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Competencies for Instructional Designers: A View from Employers

Wei Qiang Kelly

FLORIDA STATE UNIVERSITY
COLLEGE OF EDUCATION

COMPETENCIES FOR INSTRUCTIONAL DESIGNERS: A VIEW FROM EMPLOYERS

By
WEI QIANG KELLY

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Wei Qiang Kelly defended this dissertation on July 26, 2016.

The members of the supervisory committee were:

James Klein

Professor Directing Dissertation

Jonathan Adams

University Representative

Vanessa Dennen

Committee Member

Fengfeng Ke

Committee Member

The Graduate School has verified and approved the above-named committee members, and certifies that the dissertation has been approved in accordance with university requirements.

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TABLE OF CONTENTS

List of Tables	vi
List of Figures	vii
Abstract	viii
INTRODUCTION	1
1.1 Problem Statement	2
1.2 Purpose of Study	3
1.3 Research Questions	3
LITERATURE REVIEW	5
2.1 Defining Instructional Design & Technology	5
2.1.1 Instructional Design	10
2.1.2 Instructional Technology	11
2.2 Instructional Designer	13
2.3 Competency	14
2.4 Instructional Design and Technology Competencies	16
2.4.1 Studies on Instructional Design and Technology Competencies	16
2.4.2 Common Instructional Design and Technology Competency Standards	19
2.5 Summary of Instructional Design and Technology Competencies	23
2.5.1 Instructional Design Competencies	23
2.5.2 Instructional Technology Competencies	24
2.5.3 Management Competencies	24
2.5.4 Communication & Interpersonal Competencies	24
2.5.5 Other Foundational Competencies	25
2.6 Purpose of the Current Study	25
METHODOLOGY	49
3.1 Research Design	49
3.1.1 Job Announcement Analysis	49
3.1.2 Interview	50
3.2 Phase One: Job Announcement Analysis	51
3.2.1 Job Announcement Sampling Process	51
3.2.2 Job Announcements Coding Procedure	53
3.2.3 Job Announcements Analysis Procedure	58
3.3 Phase Two: Interview	58
3.3.1 Interview Participants	58
3.3.2 Interview Protocol	59
3.3.3 Interview Procedure	60
3.3.4 Interview Coding Procedure	61
3.3.5 Interview Analysis Procedure	62
3.4 Validity and Reliability	63

RESULTS	66
4.1 Results for Research Question 1	66
4.1.1 Overall Most Frequently Listed Instructional Designers' Competencies.....	66
4.1.2 Most Frequently Listed Instructional Designers' Competencies in Different Categories	69
4.1.3 Instructional Designers' Competencies in Different Industry Sectors	72
4.1.4 Instructional Designers' Competencies with Different Work Experience Requirements	80
4.2 Results for Research Question 2	83
4.2.1 General Information about the Interviewees.....	83
4.2.2 The Top 25 "Must- Have" Instructional Designers' Competencies from ID Project Managers' Perspective	84
4.2.3 ID Project Managers' Opinions on Instructional Designers' Competencies with Different Work Experiences	86
4.3 Results for Research Question 3	87
DISCUSSION	91
5.1 Summary of Findings.....	91
5.2 Discussion.....	92
5.2.1 The Must-have Competencies for Instructional Designers.....	92
5.2.2 The Competencies for Instructional Designers in Different Work Settings	96
5.2.3 The Must-have Competencies for Different Levels of Instructional Designers	98
5.3 Limitations	100
5.4 Implications.....	101
5.4.1 For IDT Practitioners	101
5.4.2 For Employers of Instructional Designers	101
5.4.3 For Current Students in IDT Programs	102
5.4.4 For IDT Academic Programs.....	103
5.5 Recommendations for Future Study	104
APPENDICES	106
A. INTERVIEW PROTOCOL FOR INSTRUCTIONAL DESIGNER COMPETENCY STUDY	106
B. EMAIL TO POTENTIAL INTERVIEWEES.....	109
C. FLORIDA STATE UNIVERSITY INFORMED CONSENT SCRIPT	111
D. FLORIDA STATE UNIVERSITY SUBJECTS COMMITTEE APPROVAL LETTER.....	113
E. FLORIDA STATE UNIVERSITY SUBJECTS COMMITTEE RE-APPROVAL LETTER.....	115
References.....	117
Biographical Sketch.....	124

LIST OF TABLES

Table 1. Definitions of the Instructional Design and Technology Field ^a	9
Table 2. Three Professional Associations Related to IDT Field.....	20
Table 3. Summary of Findings from Recent IDT Competency Studies ^a	27
Table 4. Instructional Design Competencies for Instructional Designers	35
Table 5. Instructional Technology Competencies for Instructional Designers.....	38
Table 6. Management Competencies for Instructional Designers	40
Table 7. Communication & Interpersonal Skills for Instructional Designers	44
Table 8. Other Foundational Competencies for Instructional Designers.....	45
Table 9. Job Announcements Coding Categories and Codes Sample	54
Table 10. Top 25 Instructional Designers' Competencies from Job Announcement Analysis	68
Table 11. Top 10 Required Competencies in Instructional Design Category	69
Table 12. Top 10 Required Competencies in Instructional Technology Category.....	70
Table 13. Top 10 Required Competencies in Management Category	70
Table 14. Top 10 Required Competencies in Communication and Interpersonal Category	71
Table 15. Top 10 Required Competencies in the Other Foundational Competencies Category ..	72
Table 16. Top 25 Required Competencies in the Business and Industry Sector	72
Table 17. Top 25 Required Competencies in the Higher Education Sector	74
Table 18. Top 25 Required Competencies in the Educational Consulting Sector.....	76
Table 19. Top 25 Required Competencies in the Healthcare Sector	78
Table 20. Top 25 Required Competencies with Zero to Five Years of Work Experience	80
Table 21. Top 25 Required Competencies with More than Five Years of Work Experience	82
Table 22. Top 25 Must-have Instructional Designers' Competencies from ID Project Managers' Perspective	85

LIST OF FIGURES

Figure 1. Job Roles within Four Work Settings For Instructional Designer (Larson & Lockee, 2004)	14
Figure 2. Job Announcements Coding Procedure.....	57
Figure 3. Interview Coding Procedure.....	62
Figure 4.Example of Using MAXQDAplus to Code Job Announcement.....	65
Figure 5. Percentage of Instructional Designers' Competency by Category	67
Figure 6. Percentage of Instructional Designers' Competency by Category in the Business and Industry Sector	74
Figure 7. Percentage of Instructional Designers' Competency by Category in the Higher Education Sector	76
Figure 8. Percentage of Instructional Designers' Competency by Category in the Educational Consulting Sector.....	76
Figure 9. Percentage of Instructional Designers' Competency by Category the Healthcare Sector	78
Figure 10. Percentage of Required Competency by Category for Designers with 0-5 Years Work Experience (Left) and with More Than Five Years Work Experience(Right)	83
Figure 11. Percentage of Instructional Designers' Competency by Categories from ID Project Managers' Perspective	86

ABSTRACT

Instructional design and technology (IDT) professionals work in various environments and have numerous job responsibilities. Despite differences in work settings and functions, IDT professionals should have a variety of skills to perform their job to expected standards. This study was conducted to identify the must-have competencies for IDT practitioners from employers' point of view. To do so, 393 job announcements from two different sources were collected and analyzed to determine the most frequently listed competencies. In addition, 20 instructional design project managers were interviewed to determine the most important competencies from their point of view.

Content analysis was used to examine the job announcements and interview data. Frequencies of competencies from both data sources were calculated and reported. Findings focus on the top 25 required competencies from job announcements and the top 25 desired competencies from interviews. The results were clustered into five competency categories: instructional design, instructional technology, communication and interpersonal skills, management, and other foundational competencies. Competency requirements for IDT professionals in four employment sectors (business and industry, consulting, healthcare, and higher education) were also identified.

Findings revealed that entry-level and experienced instructional designers should have skills in the five major competency categories, but experienced designers are required to have higher proficiency especially in the management and communication and interpersonal categories. Collaborate effectively with stakeholders, subject matter experts, teammates and others was the most frequently cited competency in job announcements and by interview participants. Utilize ADDIE procedures was the most frequently listed skill in the instructional

design category while knowledge and experience with E-learning authoring software was the most frequently listed competency in the instructional technology category. Announcements for jobs in the higher education sector included more required competencies in instructional technology while those in business and industry, consulting, and healthcare included more required skills related to instructional design. Implications of these finding are provided for IDT practitioners, employers, students, and academic programs.

CHAPTER ONE

INTRODUCTION

Instructional Design and Technology (IDT) as a field has existed over 60 years. During this time, the field has expanded its boundaries and changed its focus due to emerging theory, practice, and technological innovations. The field itself is referred to by different names, such as Instructional Systems, Instructional Design, Instructional Technology, or Educational Technology (Reiser, 2011b).

The changing nature of the IDT field sometimes makes it difficult to identify the professionals who work in it. Various job titles are used, such as instructional designer, instructional technologist, curriculum developer, trainer, consultant, instructor, learning specialist, or even project manager (Furst-Bowe, 1996; Larson & Lockee, 2004; Liu, Gibby, Quiros, & Demps, 2002). Moreover, these professionals can enter a wide range of work environments, such as business and industry, higher education, K-12 education, government/military, non-profit, and healthcare (Larson & Lockee, 2004). Thus, it is necessary to determine the competencies for instructional design and technology professionals.

Determining competencies is beneficial in many different ways. First of all, it can help practitioners to identify what they need to know and be able to perform at work. Second, it helps students in the field to self-assess their learning results and decide what competencies they need to build before they graduate. Third, it helps university IDT programs prepare their students for their future careers. Lastly, it also helps employers determine whom they need to hire.

In the past two decades, many researchers conducted studies on examining the competencies for IDT professionals who work in different work settings (Byun, 2000; Larson & Lockee, 2004; Liu et al., 2002; Moallem, 1995). Some other studies focused on determining one

specific area of competency for IDT professionals, such as project management (Brill, Bishop, & Walker, 2006; van Rooij, 2011; Williams van Rooij, 2013), instructional technology (Liu et al., 2002; A. Ritzhaupt, Martin, & Daniels, 2010; Ritzhaupt & Martin, 2014; Sugar, Hoard, Brown, & Daniels, 2011), and human performance technology (Fox & Klein, 2003; Klein & Fox, 2004).

Besides the empirical studies, professional associations (e.g. Association for Talent Development, the International Board of Standards for Training and Performance Improvement, the International Society for Performance Improvement, and Association of Educational Communication and Technology) also published their competency standards on instructional design and technology. However, since these associations have different focuses and goals, their competency standards differ.

1.1 Problem Statement

The evolving nature of the IDT field means that the needs of employers and the job requirements of instructional designers are also changing. This requires IDT professionals to know what skills they should be able to perform at work. It requires employers to know what IDT competencies they require of their employees. It requires future instructional designers to know how to prepare themselves to be ready for work. It also requires the university programs to keep updating their curriculum to meet the changes. Therefore, it is essential to identify the must-have competencies for instructional designers.

Existing studies have focused on competencies for instructional designers while others have examined what they actually do at work (Brill et al., 2006; Furst-Bowe, 1996; Klein & Jun, 2014; Larson & Lockee, 2004; Sugar et al., 2011; Williams van Rooij, 2013; Williams, 2003). However, it is unknown whether these IDT competencies match to those that employers expect their instructional designers to possess. In addition, it is also unknown what are the different

requirements on IDT competencies between entry-level instructional designers and experienced instructional designers, which is critical when IDT professionals look for jobs.

1.2 Purpose of Study

The primary purpose of this study is to identify the must-have IDT competencies for instructional designer positions that are required by employers. To do so, I collected 393 instructional designer job announcements from two different sources, and then conducted a content analysis to determine the most frequently required IDT competencies. In addition, I also conducted 20 interviews with instructional design project managers to determine the most important competencies from their point of view.

1.3 Research Questions

Research questions for this study are:

1. What are the competency requirements for instructional designers? Specifically:
 - What are the most frequently listed competencies for instructional designers in job announcements?
 - Do the different industry sectors request different competencies, if so, what are the differences?
 - What are the most frequently required competencies for entry-level and experienced instructional designers?
2. What competencies do ID project managers think are the most important when hiring an instructional designer?
3. What are the other important requirements (such as education background or work experience) for instructional designers?

For the purpose of this study, the *employer* is defined as the organization or agency that published an announcement to hire an individual to do instructional design and technology

related job performance (it can be a company, a university or school, or government). The *entry-level instructional designer* is the professional who has accomplished a degree or training in the instructional design and technology field, with 0-5 years of work experience in the field, and works as an instructional designer. The *experienced instructional designer* is the professional who has accomplished a degree or training in the instructional design and technology field, with 5+ years of work experience in the field, and works as an instructional designer. Instructional designers mentioned here may have various job titles, but their job requirements match to the instructional design and technology competencies that are summarized in the next chapter. The *instructional design project manager* is the professional who has five or more years of experience as an instructional designer, who has managed one or more ID projects, and who has participated in hiring new instructional designers at any level.

CHAPTER TWO

LITERATURE REVIEW

In this chapter, I start by defining the field of Instructional Design and Technology (IDT), the instructional designer occupation as well as competency. I then discuss the studies on instructional design and technology competency and provide a detailed summary of the recent studies on IDT competencies. I also describe IDT competency standards identified by three major organizations in our field. I then provide a detailed summary of instructional design and technology competencies in five categories - instructional design, instructional technology project management, communication/interpersonal, and other foundational competencies. I conclude this chapter with a description of the importance of determining the must-have job competencies for instructional designers from the employers' perspective.

2.1 Defining Instructional Design & Technology

Before addressing the competencies required of practitioners in IDT, it is important to answer the question - What is Instructional Design and Technology? The definition of the field has evolved over several decades. Unlike many other fields, IDT is constantly changing due to emerging theory, practice, and technological innovations. The field itself is referred to by different names such as Instructional Systems, Instructional Design, Instructional Technology, and Educational Technology (Reiser, 2011b).

The early definition of the field focused on instructional media, especially on the use of audiovisual materials to present instruction. Then, during the 1970s, the focus shifted from media to instructional design and technology as a process (Reiser, 2011a). Recently, with the rapid development of innovations in internet and digital technology, the definition of the field has changed again. In order to better describe the changes in the field, I will present the definitions

approved by the Association for Educational Communications and Technology (AECT), one of the earliest academic and professional associations in the IDT field. A main responsibility of this association is to write the definition of the field.

The first formal definition was approved by AECT in 1963:

Audiovisual communications is the branch of educational theory and practice concerned with the design and use of messages which control the learning process. It undertakes: (a) the study of the unique and relative strengths and weaknesses of both pictorial and nonrepresentational messages which may be employed in the learning process for any reason; and (b) the structuring and systematizing of messages by men and instruments in an educational environment. These undertakings include planning, production, selection, management, and utilization of both components and entire instructional systems. Its practical goal is the efficient utilization of every method and medium of communication which can contribute to the development of the learners' full potential (Ely, 1963, pp. 18-19).

As we can see in this early definition, audiovisuals were the key to deliver instructional messages. Creating these messages and using media to improve learning was a main duty for instructional designers at that time. However, with the development of technology and an expansion of work settings, AECT refined their definition of the field in 1977.

This newly adopted definition was “Educational technology, is a complex, integrated process involving people, procedures, ideas, devices and organization for analyzing problems and devising, implementing, evaluating and managing solutions to those problems involved in all aspects of human learning” (AECT, 1977, p.1). Compared to the previous definition, this revised one provided more detailed concepts and explanations of statements (Reiser, 2011a). This is also

the first definition that included analyzing learning problems in the planning phase of instructional design, which has been widely used in practice until present day.

