- an opportunity for exploration of the ideas being taught,
- practice with feedback consistent with, and appropriate for, the knowledge or skill being taught, and
- learner guidance consistent with, and appropriate for, the knowledge and skill being taught.”

Many research studies also indicated that when the goal of the instruction is consistent with the instructional strategies used to teach the goal, then the learning is optimal (Merrill, 1994).

McKeachie, Pinrich, Lin, and Smith (1986) asserted in their study on effective methods of teaching that the most effective method of teaching is one that “depends on the goal, the student, the content, and the teacher” (p.63). The finding also echoes Gagne’s and Merrill’s position that the instructional goal is primary.

Another critical task is to select assessment strategies and develop assessment items. Assessments should be designed in alignment with course objectives and subject
On-going assessment is critical as the primary purpose of a course assessment is to improve student learning (Neil, 1997). Many authentic assessment techniques can be used, such as creating rubrics for assessing student performance in collaborative assignments (Deubel, 2003). Authentic assessments rely on student-generated products — discussion postings, self-reflection, papers, presentations, portfolios—regarding simulated or real world problems. That is to say, authentic assessment gives students opportunities to demonstrate their learning progress via a variety of products for in-depth analyses by instructors.

**Instruments on Best Practices of Distance Learning Course Design and Delivery**

Best practices are more than just practical ideas that help instructors improve their distance learning communications and instructional skills. They are used by reflective educators who are committed to using concepts, ideas, suggestions, and tools to improve the quality of their own courses (White & Weight, 2000). Best practices refer to techniques or methods that, through experience and research, have led to a desired result when they are used. Best practices in distance learning course design and delivery refer to practices that can improve course effectiveness when implemented properly, and are recognized by researchers, faculty members, academic staff, and educational organizations or agencies in higher education. Applying these practices will result in effective learning in distance education. The eight regional accrediting commissions (HLC, 2007) released a report to reflect current best practices in electronically offered programs. These best practices are “meant to assist higher education institutions in planning online distance education activities regarding the electronically offered degree and certificate program, and to provide a self assessment framework for those already
involved in this endeavor” (p. 1). The report addresses five separate components, each of which concerns a particular area of institutional activity relevant to electronically offered degree and certificate programs. They are:

1. Institutional Context and Commitment
2. Curriculum and Instruction
3. Faculty Support
4. Student Support
5. Evaluation and Assessment (p. 2)

Whether best practices are adopted by distance learning faculty or not is very pertinent to students’ achievement in distance learning courses. The following discussions on instructional principles, optimal learning environments, design rubrics, guided didactic conversation theory attempted to explain the importance of best practices of distance learning course design and delivery, and the construction of the instruments for the primary study.

**Seven principles of best practices**

Chickering and Gamson (1987) identified seven good practices in undergraduate education after analyzing the data collected over fifty years in undergraduate education. The seven principles are:

1. Encourage contact between students and faculty,
2. Develop reciprocity and cooperation among students,
3. Encourage active learning,
4. Give prompt feedback,
5. Emphasize time on task,
6. Communicate high expectations.

7. Respect diverse talents and ways of learning.

Effective learning environments


Designing a learner-centered learning environment requires instructors to examine the gaps of their understanding and students’ understanding of the subject matter. Instructors need to recognize their expert blind spots—something that is easily skipped over by instructors, but necessary for learners to construct their own understanding of the subject matter. Designing a learner-centered learning environment also requires instructors to consider students’ current understanding of the subject matter because students are not “blank slates” free from preconceptions about the content being investigated. It is also necessary to consider students’ backgrounds, cultural values, and special strengths.

Designing a knowledge-centered learning environment requires instructors to organize connected knowledge in the subject matter in a way that supports activities such as effective reasoning and problem solving. Instructors do not need to cover everything in class, but they do need to be able to present “important things to know, and be able to do” in class. It is also a critical aspect of educational design (Bransford, Vye, Bateman, Brophy, & Roselli, 2004).
Designing a community-centered learning environment requires instructors to pay attention to the norms and modes of community operation. To build a successful learning community, members need to become interdependent and share a common belief that members’ needs will be met through their commitment.

Designing an assessment-centered learning environment requires instructors to think about their assessment strategies. Assessment strategies need to use established methods to measure students’ learning. On-going assessment can provide students with feedback for continuous improvement in learning. With instructors’ feedback, students can revise their current understanding, problem-solving approaches and improve their performances (Bransford, Vye, Bateman, Brophy, & Roselli, 2004; Shea, Fredericksen, Pickett, & Pelz, 2004). Self-assessment is critical in learning as students can improve their performance when they are encouraged to self-assess their own contributions and works (Lin & Lehman, 1999; White & Frederiksen, 1998).

**Three presences**

Garrison, Anderson and Archer (2000) proposed a model of critical thinking and practical inquiry. In this model, they discussed three overlapping perspectives – cognitive presence, social presence, and teaching presence.

Cognitive presence refers to the extent to which learners can construct their understanding through sustained communication. Teaching presence refers to the perspective of instructional design, facilitation of active learning, and direct instruction (Garrison, Anderson, & Archer, 2000; Shea, Fredericksen, Pickett, & Pelz, 2004). Social presence refers to the perceived presence of others in mediated communication, which supports both cognitive and teaching presence through its ability to instigate, sustain, and
support interaction (Garrison, Anderson, & Archer, 2000; Swan, 2006). Social presence is deemed critical in a distance learning environment due to the absence of physical presence (Shea, Fredericksen, Pickett, & Pelz, 2004).

Rubric for online instruction

Researchers and distance educators have investigated the quality of distance learning courses since their inception. The Center for Excellence in Learning and Teaching of California State University at Chico provides unique rubrics (http://www.csuchico.edu/tlp/resources/rubric/rubric.pdf) for a high quality online course and instructional design tips for online learning. The rubric for online instruction addresses the following aspects of an online course:

1. Learner support and resources.
2. Online organization and design.
3. Instructional design and delivery.
4. Assessment and evaluation of student learning.
5. Innovative teaching with technology.
6. Faculty use of student feedback. (p.x)

Quality Matters (2006) defined eight standards for evaluating the design of online and hybrid courses.

1. Course Overview and introduction.
2. Learning objectives.
3. Assessment and measurement.
4. Resources and materials.
5. Learner engagement.

6. Course technology.

7. Learner support.

8. Accessibility. (p.x)

**Guided didactic conversation approach**

Holmberg (1995) stated that a course developed with the guided didactic conversation approach demonstrates the following qualities:

1. Easily accessible presentations of learning materials; clear, somewhat colloquial language, in easily readable writing; moderate density of information.
2. Explicit advice and suggestions to the student as to what to do and what to avoid, and what to pay particular attention to and consider, with reasons provided.
3. Invitation to an exchange of views, to questions, to opinions and comments.
4. Attempts to involve the student emotionally so that he or she takes a personal interest in the subject and its problems.
5. Personal style including the use of personal and possessive pronouns: I, my, you, your, etc.
6. Demarcation of changes of themes through explicit statements, typographical means, or in recorded, spoken communication, through a change of speakers or pauses (p. 48).
This type of distance learning course, developed with the concept of the guided didactic conversational approach, is attractive to students, supports learning motivation, and enhances students’ learning.

Shea, Fredericksen, Pickett, and Pelz (2004) stated that an emphasis on multiple perspectives may be beneficial to online learning environment design and development. They also stated that paying close attention to the principles of Chickering and Gamson (1987), Garrison, Anderson, and Archer (2000), and Bransford, Brown, Cocking, Donovan, and Pellegrion (2000) may be the best approach to ensure quality in online course design and development.
This study sought to determine faculty members’ perceived utilization of best practices in distance learning course design and delivery, and to evaluate the work processes between instructional designers and distance learning faculty members in higher education when designing, developing, and teaching distance learning courses. Specifically, the study attempted to answer the following questions:

1. To what extent do distance learning faculty members perceive that they have utilized the best practices in their distance learning courses?
2. Why do distance learning faculty members work with instructional designers?
3. How do distance learning faculty members work with instructional designers?
4. Do distance learning faculty members attribute any improvement of their readiness in implementing best practices in distance learning course design and delivery to working with instructional designers?
5. Are there relationships between faculty perceptions of utilizing each of the evaluated best practices in distance learning course design and delivery and demographic characteristics?
6. Are there relationships between why faculty members choose to work or not to work with instructional designers and demographic characteristics?

A cross-sectional survey design was used to collect data from distance learning faculty members at two universities. Creswell (2005) stated that a cross-sectional survey design is the most popular form of educational survey design. It gives the investigator the ability to collect data at a single point in time to examine the participants’ current attitudes, opinions, and practices. After a review of the literature on instructional designers’ work processes and best practices in online education, the investigator determined that there was a need to conduct a pilot study to validate the researcher-constructed instrument.

**Pilot Study**

**The need for instrumentation**

Qualitative research has been conducted to explore the work processes of instructional designers and distance learning faculty members (Gun and Cavallari, 2007; Liu, M., Gibby, S., Quiros, O. & Demps, E., 2002; Schwier, Campbell, and Kenny, 2007; Simeon, Brickell, and Ferry 2007). The previous qualitative research did not address faculty’s perceived utilization of best practices in distance learning course design and delivery, nor did it address whether or not distance learning faculty attributed their readiness in implementing best practices in distance learning course design and delivery to their interactions with instructional designers. To answer the research questions, there was a need to construct an instrument.
The purpose of the pilot study was to validate the instrumentation designed by the researcher to be used in the primary study. It was a self-reporting questionnaire with three parts. The first part contained 29 questions that measure distance learning faculty members’ perceived utilization of best practices in distance learning course design and delivery in their distance learning courses. These items attempted to identify 12 best practices in distance learning course design and delivery. An open-ended question followed each section of the survey as it provided respondents’ additional room in providing their own comments not found in a forced answer survey (Babbie 1973). In this part of the survey, one open-ended question was used to collect other best practices that were not listed in the questionnaire.

The second part of the questionnaire contained six questions that collected data on why, how, and whether faculty members attribute any improvement of their readiness in implementing best practices in distance learning course design and delivery to working with instructional designers.

Based on current research (Orr, 2008; Tylor, & McQuiggan, 2008), four items were constructed to understand why distance learning faculty interact with instructional designers in course design, development, and delivery. The possible choices given in the questionnaire are pedagogical support, technical assistance, administrative issues, and mandatory requirements. An open-ended item is also available for faculty members to provide other reasons for interacting with instructional designers.

To determine how faculty members interact with instructional designers, four items were constructed for data collection. The methods include face-to-face individual consultation, face-to-face group workshops, project teams, and online resources.
maintained by instructional designers. An open-ended item was available for collecting other methods that faculty might use to interact with instructional designers.

The third part of the questionnaire obtained responses on faculty demographic characteristics of gender, professional rank, academic discipline, and years of experience teaching distance learning courses.

Based on current literature, the investigator developed a questionnaire with 29 items to measure 12 best practices of distance learning course design and delivery. It is necessary to convey these best practices to distance learning faculty when designing and teaching distance learning courses. One of an instructional designer’s primary responsibilities is to help faculty members, especially those who have never taught an online course before, to understand these best practices and to be able to apply online tools effectively in distance learning courses:

1. Encourage contact between student and faculty.
2. Encourage cooperation among students.
3. Use active learning techniques.
4. Give prompt feedback.
5. Emphasize time on task.
6. Communicate high expectations.
8. Give students opportunity for reflections. (Brockbank, McGill, Beech, 2002)
9. Provide learner support and resources. (IHEP, 2000; QM, 2006).
10. Adapt course organization and design for online delivery. (Gagne, 1985; Horton, 2006).

11. Use objective-driven design concepts. (Deubel, 2003; Merrill, 2002).

Data collection

According to Creswell (2008), feedback from experts is a crucial factor in instrument design and the content validity of the survey. The pilot questionnaire was sent to experts including instructional technology professors, a research and measurement professor, an instructional design coordinator, instructional designers, and assistant instructional designers. These experts were asked to judge whether the items were constructed appropriately, including the language and scales used in the survey. Suggestions from the experts were taken into consideration to revise the instrument before the pilot study was conducted.

The revised questionnaire was placed on SurveyMonkey.com. Seventy faculty members were selected from the list of instructors who taught in the fall semester of 2009 at the two universities using stratified random sampling. An email message was sent to these faculty members to invite them to participate in the pilot study. They were asked to complete the survey within ten business days by clicking on the link in the email. Two follow-up messages were sent before the expiration of the survey.

Data analysis

The Rasch model was used for data analysis in the pilot study. One of the important functions of the Rasch model is the construction of fundamental measures. It can estimate item difficulties and plot those measures along a linear representation of faculty’s
perceived utilization of best practices in distance learning course design and delivery by
the instrument items. The model is helpful in understanding whether the instrument is an
effective means for data collection (Fink 2007). The following questions guided the
investigator in the pilot study.