Then, over the next 20 years, the influences of new instructional theories (such as cognitive learning theory and constructivism) and technological advances (such as CD-ROM and the internet) continued to change the field. In 1994, the revised definition was presented in the book, *Instructional Technology: The Definitions and Domains of the Field* (Seels & Richey, 1994). The revised definition of the field was stated as: “Instructional Technology is the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning” (p. 4).

This definition clearly stated the five domains of the field: design, development, utilization, management, and evaluation. Seels and Richey (1994) explained their reason to list these five domains in the definition was because they “encompass areas of concern to practitioners and scholars” (p. 2). Another obvious difference was this definition focused on *Instructional Technology* instead of *Educational Technology* as in the previous version. The authors explained that *Instructional Technology* was a more common term in the field across different work settings, and it emphasized both instruction and learning.

However, AECT switched the term back to *Educational Technology* in its newest definition, which was published in 2008. In this most recent definition, “Educational Technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources” (Januszewski & Molenda, 2008, p. 2)

This definition has several obvious changes compared to the 1994 definition. First, it changes back the term from *Instructional Technology* to *Educational Technology*. According to

the Terminology Committee of AECT, “Educational technology is viewed as a construct that is larger than instructional technology, as education is more general than instruction. Furthermore, educational or instructional technology can be seen as discrete elements within performance technology, the holistic approach to improving performance in the workplace through many different means, including training” (2008, p.13). Second, it emphasizes *improving performance*, meaning the field has shifted to using instructional and non-instructional techniques to improve individual and organizational performance. Third, this new definition includes the word *ethical*. This emphasizes the importance for professionals in the field to maintain a high standard of moral, social, and behavioral conduct.

In addition to definitions developed by AECT, there are other definitions of the field as well. For instance, a well-known definition of IDT is given by Reiser and Dempsey (2011) in their book, *Trends and Issues in Instructional Design and Technology*:

The field of instructional design and technology (also known as instructional technology) encompasses the analysis of learning and performance problems, and the design, development, implementation, evaluation and management of instructional and non-instructional processes and resources intended to improve learning and performance in a variety of settings, particularly educational institutions and the workplace.

Professionals in the field of instructional design and technology often use systematic instructional design procedures and employ a variety of instructional media to accomplish their goals. Moreover, in recent years, they have paid increasing attention to non-instructional solutions to some performance problems.

Research and theory related to each of the aforementioned areas is also an important part of the field (p. 5).

Table 1. Definitions of the Instructional Design and Technology Field^a

	AECT (1963)	AECT (1977)	AECT (1994)	AECT (2008)	Reiser & Dempsey (2011)
Focus of the field	Design and use of instructional messages	Systematic design processes	1. Five domains: design, development, utilization, management, and evaluation. 2. Resources for learning	Study and ethical practice	1. The systematic instructional design procedure and 2. The use technology and technological resources
Goal	Facilitate learning	Facilitate learning	Facilitate learning	Facilitate learning & improve performance	Improve learning and performance
Products	Instructional Messages	Human and non-human resources for learning	Learning resources and processes of learning	Technological processes and resources	Instructional and non-instructional process and resources
Function of professionals	Design and utilization of media	Analyze, design, implement, evaluate, and manage solutions for learning problems	Practice the five domains of instructional design process	Create, use, and manage technological processes and resources	Instructional and non-instructional design procedure (Analysis, Design, Development, Implement, and Evaluation) and management

^a This table is based on information found in Reiser & Ely (1997) and instructional materials developed by J. Klein (used with permission).

Table 1 provides a summary of how the definition of the IDT field has changed over the past 50 years. From the table we can see, despite the changes of the definition of the field over the years, IDT emphasizes two main elements: (1) a focus on systematic processes and (2) the use of technological resources. For the purpose of this study, I will use the definition stated by

Reiser (2011a, p. 5), because it clearly shows the two major elements in the field: “the use of systematic instructional design procedures” and “the use of media for instructional purpose.” In order to determine competencies for IDT professionals, it is important to clearly define each of these elements. The following parts will explain these two elements separately.

2.1.1 Instructional Design

Smith and Ragan (1999) believed that Instructional Design (ID) is “the systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation” (p. 4). Richey, Klein and Tracey (2010) also defined instructional design as “the science and art of creating detailed specifications for the development, evaluation and maintenance of situations which facilitate learning and performance” (p. 5). Although the origins of ID is not clear, some scholars believe Silvern’s work (1965) on how to use general systems theory to create effective and efficient training for the military can be seen as the first ID model (Bertalanffy, 1968; Gustafson & Branch, 2001).

Gustafson and Branch (2002) stated that ID as a system has four major characteristics: (1) interdependent, which means the elements in this system are all dependent on each other; (2) synergistic, which means the elements together can achieve better outcomes than individually; (3) dynamic, which means the system may need to be adjusted based on the changes in the environment; and (4) cybernetic, which means all elements in this systems are communicating among themselves efficiently. These four characteristics are crucial to understand ID procedures and how to determine and design each element in the system in order to achieve the best learning outcomes.

To achieve learning goals, scholars have created ID models that describe the processes for designing effective instruction. Since the 1970s tons of models have been proposed to describe effective instructional design process in various settings or for various instructional

purposes (D. H. Andrews & Goodson, 1980; Gustafson & Branch, 2001). Some well-known ID models include the Dick and Carey Model (Dick, Carey, & Carey, 2011); the Morrison, Ross, and Kemp Model (Morrison, Ross, Kemp, & Kalman, 2010); the Smith and Ragan Model (Smith & Ragan, 1999); the Interservice Procedures for Instructional Systems Development (IPISD) Model (Branson, Rayner, Cox, Furman, & King, 1975); and the ASSURE Model (Smaldino, Lowther, & Russell, 2008). These various models describe how to carry out ID processes in various settings. Despite the differences among these ID models, all of them contain five elements, which include Analysis, Design, Develop, Implement, and Evaluation (ADDIE) to assure developing effective, efficient, and engaging instruction, to achieve expected goals and objectives. Although the original sources of ADDIE are still unknown (Molenda, 2003), and authors have claimed that ADDIE is not a model but a conceptual framework (Bichelmeyer, 2005), one fact is very observable: in the field of IDT, ADDIE is a common conceptual framework in different work settings.

2.1.2 Instructional Technology

Another element in the instructional design and technology field is the use of instructional media. Early instructional technology involved media usage from the 1920s throughout the 1940s. It mainly meant using visual materials (such as film, picture, and diagrams) and audio materials (such as radio broadcasting and voice recording) to present instruction. In the 1950s, using television to deliver instruction became popular. After instructional television, using computer-assisted instruction became the new favored technology in instructional practice. Since 1995, instructional designers use new forms of media such as digital technology and the internet in settings such as business and industry, government, military, and higher education (Reiser, 2011b).

There are many benefits of using these new forms of media. First, the internet allows practitioners to provide instruction to a wide range of learners with a low cost (Moore & Kearsley, 2011; Moore, 2013). Instead of gathering all the learners together to have face-to-face lectures, instructors can provide the courses online, and learners can access the instructions from their local location, whether they are in a different city, state or even country. Second, the easy access allows learners to interact with instructors and other learners easier and efficiently (Alavi & Leidner, 2001; Ellison, Steinfield, & Lampe, 2007; Neely, Gregory, & Platts, 1995). Using Learning Management Systems (LMS), social networking and social media, students can easily connect to others and share in their learning. Third, the innovation of new technologies increases the usage of multimedia in instruction (Alessi & Trollip, 2001; Mayer, 2002). The usage of multimedia allows instructional designers to design complex interactions between learners and the learning content (Reiser, 2011b).

In predicting the future of instructional technology, Reiser (2011b) stated that we could easily note a recurrent pattern: whenever a new medium is introduced in education, there is huge enthusiasm about applying it in the field. However, when it is revealed that the medium has small impact on actual practice, the enthusiasm and interest fade away. However, he also stated that in the next few years, “computers, the internet, and other digital media . . . will continue to bring about far greater changes in instructional practices than the media that preceded them” (p. 23).

To summarize, the definition of instructional design and technology is constantly changing due to the nature of the field. However, it always focuses on two elements: (a) systematic instructional procedures, and (b) use of technology to support learning. In the next section, I will discuss the professionals who work in the IDT field.

2.2 Instructional Designer

The changing nature of the IDT field sometimes makes it difficult to identify the professionals who work in it. Various job titles are used such as instructional designer, instructional technologist, curriculum developer, trainer, training manager, consultant, instructor, learning specialist, or even project manager (Furst-Bowe, 1996; Larson & Lockee, 2004; Liu et al., 2002). For example, Furst-Bowe (1996) found 40 different titles from 147 practitioners in the IDT field. Different work settings, job roles, and constant changes in the IDT field make the identification of the people who work in it very complex. They may be called something else based on the phase and production process of the instructional product. For instance, the job role may be listed as an online learning developer, whose main job duties are related to design and development of online courses (Liu et al., 2002). In addition, work setting may also influence the job role of the IDT field. In the higher education setting, he or she may be called distance-learning coordinator, while in the business setting, he or she may be called online training consultant, although these two job duties and performances may be the same.

In this study I use the term *instructional designer* to identify the professionals in the IDT field. The first reason is that instructional designer is the common term to refer to people in the field. The second reason is that in the Reiser and Dempsey (2011) definition, it clearly defined the duty of instructional designer as “professionals in the field of instructional design and technology often use systematic instructional design procedures and employ a variety of instructional media to accomplish their goals.” (p. 5).

Researchers have focused on categorizing the common work settings for instructional designers (Andrews, Moses, & Duke, 2002; Byun, 2000; Heideman, 1991; Moallem, 1995; Richey, Morrison, & Foxon, 2006; Surry & Robinson, 2001). In Larson and Lockee’s (2004) study, they defined the common work settings to include: (1) business and industry; (2) higher

education; (3) K-12 education; (4) government/military; (5) non-profit; and (6) healthcare. They also listed the job roles for instructional designers in the first four common work settings, based on previous literature (see Figure 1). Researchers also showed that among different work settings, business and industry was reported as the most common working setting for instructional designer (Byun, 2000; Moallem, 1995; Reiser, 2011b; Richey et al., 2006).

Business & Industry	Higher Education	K-12 Education	Government/ Military
<ul style="list-style-type: none"> • Sole Designer • Team Member/Leader • Designer as Consultant 	<ul style="list-style-type: none"> • Traditional Faculty Position • Service Positions: <ul style="list-style-type: none"> • Instructional Technologist • Instructional Designer • Distance Learning Coordinator • IT Manager/Administrator • Technical Support Specialist • Word Wide Web Specialist • IT Librarian • Miscellaneous 	<ul style="list-style-type: none"> • Teacher • Librarian/Media specialist • Technology Coordinator 	<ul style="list-style-type: none"> • Instructional Systems Specialist (GS-1750) • Supervisory Instructional Systems Specialist (GS-1750)

Figure 1. Job Roles within Four Work Settings For Instructional Designer (Larson & Lockee, 2004)

2.3 Competency

The next question, which needs to be discussed, is: what is competency? The concept of competency has been used worldwide in the job market. However, different countries interpreted competency in different ways. In Australia it refers to “key competencies,” in New Zealand it means “essential skills,” and it is used as “core skills” in the United Kingdom (Hobart &

Lundberg, 1995). In the United States, the concept is usually interpreted in different ways, as well as based on the usage and meaning of it.

In McLagan's (1997) study, she identified competency in six ways: (1) Task competencies: detailed tasks and activities that one needs to do in order to complete a job requirement. (2) Result competencies: the ability to perform a result, in other words, what benefits can one bring for the company or customer. (3) Output competencies: this indicates the outcome that one can produce, provide, or deliver to the company or customer. (4) Competencies as knowledge, skills, and attitudes (KSA): the subject matter knowledge and related skills, as well as attitudes, values, orientations, and commitments that one needs to have in order to achieve the best performance in the given job. (5) Superior-performer differentiators: the competencies that superior performers have, but others do not have. (6) Attribute bundles: the collection of KSA and tasks, outputs, and results. The common competencies in attribute bundles are: leadership, problem solving, and decision-making. This type of competency requires one to have the KSA in order to perform the task, provide an output, or bring some results.

Clearly identifying and using competencies can benefit companies to increase their value; it can benefit schools to prepare students or future employment to meet these desired competencies and to know what exactly they are expected to perform in their job (Marrelli, 1998; McLagan, 1997; Parry, 1998). Moreover, McLagan (1997) also indicated that using competencies can: (1) provide a guideline for the practitioners to follow in their practice. (2) Connect the competencies to companies' business strategies- by clearly defining the competencies that their employees need in order to meet their business goal.

For the current study, I borrow the competency definition from the International Board of Standards for Training, Performance and Instruction (IBSTPI). Competencies refer to “a

knowledge, skill, or attitude that enables one to effectively perform the activities of a given occupation or function to the standards expected in employment” (Koszalka, Russ-Eft, & Reiser, 2013; Richey, Fields, & Foxon, 2001). This definition combined two types of competency models - the task competency and the KSA competency. Thus, for the current study, IDT competency not only includes the KSA that instructional designers are to be able to do, but also includes the job and tasks that instructional designers need to complete.

2.4 Instructional Design and Technology Competencies

After clearly defining instructional design and technology, instructional designer, and competency, this segment aims to summarize the recent existing literature on IDT competencies and three common IDT competency standards. Specifically, I summarize the recent IDT competencies studies based on the types of resources used to determine the competencies. Three competency standards to be discussed are: Association for Talent Development (ATD), formerly known as American Society for Training and Development (ASTD); International Board of Standards for Training, Performance and Instruction (IBSTPI); and International Society for Performance Improvement (ISPI).

2.4.1 Studies on Instructional Design and Technology Competencies

Many researchers have studied IDT competencies, some of them focused on examining the must-have instructional design competency (Berge, de Verneil, Berge, Davis, & Smith, 2002; Kenny, Zhang, Schwier, & Campbell, 2005; Klein & Jun, 2014; Liu et al., 2002; Kang & Ritzhaupt, 2015), some investigated the IDT competencies for different work settings, such as business and industry and higher education (Byun, 2000; Larson & Lockee, 2009; Larson & Lockee, 2004; Moallem, 1995; Richey et al., 2006; Williams, 2003), some also were interested in finding the specific type of competencies, such as management competencies, human performance competencies, multimedia competencies and so on (Fox & Klein, 2003; Furst-

Bowe, 1996; Klein & Fox, 2004; Ritzhaupt et al., 2010; Ritzhaupt & Martin, 2014; Sugar et al., 2011; van Rooij, 2013). Due to the nature of the IDT field, it is required to update the competencies consistently, thus even though some studies focused on the same topic, the findings were very different from year to year.

In order to provide a well-organized way to present the recent studies on IDT competencies, I choose to use the type of resource, where data was collected for these studies, and research method as the categorizations. The rationales of choosing these are: (1) despite the type of competencies that researchers examine, there are six resources that researchers have used to conduct studies on IDT competencies: IDT experts & practitioners, project leader (manager, Chief of Learning, etc.), universities programs, faculty, existing literature, and job announcements. (2) To conduct empirical research, the research method and the data collection process are essential. So summarizing the studies by the types of resources provides a way to examine how the study is conducted, how the data is collected and analyzed, which can determine the quality of the study. (3) By summarizing the type of resource and research method, I can provide a rationale for choosing the appropriate research resource (where data will be collected) and method for this current study.

The most commonly used resource is IDT experts and practitioners. Researchers used survey, interview, and Delphi technique to collect data, to determine either one specific IDT competency or IDT competencies for different work settings. The advantage of using experts and practitioners as a resource is that they are working in the IDT field, and their working experience is one of the best ways to determine what they do, and what knowledge and skills they need to perform their job tasks. One issue with using this resource is that most selected participants were experienced instructional designers, so their competencies may differ from the entry-level

instructional designer competency. Another issue is that many practitioners that participated in studies were selected from only one professional association. Thus, their jobs may only focus on one specific area or one specific setting of IDT, so the research findings may have a threat to its validity and reliability.