1. How well do the observed data match the model expectations?
2. Can the scale used in the study yield invariant-interval level measures?
3. If item/person fit statistics are not in the conventional acceptable range,
what could lead to item/person infit? What needs to be done to improve
the instrument?

Results produced with the Winsteps™ on the instrument’s precision, accuracy, and
sensitivity helped the researcher to revise the instrument.

Analyses of attitude scales with the Rasch (Rasch, 1960) model allows for the
calibration of items and scales independently of the sample and of the sample of items
employed (Wright & Stone, 1979). Rasch statistics including separation, reliability, item
difficulty, person ability, and fit allowed the investigator to further evaluate the
instrument for performance and possible revision.

Overview of the Rasch model

The Rasch model is a measurement model in the item response theory (IRT)
family, which is defined as a “stochastic model for multiway data, usually two-way data
consisting of responses of persons to items” (Glas, 2007, p.37). The Rasch model
employs the concept of a single construct (Snyder & Sheehan, 1992) or inherent latent
trait dimension (Hambleton, 1989; Weiss & Yoes, 1991). That is, useful measurement
involves examination on one attribute at a time (Bond & Fox, 2007). In the Rasch model,
raw scores are sufficient for item difficulty and person ability estimation (Wright, 1999). However, they should not be misused, and a factor analysis of raw scores does not construct measures (Smith, 1996). The Rasch model transfers raw scores into linear measures (Wright & Linacre, 1989), which are the mathematical units for person and item parameters” (Wright & Stone, 1979 cited in Fink, 2007 p. 65).

When the Rasch model is used, it transforms raw scores from ordinal data to log odds ratios on a common interval scale for statistical analysis. Given a person’s estimated ability ($B_n$) and item difficulty ($D_i$), the probability for that person to answer the question correctly can be mathematically expressed as follows:

$$P_{nl}(X_{nl} = 1/B_n, D_i) = \frac{e^{(B_n - D_i)}}{1 + e^{B_n - D_i}}$$

Bond and Fox (2007) noted that Rasch calibrated scales already have “major impacts in measuring educational outcomes, psychological variables, medical rehabilitation, and standard-settings.” (p. 5). It can be applied in education, psychology and many other fields across the human sciences. There are several measures in the Rasch model that need attention when using it including item difficulty, person ability, separation, fit, reliability, and validity.

**Difficulty**: Item difficulty is an estimate of an item’s underlying difficulty calculated from the total number of respondents in a sample who responded to the item (Bond & Fox 2007). It is expressed in log odd units commonly referred to as logits. In this study, item difficulty refers to the odds that an item can draw a positive response on that item. The more difficult an item is, the fewer respondents will endorse the statement of the item. Ability estimate in Rasch refers to “the location of a person on a variable
inferred by using the collected observation” (Bond & Fox, 2007 p. 309). In this study, person ability refers to a person’s tendency to agree to items. Items that are more difficult and persons with a greater tendency to be satisfied are reported as positive logits. Easier items or persons with a lesser tendency to be satisfied are reported as negative logits. The distribution will be centered at a mean item difficulty of zero (Fink, 2007).

**Fit:** Fit refers to the degree of match between the pattern observed responses and the model expectations. An item fit examines a pattern of a particular item for all persons, and a person fit examines a pattern of a particular person for all items. The expectation of the Rasch Model is that items that are difficult (more difficult to endorse) will be less frequent, while easy (or easier to endorse) items will be more frequent. Fit statistics help researchers in determining whether item estimations may be held as meaningful quantitative summaries of the observations (Bond & Fox, 2007). Items whose estimations do not fit the model require further investigation in order to measure what is supposed to be measured. The infit t values are routinely accepted in the range of -2 to +2. Infit t value for person or item beyond this range needs investigation.

**Separation:** Separation coefficient is the ratio of the person or item adjusted standard deviation (ADJ.S.D.) to the root mean square standard error (RMSE). It provides a ratio measure of separation in RMSE units. The larger the separation is, the better the instrument is able to differentiate persons and items (Linacre, 2009).

**Reliability:** In the Rasch model, reliability of any set of measurements is logically defined as the proportion of true variance. True variance is the variance that remains after deducting measurement error (Wright, 1996). The Rasch model provides indices (person reliability index and item reliability index) that help in determining whether there enough
items spread along the continuum and enough spread of ability among persons (Bond & Fox, 2007; Wright & Master, 1982). “Error variance is the mean-square error from a model misfit. Reliability is expressed as a separation of statistically different strata found in the sample” (Fink, 2007, p. 69).

Validity: In the Rasch model, item fit is used to justify construct validity. One of the fit statistics reported in the Rasch model is the infit mean square (MNSQ). If the statistic’s value is close to 1, it is considered acceptable and the calibration of the item is valid. Another statistic is the standardized t value, in which the acceptable values fall between -2.0 and +2.0 with a sample size of between 30 and 300 (Bond & Fox, 2007). If the internal consistency of each person’s performance pattern fits the model, then the measure is valid (Wright & Masters, 1982). If an item is very easy to endorse for the participants in this study, validity of the measure is questionable and needs revision. The Rasch model establishes a linear construct of ordinal variables with a location of the item on the construct keymap, providing a higher quality process in construct development (Schumacker & Linacre, 1996).

Primary Study

Participants and research sites

The participants in this study were from two higher education institutions, one from the Mid-West, and the other from the West. According to the 2005 Carnegie Classification, both universities are designated as research universities (high research activity - RU/H) under the basic classification. There are 103 institutions in this category among 4,391 assessed institutions. The two universities are the same in size and setting, undergraduate and graduate instructional program, and enrollment profile. According to
the Sloan online learning framework (Allen & Seaman, 2007), both institutions fall in the *fully engaged* category. This category indicates that the institutions have online offerings and that these online offerings are strategic for their institutions, and that the institutions also have fully incorporated online education into their formal long-term plan. At an operational level, both institutions offer distance learning programs via the Blackboard course management system and provide pedagogical and technological support to faculty at a distance via instructional designers in distance learning course design, development, and delivery.

**Scope of study**

The study included distance learning faculty members at two research-intensive universities, one in the Mid-West and one in the West. The distance learning programs offered by these two institutions include:

1. Arts and Humanities
2. Business
3. Education
4. Engineering
5. Sciences (biology, chemistry, physics, mathematics, etc.)
6. Social Science
7. Health Science

**Participants’ demographic characteristics**

Participants’ demographic characteristics were included in data analysis to answer the following research questions:
Research question # 5: Are there relationships between faculty perceptions of utilizing best practices in distance learning course design and delivery and demographic characteristics?

Research question # 6: Are there relationships between why faculty members choose to work or not to work with instructional designers and demographic characteristics?

**Gender:** A gender gap was found between males and females regarding a variety of instructional technology issues in education. It is documented in education and psychology literature. The gap includes computer usage, fluency with computer technology, and computer-related attitudes (Gilley, 2002). Recent studies showed that the gap is closing or narrowing, but there are still differences between males and females in the way that technology is used (Colley, 2003). In distance education, several research studies indicated that gender is a non-factor in distance learning (Biner & Dean, 1998; Christensen, Anakwe, & Kellser, 2001; Martens, Valcke, Portier, Wages, & Poelmans, 1997). Most of the findings were from students’ perspectives. Parker, Bianchi, and Cheah (2008) stated that gender influences both students’ and faculty members’ perceptions of instructional technology. Females viewed instructional technology more favorably than their male colleagues. However, the differences in perceptions of instructional technology in their study may relate more to learning style than either computer anxiety or interest. Another study conducted by Severiens and ten Dam (1994) indicated that females prefer a concrete learning style and males use an abstract conceptualization style. In terms of online participation, female instructors are more likely than male instructors to develop and teach online courses (Seaman, 2009).
**Academic rank:** In distance education, full professors tend to be more satisfied with their distance teaching experience than teachers in the lower ranks (Scriven, 1986). According to a study on faculty motivations in participating in distance education at a university, there was no relationship between level of participation and gender, age range, faculty rank, or tenure status (Schifter, 2002). However, in terms of technology, there were differences among faculty with different professional ranks (Parker, Bianchi, & Cheah, 2008). Part-time faculty members view technology as negative in terms of learning, while long-term faculty members view technology as a way to enhance students’ learning.

**Academic discipline:** According to a study conducted by Parker, Bianchi, & Cheah (2008), faculty members from different disciplines view technology differently. Social science faculty members were more likely to view course management systems such as WebCT and Blackboard as enhancing student learning than natural science faculty members. However, more natural science faculty members saw presentation tools such as PowerPoint as an aid to students in remembering concepts as compared to those in the social sciences.

**Years of experience:** Research on faculty perceptions of the value of distance education indicated that there were differences between faculty with and without distance education experience (Ulmer, Watson, and Derby, 2007). Faculty with experience of distance education viewed distance education as effective regarding student performance and instructor-to-student interaction.
**Best practices in distance learning course design and delivery**

This construct was based on the Seven Principles of Good Practices in Undergraduate Education (Chickering & Gamson, 1987; Chickering, 1991; Chickering & Ehrmann, 1996) and other perspectives, such as opportunities for student reflection, learner support and resources, course organization, legal and ethical issues, and objective-driven design concepts. Based on the research findings as discussed in the pilot study, the construct includes twelve dimensions of best practices in distance learning course design and delivery:

1. Encourage contact between student and faculty.
2. Encourage cooperation among students.
3. Use active learning techniques.
4. Give prompt feedback.
5. Emphasize time on task.
6. Communicate high expectations.
8. Give students opportunity for reflections. (Brockbank, McGill, Beech, 2002)
9. Provide learner support and resources. (IHEP, 2000; QM, 2006).
10. Adapt course organization and design for online delivery. (Gagne, 1985; Horton, 2006).
11. Pay attention to legal, ethical and academic dishonesty. (IHEP, 2000; QM, 2006).
12. Use objective-driven design concepts. (Deubel, 2003; Merrill, 2002).
Twenty-nine items were constructed to measure faculty perceived utilization of each of these best practices of distance learning course design and delivery in their distance learning courses. A four-point Likert-type scale was used to collect the data with 4 representing strongly agree and 1 representing strongly disagree on the utilization of these best practices of distance learning course design and delivery in their courses.

**Perceived effectiveness of instructional designers’ work regarding best practices of distance learning course design and delivery**

In the field of distance education in higher education, instructional designers work with faculty members closely in course design and delivery. A major responsibility of an instructional designer is to provide consultation to faculty members on integrating technology into distance learning courses effectively, in other words, to apply best practices of distance learning course design and delivery into distance learning courses. Instructional designers have played an influential role in this endeavor. However, little is known about whether distance learning faculty attribute any improvement of their readiness of implementing best practices in distance learning course design and delivery to working with instructional designers. Two questions were constructed to collect faculty’s perceived effectiveness of instructional designers’ assistance in the implementation of the best practices. A four-point Likert-type scale was used to collect the data with 4 representing strongly agree and 1 representing strongly disagree.

**Faculty decisions to work or not to work with instructional designers**

Although instructional designers are available to distance learning faculty members in course design and delivery, not all instructors utilize instructional design services. A
study conducted by the Institute of Higher Education Policy (2000) listed 24 essential benchmarks to ensure quality in distance learning programs. These benchmarks revealed that distance learning faculty need on-going support for course design, development, and delivery. A number of studies (McElhany, 2007; Murphy, 2008; Orr, 2008) also showed that distance learning faculty members need access to instructional designers or support persons for assistance with technology and pedagogy, and greater support for pedagogy efforts. Hanna, Glowacki-Dudka, and Conceicao-Runlee (2000) stated that it was up to faculty members who are responsible for the implementation of distance learning courses to become familiar with the technologies available in their institution. They also noted that many higher education institutions provide technological support and professional development opportunities; faculty members need to take advantage of professional developmental opportunities. However, little is known to instructional designers about the demographic characteristics of distance learning faculty members. Is gender a factor? Does professional rank matter? Are faculty members in one discipline utilizing instructional design services more that others? Are years of experience teaching distance learning courses a factor?

An open-ended question was constructed to gain deeper understanding of instructional designers’ work in promoting best practices in distance learning course design and delivery.