Another resource often used is project leader. This includes instructional design manager, project manager, Chief of Learning Officer and so on. Usually this type of resource will be collected when researchers examine management competencies or the must-have competencies for instructional designers.

As mentioned before, since competency is important for university programs to determine what they should teach their students, some studies also collect data from university IDT programs and faculty. This type resource is usually collected from survey, case study, or interview. Researchers usually want to examine what type of courses, support, and activities the university programs offer to help prepare for the future instructional designer.

Another type of research in conducting the IDT competency study is literature review. Researchers selected, summarized, analyzed, and evaluated the existing studies on specific topics of IDT competency to identify relations, contradictions, gaps, or inconsistencies. They then provided suggestions for the future study based on the findings. However, literature review is not empirical study, because researchers reported their findings on the previous existing studies, not on their own original findings.

Job announcements that are published in various sources are also used in observing the IDT competency. For this type of resource, researchers can examine job announcements from job advertisement websites (such as indeed.com and simplyhired.com); job databases (such as AECT job board and Chronicle of Higher Education job listings); and intra-university

information (such as program email list-servs and program job news). The advantage of using job announcements is it shows the first-hand results on the market demanded IDT competencies. The results can be used for universities to design their IDT program, for IDT students to determine what type of competency they need before graduation, and for employers to know how to select their perfectly matched instructional designer. However, one big challenge for choosing job announcements as a resource is that professionals in IDT field use many different job titles. So researchers usually need to select various job titles in order to determine the IDT competency. Table 3 lists the recent IDT competencies studies sorted by the research methods. It also includes type of resource, study focus areas, and research findings.

2.4.2 Common Instructional Design and Technology Competency Standards

For academic degree programs, it is essential to ensure what students learn is aligned with what they are expected to do after graduation. For employers, it is important to ensure that employees meet their job expectation. For students, it is critical that they know what is expected on the job and align them with what they learn in school. Thus clearly identifying competencies for IDT professionals is critical.

Since the IDT field is continually changing, the competencies should be determined periodically. Multiple professional associations have determined IDT competencies, but each of them focused on a specific industry and working settings. For example, AECT has more than 80% members who work in education fields, while other organizations may primarily focus on business and industry field. Larson and Lockee (2004) identified eight of the most common professional associations in the IDT field, which includes: American Association of School Librarians (AASL); Association for Talent Development (ATD) formerly known as American Society for Training and Developments (ASTD); Association for Educational Communications and Technology (AECT); International Board of Standards for Training, Performance and

Instruction (IBSTPI); International Society for Performance Improvement (ISPI); International Society for Technology in Education (ISTE); National Council for the Accreditation of Teacher Education (NCATE); and Society for Information Technology and Teacher Education (SITE). Among these associations, three that will be discussed below are: IBSTPI, ISPI and ATD. These three organizations all have developed their own IDT competency standards, and all focused on non-school settings. Table 2 shows the three professional associations with their missions and purpose.

Table 2. Three Professional Associations Related to IDT Field

	Organization	Mission/Purpose
IBSTPI	International Board of Standards for Training, Performance and Instruction	An international organization whose mission is to developing and validating the standards for professionals in the fields of training and performance improvement and instruction. The Board is 15 expert professionals who are selected in universities, government department, businesses and consultancies from all over the world (IBSTPI, 2016a).
ISPI	International Society for Performance Improvement	An international organization focuses on use systematic approach to improve productivity and competence for human performance at workplace. Its mission is to develop and recognize members and advocate human performance improvement (ISPI, 2015a).
ATD	Association for Talent Development	An international organization for training and development professionals, whose mission is empowering professionals to develop knowledge & skills successfully (ATD, 2016a).

2.4.2.1 IBSTPI Competencies. The IBSTPI competencies for instructional designers were first developed in 1986, and have been revised three times since then. The most current set of these competencies was identified and validated in 2013 (Koszalka, Russ-Eft, Reiser, 2013); these were based on the third set of competencies (Richey, Fields, and Foxon, 2001). They were established using a competency model that has four levels. The first level is job role, which describes the function of the job. The second level includes job behaviors; accepted standards, values, ethics; and vision of the future. The job behaviors describe the detailed job tasks that

instructional designers should perform at work. In addition, when the instructional designer performs a job task, he or she needs to follow the standard, values and ethics to ensure the job task is completed as the way it should be. Vision here indicates the directions and shapes of the future as an instructional designer. These lead to the third level, which includes the knowledge, skills, and attitudes that are required to become a successful instructional designer to complete his or her job. The last level includes the domains, competencies, and performance statements.

The new standards include 22 instructional designer competencies with 105 performance statements in five domains: (1) professional foundations; (2) planning and analysis; (3) design and development; (4) evaluation and implementation; and (5) management. Within each domain, all the competencies and performance statements were labeled as essential, advanced, or managerial. The competencies include knowledge, skill, attitudes as well as tasks that are associated with instructional designer job roles as instructor, instructional design specialist, instructional design manager, analysis/evaluator, and e-learning specialist/instructional technologist. Compared to the previous version, the new standards added more updated competencies, which include (1) advanced technologies, team-based design, and management skills; and (2) professional foundations of ID processes. It aims to represent a larger group of professionals in the IDT field (Koszalka, Russ-Eft, Reiser, 2013).

2.4.2.2 ISPI Performance Technology Standards. ISPI focuses on human performance improvement. It developed their standards for their industry certification: the Certified Performance Technologist (CPT) (ISPI, 2015b). The CPT Performance Technology Standards were developed by a 30 people professional team, who came from across the globe in government, industry, and academia fields. ISPI now has over 1,300 professionals who have earned their CPT from 23 different countries.

It has ten standards, the first three standards focus on establishing the overall view of a project and establishing positive relationships with clients and stakeholders, and the rest of the standards are similar to IBSTPI competencies. Besides the ten standards, it describes exactly what the practitioner needs to perform in order to meet the criteria for each of the standards. The ten standards include: (1) focus on results or outcomes; (2) take a systemic view; (3) add value; (4) work in partnership with clients and stakeholders; (5) determine the need or opportunity; (6) determine the cause and performance requirements; (7) design the solution including implementation and evolution; (8) develop the solution and test its feasibility; (9) implement the solution; and (10) evaluate the results and impact (ISPI, 2015b).

2.4.2.3 ATD Competency Model. The majority of members in ATD (formerly known as ASTD) are from business and industry. ATD redefined their competency model in 2014. The original model was developed in 2004, and was updated twice in 2008 and 2011. This newest model focuses on the required competencies for instructional designer to be successful, and the changes were made because of the advancement of the field in digital, mobile, and social technology; demographic shifts; globalization; and economic forces (ATD, 2016b).

The ATD competency model is like layering blocks, the bottom competencies are the foundation competencies, which are required for all trainers. The top competencies are the competencies for specific training areas. It aims to provide practitioners a roadmap for their own career path. The model includes two major areas: (1) foundation competencies, and (2) talent development areas of expertise. The foundation competencies include six basic competencies: business skills; interpersonal skills; personal skills; technology literacy; industry knowledge; and global mindset. These competencies apply to any individual in the IDT field. In the talent development areas of expertise area, it has ten specific areas of expertise. These competencies

emphasized the specialized competencies and actions for specific roles. These ten competencies include: managing learning programs; integrating talent management; coaching; knowledge management; change management; performance improvement; instructional design; training delivery; learning technologies; and evaluating learning impact (ATD, 2016b).

2.5 Summary of Instructional Design and Technology Competencies

In the following section, I focus on summarizing the three common IDT competency standards that were explained in the previous section: IBSTPI competency standards (Koszalka, Russ-Eft, Reiser, 2013), ISPI competency standards (ISPI, 2015b), and ATD competency standards (ATD, 2016b). In addition, I also include findings from other studies, which focused on determining instructional designers' competencies in different areas. The purpose to do so is to identify the competencies that have been used in the IDT field. As mentioned before, as an instructional designer, one not only needs to have the competencies for instructional design and technology, but also needs to have some other skills, such as communication skills, and management skills. Thus, I decided to summarize the IDT competencies in five major categories: (1) instructional design competencies; (2) instructional technology competencies; (3) management competencies; (4) communication and interpersonal competencies; and (5) other foundational competencies. The following shows all the competencies in these five areas.

2.5.1 Instructional Design Competencies

As mentioned in the previous section, ADDIE is a common conceptual framework for instructional design. Thus, I compare the three competency standards and existing studies results on instructional design competency in these five phases (analysis, design, develop, implement, and evaluation). Table 4 shows the finding.

2.5.2 Instructional Technology Competencies

As another important element in IDT, having the knowledge and skills to use various instructional technologies is essential for instructional designers nowadays. However, as the results show in Table 5, not many competencies on instructional technology are stated in the three common IDT competencies standards. Six existing studies have focused on instructional technology competencies. Table 5 shows the findings in five categories: (1) media/tools/software (the media/tools/software that instructional designers need to know and be able to use); (2) technology skills; (3) media application; and (4) web/online experiences.

2.5.3 Management Competencies

Another major competency area for instructional designers is management. Specifically, I divided it into four types: (1) project management skills; (2) talent management skills; (3) leadership; and (4) change management skills. Table 6 shows the findings in these four types of management competency.

2.5.4 Communication & Interpersonal Competencies

Like many other fields, communication and interpersonal competencies are also very important for instructional designers. Being a successful instructional designer requires the person to have strong oral and written skills. It also requires the person to be able to communicate efficiently, and work collaboratively with other team members and other personnel in different departments. Many existing studies have found that communication and interpersonal skills are the most important competencies for instructional designers (Kenny et al., 2005; Liu et al., 2002; Moallem, 1995; van Rooij, 2013; Williams, 2003). Table 7 shows the findings in these two types of competencies.

2.5.5 Other Foundational Competencies

Besides the major competency categories that I mentioned above, some other competencies are also found in the three IDT competencies standards and existing studies. I sorted these competencies into: (1) business knowledge and skills; (2) research knowledge and skills; (3) statistics knowledge and skills; (4) personal skills; (5) coaching; (6) global mindset; (7) ethical, legal, and political knowledge; and (8) other competencies. Table 8 shows the findings in these eight types of competencies.

2.6 Purpose of the Current Study

So what does all this mean? As we can see, instructional design and technology combines two main elements – a focus on systematic processes and the use of technological resources. We understand that it is hard to define the field due to the changing nature of it. It is also hard to identify all the professionals who work in the field, because their work settings and job roles can affect their job titles. We know that the IDT competencies can be used to determine whether a professional is qualified to be an instructional designer. We also know it is critical to know the competencies to guide the practitioners to perform their job.

However, what do future instructional designers, who are current students in the IDT field, need to learn about the field? Does the knowledge and skills that they learn in school actually match the needs of employers? What are the competencies instructional designers need to obtain in order to get a job now? Do entry-level instructional designers have different IDT competencies to the advanced instructional designer? Besides the instructional design competencies and technology competencies, what are the other competencies that instructional designers need to acquire?

To answer these questions, this study aims to determine the must-have competencies for instructional designers from the employers' perspective. Specifically, it aims to answer the following questions:

1. What are the competency requirements for instructional designers? Specifically:
 - What are the most frequently listed competencies for instructional designers in job announcements?
 - Do the different industry sectors request different competencies, if so, what are the differences?
 - What are the most frequently required competencies for entry-level and experienced instructional designers?
2. What competencies do ID project managers think are the most important when hiring an instructional designer?
3. What are the other important requirements (such as education background or work experience) for instructional designers?

Table 3. Summary of Findings from Recent IDT Competency Studies ^a

Competency study	Title	Method	Type of resources	Area	Findings
Larson & Lockee (2009)	Preparing instructional designers for different career environments: a case study	Case study	Faculty	IDT competencies and requirements for different work settings	This study emphasized how to prepare the IDT students for various work settings successfully. It focused on how faculty prepares their Masters students for working in the business and industry setting from one program. The results showed that faculty believed preparing Masters students was different from preparing doctoral students. They also noted the importance of acknowledging the cultural issues in different work settings.
Williams (2003)	Roles and competencies for distance education programs in higher education institutions	Delphi technique - three rounds	Distance learning experts	IDT competency for distance learning in higher education	Study found 30 IDT general competencies for all job roles in higher education, and listed 13 different job roles with their specific required competencies. It concluded that communication/interpersonal skills, and collaboration/teamwork skills are the most common competencies among all job roles in higher education.
Brill, Bishop, & Walker (2006)	The competencies and characteristics required of an effective project manager: A Web-based Delphi study	Delphi technique – two rounds	Project manager	IDT competencies for Project Manager	The study examined the competencies required for a project manager to be effective in the workplace. The results included 117 competencies for project manager. This study also developed the web-based Delphi technique, which can benefit the future studies in similar settings.

Table 3 — Continued

Competency study	Title	Method	Type of resources	Area	Findings
Sugar, Brown, Daniels, & Hoard (2011)	<i>Instructional Design and Technology professionals in higher education: Multimedia production knowledge and skills identified from a Delphi study</i>	Delphi technique – three rounds	Practitioners	IDT multimedia competencies for higher education field	This study used Delphi technique to determine the multimedia competencies for practitioners who work in higher education field. The results includes the 15 top ranked multimedia competencies as well as the top 12 ranked applications that are mostly used in higher education field.
van Rooij (2013)	The career path to instructional design project management: an expert perspective from the US professional services sector	Delphi technique -three rounds	Experts (Chief Learning Officers)	IDT competencies for Instructional Design Project Manager	This study focused on examining the must-have instructional design and project management competencies, the work experiences, education background, and organizational factors for the successful instructional design project manager. It concluded that the instructional design knowledge and skills were the basic requirement to work in the instructional design field, but interpersonal skills were the key competency to become a project manager.

Table 3 — Continued

Competency study	Title	Method	Type of resources	Area	Findings
Liu, Gibby, Quiros, & Demps (2002)	Challenges of being an instructional designer for new media development: A view from the practitioners	Interview	Practitioners	IDT competency	The study included 141 interview questions, which addresses ten aspects: (1) background information; (2) role and responsibilities; (3) design and development; (4) interface, instruction, interaction; (5) evaluation; (6) teamwork; (7) client; (8) prototype development; (9) personnel; and (10) instructional designer evaluation. It concluded that in an environment where new media and technology grows at a rapid pace, the essential competencies for instructional designers were: (1) communication; (2) instructional design; (3) problem solving/decision making; and (4) knowledge of technology tools.
Moallem (1995)	Analysis of job announcements and the required competencies for instructional technology professionals	Job announcement analysis	Job announcements from various source	IDT Competencies requirements for different work settings	This PhD study collected and analyzed 150 job announcements throughout a 3-year time period into three work settings: (1) business and industry; (2) government and military; and (3) university/college/school district. Results showed that different work settings required instructional designers to have different competencies, and there was a big difference between Masters graduates' job requirements to doctoral graduates'. It recommended the IDT programs should provide various internship opportunities for their students who have a different career goal.

Table 3 — Continued

Competency study	Title	Method	Type of resources	Area	Findings
Byun (2000)	Identifying job types and competencies for instructional technologists: A five-year analysis.	Job announcement analysis	Job announcements from university email list serve	IDT competencies requirements for different work settings	This PhD study analyzed 1,459 job postings sent to one IDT department email list over a 5-year period. It displayed the results by three work settings across five years: business, education and not for profit organization. The study compared (1) educational background requirements; (2) IDT competencies. It also indicated that there was an increased demand for technology competencies as well as communication and interpersonal skills.
Ritzhaupt, Martin, & Daniels (2010)	Multimedia competencies for an educational technologist: A survey of professionals and job announcement analysis	Job announcement analysis & survey	Job announcements from various sources and practitioners	IDT multimedia competencies	This study examined 250 job announcements from nine different resources and databases, and summarized multimedia competencies for instructional designers as knowledge, skills, and ability statements. It also surveyed 231 practitioners to determine the most important multimedia competencies among the 87 statements.

Table 3 — Continued

Competency study	Title	Method	Type of resources	Area	Findings
Suger, Hoard, Brown, & Daniels (2011)	Identifying multimedia production competencies and skills of instructional design and technology professionals: an analysis of recent job postings	Job announcement analysis	Job announcements from various sources	IDT multimedia competency	The researcher collected and analyzed 615 job announcements in a 7-month time period. The study presented a list of media skills that were posted in job announcements. It also showed the significant differences of job requirements in the business and industry setting and higher education setting.
Ritzhaupt & Martin (2014)	Development and validation of the educational technologist multimedia competency survey	Job announcement analysis	Job announcements from various sources	IDT multimedia competency	This study analyzes 205 job announcements in the IDT field, and derived 85 multimedia competencies in the terms of knowledge, skill, and ability statements. These competency statements also included the IDT theories/methods knowledge, communication, and other soft skills.
Kang & Ritzhaupt (2015)	A Job Announcement Analysis of Educational Technology Professional Positions Knowledge, Skills, and Abilities	Job announcement analysis	Job announcements from various sources	competencies requirements for educational technologist	The study collected 400 job announcement from five online job search databases over a five-months period. The results suggested that educational technologist must have competencies in instructional design, project management, technical skills and soft skills.

Table 3 — Continued

Competency study	Title	Method	Type of resources	Area	Findings
Berge, Verneil, Berge, Davis, & Smiths (2002)	The increasing scope of training and development competency	Literature review	Existing literature in IDT competency	IDT competencies	This study examined 35 published papers from the 1980s to 2000s, and categorized 52 competencies for training and development. It concluded that two significant changes in IDT were the shift to human performance improvement and use of technology.
Larson & Lockee (2004)	Instructional design practice: Career environments, job roles, and climate of change	Literature review	Existing literature in IDT competency	IDT competencies and requirements for different work settings	This study included the summary of previous literature on (1) different job roles in different work settings as instructional designer; (2) the organizations related to IDT professions; (3) the IDT competency standards. It concluded that as the IDT field is continually changing, the ITD academic programs should choose their path to orient instructional design and human performance improvement.
Kenny, Zhang, Schwier & Campbell (2005)	A review of what instructional designers do: questions answered and questions not asked	Literature review	Existing literature in IDT competency	IDT competency	This literature review examined 10 journal articles to determine the activities and processes that instructional designer do, besides work on the ID model process. The results showed four competencies that instructional designers spent most of their time on: (1) communication; (2) knowledge of ID models; (3) Problem-solving/decision-making; and (4) Technology skills.

Table 3 — Continued

Competency study	Title	Method	Type of resources	Area	Findings
Furst-Bowe (1996)	An analysis of the competencies needed by trainers to use computer-based technologies and distance learning systems	Survey	Practitioners, who are professional organization members	IDT competencies for distance learning field	This study surveyed 381 ISPI member, and found that organizations have many types of technologies in training, but concluded that the technologies would not change significantly in the next three years. It also found that trainers prefer to use or assist trainees to use a distance learning system rather than develop their own system, and the most common resources were vendor training and self-study.
Fox & Klein (2003)	What should instructional designers & technologists know about human performance technology?	Survey	IDT faculty	HPT competency for instructional designer	Online survey was given to 24 IDT faculties and 45 members from professional associations. It listed 44 HPT competencies that were considered as important for instructional designers.
Villachica, Marker, & Taylor (2010)	But what do they really expect? Employer perceptions of the skills of entry-level instructional designers	Survey	Practitioners	Instructional design competency for entry-level instructional designer	This study surveyed 125 instructional designers to find out what the must-have competencies for entry-level instructional designer were. It found that all 22 identified instructional design competencies are must-have for entry-level instructional designers. However, among these 22 competencies, entry-level instructional designers only met 10 competencies in their real working environment.

Table 3 — Continued

Competency study	Title	Method	Type of resources	Area	Findings
Klein & Jun (2014)	Skills for instructional design professionals	Survey	Practitioners	Instructional design competency	This survey aimed to determine the importance of each of the five elements (analysis, design, development, implementation, and evaluation) in instructional design competency in light of their own work experience. It found five most important skills are: (1) align objectives, interventions, and assessments, (2) prepare measurable goals and objectives, (3) collaborate and partner with others, (4) specify strategies for intended outcomes, and (5) design curriculum.

^a Sorted by the study methods: case study, Delphi technique, interview, job announcement analysis, literature review, and survey.

Table 4. Instructional Design Competencies for Instructional Designers

ADDIE Phase	IBSTPI competencies	ISPI competencies	ATD competencies	Other competencies study findings ^a
Analysis	<ul style="list-style-type: none"> Analyze content from SMEs Analyze existing instructional products Analyze various types and sources of content Conduct a needs assessment Describe the learning or performance problem Determine subordinate and prerequisite knowledge and skills Determine the breadth and depth of the instructional content Determine the cause of problem Determine the impact of organizations' characteristics on the suggested solution Estimate costs and benefits for the solutions Identify and describe target population and environmental characteristics Identify needs among stakeholders Identify the infrastructure Identify the scope of content for instruction Present needs assessment report Provide instructional and non-instructional solutions Select and use analysis techniques for determining instructional content Use learners' data to design instruction 	<ul style="list-style-type: none"> Analyze existing instructional products Conduct a needs assessment Determine the gaps between goals and objectives Determine the cause of problem Determine the outcomes Explain the costs and benefits for the solution Explain the rationale for the solution Identify environmental characteristics and the impact on the suggested solution Identify stakeholders Identify the infrastructure Identify the organizational culture and the impact on the suggested solution Provide solution based on the assessment results Report findings Select and use analysis techniques for determining instructional content 	<ul style="list-style-type: none"> Conduct a needs assessment Conduct cause analysis Conduct performance analysis Gather data Identify appropriate learning approach Identify target population Identify target population and stakeholders' needs Identify the infrastructure Select solution 	<ul style="list-style-type: none"> Analyze performance systems Collect information from SMEs, and effectively use the information Conduct a context analysis Conduct a front-end analysis or needs assessment Conduct a learner analysis Conduct a task analysis Conduct performance gap analysis

Table 4 — Continued

ADDIE Phase	IBSTPI competencies	ISPI competencies	ATD competencies	Other competencies study findings ^a
Design	<ul style="list-style-type: none"> • Accommodate individual factors in learning • Apply appropriate interaction design and interactive learning principles • Apply appropriate motivation principles • Describe the rationale for designing instructional process • Design instructional interventions • Design learning assessment • Determine the overall scope of instruction • Identify and sequence instructional goals • Identify and sequence learning objectives and outcomes • Identify appropriate instructional strategies • Modify the instructional design process • Plan non-instructional interventions • Select or create the appropriate instructional design process • Use appropriate visual design principles 	<ul style="list-style-type: none"> • Choose appropriate instructional strategies • Decide on one or more solution sets • Design the evaluation process • Develop a plan for accomplishing the objectives/ elements • Explain the rationale for suggested solution • Identify appropriate content delivery method • Identify resources • Identify the learning objectives 	<ul style="list-style-type: none"> • Align learning solutions with course objectives and learners' needs • Apply learning theory • Design a curriculum, program, or learning solution • Design instructional materials 	<ul style="list-style-type: none"> • Align objectives, interventions, & assessment • Apply instructional design models • Apply learning theory/motivation theory • Apply multimedia principles • Create assessment instruments • Create evaluation plan • Create implementation plan • Create instructional materials • Design curriculum • Design non-instructional solution • Document intervention design • Identify appropriate instructional strategy based on analysis • Select or modify appropriate instructional media • Sequence objectives • Storyboard writing/video scripting • Understand subject matter • Write performance objectives

Table 4 — Continued

ADDIE Phase	IBSTPI competencies	ISPI competencies	ATD competencies	Other competencies study findings^a
Develop	<ul style="list-style-type: none"> • Deliver instructional materials in various formats • Develop instructional materials • Develop materials which align with analysis results and instructional design process • Select and modify existing instructional materials 	<ul style="list-style-type: none"> • Ensure the suggested solution is developed according to design specifications • Revise the solution based on the formative assessment results 	<ul style="list-style-type: none"> • Create a positive learning climate • Deliver various learning methodologies • Develop instructional materials • Ensure learning outcome 	<ul style="list-style-type: none"> • Convey & translate design to various persons & teams • Develop instructional materials in the appropriate medium
Implement	<ul style="list-style-type: none"> • Plan for implementation of the intervention • Plan for dissemination of the intervention • Plan for diffusion of the intervention 	<ul style="list-style-type: none"> • Develop tools and procedures for implementation • Plan for implementation of the solution 	<ul style="list-style-type: none"> • Deliver constructive feedback • Encourage collaboration • Manage the learning environment 	<ul style="list-style-type: none"> • Conduct a usability test of the prototypes • Conduct client reviews • Create rapid prototypes • Monitor the implementation • Provide logistic support
Evaluation	<ul style="list-style-type: none"> • Design evaluation plans • Conduct formative evaluation plans • Conduct summative evaluation plans • Revise instructional and non-instructional solutions based on 	<ul style="list-style-type: none"> • Conduct a pilot test of the suggested solution • Conduct formative evaluation plans • Conduct summative evaluation plans • Measure solution results • Report findings and recommendations • State the outcomes in measureable terms 	<ul style="list-style-type: none"> • Evaluate learning design • Evaluate solution 	<ul style="list-style-type: none"> • Conduct a pilot test of the developed materials • Conduct summative evaluation • Generate evaluation reports • Measure effectiveness of training • ROI

^a From Berge et al., 2002; Byun, 2000; Fox & Klein, 2003; Kenny et al., 2005; Klein & Jun, 2014; Larson & Lockee, 2007; Moallem, 1995; Ritzhaupt & Martin, 2013; Suger et. al., 2011; van Rooij, 2012; Villachica, Marker, & Taylor, 2010; Williams, 2003

Table 5. Instructional Technology Competencies for Instructional Designers

	IBSTPI competencies	ISPI competencies	ATD competencies	Other competencies study findings ^a
Technology skills				<ul style="list-style-type: none"> • Animation design skill • Game and simulation design skills • Graphic design skill • Hardware maintenance skill • Multimedia production skill • Print design skill • Programming, coding, writing object scripts skill • Storyboarding design skills • Technical support skill • Typing skills • Video production skill • Web design skill
Media application	<ul style="list-style-type: none"> • Analyze the characteristics of existing and emerging technologies • Select appropriate technology and media 		<ul style="list-style-type: none"> • Analyze and select technologies • Demonstrate awareness of technologies • Identify when and how to use technology as a training and development solution • Integrate technology options in design process • Leverage technology in design process 	<ul style="list-style-type: none"> • Application/integration of technology in education • Apply e-learning techniques and social media • Determine budgetary analysis of media • Evaluation of new and existing technology • Explain the differences between learning technologies and approaches • Knowledge and experience with instructional media/technology • Make recommendations of selected media/software/tools by providing rationales. • Select appropriate media/software/tool for intervention • Synchronous distance learning methodologies
Web/online experience				<ul style="list-style-type: none"> • Online teaching/design and distance education experience • Website develop experience • Computer-based training experience

Table 5 — Continued

	IBSTPI competencies	ISPI competencies	ATD competencies	Other competencies study findings ^a
Media/ tools/software			<ul style="list-style-type: none"> • Use technology effectively across the different areas of expertise 	<ul style="list-style-type: none"> • 3D modeling tools: Maya • Accessibility software: JAWS • Assessment software: Respondus • Audio software: Audacity • Audio/Video conferencing software: WebEx • Bitmap image software: Photoshop • Cascading Style Sheets: CSS • Client-side scripting languages: JavaScript • Content management systems: Joomla • Course/learning management systems: Blackboard; Moodle • Database software: Access • Desktop publishing software: PageMaker • E-learning software: Captivate • Educational authoring software: Toolbook; Authorware • Flash • Game engines: Torque • Learning object standards: SCORM • Markup languages: HTML/XHTML/XML • Presentation software: PowerPoint • Programming languages: C++ • Project management software: Microsoft Project • Server-side scripting languages: PHP • Spreadsheet software: Excel • Streaming video technology: Windows Media Serve • Vector image software: Illustrator • Video software: Premiere • Virtual classrooms: Wimba; Elluminate;! Live • Virtual environments: SecondLife • Web 2.0 technology: Wiki; Blogs; Podcasts • Web authoring tools: Dreamweaver • Word pressing software: Word

^a From Berge et al., 2002; Byun, 2000; Furst-Bowe, 1996; Larson & Lockee, 2009; Ritzhaupt, Martin & Daniels, 2010; Ritzhaupt & Martin, 2014; Sugar et al., 2011.

Table 6. Management Competencies for Instructional Designers

	IBSTPI competencies	ISPI competencies	ATD competencies	Other competencies study findings^a
Project Management Skills	<ul style="list-style-type: none"> • Allocate developmental resources • Create a vision of the overall learning goal with organizational goals • Establish project scope and goals • Identify and resolve management issues • Identify stakeholders • Plan the project priority and timeline • Use management tools • Write proposal 	<ul style="list-style-type: none"> • Benchmark the best practices and lessons learned • Determine the expected outcome/results • Determine what will be measured and accepted as evidence • Determine whether SME is needed • Develop guideline for future work • Document all relevant information • Explain the importance of focusing on accomplishment • Identify stakeholders • Work with stakeholders, experts, and specialists as a team 	<ul style="list-style-type: none"> • Benchmark the best practices and lessons learned • Develop and monitor budget • Develop goals and plans • Implement action plans • Manage and implement projects • Manage information life cycle • Manage progress and accountability • Organize delivery of developmental resources 	<ul style="list-style-type: none"> • Contracting and outsourcing skills • Coordination skills • Estimate the cost • Estimate the time needed for design and development phase • Facilitation skills • Keeping the project moving forward • Manage and make resources available • Obtain validation from stakeholders • Set clear expectations • Set project priorities and timeline • Solve problems faced when confronted with challenges • Time management skills • Write proposal

Table 6 — Continued

	IBSTPI competencies	ISPI competencies	ATD competencies	Other competencies study findings^a
Talent Management Skills	<ul style="list-style-type: none"> • Recruit, retain, and develop instructional personnel 		<ul style="list-style-type: none"> • Align talent management to organizational objectives • Analyze personnel development results and impact • Develop instructional personnel • Facilitate career development planning • Facilitate career transitions • Implement individual and organizational assessment • Promote high-performance workplaces • Support instructional personnel engagement and retention 	<ul style="list-style-type: none"> • Manage the personnel • Recruiting personnel • Reward & recognize contributors

Table 6 — Continued

	IBSTPI competencies	ISPI competencies	ATD competencies	Other competencies study findings^a
Leadership	<ul style="list-style-type: none"> • Conduct project review presentations • Establish effective relationships between instructional design team and stakeholders • Manage cross functional teams • Obtain and maintain management during instructional design functions • Receive support from stakeholders 	<ul style="list-style-type: none"> • Establish effective relationship between instructional design team and stakeholders • Negotiate with stakeholders 	<ul style="list-style-type: none"> • Establish strategies • Establish a vision • Influence stakeholders • Manage others in other departments • Manage staff • Model leadership in developing people 	<ul style="list-style-type: none"> • Consulting and advising skills • Customer- oriented outlook • Decision making • Develop policies and procedures • Lead a team comprised of persons with different strengths • Long-term planning • Manage and direct the team • Promote collaboration among stakeholders • Provide strategic direction • Serve as committee, represent the instructional design team • Supervisory skills, to oversee daily workload planning