**Data Collection**

Distance learning faculty members use Internet tools to deliver course content, communicate with students, and assess student performance. They are experienced with Internet tools. A web-based survey was therefore considered an excellent vehicle for the
collection of data from this population. Data was collected via a web survey. The revised instrument was placed on SurveyMonkey.com. An invitation email message was sent to all faculty members who taught a distance learning course in the summer semester of 2009, fall semester of 2009, or the spring semester of 2010. Fifty-nine messages were returned due to bad email addresses; three faculty members opted out of SurveyMonkey.com. When a person opted out of SurveyMonkey, the system automatically removed the person from the recipient list. Therefore, the message was not delivered to these 62 faculty members. The total number who received the invitation was 525 (n=525). Sixty participants responded to the survey in the first two days with a response rate of 12%. A follow-up message was sent out to those who had not responded six days after the initial invitation. Fifty-two more participants completed the survey, and the response rate increased to 21%. A second follow-up message was sent to those who had not responded three days prior to the expiration of the availability period, and another 40 people completed the survey. In total, 152 people completed the survey within 12 business days. The response rate increased to 29%.

**Data Analysis**

As discussed in the pilot study, collected data via the online survey were coded and analyzed with Winsteps™, a Rasch model software package.

A one-way analysis of variance (ANOVA) was used to possible differences among faculty members’ perceptions of best practices, and choosing to work or not to work with instructional designers based on demographic characteristics.

Responses to the open-ended questions were reviewed and analyzed to reveal patterns and themes. The answers to each of the four open-ended questions were saved on
a separate worksheet in Excel 2007. As the investigator reviewed the answers, key words were identified to code each response in the cells next to the answer. These key words were further categorized into themes. For example, key words such as “practice,” “student-own,” “self-assess,” “interaction,” “discussions,” and “instructor availability” were assigned to many of the responses to the first open-ended question—“what other strategies or best practices of distance learning course design and delivery you use in your online courses but not listed in this survey.” This method was also used to analyze the rest of the open-ended questions.
Chapter 4

Results

Pilot Study

Initially, 39 participants were selected for the pilot study by using a proportional stratified sampling technique according to the academic field in which they taught the distance learning course. However, only nine faculty members completed the survey. The number of responses is not sufficient to do Rasch analysis, so the same process was used again to select 79 faculty members (20% from each academic field) who taught at least one distance learning course in the fall semester of 2009.

After sending out the initial invitation to the 79 faculty members, six messages were returned due to bad email addresses, and one faculty member opted out of SurveyMonkey.com. Therefore, the message was not delivered to these seven faculty members. Eighteen participants responded to the survey in the first two days for a response rate of 25%. A higher response rate is desired for any survey research. Heberlein and Baumgartner (1978) found that multiple follow-ups have been seen to yield higher response rates. Sheehan and Hoy (1997) also stated that a reminder in an e-mail survey increased response by twenty-five percent. A follow-up message was sent...
out to those who had not responded six days after the initial invitation. Twelve more participants completed the survey and the response rate increased to 42%. A second follow-up message was sent to those who had not responded three days prior to the expiration of the availability period, and another six people completed the survey. In total, 36 people completed the survey within 12 business days. The response rate increased to 50%.

**Reliability and separation**
A control and data file was created in order to analyze the data with Winsteps™. Rasch statistics of reliability, separation, step calibration, item fit, and person fit were analyzed.

To have a better understanding of the 29 items constructed based on current research in measuring faculty member’s perceived utilization of best practices in distance learning course design and delivery, the statistical summary tables of the faculty and the items were produced. The reliability for person was 0.83 with a separation of 2.24. The separation value indicated that the participants were roughly separated into three groups: disagree, agree, and strongly agree. The reliability value of 0.83 is good for a sample of 36. The item reliability of 0.64 indicated that the items needed to be revised and redundant items needed to be removed from the analysis.

**Construct keymap**
Construct Keymap checks construct validity, that is, whether the item hierarchy is as intended. This map visually locates items, response categories and the sample (Linacre, 2009). The construct keymap, as shown in Figure 2, indicated the items ordered from the least favorite item to the most favorite item.
**Item statistics: measure order**

Fit refers to the degree of match between the pattern of observed responses and the model expectations. An item fit examines a pattern of a particular item for all persons, and a person fit examines a pattern of a particular person for all items. The expectation of the Rasch Model is that items that are difficult (more difficult to endorse) will be less frequent, while easy (or easier to endorse) items will be more frequent. Fit statistics help researchers in determining whether item estimations may be held as meaningful quantitative summaries of the observations (Bond & Fox, 2007). Items whose estimations do not fit the model require further investigation in order to measure what is
supposed to be measured. The outfit mean square statistics (MNSQ) are routinely accepted in the range of 0.6 to 1.5. Items with outfit mean square statistics beyond this range need investigation.

Item #1 (“I use Internet communication tools to promote faculty student interaction”) had the highest score. It measured faculty-student interaction. Almost all participants responded as “strongly agree.” The question was revised to “I frequently use Internet communication tools to promote faculty student interaction.”

Item #7 (“I include a Frequently Asked Questions (FAQ) page or discussion folder for frequently asked questions.”) had an outfit mean square statistic of 2.05, which might indicate misunderstanding of this concept or that the participants do not use the methods in providing support to students. The question was revised to “I include an FAQ page on the course site or discussion topic for projects or general questions on the discussion board.”

Item #8 (“I use course management tools or communication tools to provide timely feedback on students’ assignments and other inquiries”) was over fitting with a value of 4.26 in the MNSQ outfit. Also participants might be confused about the meaning of “course management tools” used in this question. The question was revised to “I provide constructive feedback on students’ assignments and other inquiries in a timely manner.”

Item #12 (“I post exemplary projects or communication postings as examples to the class.”) had an outfit mean square statistic of 1.72, which was outside the range. The high value indicated that the item drew unexpected answers and implied that faculty members’ responses to this item exceeded the investigator’s expectations. It also implied
that faculty members might misunderstand the purpose of this question. Therefore, the question was revised to “I select exemplary student projects and make them available as examples to the class with student’s permission.”

Item #13 (“I give students opportunities to choose their own project topics with my guidance.”) had an outfit mean square statistic of 1.77, which might indicate misunderstanding of this concept. The question was revised to “I allow students to choose their own projects according to the requirements with my guidance.”

Item #16 (“I give students opportunities to provide feedback on courses throughout the semester.”) had an outfit mean square statistic of 1.65, which was revised to “I give student opportunities to provide feedback regarding course content during the semester.”

The item in the demographics section regarding academic field was not clearly labeled. Participants used the open-ended question to report their academic fields. The fifth choice “Physical Science” for question # 10 in Part III was revised to Sciences (Biology, Chemistry, Physics and Mathematics) for clarification.

**Participant characteristics**

A total of 36 faculty members who taught at least one distance learning course in the fall semester of 2009 responded to the pilot survey. The demographics of the participants are illustrated in Tables 4 through 7.

Table 4

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>17</td>
<td>47.2</td>
</tr>
<tr>
<td>Female</td>
<td>18</td>
<td>50.0</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>2.8</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 5

<table>
<thead>
<tr>
<th>Title</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>5</td>
<td>13.9</td>
</tr>
<tr>
<td>Associate professor</td>
<td>7</td>
<td>19.4</td>
</tr>
<tr>
<td>Assistant professor</td>
<td>2</td>
<td>5.6</td>
</tr>
<tr>
<td>Lecturer</td>
<td>5</td>
<td>13.9</td>
</tr>
<tr>
<td>Instructor</td>
<td>3</td>
<td>8.3</td>
</tr>
<tr>
<td>Adjunct faculty/Part time instructor</td>
<td>13</td>
<td>36.1</td>
</tr>
<tr>
<td>Teaching assistant/GA</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 6

<table>
<thead>
<tr>
<th>Subject area</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts and Humanities</td>
<td>6</td>
<td>16.7</td>
</tr>
<tr>
<td>Business</td>
<td>4</td>
<td>11.1</td>
</tr>
<tr>
<td>Education</td>
<td>3</td>
<td>8.3</td>
</tr>
<tr>
<td>Engineering</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Physical Science*</td>
<td>3</td>
<td>8.3</td>
</tr>
<tr>
<td>Social Science</td>
<td>10</td>
<td>27.8</td>
</tr>
<tr>
<td>Health Science</td>
<td>9</td>
<td>25.0</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Note: * This was revised to Sciences (biology, chemistry, physics, mathematics etc.) in the primary study.

Table 7

<table>
<thead>
<tr>
<th>Years</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 4 years</td>
<td>22</td>
<td>61.1</td>
</tr>
<tr>
<td>3- 4 years</td>
<td>4</td>
<td>11.1</td>
</tr>
<tr>
<td>2-3 years</td>
<td>2</td>
<td>5.6</td>
</tr>
<tr>
<td>1-2 years</td>
<td>3</td>
<td>8.3</td>
</tr>
<tr>
<td>Less than 1 year</td>
<td>4</td>
<td>11.1</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Primary Study

The revised instrument (see Appendix E) was placed on SurveyMonkey.com. An invitation email message was sent to all faculty members who taught a distance learning course in the summer semester of 2009, fall semester of 2009, or the spring semester of 2010. In total, 152 people completed the survey within 12 business days. Fifty-nine messages were bounced back due to bad email addresses; and three faculty members opted out of SurveyMonkey.com. Therefore, the message was not delivered to these 62 faculty members. The total number who received the invitation was 525 (n=525). Sixty participants responded to the survey in the first two days for a response rate of 12%. A follow-up message was sent out to those who had not responded six days after the initial invitation. Fifty-two more participants completed the survey, and the response rate increased to 21%. A second follow-up message was sent to those who had not responded three days prior to the expiration of the availability period, and another 40 people completed the survey. The response rate increased to 29%.

Participant characteristics

A total of 152 faculty members who taught at least one distance learning course in the summer semester of 2009, and/or fall semester of 2009, and/or the spring semester of 2010 responded to the survey. The demographics of the participants are illustrated in tables 8 through 11.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>69</td>
<td>45.4</td>
</tr>
<tr>
<td>Female</td>
<td>80</td>
<td>52.6</td>
</tr>
<tr>
<td>Not reported</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### Table 9

**Academic rank**

<table>
<thead>
<tr>
<th>Title</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>33</td>
<td>21.7</td>
</tr>
<tr>
<td>Associate professor</td>
<td>45</td>
<td>29.6</td>
</tr>
<tr>
<td>Assistant professor</td>
<td>23</td>
<td>15.1</td>
</tr>
<tr>
<td>Lecturer</td>
<td>12</td>
<td>7.9</td>
</tr>
<tr>
<td>Instructor</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>Adjunct faculty/Part time instructor</td>
<td>29</td>
<td>19.1</td>
</tr>
<tr>
<td>Teaching assistant/GA</td>
<td>5</td>
<td>3.3</td>
</tr>
<tr>
<td>Not reported</td>
<td>2</td>
<td>1.3</td>
</tr>
</tbody>
</table>

| Total                                    | 152       | 100.0      |

### Table 10

**Academic field**

<table>
<thead>
<tr>
<th>Subject area</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts and Humanities</td>
<td>27</td>
<td>17.8</td>
</tr>
<tr>
<td>Business</td>
<td>32</td>
<td>21.1</td>
</tr>
<tr>
<td>Education</td>
<td>28</td>
<td>18.4</td>
</tr>
<tr>
<td>Engineering</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>Science*</td>
<td>11</td>
<td>7.2</td>
</tr>
<tr>
<td>Social Science</td>
<td>25</td>
<td>16.4</td>
</tr>
<tr>
<td>Health Science</td>
<td>23</td>
<td>15.1</td>
</tr>
<tr>
<td>Not reported</td>
<td>3</td>
<td>2.0</td>
</tr>
</tbody>
</table>

| Total               | 152       | 100.0      |

Note: * This category includes biology, chemistry, physics, mathematics etc.

### Table 11

**Years of experience teaching distance learning courses**

<table>
<thead>
<tr>
<th>Years</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
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<tr>
<td>More than 4 years</td>
<td>84</td>
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<td>3-4 years</td>
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<td>16.4</td>
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<tr>
<td>2-3 years</td>
<td>17</td>
<td>11.2</td>
</tr>
<tr>
<td>1-2 years</td>
<td>19</td>
<td>12.5</td>
</tr>
<tr>
<td>Less than 1 year</td>
<td>5</td>
<td>3.3</td>
</tr>
<tr>
<td>Not reported</td>
<td>2</td>
<td>1.3</td>
</tr>
</tbody>
</table>

| Total               | 152       | 100.0      |
Reliability and separation of the instrument

Rasch statistics of reliability, separation, item fit, and person fit were analyzed to better understand faculty members’ perceived utilization of each of the evaluated best practices in distance learning course design and delivery. Redundant items were removed from the data analysis. The reliability for person was 0.73 with a separation of 1.63, indicating there might be a trend toward two groups. The reliability for items was 0.94 with a separation of 3.95, a great increase from the pilot study, indicating that the items were roughly separated into three groups.

Research questions

Research question #1: To what extent do distance learning faculty members perceive that they have utilized the best practices in their distance learning courses?