Table 6 — Continued

	IBSTPI competencies	ISPI competencies	ATD competencies	Other competencies study findings^a
Change Management Skills		<ul style="list-style-type: none"> • Design a change strategy (timeline, communication, message delivery method, award system, support system) • Identify expectations around the project • Identify possible consequences • Identify workplace constraints and surroundings 	<ul style="list-style-type: none"> • Create contract for change • Establish involvement • Facilitate strategic planning • Provide feedback • Encourage integrating changes into organizational culture • Manage consequences • Support the intervention 	

^a From Berge et al., 2002; Byun, 2000; Fox & Klein, 2003; Kenny et al., 2005; Klein & Jun, 2014; Larson & Lockee, 2007; Moallem, 1995; van Rooij, 2012

Table 7. Communication & Interpersonal Skills for Instructional Designers

	IBSTPI competencies	ISPI competencies	ATD competencies	Other competencies study findings^a
Communication Skills	<ul style="list-style-type: none"> • Active listening skills • Conflict resolution skills • Facilitate meetings • Negotiation skills • Provide constructive feedback • Strong presentation skills • Strong speaking skills in various settings and environments • Strong writing skills for various conditions • Use effective questioning techniques 	<ul style="list-style-type: none"> • Communicate directly • Give credit and acknowledge the support of others 	<ul style="list-style-type: none"> • Active listening skills • Ask powerful questions • Build trust • Communicate effectively • Demonstrate emotional intelligence • Use direct communication 	<ul style="list-style-type: none"> • Ability to justify and communicate a sound business case for training solutions • Active listening skills for clients & team members • Build trust and accountability • Communicate at the enterprise level/ big picture view • Communicate effectively in visual, oral, and written form • Negotiation • Persuasion • Presentation skills • Public speaking skills • Writing and technical writing
Interpersonal Skills	<ul style="list-style-type: none"> • Effective collaborative skills • Effective consensus-building skills 	<ul style="list-style-type: none"> • Effective collaborative skills 	<ul style="list-style-type: none"> • Create awareness of the condition • Collaborate with others 	<ul style="list-style-type: none"> • Collaborative skills • Coordinate different departments to work together • Strong client relationship skills • Team skills

^a From Berge et al., 2002; Byun, 2000; Fox & Klein, 2003; Kenny et al., 2005; Klein & Jun, 2014; Larson & Lockee, 2007; Moallem, 1995; van Rooij, 2012.

Table 8. Other Foundational Competencies for Instructional Designers

	IBSTPI Competencies	ISPI Competencies	ATD Competencies	Other competencies study findings^a
Business knowledge and skills	<ul style="list-style-type: none"> • Align instructional design plan with organization's strategic plan • Develop financial plans for instructional design functions • Establish standards of excellence • Manage customer relations • Market instructional design service 		<ul style="list-style-type: none"> • Analyze needs and propose solutions • Apply business skills • Drive results • Innovate • Plan and implement assignments • Think strategically 	<ul style="list-style-type: none"> • Align instructional design plan with organization's strategic plan • Business acumen, insight into the value of training • Business process knowledge • Business research skills • Client management • Contracting skill • Customer oriented/service • Maintain quality • Marketing/sales skill
Research knowledge and skills	<ul style="list-style-type: none"> • Apply research and theory to the discipline of instructional design • Apply systems thinking to project • Explain key theories and principles related to instructional design 			<ul style="list-style-type: none"> • Ability to conduct research • SWOT analysis • Demonstrate research skills in working, have potential for publications • Knowledge of key theories and principles related to instructional design • Strategy and integration application

Table 8 — Continued

	IBSTPI Competencies	ISPI Competencies	ATD Competencies	Other competencies study findings^a
Statistical knowledge and skills	<ul style="list-style-type: none"> • Apply analysis methodologies to analysis and evaluation phases • Identify the data needed to be collected • Use qualitative and quantitative methods • Use various data collection tools and procedures 	<ul style="list-style-type: none"> • Analyze data • Apply appropriate analysis methodology • Identify the data needed to be collected • Interpret data • Use various data collection tools and procedures 		<ul style="list-style-type: none"> • Data analysis
Personal skills	<ul style="list-style-type: none"> • Acquire and apply new technology in instructional design • Document and disseminate publications or professional presentations • Establish and maintain relationships with other professionals • Participate in professional development activities 		<ul style="list-style-type: none"> • Build industry sector knowledge • Demonstrate adaptability • Keep abreast of industry changes and trends • Maintain own professional knowledge • Model personal development • Network and partner 	<ul style="list-style-type: none"> • Ability to learn new technology, keep updated of one's knowledge • Accept changes/ be open minded • Attention to detail • Creativity/innovative skills • Critical thinking skills • Multitasking skill • Participate in professional association activities • Problem solving skills • Professional manners and behavior • Self-starter, demonstrate individual initiatives • Work in fast-speed environments • Work under pressure/meet deadlines

Table 8 — Continued

	IBSTPI Competencies	ISPI Competencies	ATD Competencies	Other competencies study findings ^a
Coaching			<ul style="list-style-type: none"> • Convey objectives • Encourage participation and build learner motivation • Establish credibility as an instructor • Facilitate learning • Prepare for training delivery 	<ul style="list-style-type: none"> • Coaching, teaching, mentoring experiences • Conduct/delivery training • Motivate others
Global mindset	<ul style="list-style-type: none"> • Accommodate cultural differences 		<ul style="list-style-type: none"> • Accommodate cultural differences • Adapt behavior to accommodate others • Champion diversity • Convey respect for different perspectives • Expand own awareness • Leverage diverse contributions 	<ul style="list-style-type: none"> • Cross-culture awareness • Have international experiences • Knowledge of the target culture • Speak multiple languages

Table 8 — Continued

	IBSTPI Competencies	ISPI Competencies	ATD Competencies	Other competencies study findings^a
Ethical, legal, and political knowledge	<ul style="list-style-type: none"> • Comply with ethical codes • Identify ethical, legal, and political implications at the workplace • Plan for and respond to ethical, legal, and political implications at the workplace • Recognize and respect intellectual property rights • Understand regulatory guidelines and policies 	<ul style="list-style-type: none"> • Display honesty • Explain the value of evaluating 	<ul style="list-style-type: none"> • Ensure compliance with legal, ethical, and regulatory requirements • Establish agreement for instruction • Meet ethical guidelines and professional standards 	<ul style="list-style-type: none"> • Address ethical and legal issues • Copyright law knowledge • Identify ethical, legal and political implications
Others				<ul style="list-style-type: none"> • Related field working experiences (k-12 education, higher education, military, medical) • Provide services to the organization • Seeking external findings • Publications • Test construction knowledge • Writing grant proposal • Adults learning knowledge

^a From Berge et al., 2002; Byun, 2000; Klein & Jun 2014; Larson & Lockee, 2007; Moallem, 1995; Ritzhaupt & Martin, 2014; van Rooij, 2012; Williams, 2003

CHAPTER THREE

METHODOLOGY

The purpose of this study was to identify the must-have instructional design and technology (IDT) competencies and other requirements required by employers when hiring new instructional designers. The three research questions were: (1) What are the most frequently listed competencies for instructional designers in job announcements? (2) What competencies do ID project managers think are the most important when hiring an instructional designer? (3) What are the other important requirements for instructional designers?

3.1 Research Design

This was a cross-sectional descriptive and survey design study. It aimed to describe the common competencies and requirements for instructional designers and determine instructional design managers' opinion of the importance of these competencies and requirements. This research study was conducted in two phases: (1) job announcement analysis and (2) interviews with the instructional design managers. Below, I explain these two research phases in detail.

3.1.1 Job Announcement Analysis

Job announcement analysis is one type of content analysis, where the researcher collects job posts from different resources and analyzes them in order to determine the employers' desired competencies and requirements for individuals to perform a particular job (Choi & Rasmussen, 2009). It is different from job analysis, which usually is conducted to determine what competencies and requirements are required to complete certain tasks (Sanchez & Levine, 2009; Singh, 2008). Job analysis is usually conducted within an organization by the human resource management team, while job announcement analysis is usually conducted by people outside of the organization. However, data from both of these analyses can be used for purposes

like training and development, job design and description, and performance assessment (Choi & Rasmussen, 2009; Ritzhaupt et al., 2010; Ritzhaupt & Martin, 2014; Sanchez & Levine, 2009; Singh, 2008).

When conducting a job announcement analysis, the researcher usually focuses on determining the desired competencies and requirements for a certain job position. To do so, the researcher collects the job posts from different sources for a specific amount of time. Then they will analyze the data and generalize their findings. In the instructional design and technology field, many studies have used content analysis of job announcements to determine the competencies and requirements for instructional designers (Moallem, 1995; Ritzhaupt et al., 2010; Ritzhaupt & Martin, 2014; Sugar et al., 2011).

For this study, I collected job announcements from two data sources: Simply Hired (www.simplyhired.com) and Indeed (www.indeed.com). I collected all instructional designer job postings from these two data sources from May 1, 2015 to May 31, 2015.

3.1.2 Interview

An interview is one tool that can be used as a part of survey design method, which has been widely used to conduct qualitative research (Creswell, 2008). An interview is used to collect data by the researcher by recording participants' answers. The researcher usually has an interview guide, which is used to ask questions, record the answers, or observe participants' behaviors (Creswell, 2008). In order to find out the answers for research questions two and three, an interview protocol was used in this study. The interview protocol was developed based on the research questions and findings from job announcement analysis.

For this study, I conducted one-on-one interviews. The advantage of a one-on-one interview is it allows the researcher to ask sensitive, in-depth and/or follow up questions based on participants' answers (Creswell, 2008; Turner III, 2010). Moreover, an interview usually has

high response rate, because the researcher schedules the interview with participants in advance, which makes the participants feel obligated to participate in the study (Creswell, 2008).

In the following sections, I explain the detailed research procedure in these two phases. For the job announcement analysis phase, I discuss the sampling procedure, coding procedure, and the data analysis procedure. For the interview phase, I explain participant selection procedure, the interview procedure, the coding, and data analysis procedure.

3.2 Phase One: Job Announcement Analysis

3.2.1 Job Announcement Sampling Process

For this study, I collected job announcements from two online data sources: SimplyHired and Indeed. I chose these two data sources because both of them are public job search databases, showing many instructional designer jobs in different work settings. According to Susan Adams (2012), a Forbes writer who focuses on careers, jobs, and leadership, Indeed and SimplyHired are popular and valuable job search websites. This means, when people look for jobs, these two websites are highly used. I wanted to collect my job announcements data from sources that the people who are not be able to join in any professional association, or receive formal education in the instructional design and technology field can access. In addition, when I used Google (www.google.com) to search for “instructional designer jobs,” these two websites were on the top of the list as well. Moreover, these two data sources allowed me to archive all the job postings in a 30-day period. Some previous studies of job announcement analysis for IDT competencies used professional organizations’ job banks (such as AECT database, ATD database, and ISPI database) or job banks for higher education (such as Chronicle of Higher Education and Higher Education Jobs) (Moallem, 1995; Ritzhaupt et al., 2010; Ritzhaupt & Martin, 2014; Sugar et al., 2011). However, these data sources are limited and not suitable for the current study. The professional organization job banks only show the jobs that members

posted, and the higher education job banks only show the jobs in the higher education work settings.

I collected all instructional designer job announcement postings from the two data sources from May 1, 2015 to May 31, 2015. In order to store this data, I saved all of the job announcements postings with detailed job descriptions in GoogleDocs (<https://docs.google.com>).

When I searched for jobs, the following key words were used:

- Curriculum Designer
- E-learning Designer
- Multimedia Designer
- Instructional Design Consultant
- Instructional Designer
- Instructional Design Specialist
- Instructional Systems Designer
- Instructional Developer
- Instructional Technology Designer
- Instructional Technologist
- Training Developer
- Online learning Developer

According to the four previous studies of IDT job announcements (Byun, 2000; Moallem, 1995; Ritzhaupt et al., 2010; Ritzhaupt & Martin, 2014; Sugar et al., 2011), the average number of job postings that were selected for these studies is 305. Thus, I decided to use this average number of job postings (N= 305) as a referenced sample size for this current study.

Since there was a possibility that some collected job announcements were related to the information technology field, I screened all collected job postings before I started the coding and analysis procedure. In the screening process, I read all of the job postings and deleted the repetitive and incomplete/invalid announcements. The repetitive announcements included the same job postings that were found in both the Indeed and SimplyHired sites, and the same job postings that were found within one data source but listed at different dates. The incomplete job

announcements were the ones which did not include clear job descriptions, requirements, and employee responsibilities. To identify the valid job postings, I used the following criteria:

1. The job descriptions included clear activities that related to the instructional design and technology field, such as conduct needs assessment; design/develop learning materials; evaluate the effectiveness of an intervention; or select the appropriate technology to support learning.
2. The main focus of job descriptions was on instructional design, not project management or coaching and training.
3. The required or preferred education degree was in instructional design, instructional technology, human performance, education, and information technology.

Thus, the pure technical job postings (such as programmer, human resources specialist, webmaster, or IT specialist) were not included in this study. This entire procedure helped me identify the qualified job announcements to analyze. The number of jobs posted during the data collection period was 491 from both data resources. Among all collected job postings, there were 74 redundant job postings, and 24 incomplete or invalid job postings. Thus the total valid sample for this job announcement analysis was 393. Within the validity date, all the selected samples were posted from May 1, 2015 to May 31, 2015. All of the jobs descriptions included clear requirements for instructional design competencies. And all the jobs were located within United States.

3.2.2 Job Announcements Coding Procedure

The first step of the coding process was defining codes and categories. The code was the phrase or word that I used to conduct the analysis based on the content of the job announcement postings. Category was the group of codes that had similar meanings or under similar classifications. For this study, each job announcement post was coded in three major areas:

1. Basic information, including job title, job location, job nature, job type, and industry sector. Table 9 shows a sample of the categories and codes in the basic information part that were used in the coding process.

Table 9. Job Announcements Coding Categories and Codes Sample

Areas	Categories	Codes
Basic Information	Job titles	Instructional designer
		E-learning designer
		Educational developer
		Instructional design consultant
		E-learning specialist
	Job location	(States)
	Job type	Full time
		Internship
		Contractor
	Sectors	Business, consulting and management
		Higher Education
		Healthcare
		Military
		Educational consulting companies

2. IDT competency, including the five categories based on my findings from the existing literature: core instructional design competencies, instructional technology competencies, project management competencies, communication and interpersonal skills, and other foundational competencies. For the IDT competency codes, I used all competencies that were identified in the literature review (Table 4 - Table 8) as the codes and categories. Additionally, I also combined some of these existing IDT codes from the literature review findings. This is because in the literature review, I aimed to determine all existing competencies from the three professional associations (IBSTPI, ISPI, ATD) and the existing studies. Thus, same competency may be existing in different data resources. For instance, IBSTPI, ISPI and ATD all listed “conduct a needs assessment” as one of the competency. Since they were the same, I only had

one code as “conduct a needs assessment.” However, sometimes, these competencies were not exactly the same, but had similarity or belonged to the same competency category. For these types of competencies, when I combined these competencies into one code, I wrote notes to keep track of all my activities. The rules I used to combine these competencies were: (1) When there were similar competencies, I combined them and chose the most accurate competency as the code. For example, I combined “customer service” and “client management” into “manage and maintain strong client relations” as one of the interpersonal competency codes. (2) When there were detailed competencies, which could be merged into a wider range competency, I combined them, and used the wider range competency. For example, I combined “identify environmental characteristics,” “identify organization culture,” “determine the image of organization’s characteristics,” and “identify learner’s characteristics” into “analyze learner and organization characteristics” as one of the analysis competency codes.

3. Other requirements, including educational requirements, work experience requirements, provide working samples, and travel.