As illustrated in the Rasch person-item map in Figure 3 (see Appendix F) respondents were likely to agree to the item in regard to course design. The result suggested that most faculty members believed that they organized their course content in a logical format, as shown in Level 1—Content-centric in Figure 3. The items placed in Level 3—Learner-centric, as shown in Figure 3, in regard to learner support, reflective learning, time on task, respect diverse talents, accessibility issues, and deter academic dishonesty were comparatively difficult statements with which to agree, indicating these best practices were not frequently used in distance learning courses as reported by the participants in this study.

Table 12 provides the mean and standard deviation for each best practice in distance learning course design and delivery evaluated in the study.
Table 12

<table>
<thead>
<tr>
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The first item explored to what extent distance learning faculty members used Internet communication tools to promote faculty-student interaction. The mean score reported by faculty members was 3.58 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 93 of them (61.2%) strongly agreed and 54 (35.5%) agreed with the statement that they frequently used Internet communication tools to promote faculty-student interaction for their distance learning courses. Only five participants (3.3%) disagreed with the statement, indicating that they did not frequently use Internet communication tools to promote faculty-student interaction for their distance learning courses.
The second item explored to what extent distance learning faculty used Internet tools to promote student-student interaction. The mean score reported by faculty members was 3.30 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 73 of them (48%) strongly agreed, and 56 (36.8%) agreed with the statement that they used Internet communication tools to promote student-student interaction. Nineteen participants (12.5%) disagreed, and 4 (2.0%) strongly disagreed with the statement, indicating that they did not use Internet communication tools to promote student-student interaction.

The third item explored to what extent distance learning faculty used active learning activities to engage students. The mean score reported by faculty members was of 3.50 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 89 of them (58.6%) strongly agreed, and 53 (34.9%) agreed with the statement that they used active learning activities such as case studies, problem-based learning, and simulations in their distance learning courses. Seven participants (4.6%) disagreed, and 3 (2.0%) strongly disagreed to this statement, indicating that they did not use active learning activities such as case studies, problem-based learning, and simulations in their distance learning courses.

The fourth item explored to what extent distance learning faculty provided constructive feedback to students in a timely manner. The mean score reported by faculty members was 3.50 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 84 of them (55.6%) strongly agreed, and 59 (38.3%) agreed with the statement that they provided constructive feedback in a timely manner in their distance learning courses. Eight participants (5.3%) disagreed with this statement, indicating they
did not provide constructive feedback in a timely manner in their distance learning courses.

The fifth item explored to what extent distance learning faculty gave sufficient time on tasks. The mean score reported by faculty members was 3.71 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 107 of them (70.4%) strongly agreed, and 44 (28.9%) agreed with the statement that they gave students sufficient time to complete assignments in their distance learning courses. None of the participants disagreed or strongly disagreed with this statement, indicating they all gave students sufficient time to complete assignments in their distance learning courses.

The sixth item explored to what extent distance learning faculty assigned challenging tasks to set high expectations. The mean score reported by faculty members was 3.44 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 74 of them (48.7%) strongly agreed, and 71 (46.7%) agreed with the statement that they assigned challenging tasks in their distance learning courses. Five participants (3.3%) disagreed, and one (0.7%) strongly disagreed with this statement, indicating they did not assign challenging tasks in their distance learning courses.

The seventh item explored to what extent distance learning faculty respect diverse talents by allowing students choose their own projects. The mean score reported by faculty members was 3.05 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 49 of them (32.2%) strongly agreed, and 69 (45.4%) agreed with the statement that they gave students opportunities to choose their own project topics with the instructor’s guidance. Twenty-nine participants (12.5%) disagreed, and 11 (7.2%)
strongly disagreed with this statement, indicating that they did not give students opportunities to choose their own project topics with the instructor’s guidance.

The eighth item explored to what extent distance learning faculty use reflective learning activities. The mean score reported by faculty members was 3.01 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 31 of them (20.4%) strongly agreed, and 91 (59.9%) agreed with the statement that they gave students opportunities to reflect on their own learning throughout the semester, especially in the middle and at the end of a semester. Twenty-two participants (14.5%) disagreed, and four (2.6%) strongly disagreed with this statement, indicating they did not give students opportunities to reflect on their own learning throughout the semester, especially in the middle and at the end of a semester.

The ninth item explored to what extent distance learning faculty provide learner support. The mean score reported by faculty members was 2.87 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 51 of them (33.6%) strongly agreed, and 48 (31.6%) agreed with the statement that they used an FAQ page or a discussion topic to answer students’ general questions or questions regarding projects or assignments on the discussion board. Thirty-four participants (22.4%) disagreed, and 18 (11.8%) strongly disagreed with this statement, indicating they did not provide learner support by adding an FAQ page or a discussion topic on the discussion board.

The tenth item explored to what extent distance learning faculty used a logical format in organizing their course content. The mean score reported by faculty members was 3.66 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152
participants, 100 of them (65.8%) strongly agreed, and 50 (32.9%) agreed with the statement that they organized their course content in a logical format. Only one participant (0.7%) disagreed with this statement, indicating that s/he did not organize his/her distance learning course in a logical format.

Item 11a explored to what extent distance learning faculty paid attention to the accessibility issues in course design. The mean score reported by faculty members was 2.91 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 38 of them (25.0%) strongly agreed, and 71 (46.7%) agreed with the statement that they worked with instructional designers to make sure students with special needs could access course materials. Thirty-three participants (21.7%) disagreed, and 9 (5.9%) strongly disagreed with this statement.

Item 11b explored to what extent distance learning faculty paid attention to the academic dishonesty issue in course design. The mean score reported by faculty members was 3.52 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 100 of them (65.8%) strongly agreed, and 35 (23.0%) agreed with the statement that they referenced the university academic dishonesty policy in the syllabus or on the course site. Eleven participants (7.2%) disagreed, and five (3.3%) strongly disagreed with this statement, indicating that they did not reference the university academic dishonesty policy in the syllabus or on the course site.

Item 11c explored to what extent distance learning faculty utilized different assessment strategies or tools in deterring academic dishonesty. The mean score reported by faculty members was 2.91 on a scale from 1 (strongly disagree) to 4 (strongly agree).
Of the 152 participants, 55 of them (36.2%) strongly agreed, and 41 (27.0%) agreed with the statement that they used assessment strategies that deter academic dishonesty such as authentic assessment, proctored tests, lockdown browser etc. in their distance learning courses. Thirty-eight participants (25.0%) disagreed, and 15 (9.9%) strongly disagreed with this statement, indicating they used assessment strategies that deter academic dishonesty such as authentic assessment, proctored tests, lockdown browser, etc. in their distance learning courses.

Item 11d explored to what extent distance learning faculty paid attention to the copyright issue in course design. The mean score reported by faculty members was 3.39 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 70 of them (46.1%) strongly agreed, and 68 (44.7%) agreed with the statement that they followed fair use or TEACH Act guidelines when using copyrighted materials in their distance learning courses. Eight participants (5.3%) disagreed, and 2 (1.3%) strongly disagreed with this statement indicating they did not follow fair use or TEACH Act guidelines when using copyrighted materials, or did not use copyrighted materials in their distance learning courses at all.

The twelfth item explored to what extent distance learning faculty used objective-driven design. The mean score reported by faculty members was 3.46 on a scale from 1 (strongly disagree) to 4 (strongly agree). Of the 152 participants, 81 of them (53.3%) strongly agreed, and 58 (38.2%) agreed with the statement that they used learning objectives to design learning activities in their distance learning courses. Ten participants (6.6%) disagreed, and 1 (0.7%) strongly disagreed with this statement, indicating that
they did not use learning objectives to design learning activities in their distance learning courses.

Table 13
*Individual Frequency and Percentage of Each Best Practice*

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Qualitative analysis of the open-ended question

The open-ended question in the first part of the survey solicited other best practices that faculty members used in their distance learning courses. Forty participants (26.3%) offered comments and suggestions. The responses to the open-ended question revealed other best practices that include the following:

1. Collaborate with peers for course improvement or refer to other courses developed by peers for ideas.

2. Continuously improve distance learning courses based on students’ performances and feedback.

3. Create opportunities for students in creating student-owned content so that students have a sense of ownership for the content created, such as assigning student leaders for weekly discussions and learning blogs.

4. Create opportunities to give students an orientation of the course, such as using an orientation quiz on the course syllabus.

5. Give students more opportunities in practice quizzes or learning activities so that they can self-assess their own learning.

6. Create opportunities for students to increase their time-management skills—for example, encouraging students to create their own schedules according to the course schedule.

One faculty stated the following:

I require my students to schedule their work on the Course Calendar to ensure that they know when assignments are due. The rationale is that if
they have to enter the dates (which they find on the drop box, test center, and discussion board) it will increase their involvement and make them proactive when completing course work. I remind them that the date and time I place on assignments is not the "start" date—it is the last possible day and hour to submit the work. By encouraging students to learn scheduling and planning skills that work for them, it is a win-win situation for all of us.

The responses to the open-ended question also reinforced the best practices of faculty-student interaction and time on task.

Frequent interaction has been shown to be a major moderating factor in academic success in distance education (along with time on task). I communicate with every student individually in multiple ways and multiple times through-out the course and take a survey of appropriate background knowledge (i.e., technological, distance learning and learning preferences) at the beginning of the course. I am also not afraid to modify the course scope and sequence or the timing in order to accommodate the learning needs of a given class. The time commitment required to teach a quality distance education class is much greater than that required to teach the same class f2f. In addition, DE classes require technological expertise as well as content knowledge—and all teaching requires pedagogical expertise that is almost never taught to higher education instructors.

Furthermore, the responses to the open-end question reinforced the best practices of student-student interaction.
Students provide feedback to classmates using the "feedback sandwich" method: start with a positive comment, then add a constructive criticism, and finish with another positive comment.

**Research question #2: Why do distance learning faculty members work with instructional designers?**

One hundred and thirty-two out of the 152 participants reported that they had worked with instructional designers in the process of distance learning course design and delivery. Eighteen participants had not worked with instructional designers and two did not respond to this question, as shown in Table 14.

<table>
<thead>
<tr>
<th>Whether worked with instructional designer</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Yes</td>
<td>132</td>
<td>86.8</td>
</tr>
<tr>
<td>No</td>
<td>18</td>
<td>11.8</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>98.7</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Of the 132 participants who worked with instructional designers, 55 participants (41.7%) reported that they worked with instructional designers on pedagogical issues (127 participants answered this question), 122 participants (92.4%) worked with instructional designers on technical issues (128 participants answered this question), 98 participants (74.2%) worked with instructional designers on administrative issues (127
participants answered this question), and 34 (25.8%) worked with instructional designers due to university mandatory requirements (123 participants answered this question), as shown in Table 15.

<table>
<thead>
<tr>
<th>Why faculty work with instructional designers</th>
<th>N</th>
<th>Frequency</th>
<th>Percentage/132</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical issues</td>
<td>127</td>
<td>55</td>
<td>41.7</td>
</tr>
<tr>
<td>Technological issues</td>
<td>128</td>
<td>122</td>
<td>92.4</td>
</tr>
<tr>
<td>Administrative issues</td>
<td>127</td>
<td>98</td>
<td>74.2</td>
</tr>
<tr>
<td>Mandatory requirements</td>
<td>123</td>
<td>34</td>
<td>25.8</td>
</tr>
</tbody>
</table>

Qualitative analysis of the open-ended question

The open-ended question in this section explored other reasons that faculty members chose to work with instructional designers in the process of distance learning course design and delivery. Nineteen participants (14.4%) offered comments and suggestions on this question. The responses to the open-ended question revealed that faculty members:

1. Obtain good and new ideas and suggestions to stay attuned to the ever-changing landscape of distance learning.
2. Seek expertise in configuring instruction via Blackboard.
3. Seek assistance in designing aesthetically appealing courses.
4. Consider instructional designers as friends and support their work.

One participant responded that s/he asked instructional designers to create an aesthetically pleasing course and to find ways to design distance learning courses to function as efficiently and intuitively as possible for the instructor and students.
Research question #3: How do distance learning faculty members work with instructional designers?

As illustrated in Table 16, among the 132 participants who worked with instructional designers, 114 participants (86.4%) reported that they worked with instructional designers in one-on-one individual sessions (128 participants answered this question), and 66 participants (50.0%) worked with instructional designers by attending group workshops (128 participants answered this question). Only 23 participants (17.4%) worked in a project team with instructional designers and other faculty members (127 participants answered this question). Forty-three participants (32.6%) reported that they used online learning modules maintained by instructional designers (123 participants answered this question).