The next step in the coding process was matching the job announcements with the codes. In this step, I started with reading each job announcement line by line, and looked for the key words and phrases that matched to the codes in step one. In order to minimize the coding errors when more than one coder is involved, I coded all data by myself. In order to verify the validity and reliability of this study, I also asked another coder to code 20 job announcements by using the coding criteria. I started this process by coding the same 5 job announcements with another coder separately. Then we shared our results, discussed the disagreements, and created the

coding criteria I list below. We then coded another 15 identical job announcements separately.

The coding criteria were:

1. Code the phrase and sentences containing exact words in the code system or that have a similar meaning in the code system. For example, the job announcement wrote: “Ability to effectively organize, prioritize, multi-task and manage time effectively to meet deadlines.” I coded it as “organization skill,” “multi-task skill,” “set project priority and time,” and “meet deadline.”
2. Create new code when the job announcement content does not match the code system. For example, one job announcement wrote “Exhibits a can-do attitude with excitement and passion about work.” This was not mentioned in my previous literature review findings. So I created a new code as “passion about work.”
3. Combine the same information that was repeated in one job posting and only code them once. For example, one job announcement wrote at the beginning “Effective written and verbal communication skills,” then later on mentioned “Excellent English verbal and written communication skills.” I only coded them one time as “strong writing skill in various conditions,” and “strong speaking skill in various settings and environments.”

Based on the coding criteria, I added some new codes that were not identified from the literature review. Such as “technical writing skills, training faculty/staff/employees to use new technology,” “work independently,” “have knowledge on 508 compliance and web accessibility,” and “quality assurance and proofreading”. In addition, I also double checked the codes, and made sure the similar codes only existed in one category. For instance, I combined “collaborate with stakeholders, SMEs, and others,” which was identified as a project management competency based on literature review; with “effective collaborative skill,” which

was an interpersonal competency, and decided that to use “collaborate effectively with stakeholders, SMEs, and others” as the final code under interpersonal competency. The reason I decided it was an interpersonal competency was because I believe that collaborative skill is not only used when an instructional designer manages the project but also in the entire instructional design procedure, which is more similar to an interpersonal skill.

Figure 2. Job Announcements Coding Procedure

The last step in the coding process was identifying the final codes and categories that would be used in data analysis. In this step, I deleted all unused codes which were found in the literature review, but not identified in the job announcements. I only included the codes that were used when coding the job announcements in the three areas: basic information, IDT competencies, and other requirements. Figure 2 shows the coding process for the job announcement analysis.

3.2.3 Job Announcements Analysis Procedure

To analyze the data, I calculated the frequency of each code. Specifically, for the basic information area, I included the top five common individual job titles, job locations, and industry sectors. For the most desired instructional design competencies, I included the top 25 competencies that were most frequently mentioned in the selected job announcements. I then looked into each of the five categories (core instructional design competencies; instructional technology competencies; project management competencies; communication and interpersonal skills; and other foundational competencies), and provided the top 10 competencies in each area. I then conducted the cross tabulation analysis by the top four industry sectors and by work experience requirements (0-5 years versus 5+ years). All the data is presented in the results chapter.

3.2.3.1 Data Analysis Tool. The coding process was an essential part of this study. To code the job announcements, I used MAXQDAplus (<http://www.maxqda.com>), qualitative data analysis software. I first input all the selected job announcement samples into MAXQDAplus. Next I typed in all codes and categories that I decided to use for this study into MAXQDAplus. Then I matched the codes to the phrases and words in the job announcements. After completing the coding process for all qualified job announcements, I used the coded information to conduct the analysis. Figure 4 shows a screenshot of using MAXQDAplus to code one job announcement.

3.3 Phase Two: Interview

3.3.1 Interview Participants

I interviewed 20 instructional design project managers for this study. All the interviewees must meet these following requirements: (1) worked as project managers to lead and participate

in instructional design projects; (2) had more than five-years instructional design work experience; and (3) were involved in hiring new instructional designers.

To select the participants, convenience sampling and snowball sampling were both used in the process. I started by sending an email request (Appendix B) to the practitioners that I know who were met the participant's requirements. Then I asked these potential interviewees to recommend other practitioners who may also meet the participant's requirements. I then sent out the email to these recommended participants to ask them to participate in the study. While selecting the qualified interviewees, I made sure that there were no more than three participants from the same organization. I also made sure that I selected interviewees from different industry sectors, including higher education, business and industry, as well as educational consulting. In addition, these 20 project managers had different job titles, but their job roles were similar.

Since most the participants were at different locations from mine, I conducted 16 interviews via phone or Skype (www.skype.com) voice call, and 4 face to face interviews. To record the phone interview, I used the iPhone application: TapeACall. To record the Skype audio interview and face-to-face interview, I used the iPhone application: VRP7.

3.3.2 Interview Protocol

In order to ensure I asked all participants the same questions during the interview, I created an interview protocol (See appendix A). An interview protocol is a form that includes instructions, questions, and note taking spaces (Creswell, 2008). My interview protocol included three sections: (1) a header, containing the basic information about the interview such as date, time, location of the interview, and the name of interviewee. (2) Informed consent, including instructions on how to conduct the interview and the information about the study that I told the interviewee, and asked permission to conduct this interview. (3) Interview questions, including all the items I asked during the interview. Space was provided between the questions, so I could

take notes. The end of the protocol included a reminder to thank the interviewee and assure them that their responses are confidential.

The interview questions were divided into two main sections: (1) Background information. I collected the following information from these participants: years of experience as practitioner in instructional design field, years of experience of managing instructional design projects, experience in hiring new instructional designers, education background, and work organization types and size. The purpose of collecting this demographic information was to provide a better description of the participants. (2) Interviewee's opinions on important competencies and other requirements for an instructional designer. This section asked the interviewee to explain their ideas on the important competencies and other requirements for hiring an instructional designer. I made sure the interview questions covered all five areas of competencies from literature review: core instructional design competency, instructional technology competency, communication and interpersonal skills, project management competency, and other foundational competency; as well as other requirements, such as education background and work experience. In order to make sure all of the interview questions were easy to understand, I also had three pilot interviews with three instructional designers who were working at one of the larger public university in the southeastern United States.

3.3.3 Interview Procedure

In order to conduct a successful interview, I followed these steps listed below:

Before conducting the interview:

1. I sent out interview invitations via email (See Appendix B) to potential interviewees.

The email included a brief introduction to the study, the requirements for participations, and the time and procedures for the interview.

2. I contacted the participants to set up the interview date and time.

3. I prepared the interview by following the interview protocol before the interview date.

Conducting the interview:

1. When conducting the interview, I followed the interview protocol.
2. I read the informed consent script to interviewee at the very beginning of the interview (See Appendix C).
3. I audio recorded the entire interview and took notes during the interview.

After conducting the interview:

1. I transcribed the entire interview, then I read over the interview transcripts, and decided whether a follow up interview was needed.
2. I sent out the thank you emails to participants.
3. I then performed data analysis with the interview transcription.
4. Based on the data analysis results in both job announcements and interviews, I then wrote the findings and conclusions.

3.3.4 Interview Coding Procedure

To code the interview data, I started by transcribing all interview audio recordings into Microsoft Word documents by using Dragon for Mac (<http://www.nuance.com/for-individuals/by-product/dragon-for-mac/software/index.htm>). Dragon is a speech recognition software, which can dictate the audio recordings. I also read through the transcripts to make sure everything was transcribed correctly. Then I started defining the codes and categories based on the interview questions. Since the interview is the follow-up step of this study, I started with the same codes and categories in the job announcement analysis. However, some new codes and categories were created based on the interview questions. For example, new codes and categories were added for all information in the background information part of the interview, such as

“work experiences as practitioner,” “managed number of instructional designer,” and “number of projects managed in last 12 months,” etc.

The next step was to match the relevant pieces in the interview transcripts to the defined codes and categories. Some new codes were also added based on the interviewees’ answers, such as “have interview skills for collecting and analyzing content,” and “keep project manager and stakeholder updated on project.”

After I coded all 20 interview transcriptions, I also deleted the not used codes. Figure 3 shows the interview data coding procedure.

3.3.5 Interview Analysis Procedure

Figure 3. Interview Coding Procedure

To conduct data analysis, I used MAXQDAplus and count the frequency to determine the most important IDT competencies and other requirements from the instructional design project managers’ point of view.

3.4 Validity and Reliability

In qualitative research, validity is defined as “an account is valid or true if it represents accurately those features of the phenomena that it is intended to describe, explain or theories” (Hammersley, 2013, p. 69). Long and Johnson (2000) suggested that to establish the validity of a qualitative study, researchers can use: “self-description and reflective journal-keeping; respondent validation; prolonged involvement; persistent observation; peer debriefing; and triangulation” (p.33). For the current study, in order to insure the validity of the study, I used respondent validation to ensure the study’s reliability. This includes three parts:

Part one - job announcement posts selection. I randomly selected 20 job announcement posts, and shared them with one peer. Both my peer and I decided whether these 20 posts met my selection criteria. I discussed with my peer on the different decisions and came up with criteria to ensure that we selected the same job announcements.

Part two - job announcement data analysis. In order to ensure the validity of the data, my peer and I coded the same five job announcement posts, and compared our coding results. We then discussed the rationale for coding each part of the job announcement posts, and created detailed criteria. We then used the criteria as the guideline to code another 15 job announcements posts. The percent agreement was used to determine the inter-coder reliability for these 15 job announcement was 91%.

Part three - interview data analysis. Similar to the job announcement post analysis, my peer and I coded the same three interviews by using the same coding criteria in the job announcement analysis coding procedure, and compared our coding results. The percent agreement was used to determine the inter-coder reliability for these three job announcement was 94%.

I also ensured the reliability of the study by doing triangulation. In a qualitative study, triangulation usually means use of multiple data sources, data collection methods, or investigators (Long & Johnson, 2000). In this current study, I chose two different data sources: job announcement posts and instructional design project managers. I also used two different data collection methods: job announcement analysis and interview.

Figure 4. Example of Using MAXQDAplus to Code Job Announcement

CHAPTER FOUR

RESULTS

In this chapter, I present the study results based the research questions one by one. For each research question, I list the top 25 frequently required competencies with a pie chart to visualize the data. I also include a section on the additional question findings at the end.

4.1 Results for Research Question 1

Research Question 1: What are the competency requirements for instructional designers?

Specifically:

- What are the most frequently listed competencies for instructional designers in job announcements?
- Do the different industry sectors request different competencies; if so, what are the differences?
- What are the most frequently required competencies for entry-level and experienced instructional designers?

4.1.1 Overall Most Frequently Listed Instructional Designers' Competencies

In total, 393 job announcements were analyzed in this study; within these job announcements, 35 different job titles were found in all selected data. The top job titles were: Instructional Designer (261 job postings), Instructional System Designer (19 job postings), E-learning Designer/Developer (19 job postings).

There were 28 different industry sectors that posted job announcements in the selected data. The top industry sectors were: Business and industry (115 job postings), Higher Education (64 job postings), Educational Consulting (39 job postings), and Healthcare (32 job postings).

In addition, the selected job announcements were located in 43 states in the United States. The five most posted job locations are California (60 job postings), Florida (29 job postings), Texas (27 job postings), Georgia (20 job postings), and Illinois (19 job postings).

Table 10 shows the 25 most frequently listed competency requirements for instructional designers identified through the 393 job announcement analysis. The top 25 competencies included competencies in five categories: instructional design (7 competencies), instructional technology (6 competencies), communication/interpersonal (5 competencies), personal (4 competencies) and management (3 competencies). The most frequently listed competency is “collaborate effectively with stakeholders, subject matter experts (SMEs), teammates and others.”

Figure 5 shows the most frequently required competency category was instructional design followed by technology and then the communication and interpersonal skills category. Personal skill category and management competency category have the smallest requirements percentages.

Figure 5. Percentage of Instructional Designers' Competency by Category

Table 10. Top 25 Instructional Designers' Competencies from Job Announcement Analysis

Competency	Frequency	Percentage	Category
Collaborate effectively with stakeholders, SMEs, teammates and others	294	75%	Communication/Interpersonal
Utilize ADDIE procedure to create learning solutions	262	67%	Instructional Design
Have knowledge and experience with E-learning authoring software, such as Captivate, Presenter, Storyline, Lectora and/or others	250	64%	Instructional Technology
Apply learning knowledge, principles and/or theories	235	60%	Instructional Design
Communicate effectively in visual, oral, and written form	225	57%	Communication/Interpersonal
Conduct a needs assessment	207	53%	Instructional Design
Have graphic design skills with relevant software, such as Photoshop, Illustrator, Fireworks and/or others	192	49%	Instructional Technology
Choose and design instructional materials	189	48%	Instructional Design
Have knowledge and experience to work with LMS, such as Blackboard, Moodle, Canvas and/or others	186	47%	Instructional Technology
Master and use Microsoft Office	163	41%	Instructional Technology
Apply various instructional design methodologies	156	40%	Instructional Design
Have project management knowledge and experiences	156	40%	Management
Use analysis techniques for determining content and tasks	151	38%	Instructional Design
Have strong client relationship	147	37%	Communication/Interpersonal
Set project priorities and have time management skills	139	35%	Management
Have multitasking and/or multi-projects skills	128	33%	Personal
Have video production skill with relevant software, such as Premiere, Final Cut Pro and/or others	125	32%	Instructional Technology
Keep up with trends in instructional design and technology (IDT) field and be willing to learn new technology	125	32%	Personal
Choose and design appropriate instructional strategies	113	29%	Instructional Design

Table 10 — Continued

Have strong team skills	109	28%	Communication/Interpersonal
Have strong organizational skills	104	26%	Management
Have knowledge and experience with screen casting tools, such as Camtasia, Snagit, Adobe Presenter and/or others	98	25%	Instructional Technology
Be able to work under pressure and/or meet deadlines	92	23%	Personal
Attention to detail	90	23%	Personal
Be able to work independently	88	22%	Personal

4.1.2 Most Frequently Listed Instructional Designers' Competencies in Different Categories

In this section, I will present the top 10 competencies in the five categories: instructional design, instructional technology, management, communication/interpersonal and other fundamental competencies. Table 11 shows the top 10 required competencies in the instructional design category. The most frequently required competencies in this category are in the design and develop phases.

Table 11. Top 10 Required Competencies in Instructional Design Category

Competency	Frequency	Percentage
Utilize ADDIE procedure to create learning solutions	262	67%
Apply learning knowledge, principles and/or theory	235	60%
Conduct a needs assessment	207	53%
Choose and design instructional materials	189	48%
Apply various instructional design methodologies	156	40%
Use analysis techniques for determining content and tasks	151	38%
Choose and design appropriate instructional strategies	113	29%
Identify and sequence instructional goals and learning objectives	75	19%
Provide solutions with rational based on assessment results	72	18%
Create storyboards, video scripts and/or concept maps	71	18%

Table 12 presents the top 10 required competencies in the instructional technology category. In general, instructional designers should have the knowledge and experience with

authoring software; Microsoft Office Suite; screen casting software; and video, audio, and graphic production software. Instructional designers also should have experience with Learning Management Systems and know how to create e-learning materials.

Table 12. Top 10 Required Competencies in Instructional Technology Category

Competency	Frequency	Percentage
Have knowledge and experience with E-learning authoring software, such as Captivate, Presenter, Storyline, Lectora and/or others	250	64%
Have graphic design skills with relevant software, such as Photoshop, Illustrator, Fireworks and/or others	192	49%
Have knowledge and experience to work with LMS, such as Blackboard, Moodle, Canvas and/or others	186	47%
Master and use Microsoft Office	163	41%
Have video production skills with relevant software, such as Premiere, Final Cut Pro and/or others	125	32%
Have knowledge and experience with screen casting tools, such as Camtasia, Snagit, Presenter and/or others	98	25%
Have web-based and e-learning instructional design experience	82	21%
Have knowledge and experience with markup Languages, such as HTML, XHTML, XML, HTML5	77	20%
Have audio production skills with relevant software, such as Audition and Audacity	67	17%
Have knowledge and experience with Adobe Flash	60	15%

Table 13 shows the top 10 required competencies in the management category. Although the existing literature showed that within the management category, there are competencies for project management, talent management, leadership, and change management, project management was the only competency included on this list.