<table>
<thead>
<tr>
<th>How do faculty work with instructional designers?</th>
<th>N</th>
<th>Frequency</th>
<th>Percentage/ 132</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual sessions</td>
<td>128</td>
<td>114</td>
<td>86.4</td>
</tr>
<tr>
<td>Workshops</td>
<td>128</td>
<td>66</td>
<td>50.0</td>
</tr>
<tr>
<td>Teams with ID and peers</td>
<td>127</td>
<td>23</td>
<td>17.4</td>
</tr>
<tr>
<td>Online modules</td>
<td>123</td>
<td>43</td>
<td>32.6</td>
</tr>
</tbody>
</table>

Qualitative analysis of the open-ended question

The open-ended question in this section explored other methods that faculty used to work with instructional designers in the process of distance learning course design and delivery. Thirty-one participants (23.5%) offered comments and suggestions on this question. The responses to the open-ended question revealed that most faculty preferred one-on-one consultation via phone, email, or face-to-face meetings.


Research question #4: Do distance learning faculty members attribute any improvement of their readiness in implementing best practices in distance learning course design and delivery to working with instructional designers?

As shown in Table 17, among the 132 participants who worked with instructional designers, 18 participants (13.6%) reported that they strongly agreed with the statement that they were ready to implement the best practices of distance learning course design and delivery in their distance learning courses prior to working with instructional designers, 48 participants (36.4%) reported that they agreed. However, 41 participants (31.1%) reported that they disagreed, and 19 (14.4%) reported that they strongly disagreed with this statement.

Table 17
Readiness to implement best practices prior to working with instructional designers

<table>
<thead>
<tr>
<th>Readiness to implement best practices prior to working with instructional designers</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Strongly Disagree</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Disagree</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>126</td>
</tr>
<tr>
<td>Missing</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>132</td>
</tr>
</tbody>
</table>
As shown in Table 18, among the 132 participants who worked with instructional designers, 50 participants (37.9%) reported that they strongly agreed with the statement that they were prepared to implement the best practices of distance learning course design and delivery in their distance learning courses after working with instructional designers, and 55 participants (41.7%) reported that they agreed. However, eight participants (6.0%) reported that they disagreed, and nine (6.8%) reported that they strongly disagreed with this statement.

Table 18
*Readiness to implement best practices after working with instructional designers*

<table>
<thead>
<tr>
<th>Readiness after working with ID</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>9</td>
<td>6.8</td>
</tr>
<tr>
<td>Disagree</td>
<td>8</td>
<td>6.0</td>
</tr>
<tr>
<td>Agree</td>
<td>55</td>
<td>41.7</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>50</td>
<td>37.9</td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>92.4</td>
</tr>
<tr>
<td>Missing</td>
<td>10</td>
<td>7.6</td>
</tr>
<tr>
<td>Total</td>
<td>132</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Qualitative analysis of the open-ended question*

The open-ended question in this section explored the faculty members’ overall experience working with instructional designers in the process of distance learning course design and delivery. Thirty-six participants (27.3%) offered comments and suggestions on this question. The responses to the open-ended question revealed that:
1. Instructional designers are patient and cooperative in providing instructional design services.

2. Instructional designers are competent and creative in integrating technologies into distance learning.

3. Instructional designers add needed professionalism and another point of view to the teaching process.

4. It was difficult for some faculty members to adjust to a new work style of an instructional designer when they were reassigned to work with another instructional designer.

Faculty members appreciated the instructional design services received from instructional designers. One participant reported the following:

I had taught in a blended format prior to working with the instructional designer but would have missed some very important elements if I had tried to go completely into DE [distance education] without the assistance.

Faculty members also stated that the role of instructional designers in assisting faculty in designing an entire online program was critical:

I have developed 13 online classes, and my entire program is online. The instructional designers have provided excellent support, and if I did not have them on my team, I can assure you there wouldn't be a program. We began with 4 graduates, and now have over 140 students in the pipeline.

Another faculty member also stressed that instructional designers were an integral part of online programs:
The instructional designers help with many aspects, both technological and methodological. The instructional designers are an integral part of any online program, because as educators, we are not all skilled in distance learning technology. The designers bring us up to speed and keep us on the cutting edge! They are a vital piece of the online learning division and faculty would not provide quality education without their assistance and support.

Although most faculty members reported their experiences working with instructional designers as positive, several instructors reported that they were not quite clear about instructional designers’ roles, even after working with an instructional designer. Faculty members’ comments also revealed that instructional designers should not be judgmental when working with faculty members. One participant provided the following:

The instructional designers need to be non-judgmental and personally approachable. Some are more so than others, and my experiences have been mostly positive in this respect.

Another critical issue in regard to instructional designers’ competencies was also revealed from the participants’ comments. One faculty member reported that most generic designers were not versed in competency education parameters as they did not understand the content area that the faculty taught.

Faculty members’ comments also revealed that faculty members needed more pedagogical assistance in the process of distance learning course design and delivery. Several participants provided the following comments in this respect:
DE [distance education] classes require technological expertise as well as content knowledge, and all teaching requires pedagogical expertise that is almost never taught to higher education instructors.

I have gotten more technical than pedagogical help. More pedagogical assistance would be appreciated, though.

**Research question #5: Are there relationships between faculty perceptions of utilizing each of the evaluated best practices in distance learning course design and delivery and demographic characteristics?**

One-way analysis of variance (ANOVA) was used to determine whether differences existed in perceptions of utilizing each of the evaluated best practices across gender, academic rank, academic field, and years of teaching distance learning courses. As shown in Tables 19 to 21, differences existed across gender (learner support and objective-driven design), academic rank (active learning activity and academic dishonesty policy), and academic field (student-student interaction, reflective learning, and accessibility issue). However, no statistical difference was found between each of the evaluated best practices and years of experience teaching online.
Table 19
*ANOVA results for significant items by gender*

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Learner support</td>
<td>Between Groups</td>
<td>5.838</td>
<td>1</td>
<td>5.838</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>146.432</td>
<td>146</td>
<td>1.003</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>152.270</td>
<td>147</td>
<td></td>
</tr>
<tr>
<td>12. Objective driven design</td>
<td>Between Groups</td>
<td>1.648</td>
<td>1</td>
<td>1.648</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>61.021</td>
<td>146</td>
<td>.418</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>62.669</td>
<td>147</td>
<td></td>
</tr>
</tbody>
</table>

Table 20
*ANOVA results for significant items by academic rank*

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Active activity</td>
<td>Between Groups</td>
<td>6.435</td>
<td>6</td>
<td>1.072</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>63.059</td>
<td>143</td>
<td>.441</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>69.493</td>
<td>149</td>
<td></td>
</tr>
<tr>
<td>11b. Dishonesty-poly</td>
<td>Between Groups</td>
<td>7.683</td>
<td>6</td>
<td>1.281</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>81.710</td>
<td>143</td>
<td>.571</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>89.393</td>
<td>149</td>
<td></td>
</tr>
</tbody>
</table>
Table 21
*ANOVA results for significant items by academic field*

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Student-student Between Groups</td>
<td>9.838</td>
<td>6</td>
<td>1.640</td>
<td>2.799</td>
<td>.013*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>83.169</td>
<td>142</td>
<td>.586</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>93.007</td>
<td>148</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Reflective learning Between Groups</td>
<td>9.168</td>
<td>6</td>
<td>1.528</td>
<td>3.550</td>
<td>.003*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>59.825</td>
<td>139</td>
<td>.430</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>68.993</td>
<td>145</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11a. Accessibility Between Groups</td>
<td>10.899</td>
<td>6</td>
<td>1.816</td>
<td>2.774</td>
<td>.014*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>92.967</td>
<td>142</td>
<td>.655</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>103.866</td>
<td>148</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The analysis results for gender were significant on item 9 (learner support) and item 12 (objective-driven design). The remaining thirteen items about best practices yielded no significance. The analysis results for Item 9 (provide learner support by adding an FAQ page or a discussion topic on the discussion board) were significant: F = 5.821, p = .017, as shown in Table 19. Female respondents (M = 3.08, SD = .956) were likely to agree with this item, that is to include an FAQ page or a discussion topic for projects or general questions on the course site. Male respondents (M = 2.68, SD = 1.043) were unlikely to agree with this statement.
Table 22
*Provide learner support*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>2.68</td>
<td>68</td>
<td>1.043</td>
</tr>
<tr>
<td>Female</td>
<td>3.08</td>
<td>80</td>
<td>.965</td>
</tr>
<tr>
<td>Total</td>
<td>2.89</td>
<td>148</td>
<td>1.018</td>
</tr>
</tbody>
</table>

The analysis results for Item 12 (use objective-driven design technique in designing learning activities) were significant: F= 3.94, p = .049, as shown in Table 19. Female respondents (M = 3.55, SD = .571) strongly agreed with this item, that is to use learning objectives to design learning activities.

Table 23
*Use objective-driven design*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>3.34</td>
<td>68</td>
<td>.725</td>
</tr>
<tr>
<td>Female</td>
<td>3.55</td>
<td>80</td>
<td>.571</td>
</tr>
<tr>
<td>Total</td>
<td>3.45</td>
<td>148</td>
<td>.653</td>
</tr>
</tbody>
</table>

The analysis results for academic rank were significant on Item 3 (active learning activities) and item 11b (academic dishonesty policy). The remaining 13 items about best practices yielded no significance. The analysis results for Item 3 (use active learning activities) were significant: F= 2.432, p = .029, as shown in Table 20. Lecturers, assistant professors, instructors, and teaching assistants strongly agreed with this item, which is to use active learning activities such as discussions, case studies, and simulations to engage students in their distance learning courses. Professors and associate professors agreed with this statement.
Table 24
*Use active learning activity*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>3.33</td>
<td>33</td>
<td>.777</td>
</tr>
<tr>
<td>Associate professor</td>
<td>3.29</td>
<td>45</td>
<td>.727</td>
</tr>
<tr>
<td>Assistant professor</td>
<td>3.78</td>
<td>23</td>
<td>.518</td>
</tr>
<tr>
<td>Lecturer</td>
<td>3.83</td>
<td>12</td>
<td>.389</td>
</tr>
<tr>
<td>Instructor</td>
<td>3.67</td>
<td>3</td>
<td>.577</td>
</tr>
<tr>
<td>Adjunct faculty</td>
<td>3.59</td>
<td>29</td>
<td>.628</td>
</tr>
<tr>
<td>Teaching assistant/GA</td>
<td>3.60</td>
<td>5</td>
<td>.548</td>
</tr>
<tr>
<td>Total</td>
<td>3.49</td>
<td>150</td>
<td>.683</td>
</tr>
</tbody>
</table>

The analysis results for Item 11b (Reference to the university academic dishonesty policy in the course) were significant: F = 2.241, p = .43, as shown in Table 20. Lecturers, adjunct faculty, and teaching assistants strongly agreed with this item, which is to reference the university academic dishonesty policy in the syllabus or on the course site. Instructors, associate professors, and professors agreed with the statement.

Table 25
*Reference university academic dishonesty policy*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>3.36</td>
<td>33</td>
<td>.929</td>
</tr>
<tr>
<td>Associate professor</td>
<td>3.36</td>
<td>45</td>
<td>.857</td>
</tr>
<tr>
<td>Assistant professor</td>
<td>3.57</td>
<td>23</td>
<td>.662</td>
</tr>
<tr>
<td>Lecturer</td>
<td>4.00</td>
<td>12</td>
<td>.000</td>
</tr>
<tr>
<td>Instructor</td>
<td>3.00</td>
<td>3</td>
<td>1.732</td>
</tr>
<tr>
<td>Adjunct faculty</td>
<td>3.76</td>
<td>29</td>
<td>.435</td>
</tr>
<tr>
<td>Teaching assistant/GA</td>
<td>3.80</td>
<td>5</td>
<td>.447</td>
</tr>
<tr>
<td>Total</td>
<td>3.53</td>
<td>150</td>
<td>.775</td>
</tr>
</tbody>
</table>

The analysis results for academic field was significant on Item 2 (student-student interaction), Item 8 (reflective learning), and Item 11a (accessibility issue). The results for the remaining 12 items about best practices yielded no significance. The analysis results for Item 2 (promote student-student interaction) were significant: F = 2.799, p = .013, as shown in Table 21. Faculty members of engineering and sciences were
unlikely to agree with this item, that is to say, they were not likely to use Internet communication tools to encourage student-student interaction in their distance learning courses.

Table 26
Promote student-student interaction

<table>
<thead>
<tr>
<th>Field</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities</td>
<td>3.37</td>
<td>27</td>
<td>.792</td>
</tr>
<tr>
<td>Business</td>
<td>3.13</td>
<td>32</td>
<td>.871</td>
</tr>
<tr>
<td>Education</td>
<td>3.46</td>
<td>28</td>
<td>.693</td>
</tr>
<tr>
<td>Engineering</td>
<td>2.00</td>
<td>3</td>
<td>1.000</td>
</tr>
<tr>
<td>Sciences</td>
<td>2.91</td>
<td>11</td>
<td>.831</td>
</tr>
<tr>
<td>Social Science</td>
<td>3.36</td>
<td>25</td>
<td>.700</td>
</tr>
<tr>
<td>Health Science</td>
<td>3.52</td>
<td>23</td>
<td>.665</td>
</tr>
<tr>
<td>Total</td>
<td>3.30</td>
<td>149</td>
<td>.793</td>
</tr>
</tbody>
</table>

The analysis results for Item 8 (use reflective learning activities) were significant: $F = 3.550, p. = .003$, as shown in Table 21. Faculty members of social science, sciences, and health science were unlikely to agree with this item, that is to say, they were not likely to give students opportunities to reflect on their own learning throughout the semester, especially in the middle and at the end of a semester. Faculty members in education, business, arts and humanities, and engineering were likely to give students opportunities to reflect on their own learning.

Table 27
Use reflective learning activity

<table>
<thead>
<tr>
<th>Field</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities</td>
<td>3.19</td>
<td>27</td>
<td>.622</td>
</tr>
<tr>
<td>Business</td>
<td>3.16</td>
<td>31</td>
<td>.638</td>
</tr>
<tr>
<td>Education</td>
<td>3.25</td>
<td>28</td>
<td>.585</td>
</tr>
<tr>
<td>Engineering</td>
<td>3.00</td>
<td>3</td>
<td>.000</td>
</tr>
<tr>
<td>Sciences</td>
<td>2.91</td>
<td>11</td>
<td>.539</td>
</tr>
<tr>
<td>Social Science</td>
<td>2.56</td>
<td>25</td>
<td>.870</td>
</tr>
<tr>
<td>Health Science</td>
<td>2.81</td>
<td>21</td>
<td>.602</td>
</tr>
<tr>
<td>Total</td>
<td>3.01</td>
<td>146</td>
<td>.690</td>
</tr>
</tbody>
</table>
The analysis results for Item 11a (accessibility issues) were significant: $F = 2.774$, $p. = .014$, as shown in Table 21. Faculty members of engineering and sciences were unlikely to agree with this item, that is to say, they were not likely to work with instructional designers to make sure that students with special needs could access course materials. One possible reason for this might be that no students with disabilities enrolled in a distance learning course taught by faculty in these fields. Faculty members of health science and business were likely to work with instructional designers to make sure that students with special needs could access course materials.

<table>
<thead>
<tr>
<th>Field</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities</td>
<td>2.96</td>
<td>27</td>
<td>.759</td>
</tr>
<tr>
<td>Business</td>
<td>3.09</td>
<td>32</td>
<td>.734</td>
</tr>
<tr>
<td>Education</td>
<td>2.61</td>
<td>28</td>
<td>1.066</td>
</tr>
<tr>
<td>Engineering</td>
<td>2.33</td>
<td>3</td>
<td>1.155</td>
</tr>
<tr>
<td>Sciences</td>
<td>2.36</td>
<td>11</td>
<td>.924</td>
</tr>
<tr>
<td>Social Science</td>
<td>2.96</td>
<td>25</td>
<td>.611</td>
</tr>
<tr>
<td>Health Science</td>
<td>3.26</td>
<td>23</td>
<td>.689</td>
</tr>
<tr>
<td>Total</td>
<td>2.91</td>
<td>149</td>
<td>.838</td>
</tr>
</tbody>
</table>

*Research question #6: Are there relationships between why faculty members choose to work or not to work with instructional designers and demographic characteristics?*

One-way analyses of variance (ANOVA) statistics indicated that a difference existed between academic fields and whether a faculty member chose to work with instructional designers or not. The remaining demographics (gender, academic rank, and years of experience teaching online) yielded no significant differences.
Table 29
ANOVA results for significant items by academic field

<table>
<thead>
<tr>
<th>Field</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1.837</td>
<td>6</td>
<td>.306</td>
<td>3.090</td>
<td>.007</td>
</tr>
<tr>
<td>Within Groups</td>
<td>13.973</td>
<td>141</td>
<td>.099</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15.811</td>
<td>147</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The analysis for academic field was significant: $F = 3.090$, $p. = .007$. Engineering faculty members ($M = 1.67$, $SD = .577$) were not likely to work with instructional designers, while social science ($M = 1.04$, $SD = .200$) and health science ($M = 1.04$, $SD = .209$) faculty were likely to work with instructional designers, as shown in Table 30.

Table 30
Mean on whether faculty choose to work or not work with ID by academic field

<table>
<thead>
<tr>
<th>Field</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts and Humanities</td>
<td>1.22</td>
<td>27</td>
<td>.424</td>
</tr>
<tr>
<td>Business</td>
<td>1.06</td>
<td>32</td>
<td>.246</td>
</tr>
<tr>
<td>Education</td>
<td>1.11</td>
<td>27</td>
<td>.320</td>
</tr>
<tr>
<td>Engineering</td>
<td>1.67</td>
<td>3</td>
<td>.577</td>
</tr>
<tr>
<td>Sciences</td>
<td>1.27</td>
<td>11</td>
<td>.467</td>
</tr>
<tr>
<td>Social Science</td>
<td>1.04</td>
<td>25</td>
<td>.200</td>
</tr>
<tr>
<td>Health Science</td>
<td>1.04</td>
<td>23</td>
<td>.209</td>
</tr>
<tr>
<td>Total</td>
<td>1.12</td>
<td>148</td>
<td>.328</td>
</tr>
</tbody>
</table>

One-way analyses of variance (ANOVA) statistics also indicated that the demographics (i.e. gender, academic rank, and years of experience teaching online) yielded no significant differences as to why faculty members chose to work with instructional designers or not.
Chapter 5

Conclusions, Discussions and Implications, Recommendations, and Summary

Overview

A review of literature revealed that higher education has expanded its distance learning programs at an astounding speed (NCES, 2008). Higher education institutions have developed and used best practices in the establishment of distance learning programs (Bailey & Card, 2009; HEPPC, 2000; HLC, 2007; IHEP, 2000; & Murphy, 2008). However, little is known about whether faculty members have utilized many of the best practices identified in the literature (Boyd & Fakes, 1983; Chickering & Ehrmann, 1987; QM, 2006) in their distance learning course design and delivery. Due to the rapid growth of distance education delivered over the Internet, universities utilize instructional designers to provide instructional design services to distance learning faculty in course design, development, and implementation. Instructional designers collaborate with academic and technical staff in a community of practice to enhance the quality of distance education in universities across the globe (Birds, Morgan & O’Reilly, 2007; Jackling, 1989; Meacham, 1989;). All community members, instructional designers,
faculty members, and other support staff need to collaborate and contribute their expertise to plan, design, and implement effective online environments (Bennet, Priest, & Macpherson, 1999; Oliver, 1998; Torrisi-Steele, & Davis, 2000). Promoting best practices of distance learning course design, and delivery has become an important task for instructional designers in higher education.

Therefore, the purpose of this study was to:

1. Explore to what extent distance learning faculty members perceive that they have utilized the best practices in their distance learning courses.
2. Explore why distance learning faculty members work with instructional designers.
3. Identify methods that distance learning faculty members use to work with instructional designers.
4. Determine whether distance learning faculty members attribute any improvement of their readiness in implementing best practices in distance learning course design and delivery to working with instructional designers.
5. Determine whether there are relationships between faculty perceptions of utilizing each of the evaluated best practices in distance learning course design and delivery and demographic characteristics.
6. Determine whether there are relationships between why faculty members choose to work or not to work with instructional designers and demographic characteristics.

A web-based survey was used to collect data from distance learning faculty at two higher education institutions that offer distance learning programs at both undergraduate and graduate levels. The survey was titled “Best Practices in Distance Learning Course
Design and Delivery.” It consisted of three sections: “Perceived utilization of best practices,” “Experience working with instructional designers,” and “Demographic information.”

A total of 525 distance learning faculty members were contacted via email to respond to a web-based survey. One hundred and fifty-two responses were collected and used in the data analysis process, resulting in a response rate of 29%.

Conclusions

The following conclusions were drawn based on the data analysis:

**Research question 1: To what extent do distance learning faculty members perceive that they have utilized the best practices in their distance learning courses?**

Faculty members perceived that they have used each of the 12 best practices evaluated in this study. The best practices evaluated in this study can be divided into three levels:

- Level 1 Content-centric—most used best practices
- Level 2 Instructor-centric—somewhat used best practices, and
- Level 3 Learner-centric—least used practices.

As shown in Figure 3, the most used best practice is designing course content in a logical format, the somewhat used best practices are promoting student-student interaction, referring to the university academic dishonesty policy, providing constructive feedback, using active learning activities, promoting faculty-student interaction, using objective-driven design, and assign challenging tasks to students; and the least used best practices are providing learner support by adding FAQ or discussion topics, allowing students to
choose their own project topics, giving students opportunities to reflect on their own learning, paying attention to accessibility issues, and using assessment strategies to deter academic dishonesty.

**Research question 2: Why do distance learning faculty members work with instructional designers?**

Faculty members worked with instructional designers for multiple purposes, such as for technological and pedagogical support in the process of distance learning course design and delivery. However, seeking technological support was the major reason to work with instructional designers. Faculty members stated that they needed more assistance in pedagogical aspect. The results also echoed Orr’s findings that faculty wanted greater support for pedagogy efforts (2008).

**Research question 3: How do distance learning faculty members work with instructional designers?**

Faculty members preferred to work with instructional designers individually either in a face-to-face consultation session or via phone and email.

**Research question 4: Do distance learning faculty members attribute any improvement of their readiness in implementing best practices in distance learning course design and delivery to working with instructional designers?**

Faculty members believed that working with instructional designers prepared them in the implementation of best practices in distance learning course design and delivery.
Research question 5: Are there relationships between faculty perceptions of utilizing best practices in distance learning course design and delivery and demographic characteristics?

Differences existed across gender, academic rank, and academic field regarding some of the best practices evaluated in this study. Statistical analysis of data related to this question yielded the following conclusions:

1. Female respondents were more likely to do the following in their distance learning courses than their male counterparts:

   1.1. Provide learner support. Female faculty members tended to use an FAQ page or discussion topic to provide learner support more than their male counterparts.

   1.2. Use objective-driven design. Female faculty members tended to use learning objectives to design learning activities for their distance learning courses more than their male counterparts.

2. Faculty members with different academic ranks tended to disagree on the following best practices:

   2.1. Use active learning activities. Assistant professors, lecturers, instructors, and teaching assistants perceived they used active learning activities in their distance learning courses more compared to professors and associate professors.

   2.2. Reference the university academic dishonesty policy. All lecturers referred to the university academic dishonesty policy in their course syllabi or on their course sites. Assistant professors, adjunct faculty, and teaching assistants perceived they referenced the university academic dishonesty policy more compared to faculty with other academic ranks.
3. Faculty members in different academic fields tended to implement differently in the following best practices:

3.1. Use Internet communication tools to promote student-student interaction.

Engineering and science faculty tended not to use Internet tools to promote student-student interaction, while faculty members in other academic fields tended to use communication tools to promote student-student interaction.

3.2. Use reflective learning activities. Social sciences, sciences, and health science faculty members tended not to give students opportunities to reflect on their own learning, while faculty members in other fields tended to give students opportunities to reflect on their own learning.

Research question 6: Are there relationships between why faculty members choose to work or not to work with instructional designers and demographic characteristics?

Faculty members in the engineering programs chose not to work with instructional designers. Faculty members in social science and health science chose to work with instructional designers.

It is clear that faculty members believed that they utilized the best practices evaluated in this study. They were satisfied with the instructional design services provided by instructional designers and welcomed more assistance in pedagogical efforts. They used individual consultation sessions while working with instructional designers more often than other methods.
Discussions and Implications

According to the results of this study, faculty members were in agreement that they utilized the best practices evaluated in this study. This echoes Murphy’s research findings on quality online practices as perceived by higher education faculty (2008). Best practices in distance learning course design and delivery are critical in ensuring quality distance learning programs.

**Promote faculty-student interaction.** Faculty-student interaction plays a critical role in the learning process, such as engaging students in active learning, easing frustration during a stressed time, facilitating students in choosing a topic, etc. (Chickering & Ehrmann, 1987). Interaction takes place in many forms such as presenting content in a dialogue format, providing timely feedback to student inquiries and comments on assignments. Kegeen (1995) also stressed that reintegration of the act of teaching in distance learning courses was related to retention and achievement. The reintegration can be conducted using a variety of techniques including communication by phone, email, discussions, blog, wiki, web conferencing, and pre-programmed feedback in CMS quizzes and assignment tools.