Table 13. Top 10 Required Competencies in Management Category

Competency	Frequency	Percentage
Have project management knowledge and experience	156	40%
Set project priorities and manage time	139	35%
Have strong organizational skills	104	26%
Have facilitation skills	60	15%
Have coordination skills	59	15%

Table 13 — Continued

Document entire intervention and all relevant information	56	14%
Create a vision of the overall learning goal with the organizational goal	55	14%
Manage information life cycle	42	11%
Interact with external vendors	27	7%
Develop policies and procedures and/or standards	21	5%

Table 14 shows the top 10 required competencies in the communication/interpersonal category, which includes both communication skills and interpersonal skills. I also separated writing skills and speaking skills in the communication competencies category because many job announcements only mentioned the candidate should have strong writing skills. “Have strong communication skills” and “have strong interpersonal skills” are included in the top 10 competencies because many job announcements only mentioned these general skills.

Table 14. Top 10 Required Competencies in Communication and Interpersonal Category

Competency	Frequency	Percentage
Collaborate effectively with stakeholders, SMEs, teammates and other	294	75%
Communicate effectively in visual, oral, and written form	203	52%
Have strong client relationship	147	37%
Have strong team skills	109	28%
Have strong interpersonal skills	90	23%
Have strong communication skills	79	20%
Have strong presentation skills	53	13%
Have strong technical writing skill	24	6%
Communicate regularly with manager/partner/stakeholders	14	4%
Have active listening skills for clients & team members	12	3%

Table 15 shows the competencies in the other foundational competencies category. The foundational competencies in this category are the ones which are important but not listed within the four competency categories above. Although in the literature review, the other foundational competencies category included research skills, analytical knowledge, and coaching skills,

analysis of the job announcement revealed that all competencies in this category focus on personal skills.

Table 15. Top 10 Required Competencies in the Other Foundational Competencies Category

Competency	Frequency	Percentage
Have multitasking and/or multi-projects skills	128	33%
Keep up with trends in IDT field and be willing to learn new technology	125	32%
Have related field work experience	99	26%
Be able to work under pressure and meet deadlines	92	25%
Pay attention to detail	90	23%
Be able to work independently	88	23%
Be able to work in fast-paced environments	71	22%
Have creativity and/or innovative skills	70	18%
Have problem solving skills	61	18%
Establish and maintain relationships with other professionals	59	17%

4.1.3 Instructional Designers' Competencies in Different Industry Sectors

In this section, I will show the top 25 required instructional designers' competencies in four industry sectors: business and industry, higher education, educational consulting, and healthcare.

4.1.3.1 Instructional designers' competencies for the business and industry sector.

There were 115 job announcements in the business and industry field. Table 16 shows the top 25 required instructional designers' competencies in this industry, and Figure 6 shows the percentage of competency by category in the business sector.

Table 16. Top 25 Required Competencies in the Business and Industry Sector

Competency	Frequency	Percentage	Category
Have knowledge and experience with E-learning authoring software, such as Captivate, Presenter, Storyline, Lectora and/or others	68	59%	Instructional Technology
Collaborate effectively with stakeholders, SMEs, teammates and others	67	58%	Communication/Interpersonal

Table 16 — Continued

Conduct a needs assessment	64	56%	Instructional Design
Apply learning knowledge, principles and/or theory	61	53%	Instructional Design
Master and use Microsoft Office	56	49%	Instructional Technology
Choose and design instructional materials	55	48%	Instructional Design
Utilize ADDIE procedure to create learning solutions	53	46%	Instructional Design
Communicate effectively in visual, oral, and written form	52	45%	Communication/Interpersonal
Have knowledge and experience to work with LMS, such as Blackboard, Moodle, Canvas and/or others	45	41%	Instructional Technology
Have strong client relationship	41	39%	Communication/Interpersonal
Use analysis techniques for determining content and tasks	39	36%	Instructional Design
Apply various instructional design methodologies	39	34%	Instructional Design
Have project management knowledge and experiences	38	34%	Management
Have multitasking and/or multi-projects skills	36	33%	Personal
Have graphic design skills with relevant software, such as Photoshop, Illustrator, Fireworks and/or others	33	31%	Instructional Technology
Set project priorities and have time management skills	33	29%	Management
Have strong organizational skills	33	29%	Management
Provide solutions with rational based on assessment results	30	29%	Instructional Design
Choose and design appropriate instructional strategies	30	26%	Instructional Design
Keep up with trends in IDT field and be willing to learn new technology	28	26%	Personal
Have knowledge and experience with screen casting tools, such as Camtasia, Snagit, Adobe Presenter and/or others	27	24%	Instructional Technology
Attention to detail	26	23%	Personal
Have strong team skills	25	22%	Interpersonal
Have creativity and/or innovative skills	25	22%	Personal
Be able to work under pressure and/or meet deadlines	24	21%	Personal

Figure 6. Percentage of Instructional Designers' Competency by Category in the Business and Industry Sector

4.1.3.2 Instructional designers' competencies for higher education sector. There were 64 job announcements for positions in higher education. Table 17 shows the top 25 required competencies in higher education and Figure 7 shows the percentage of competency by category in this sector. Competencies in the instructional technology category were requested more often than skills in the other categories.

Table 17. Top 25 Required Competencies in the Higher Education Sector

Competency	Frequency	Percentage	Category
Collaborate effectively with stakeholders, SMEs, teammates and others	43	67%	Communication/Interpersonal
Apply learning knowledge, principles and/or theory	41	64%	Instructional Design
Communicate effectively in visual, oral, and written form	41	64%	Communication/Interpersonal
Have knowledge and experience to work with LMS, such as Blackboard, Moodle, Canvas and/or others	40	63%	Instructional Technology
Utilize ADDIE procedure to create learning solutions	35	55%	Instructional Design

Table 17 — Continued

Have knowledge and experience with E-learning authoring software, such as Captivate, Presenter, Storyline, Lectora and/or others	29	56%	Instructional Technology
Have strong team skills	28	45%	Communication/Interpersonal
Keep up with trends in IDT field and be willing to learn new technology	28	44%	Personal
Have graphic design skills with relevant software, such as Photoshop, Illustrator, Fireworks and/or others	27	44%	Instructional Technology
Provide new technology training to faculty/staff/employee	24	42%	Instructional Technology
Set project priorities and have time management skills	23	38%	Management
Apply various instructional design methodologies	22	36%	Instructional Design
Have strong client relationship	22	34%	Communication/Interpersonal
Be able to work Independently	22	34%	Personal
Have knowledge and experience with markup Languages, such as HTML, XHTML, XML, HTML5	21	34%	Instructional Technology
Have video production skill with relevant software, such as Premiere, Final Cut Pro and/or others	21	33%	Instructional Technology
Have strong organizational skills	21	33%	Management
Choose and design instructional materials	20	33%	Instructional Design
Have multitasking and/or multi-projects skills	20	31%	Personal
Have knowledge and experience with screen casting tools, such as Camtasia, Snagit, Adobe Presenter and/or others	18	31%	Instructional Technology
Have project management knowledge and experiences	18	28%	Management
Establish and maintain relationships with other professionals	17	28%	Personal
Choose and design appropriate instructional strategies	16	25%	Instructional Design
Have audio production skills with relevant software, such as Audition and Audacity	16	25%	Instructional Technology
Have technical support skills and experience	16	25%	Instructional Technology

Figure 7. Percentage of Instructional Designers' Competency by Category in the Higher Education Sector

4.1.3.3 Instructional designers' competencies for the educational consulting sector.

There were 39 job announcements for educational consulting companies. Table 18 shows the top 25 required instructional designers' competencies in this industry and Figure 8 shows the percentage of competency by category in this sector. Competencies in the instructional design category were requested more often than skills in the other categories.

Figure 8. Percentage of Instructional Designers' Competency by Category in the Educational Consulting Sector

Table 18. Top 25 Required Competencies in the Educational Consulting Sector

Competency	Frequency	Percentage	Category
Utilize ADDIE procedure to create learning solutions	24	62%	Instructional Design
Collaborate effectively with stakeholders, SMEs, teammates and others	21	54%	Communication /Interpersonal
Have knowledge and experience with E-learning authoring software, such as Captivate, Presenter, Storyline, Lectora and/or others	17	44%	Instructional Technology
Have multitasking and/or multi-projects skills	17	44%	Personal
Have knowledge and experience to work with LMS, such as Blackboard, Moodle, Canvas and/or others	16	41%	Instructional Technology
Apply learning knowledge, principles and/or theory	15	38%	Instructional Design
Communicate effectively in visual, oral, and written form	15	38%	Communication /Interpersonal
Keep up with trends in IDT field and be willing to learn new technology	15	38%	Personal
Conduct a needs assessment	14	36%	Instructional Design
Use analysis techniques for determining content and tasks	14	36%	Instructional Design
Have graphic design skills with relevant software, such as Photoshop, Illustrator, Fireworks and/or others	14	36%	Instructional Technology
Choose and design appropriate instructional strategies	13	33%	Instructional Design
Choose and design instructional materials	12	31%	Instructional Design
Have strong client relationship	12	31%	Communication /Interpersonal
Master and use Microsoft Office	11	28%	Instructional Technology
Set project priorities and have time management skills	11	28%	Management
Have strong team skills	11	28%	Communication /Interpersonal
Have creativity and/or innovative skills	11	28%	Personal
Identify and sequence instructional goals and learning objectives	10	26%	Instructional Design
Have multimedia production skills and experiences	10	26%	Instructional Technology
Be able to work under pressure and/or meet deadlines	10	26%	Personal

Table 18 — Continued

Be able to work in fast-speed environment	10	26%	Personal
Create storyboards, video scripts and/or concept maps	9	23%	Instructional Design
Have project management knowledge and experiences	9	23%	Management
Be able to work Independently	9	23%	Personal

4.1.3.4 Instructional designers’ competencies for the healthcare sector. There were 32 job announcements in the healthcare field. Table 19 shows the top 25 instructional designers’ competencies in this industry and Figure 9 shows the percentage of competency by category in the healthcare field. Competencies in the instructional design category were requested more often than skills in the other categories.

Figure 9. Percentage of Instructional Designers' Competency by Category the Healthcare Sector

Table 19. Top 25 Required Competencies in the Healthcare Sector

Competency	Frequency	Percentage	Category
Utilize ADDIE procedure to create learning solutions	19	59%	Instructional Design
Have knowledge and experience with E-learning authoring software, such as Captivate, Presenter, Storyline, Lectora and/or others	19	59%	Instructional Technology

Table 19 — Continued

Communicate effectively in visual, oral, and written form	18	56%	Communication /Interpersonal
Choose and design instructional materials	15	47%	Instructional Design
Apply learning knowledge, principles and/or theory	15	47%	Instructional Design
Have graphic design skills with relevant software, such as Photoshop, Illustrator, Fireworks and/or others	14	44%	Instructional Technology
Apply various instructional design methodologies	13	41%	Instructional Design
Master and use Microsoft Office	13	41%	Instructional Technology
Design a curriculum, program, or learning solutions	12	38%	Instructional Design
Collaborate effectively with stakeholders, SMEs, teammates and others	12	38%	Communication /Interpersonal
Have knowledge and experience to work with LMS, such as Blackboard, Moodle, Canvas and/or others	11	34%	Instructional Technology
Have strong client relationship	11	34%	Communication /Interpersonal
Have strong team skills	11	34%	Communication /Interpersonal
Choose and design appropriate instructional strategies	10	31%	Instructional Design
Have knowledge and experience with markup Languages, such as HTML, XHTML, XML, HTML5	10	31%	Instructional Technology
Conduct a needs assessment	9	28%	Instructional Design
Use analysis techniques for determining content and tasks	9	28%	Instructional Design
Have video production skill with relevant software, such as Premiere, Final Cut Pro and/or others	9	28%	Instructional Technology
Have strong organizational skills	9	28%	Management
Have strong facilitation skills	9	28%	Management
Set project priorities and have time management skills	8	25%	Management
Have multitasking and/or multi-projects skills	8	25%	Personal
Identify and sequence instructional goals and learning objectives	7	22%	Instructional Design
Have technical support skills and experience	7	22%	Instructional Technology

Table 19 — Continued

Have knowledge and experience with screen casting tools, such as Camtasia, Snagit, Adobe Presenter and/or others	7	22%	Instructional Technology
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4.1.4 Instructional Designers' Competencies with Different Work Experience Requirements

In this section, I present the most frequently required competencies for entry-level and more experienced instructional designers. Specifically, I present the top 25 required competencies for designers with zero to five years of work experience and with more than five years of experience.

In the selected data, 239 job announcements required the candidate to have zero to five years of work experience, while 98 required the candidate to have more than five years of experience. Table 20 shows the top 25 required instructional designers' competencies with zero to five years of work experience, and Table 21 shows the top 25 required instructional designers' competencies with more than five years of work experience.

Table 20. Top 25 Required Competencies with Zero to Five Years of Work Experience

Competency	Frequency	Percentage	Category
Utilize ADDIE procedure to create learning solutions	147	62%	Instructional Design
Have knowledge and experience with E-learning authoring software, such as Captivate, Presenter, Storyline, Lectora and/or others	147	62%	Instructional Technology
Collaborate effectively with stakeholders, SMEs, teammates and others	134	56%	Communication/Interpersonal
Communicate effectively in visual, oral, and written form	133	56%	Communication/Interpersonal
Apply learning knowledge, principles and/or theory	125	52%	Instructional Design
Choose and design instructional materials	110	46%	Instructional Design
Conduct a needs assessment	109	46%	Instructional Design

Table 20 — Continued

Master and use Microsoft Office	107	45%	Instructional Technology
Have graphic design skill with relevant software, such as Photoshop, Illustrator, Fireworks and/or others	97	41%	Instructional Technology
Working with LMS, such as Blackboard, Moodle, Canvas and/or others	96	40%	Instructional Technology
Have project management knowledge and experiences	86	36%	Management
Use analysis techniques for determining content and tasks	85	36%	Instructional Design
Apply various instructional design methodologies	84	35%	Instructional Design
Have multitasking and/or multi-projects skills	81	34%	Personal
Have strong client relationship	76	32%	Communication/Interpersonal
Set project priorities and have time management skills	73	31%	Management
Keep up with trends in instructional design and technology (IDT) field and be willing to learn new technology	72	30%	Personal
Have strong organizational skills	66	28%	Management
Have knowledge and experience with screen casting tools, such as Camtasia, Snagit, Adobe Presenter and/or others	65	27%	Instructional Technology
Have video production skill with relevant software, such as Premiere, Final Cut Pro and/or others	64	27%	Instructional Technology
Have strong team skills	62	26%	Communication/Interpersonal
Be able to work under pressure and/or meet deadlines	59	25%	Personal
Attention to detail	59	25%	Personal
Choose and design appropriate instructional strategies	56	23%	Instructional Design
Have knowledge and experience with markup Languages, such as HTML, XHTML, XML, HTML5	51	21%	Instructional Technology

Table 21. Top 25 Required Competencies with More than Five Years of Work Experience

Competency	Frequency	Percentage	Category
Utilize ADDIE procedure to create learning solutions	68	69%	Instructional Design
Collaborate effectively with stakeholders, SMEs, teammates and others	61	62%	Communication/Interpersonal
Conduct a needs assessment	54	55%	Instructional Design
Have knowledge and experience with E-learning authoring software, such as Captivate, Presenter, Storyline, Lectora and/or others	54	55%	Instructional Technology
Apply learning knowledge, principles and/or theory	48	49%	Instructional Design
Have project management knowledge and experiences	48	49%	Management
Choose and design instructional materials	45	46%	Instructional Design
Working with LMS, such as Blackboard, Moodle, Canvas and/or others	39	40%	Instructional Technology
Communicate effectively in visual, oral, and written form	39	40%	Communication/Interpersonal
Master and use Microsoft Office	38	39%	Instructional Technology
Apply various instructional design methodologies	35	36%	Instructional Design
Use analysis techniques for determining content and tasks	34	35%	Instructional Design
Set project priorities and have time management skills	33	34%	Management
Have graphic design skills with relevant software, such as Photoshop, Illustrator, Fireworks and/or others	32	33%	Instructional Technology
Choose and design appropriate instructional strategies	30	31%	Instructional Design
Have strong client relationship	30	31%	Communication/Interpersonal
Have strong organizational skills	26	27%	Management
Have multitasking and/or multi-projects skills	26	27%	Personal
Have strong team skills	24	24%	Communication/Interpersonal
Keep up with trends in instructional design and technology (IDT) field and be willing to learn new technology	23	23%	Personal
Identify and sequence instructional goals and learning objectives	22	22%	Instructional Design

Table 21 — Continued

Be able to work under pressure and/or meet deadlines	22	22%	Personal
Be able to work Independently	22	22%	Personal
Have video production skill with relevant software, such as Premiere, Final Cut Pro and/or others	21	21%	Instructional Technology
Have coordination skills	21	21%	Management

Figure 10 shows the percentages of the top 25 required competency categories for designers with zero to five and more than five years of work experience. The figure shows both entry-level and experience instructional designers should have competencies in the major five areas.