An annual college student report on student engagement (NSSE, 2003) identified four major behaviors regarding student-faculty interaction: “discussing grades and assignments, discussing career plans, working with a faculty member outside of class on a committee or project, and doing research with a faculty member” (p. 8). The report concluded that faculty-student interaction is strongly correlated with a student’s perceived educational and personal gains. Kuh and Hu (2001) also stated that student-
faculty interaction encouraged students to devote greater effort to other educationally related activities in college.

Therefore, faculty members in distance learning programs should maintain positive, meaningful interaction with students via a wide range of communication channels to ensure a satisfactory learning experience. It is also recommended that faculty establish a clear policy to ensure faculty-student interaction. Students’ inquiries need to be addressed within two business days. Acknowledgement of inquiries is necessary if constructive feedback in regard to course content cannot be provided within two business days. For special circumstances, a teaching assistant needs to be available to respond to students’ inquiries.

**Promote student-student interaction.** The findings echo other research in regard to student-student interaction. However, the findings indicate that differences exist between faculty members among different academic fields. Compared to faculty members in other fields, engineering and science faculty tend not to use Internet tools to promote student-student interaction. Possible reasons include faculty members’ perceptions of teaching methods and fewer respondents from these fields. Faculty members in engineering and science may believe that knowledge can be presented and transferred to students if students study hard individually.

However, constructivists believe that social interaction facilitates learning (Enggen & Kauchak, 2004; Vygotsky, 1978). Researchers agreed that “meaningful interaction occurs in the process of intersubjectivity in the enculturated ZPD and it should include responding, negotiating internally and socially, arguing against points, adding to evolving ideas, and offering alternative perspectives with one another while
solving some authentic tasks.” (Woo & Reeves, 2007, p. 23) Therefore, faculty members in distance learning programs should create a friendly learning environment that engages student to participate in meaningful student-student interaction. The interaction, in turn, contributes to a satisfactory learning experience. Instructional designers need to strive to promote the best practice to those faculty members who have not utilized the best practice in their distance learning courses.

It is also recommended that a student-student interaction scheme should be built into distance learning courses to engage students in both social and cognitive perspectives via a range of online activities.

**Use active learning activities.** Active learning involves students in doing things and thinking about things they are doing (Bonwell & Eison, 1991). Active learning can be accomplished individually, but it is more effective when it is used in a cooperative setting (Batts, 2008). Research studies support the use of active and cooperative learning strategies in higher education (Johnson & Johnson, 1989). In distance learning, many active and cooperative learning activities can be implemented. These activities include threaded discussions, role-play, online debates, case studies, simulations, and problem-based learning.

The findings of this study indicate that faculty perceived they have used active learning activities in their distance learning courses. However, differences exist among faculty with different academic ranks. Lecturers, assistant professors, instructors, and teaching assistants were likely to use active learning activities such as discussions, case studies, and simulations to engage students in their distance learning courses. This is not the case with professors and associate professors.
active, interactive, learner-centered learning environment has become a trend in higher education. The trend of adopting new technology in teaching started with assistant and associate professors, followed by instructors and full professors (Lee & Johnson, 1998). The use of technology was voluntary (Lee & Johnson, 1998); adoption of active learning activities in distance learning courses was also a faculty member’s own choice. However, not all distance learning faculty members choose to utilize active learning activities in class. What prevents faculty with higher academic ranks from using active learning activities such as discussions, case studies, and simulations in a distance learning environment? The hurdles might be lack of knowledge or motivation (Lee & Johnson, 1998). Many factors such as the time required designing and facilitating active learning activities, technological skills, availability of technological tools, and administrative support can also contribute to the differences.

**Provide feedback to students.** Researchers supported the view that prompt, positive, and constructive feedback to students is positively related to a better student learning experience (Bjorklund, Parente, & Sathianathan, 2004; Chickering & Ehrmann, 1996). This study also indicated that faculty provided constructive feedback to students in a timely manner. A variety of web 2.0 tools enabled distance learning faculty to provide feedback to students. Feedback to certain assessment items can also be pre-programmed in the course design. No differences exist across gender, academic ranks and fields, or experience. Instructional designers need to adopt an approachable way to promote the best practice to distance learning faculty members.

**Give students opportunities to reflect on their own learning.** Reflection is the process of examining and exploring issues, problems, and processes. It “creates and
clarifies meaning in terms of self and which results in a changed conceptual perspective” (Boyd & Fakes, 1983, p. 100).

Giving students opportunities to reflect on their own learning allows students to think deeply about their own way of learning, and identify whether their way of learning is effective or not. Therefore, reflection provides opportunities to increase learning effectiveness, such as participating in discussions, investigating the topics, theories, or concepts, and creating project plans, etc.

The results indicated that differences existed in using reflective learning activities among faculty members across academic disciplines. Social science, science, and health science faculty tend not to give students opportunities to reflect on their own learning, while education faculty members strongly agreed that they gave students opportunities to reflect on their own learning. What could be the factors that contribute to the difference? Neither technical nor pedagogical skill plays a role in utilizing the best practice in distance learning courses. It is simply a perception of the value of this practice in learning. If faculty members realize that reflection on one’s own learning will contribute to learning, opportunities will be given to students, as many tools are available to students in this respect.

Use objective-driven design. “Where are we going?” is the first question when instructional designers start an instructional design project. Effective instructional design projects can only be accomplished if the design team has a thorough understanding of the objectives, and how to achieve the established objectives. As subject matter experts, faculty members need to have course goals and objectives in mind when designing
distance learning courses. Instructional strategies and learning activities must be designed in alignment with instructional goals.

The findings of this study indicated that the faculty in general perceived they used learning objectives in designing learning activities. However, differences existed between genders. Female instructors tended to use learning objectives in course design more often than their male counterparts.

Many research studies also indicated that when the goal of the instruction is consistent with the instructional strategies used to teach the goal, then the learning is optimal (Merrill, 1994). It is recommended that course goals and objectives must be used in the design of learning activities, selection of instructional strategies and technical tools, and assessment strategies. Instructional designers should strive to promote the best practice to faculty members. Institutions need to have a clear policy regarding using the best practices in distance learning course design and delivery.

**Working with instructional designers.** Faculty members reported that they found instructional designers were very helpful and cooperative in providing instructional design services. Instructional designers were also knowledgeable and creative in collaborating with them in the implementation of best practices in their distance learning courses. Many participants’ comments revealed this theme:

The instructional designers help with many aspects, both technological and methodological. The instructional designers are an integral part of any online program, because as educators, we are not all skilled in distance learning technology. The designers bring us up to speed and keep us on
the cutting edge! They are a vital piece of the online learning division and faculty would not provide quality education without their assistance and support.

I must reiterate the importance of having a substantial division of instructional designers who provide the support and maintenance of online courses. Their work ensures students in online courses receive QUALITY in presentation of materials and information provided by the professor!

Due to the limitation of technologies available in an institution, a faculty member’s comment also revealed a negative view about faculty members’ experience in working with instructional designers:

Instructional designers should be great resources—unfortunately, my experiences with them have not been satisfactory—mostly because our online learning system cannot support some of the options I want to pursue. I hear "sorry we can't do that" a lot from my designers. So, I tend not to view them as a valuable resource.

**Recommendations for instructional designers**

The primary responsibility of an instructional designer is to make sure that a course is designed to accomplish the learning goals (Dempsey & Van Eck, 2002). Whether learning goals can be accomplished effectively in the course largely depends on the designer’s comprehension of learning outcomes, interactions and interactivity, learning communities, and other administrative constraints (Dempsey & Van Eck, 2002). In today’s practice in higher education, instructional designers work with faculty members in the design, development and delivery of distance learning courses. Collaborating with
faculty members in the implementation of the best practices in distance learning course design and delivery has become more critical than ever before.

It is recommended that instructional designers in higher education stay up to date on current research in teaching and learning and continue to promote the best practices in distance learning course design and delivery. Instructional designers should:

1. Improve their understanding of these best practices and their effective use across disciplines with available technological tools.

2. Take a non-judgmental approach when working with faculty members, as instructional design is a social practice through which changes can take place (Schwier, Campbell, & Kenny, 2007).

3. Gain understanding of the content area and explore ways to promote meaningful interactions among students, between faculty and students, and between students and content.

4. Collaborate with faculty members in designing distance learning courses in a community of practice; that is, to involve more faculty members within a discipline in sharing information, exchanging ideas, discussing research findings, and discussing their own teaching experience in a community.

5. Use a pedagogically sound and iterative approach for the design process (McDonald & Mayes, 2007).

6. Have an open dialogue with faculty members in regard to philosophical perspectives in teaching and learning.
7. Adjust work approaches according to the demographics of distance faculty members they work with as differences exist across gender, academic field, and rank.

**Recommendations for academic decision makers**

It is widely practiced in higher education that continuing support is provided to faculty in the design and delivery of distance learning courses (HLC, 2007; NEA, 2000).

Institutions offering distance learning programs should:

1. Encourage faculty members to participate in a variety of faculty development programs that include training, services, and incentives designed to prepare faculty members to engage students in active learning (Fink, 2007).
2. Incorporate best practices in distance learning course design and delivery policy that ensure a quality distance learning experience.
3. Have strategic plans for continuous improvement of distance learning courses and programs through a range of evaluation processes.
4. Have instructional designers available to distance learning faculty members in providing quality pedagogical and technological support so that instructors can focus on engaging students in an interactive learning environment.
5. Make a range of technology tools available to faculty members and students in teaching and learning.

Furthermore, individual consultations, seminars, and workshops are widely adopted for faculty development in higher education (Cox, 1999). Institutions should create more opportunities for faculty members to collaborate in faculty development.
endeavors. As Kreber (2001) recommended, institutions should create opportunities for faculty members in conducting collaborative action research with assistance of faculty developers, and establish reading circles on scholarship of teaching and learning in the discipline in a community of practice. In communities of practice, faculty members can exchange ideas on teaching and learning, explore specific issues in teaching and learning, and construct their understanding of best practices in distance learning course design and delivery.

Recommendations for future research

1. As many instructional designers in higher education have worked with distance learning faculty members in course design and delivery, they are familiar with the courses they designed with distance learning faculty members. It will be beneficial to gain understanding on the utilization of best practices from an instructional designer’s perspective.

2. This study investigated faculty members’ perceived utilization of best practices as identified in the literature; it would be beneficial to investigate the actual unitization of best practices in distance learning courses by examining distance learning courses. Instructional designers, certified course evaluators, or program coordinators with expertise in distance learning course design and delivery can use a set of valid standards, such as the Quality Matters rubric or the Rubric for Online Instruction developed by the California State University, Chico to evaluate distance learning courses.
3. There might be a gap between instructors’ perceptions of utilizations of best practices and students’ learning experiences. A study on students’ perceptions of utilization of best practices in their distance learning courses is recommended.

4. There is disagreement regarding whether instructional designers should be trained as generalists or specialists. Several instructors reported that instructional designers as generalists do not quite understand the content area. Therefore, they are not helpful when working with them in distance learning course design and delivery. Qualitative studies regarding the disagreement are recommended.

5. Further studies are recommended in instrument design to measure best practices in distance learning course design and delivery.

6. This study indicated that differences existed across gender as to providing learner support and using objective-driven design. Further studies on reasons for the differences are recommended.

7. This study also revealed that differences existed in academic field and rank about certain best practices evaluated in this study. Further studies on what factors contribute to the differences are recommended.

**Summary**

Faculty members reported that they have utilized most of the best practices identified in the literature that were evaluated in this study. Eighty-six percent of distance learning faculty members in this study reported that they worked with instructional designers on their course design and delivery in a variety of ways from face-to-face individual consultations to online learning modules designed and maintained by instructional designers. Eighty percent of the participants who worked with instructional designers
reported that working with instructional designers prepared them in implementing best practices in distance learning course and delivery. Differences across gender, academic rank, and academic field in some of the evaluated best practices exist. Therefore, instructional designers need to strive to consistently promote best practices to distance learning faculty members.

Institutions that offer distance learning courses would benefit from providing instructional design services to faculty members, especially services in implementing these best practices in distance learning course design and delivery, to ensure quality distance learning courses and programs. Institutions should encourage, if not require, distance learning faculty members to work with instructional designers in a community of practice in designing and delivering their courses.

This study provided a big picture of faculty members’ perceived unitization of each of the evaluated best practices in distance learning course design and delivery. It also explored the way faculty members worked with instructional designers, and the effectiveness of instructional designers’ work in helping faculty members to implement these best practices. A study on the actual use of these best practices conducted by certified distance learning course evaluators, such as Quality Matters master reviewers or peer reviewers, might provide greater understanding of what was reported by distance learning faculty members, as there may be a gap between the actual use and perceived utilization.
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Appendix A

Letter to Experts for Instrument Validation

Dear Colleague,

I am a doctoral student in Curriculum and Instruction: Educational Media at The University of Toledo. I am conducting a research study to examine faculty’s perceived utilization of best practices in distance learning course design and delivery and instructional designers’ role in promoting these best practices to distance learning faculty members from the instructors’ perspectives.

To ensure the instrument’s validity for this research project, I would appreciate your comments and suggestions on the questionnaire attached in this email. Your suggestions will be used to update the items in this questionnaire. Please let me know if the items are appropriate.

Your input is critical to the success of this research study and your suggestions will be confidential.

Thank you for your time and consideration.

Sincerely,

Peter You, M.S, M.Ed.
Doctoral Candidate
Department of Curriculum and Instruction
Judith Herb College of Education
The University of Toledo
Peter.you@utoledo.edu
Appendix B

Letter of Consent for the Pilot Study

Dear Colleague,

As a faculty member who has taught distance learning courses, you are invited to be part of a pilot study on faculty’s perceived utilization of best practices and instructional designers’ role. As part of my doctoral dissertation in the Department of Curriculum and Instruction: Educational Media at The University of Toledo, I am conducting a research study to examine faculty’s perceived utilization of best practices of distance learning course design and delivery and instructional designers’ role in promoting these best practices to faculty members from the instructors’ perspectives.

The findings of the proposed study will provide insights regarding the utilization of distance learning best practices and instructional designers’ role in promoting these best practices. Such information will be beneficial to academic staff when planning faculty support and development activities, and faculty members when designing and teaching distance learning courses.

Your participation will contribute to our understanding of faculty and instructional designer interaction in higher education. Please complete this survey by mm/dd/yyyy. Your participation is completely voluntary.

Information you provide via this online survey will remain confidential and anonymous. The risks of participating in this study are no greater than those encountered in normal daily life. By completing this survey you are providing your consent and acknowledging that the data provided anonymously by you can be accessed by the research team.

If you have any questions or concerns regarding this survey, please contact Dr. Robert F. Sullivan by email: robert.sullivan@utoledo.edu. Please complete the survey by clicking on this link.

Thank you for your time and consideration.

Peter You, M.S., M.Ed.
Doctoral Candidate
Department of Curriculum and Instruction
Appendix C

Pilot Questionnaire

Part I: Best Practices of Distance Learning Course Design and Delivery

Please specify the extent that you agree that your distance learning courses reflect the following best practices of design and delivery. Select the one that best matches your opinion.

a. Strongly disagree  b. Disagree  c. Agree  d. Strongly agree

1. I use Internet communication tools to promote faculty and student interaction frequently.
2. I use Internet communication tools to encourage student-student interaction.
3. I use active learning activities (e.g. discussions, case studies, problem-based learning, and simulations etc.) to engage students.
4. I use simulated or real-world problems to engage students’ learning.
5. I make student’s thinking visible to entire class (ask students to post their thoughts, homework, or group projects on class discussion board or blog, wiki).
6. I establish clear policies for faculty-student communication.
7. I include an FAQ page or a discussion topic for projects or general questions on discussion board.
8. I provide constructive feedback on student’ assignments and other inquiries in a timely manner.

9. I give students sufficient time to complete their assignments.

10. I distribute assignment/task due dates throughout the semester.

11. I assign challenging tasks to students to communicate high expectations.

12. I select exemplary student projects and make them available as examples to the class with student’s permission.

13. I allow students choose their own projects according to the project requirements with my guidance.

14. I use different media formats to present course materials (e.g., web pages, audio, or video clips).

15. I give students opportunities to reflect on their own learning throughout the semester, especially in the middle and at the end of a semester.

16. I give students opportunities to provide feedback regarding course content during the semester.

17. I make specific course resources (professional journals, associations, user groups) available to students on the course site.

18. I add links to the library, tech support, writing support, etc on the course site.

19. I use appropriate terms and icons on the homepage so that course materials can be easily located on the course homepage.

20. I organize the course materials in a logical format.

21. I use visual aids when necessary to support student learning.
22. I work with instructional designers to make sure that students with special needs can access course materials.

23. I reference to the university academic dishonesty policy in the syllabus or on the course.

24. I used assessment strategies that deter academic dishonesty (e.g. use authentic assessment, proctored tests, lockdown browser, or Turnitinn etc.)

25. I follow the fair use guidelines (or TEACH Act) when using copyrighted materials.

26. I use learning objectives to design the learning activities.

27. I use learning objectives in the selection of technological tools.

28. I consider students’ learning characteristics in the selection of technological tools.

29. I use learning objectives to design the student assessment.

30. What other strategies or best practices of distance learning course design and delivery you use in your online courses but not listed in this survey?

**Part II: Working with Instructional Designers in Distance Learning Courses**

1. Have you worked with instructional designers in distance learning course design and delivery? **(Yes/No)**. If you answered “Yes” to this question please skip the questions of this part and complete Part III.

2. How do you work with instructional designers? **(Yes/No)**
   a. I work with instructional designers in one-on-one individual consultation sessions.
   b. I attend face-to-face workshops conducted by instructional designers
c. I work within a course design team that consists of other faculty members and an instructional designer.

d. I use online learning modules developed and maintained by instructional designers.

e. Please specify any other methods that you work with instructional designers.

3. Why do you work with instructional designers? (Yes/No) I work with instructional designers to:

   a. Discuss pedagogical issues on distance learning courses.
   b. Discuss technological aspect of distance learning courses.
   c. Discuss administrative aspect of distance learning courses.
   d. Meet university mandatory requirements.
   e. Please specify any other reasons that you interact with instructional designers.

4. Prior to working with instructional designers (workshops, individual consultation, online learning modules etc.) I was ready to implement the best practices of distance learning course design and delivery in my distance learning courses.

   a. Strongly disagree
   b. Disagree
   c. Agree
   d. Strongly agree

5. After working with instructional designers (workshops, individual consultation, online learning modules etc.) I am prepared to implement the best practices of distance learning course design and delivery in my distance learning courses.

   a. Strongly disagree
b. Disagree
c. Agree
d. Strongly agree

6. Please provide additional comments about your experiences working with instructional designers on best practices of distance learning course design and delivery.

Part III. Demographic Information

1. Please select the gender with which you identify.
   a. Male
   b. Female

2. Please select your academic rank.
   a. Professor
   b. Associate professor
   c. Assistant professor
   d. Lecturer
   e. Instructor
   f. Part time instructor or adjunct faculty
   g. Teaching assistant/GA

3. Please select the field in which you teach.
   a. Arts and Humanities
   b. Business
   c. Education
   d. Engineering
   e. Science (Biology, Chemistry, Physics, etc.)
   f. Social science
   g. Health science
   h. Other, please specify ________________________.

4. Please indicate how long you have taught distance learning/distance education courses.
a. More than 4 years
b. 3-4 years
c. 2-3 years
d. 1-2 year
e. Less than 1 year
Appendix D

Letter of Consent for Primary Study

Dear Colleague,

As a faculty member who has taught distance learning courses, you are invited to be part of a research study on faculty’s perceived utilization of best practices and instructional designers’ role. As part of my doctoral dissertation in the Department of Curriculum and Instruction: Educational Media at The University of Toledo, I am conducting a research study to examine faculty’s perceived utilization of best practices of distance learning course design and delivery and instructional designers’ role in promoting these best practices to faculty members from the instructors’ perspectives.

The findings of the proposed study will provide insights regarding the utilization of distance learning best practices and instructional designers’ role in promoting these best practices. Such information will be beneficial to academic staff when planning faculty support and development activities, and faculty members when designing and teaching distance learning courses.

Your participation is completely voluntary. Information you provide via this survey will remain confidential and anonymous. The risks of participating in this study are no greater than those encountered in normal daily life.

By completing this survey you are providing your consent and acknowledging that the data provided anonymously by you can be accessed by the research team.

If you have any questions or concerns regarding this survey, please contact Dr. Robert F. Sullivan by email: robert.sullivan@utoledo.edu. Please complete the survey by clicking on this link by mm/dd/yyyy.

Thank you for your time and consideration.

Peter You, M.S., M.Ed.
Doctoral Candidate
Department of Curriculum and Instruction
Judith Herb College of Education
Appendix E

Primary Questionnaire

Part I: Best Practices in Distance Learning Course Design and Delivery

Please specify the extent that you agree that your distance learning courses reflect the following best practices of design and delivery. Select the one that best matches your opinion.

   a. Strongly disagree   b. Disagree   c. Agree   d. Strongly agree

1. I use Internet communication tools to promote faculty and student interaction frequently.

2. I establish clear policies for faculty-student communication.

3. I use Internet communication tools to encourage student-student interaction.

4. I make student’s thinking visible to entire class (ask students to post their thoughts, homework, or group projects on class discussion board or blog, wiki).

5. I use active learning activities (e.g. discussions, case studies, problem-based learning, and simulations etc.) to engage students.

6. I use simulated or real-world problems to engage students’ learning.

7. I provide constructive feedback on student’ assignments and other inquiries in a timely manner.
8. I give students sufficient time to complete their assignments.

9. I distribute assignment/task due dates throughout the semester.

10. I assign challenging tasks to students to communicate high expectations.

11. I select exemplary student projects and make them available as examples to the class with student’s permission.

12. I allow students choose their own projects according to the project requirements with my guidance.

13. I use different media formats to present course materials (e.g., web pages, audio, or video clips).


15. I give students opportunities to reflect on their own learning throughout the semester, especially in the middle and at the end of a semester.

16. I give student opportunities to provide feedback regarding course content during the semester.

17. I make specific course resources (professional journals, associations, user groups) available to students on the course site.

18. I add links to the library, tech support, writing support, etc on the course site.

19. I include an FAQ page or a discussion topic for projects or general questions on discussion board.

20. I use appropriate terms and icons on the homepage so that course materials can be easily located on the course homepage.

21. I organize the course materials in a logical format.

22. I use visual aids when necessary to support student learning.
23. I work with instructional designers to make sure that students with special needs can access course materials.

24. I reference to the university academic dishonesty policy in the syllabus or on the course.

25. I used assessment strategies that deter academic dishonesty (e.g. use authentic assessment, proctored tests, lockdown browser, or Turnitin etc.)

26. I follow the fair use guidelines (or TEACH Act) when using copyrighted materials.

27. I use learning objectives to design the learning activities.

28. I use learning objectives in the selection of technological tools.

29. I use learning objectives to design the student assessment.

30. What other strategies or best practices of distance learning course design and delivery you use in your online courses but not listed in this survey?

Part II: Working with Instructional Designers in Distance Learning Course Design and Delivery

1. Have you worked with instructional designers in distance learning course design and delivery? (Yes/No). If you answered “Yes” to this question please skip the questions of this part and complete Part III.

2. How do you work with instructional designers? (Yes/No)

   a. I work with instructional designers in one-on-one individual consultation sessions.

   b. I attend face-to-face workshops conducted by instructional designers.
c. I work within a course design team that consists of other faculty members and an instructional designer.
d. I use online learning modules developed and maintained by instructional designers.
e. Please specify any other methods that you work with instructional designers.

3. Why do you work with instructional designers? (Yes/No) I work with instructional designers to:
   a. Discuss pedagogical issues on distance learning courses.
   b. Discuss technological aspect of distance learning courses.
   c. Discuss administrative aspect of distance learning courses.
   d. Meet university mandatory requirements.
   e. Please specify any other reasons that you interact with instructional designers.

4. Prior to working with instructional designers (workshops, individual consultation, online learning modules etc.) I was ready to implement the best practices of distance learning course design and delivery in my distance learning courses.
   a. Strongly disagree
   b. Disagree
   c. Agree
   d. Strongly agree
5. **After** working with instructional designers (workshops, individual consultation, online learning modules etc.) I am prepared to implement the best practices of distance learning course design and delivery in my distance learning courses.

   a. Strongly disagree
   b. Disagree
   c. Agree
   d. Strongly agree

6. Please provide additional comments about your experiences working with instructional designers on best practices of distance learning course design and delivery.

**Part III. Demographic Information**

1. Please select the gender with which you identify.
   a. Male
   b. Female

2. Please select your academic rank.
   a. Professor
   b. Associate professor
   c. Assistant professor
   d. Lecturer
   e. Instructor
   f. Part time instructor or adjunct faculty
   g. Teaching assistant/GA

3. Please select the field in which you teach.
   a. Arts and Humanities
   b. Business
   c. Education
   d. Engineering
   e. Sciences (Biology, Chemistry, Physics, Mathematics etc.)
   f. Social science
g. Health science
h. Other, please specify _____________________.

4. Please indicate how long you have taught distance learning/distance education courses.
   a. More than 4 years
   b. 3-4 years
   c. 2-3 years
   d. 1-2 year
   e. Less than 1 year
Appendix F

Figure 3
Hierarchal map of faculty and each of the evaluated best practices

Each '#' represents two faculty members.