Figure 10. Percentage of Required Competency by Category for Designers with 0-5 Years Work Experience (Left) and with More Than Five Years Work Experience(Right)

4.2 Results for Research Question 2

Research Question 2: What competencies do ID project managers think are the most important when hiring an instructional designer?

4.2.1 General Information about the Interviewees

In order to answer research question two, I conducted 20 interviews. These 20 interviewees had different job titles, but I refer to them here as *ID project managers* because they all met the ID project manager definition for this study, which is defined as the professional who

has five or more years of experience as an instructional designer, who has managed one or more ID projects, and who has participated in hiring new instructional designers at any level.

The average years of work experience in the ID field is 21 years, with a minimal five years, and maximal 37 years. All interviewees managed projects in the past 12 months, and the average number of projects that they managed is 50. Among the 20 interviewees, 15 of them had a master degree in IDT field, 3 of them a doctoral degree in IDT field, and another 3 of them were in the process of pursuing their doctoral degree in IDT. They all participated in hiring new instructional designers before. 12 of them were involved from the beginning to the end of the hiring process, which means they were the one who wrote the job announcement, read the applications, participated in the interview process, and made the final decision. Another eight interviewees were only involved in the interview and final decision making process.

In addition, these interviewees were practicing instructional design in seven different industry sectors, including: higher education, telecommunication, instructional design consulting, e-learning solutions, retail, technology, and insurance. The organizations they worked at had different numbers of instructional designers as well, ranging from one instructional designer to 300 instructional designers.

4.2.2 The Top 25 “Must- Have” Instructional Designers’ Competencies from ID Project Managers’ Perspective

Table 21 shows the 25 most frequently mentioned competency requirements for instructional designers identified through the 20 interview results. Figure 10 below shows the percentage of instructional designers’ competency by categories from the project managers’ perspective. The top 25 competencies included skills in five categories: instructional design (9 competencies), communication/interpersonal (6 competencies), management (4 competencies), instructional technology (3 competencies), and personal (3 competencies). The most frequently

listed competencies are “collaborate effectively with stakeholders, SMEs, teammates and others” and “use analysis techniques for determining content and tasks.”

Table 22. Top 25 Must-have Instructional Designers’ Competencies from ID Project Managers’ Perspective

Competency	Frequency	Percentage	Category
Collaborate effectively with stakeholders, SMEs, teammates and others	18	90%	Communication/Interpersonal
Use analysis techniques for determining content and tasks	18	90%	Instructional Design
Have strong client relationship	17	85%	Communication/Interpersonal
Have knowledge and experience with E-learning authoring software, such as Captivate, Presenter, Storyline, Lectora and/or others	15	75%	Instructional Technology
Have project management knowledge and experiences	15	75%	Management
Apply learning knowledge, principles and/or theory	14	70%	Instructional Design
Set project priorities and have time management skills	14	70%	Management
Have strong organizational skills	14	70%	Management
Communicate effectively in visual, oral, and written form	13	65%	Communication/Interpersonal
Identify and sequence instructional goals and learning objectives	13	65%	Instructional Design
Design a curriculum, program, or learning solutions	12	60%	Instructional Design
Have strong writing skills for various conditions	10	50%	Communication/Interpersonal
Keep up with trends in IDT field and be willing to learn new technology	10	50%	Personal
Apply various instructional design methodologies	9	45%	Instructional Design
Choose and design appropriate instructional strategies	9	45%	Instructional Design
Master and use Microsoft Office	9	45%	Instructional Technology
Have graphic design skills with relevant software, such as Photoshop, Illustrator, Fireworks and/or others	9	45%	Instructional Technology
Have strong team skills	8	40%	Communication/Interpersonal

Table 22 — Continued

Conduct a needs assessment	8	40%	Instructional Design
Have negotiation skills	8	40%	Communication/Interpersonal
Have creativity and innovative skills	8	40%	Personal
Choose and design instructional materials	7	35%	Instructional Design
Be able to work under pressure and/or meet deadlines	7	35%	Personal
Be able to manage project progress and accountability	6	30%	Management
Be able to work independently	6	30%	Personal

Figure 11. Percentage of Instructional Designers' Competency by Categories from ID Project Managers' Perspective

4.2.3 ID Project Managers' Opinions on Instructional Designers' Competencies with Different Work Experiences

I also asked all interviewees their opinions on instructional designers' competencies with different work experiences. Three interviewees believed that there should be no different competency requirements for instructional designers with more or less work experiences. However, the rest of the 17 interviewees said there are different competency requirements for entry-level instructional designers than for experienced instructional designers.

According to these 17 interviewees, nine of them thought all instructional designers should have the same competencies, but the competencies are at different levels. Advanced instructional designers are expected to have higher level competencies than entry-level instructional designers in the same competency category. For instance, the entry-level instructional designers only need to have strong writing and speaking skills as one communication and interpersonal competency. But experienced instructional designers need to be able to negotiate with stakeholders, talk with clients on the big picture, present products to clients, and so on as additional communication and interpersonal competencies.

Similar to job announcement analysis, eight of the 17 interviewees stated that there was a different requirement for management competencies for the entry-level and advanced instructional designers. The major difference is that entry-level instructional designers were only required to have project management competencies, while advanced instructional designers also need to have leadership competencies and talent managing competencies.

These eight interviewees believed that competencies for entry-level and experienced instructional designers are also different in the levels of: business knowledge and skills, communication and interpersonal competencies, trouble shooting and problem solving skills, consulting skills, and strategic and technical decision making skills.

4.3 Results for Research Question 3

Research Question 3: What are the other important requirements (such as education background or work experience) for instructional designers?

Besides the instructional design competencies, some other requirements were also found in the job announcements. As mentioned above, 239 (60.81%) job announcements required 0-5 years of work experience and 98 (24.94%) job postings required 5+ years of experience. Additionally, 56 (14.25%) job postings did not specify previous work experience.

The interview analysis results show that three interviewees thought work experience is not as important as instructional design competencies. One of them explained that: “The normal level IDs, I’m actually okay without a work experience, you know straight out of a master program in instructional design. I’d rather to choose the people just out of school, who are still creators. Work with them, mold them, rather than hire someone who already have some habits. For me, have some experience that’s great, but I don’t think that’s must have. I’m more about hiring the potential.” Another interviewee also agreed with this opinion by saying: “Working experience is helpful, but sometimes, it’s a double edged sword. Sometime you can get someone who knows many different ways to do stuff, and we have to bring him back to the way we want it, or they only have one way of doing something. The thing is I would like to hire someone with passion and no experience rather than someone with a lot of experience, because they might be stuck with the way they doing things.”

The other 17 interviewees believed that previous work experience is necessary. Among the 17 interviewees, three required the instructional designers to have at least two years of work experience, five interviewees required the instructional designers to have at least three to five years of work experience, and one interviewee required the instructional designer to have at least six to eight years work experience. Also, among these 17 interviewees, four thought instructional designers don’t necessarily need to have previous work experience in the IDT field as long as they had experience in a related field such education, training, or business. One interviewee working in higher education said that: “We like to see a proven track record. I like to see experience, I think internship, GA or TA can be count as experience. In higher ed, there is not much room for someone with no experience. I like to see some years of work experience, where they can prove their working capability. Portfolio or some samples is important to show what

you can do. Basically, they need to have 2 years' work experience and a master degree in instructional design." Another interviewee from business and industry pointed out that: "I look for someone who has a master degree in instructional design from a quality program. And probably plus one job before this. I do consider the master program as a job." In addition, three interviewees also thought a master degree from a prestigious university program could supplement a candidate with little previous work experience.

In addition, 12 of the interviewees believe it is very helpful and necessary for them to look at working samples and/or portfolio when hiring an instructional designer. For example, one interviewee mentioned that: "I just think those who work well with people [is important]. But you don't know until you hire them to see how they work with people. They can say they did well, or you can call the references, and their references might give them a glowing thing, it could be that they're trying to get rid of them out of company anyway. You don't know what you can trust until you actually work with that person. So I have to have some evidence of their work. Something like a portfolio shows what they have done, something like that would be something I have to see. Like it may be directly with how your resume looks. Is it a very creative, well-designed resume? That helps me right there, it shows me they care, it shows me some of their skills. I would be looking for examples of their work, someone has their website, and I check the website. I see what they've put together on their own. and it looks like they got some pretty good stuff, even it is immature, but as long as it has potential."

Educational background is another popular requirement for instructional designer jobs. Within all selected job postings, 293 (74.55%) required the candidate to have a bachelor's degree in any field and 60 (15.27%) required a master's degree in IDT (75 included a preference for a masters in the field). Some other job postings only required the candidates to have certifications

from professional associations in the IDT field. In addition, 11 interviewees said they only hired people with a master degree in the IDT field. Among these 11 interviewees, four of them mentioned that they also prefer to have someone who received a bachelor's degree in a related field, such as business, psychology, or education. Another six interviewees said their companies required all employees to have a bachelor degree, but they preferred to hire people with a master's degree in IDT.

However, it is important to note that the master degree is a preferred degree rather than the required degree. One interviewee explained that "For whole competency, what I just said is the baseline. Beyond that point, what competencies I'm going to say will be formal education and certification. Our formal education requirement is a bachelor degree and we prefer a secondary degree in instructional design. So I don't think we require this. But if we are selecting the candidate, we may prefer someone has an instructional design master's degree. But if the candidate pool is short of formal education, we will choose from the pool anyway."

CHAPTER FIVE

DISCUSSION

In this final chapter, I start with a summary of the major findings in this study and provide a discussion about these findings. I then explain the study limitations and provide implications of this study for students in IDT programs, IDT practitioners, employers, IDT academic programs and recommendations for future studies.

5.1 Summary of Findings

This study identified the 25 most frequently required competencies for instructional designers from 393 job announcement postings and from the perspective of 20 project managers. In general, the results show that:

- (1) Instructional designers should obtain competencies in five major categories:
instructional design, instructional technology, communication and interpersonal, management, and personal skills.
- (2) Collaborate effectively with stakeholders, subject matter experts, teammates and others is the most frequently mentioned competency in job announcements and by interview participants.
- (3) Utilize ADDIE procedures is the most frequently listed skill in the instructional design category in the job announcement analysis. Competencies relate to analysis and design are mentioned more often than skills in the areas of implementation and evaluation in the instructional design category.
- (4) Knowledge and experience with E-learning authoring software is the most frequently listed competency in the instructional technology category. Skills and knowledge

- relate to graphic design, learning management systems (LMS), screen casting, video production, and Microsoft Office are also listed by many employers.
- (5) Announcements for jobs in the higher education sector include more competencies in instructional technology while those in business and industry, educational consulting and healthcare include more skills related to instructional design.
 - (6) Entry-level and experienced designers should have skills in the five major competency categories, but experienced instructional designers are required to have higher proficiency especially in the management and communication and interpersonal categories.
 - (7) Employers prefer to hire an instructional designer candidate who has a master's degree in the IDT field with one to three years of work experience.

5.2 Discussion

5.2.1 The Must-have Competencies for Instructional Designers

One of the key findings from this study is that instructional designers must be able to collaborate effectively with stakeholders, subject matter experts (SMEs), teammates and others. This skill was included in 294 out of 393 job announcements and supported by 18 out of 20 interviewees. This result is aligned with other recent studies (van Rooij, 2013; Ritzhaupt & Martin, 2014; Kang & Ritzhaupt, 2015) as well as professional associations' competency standards. Indeed, instructional design is not a solo work profession. In order to create or produce effective and efficient instructional products, designers collaborate and interact with a wide range of constituencies such as stakeholders, clients, SMEs, teammates, project managers, IT specialists, and more. Collaboration and interaction starts at the needs assessment and continues until the final product is delivered to the client.

Many project managers mentioned that collaboration and communication are the most important skills for instructional designers. For example, one interviewee from higher education pointed out that: “Number one, what they really need is to work with people, work with faculty or subject matter experts. They have to get information from you, have to be able to communicate well, and be very patient with people, and be understanding.” Another interviewee from business and industry said that “They have to have very strong people management skills, especially when they manage and interact with SMEs and when there are management expectations with internal clients. The designers I’ve employed have be able to have strong communication skills and good relationship with our clients. So people who don’t have a strong interaction and collaboration skill will have a tough time.” One interviewee even pointed out that: “It’s the top of the list. If I have two candidates, one with really poor communication skills with others, but really good instructional design technical skills, another one with really good communication and interpersonal skills but never heard about instructional design. I would hire the second one. Because I can teach you instructional design but I can’t teach you how to interact and collaborate with others to the level we need. Back to do business with client, you need to have really good communication and interpersonal skills: you have collaborating, listening, asking good question, establish rapport, influencing, negotiating, that will be the top skills.”

Another interesting finding is that most employers expect that designers can utilize ADDIE procedures to create learning solutions. This competency was mentioned in 262 job announcements. It is important to point out that ADDIE is the common conceptual framework which can be applied in various settings, work sectors, or different instructional design models. The use of systematic design procedures such as ADDIE has been criticized as outdated due to the changing nature of learners, work tasks, and delivery systems such as the internet (Gayeski,

1997; Gordon & Zemke, 2000; Hoffman & Margerum-Leys, 2005). The current study suggests that criticisms of ADDIE are unsubstantiated as it continues to be used by many designers and their organizations as a conceptual framework.

Furthermore, the current study indicates that analysis and design skills are important when hiring an instructional designer. However, the results do not show a strong demand for implementation and evaluation competencies. Data from the interviews shed some light on this finding. Eighteen interviewees mentioned that “use analysis techniques for determining content and tasks” is one of the must-have competency for instructional designers. Eleven interviewees mentioned that a project is completed once an instructional product was developed and delivered to the client. A majority said that implementation and evaluation was not included in their job responsibility. Five interviewees did indicate that evaluation competencies were important, especially for experienced designers to measure the effectiveness of an instructional product or when they had to persuade stakeholders to make important business decisions. Thus, evaluation competencies are important, but may not be as critical for entry-level designers seeking their first job. It is also important to note that even these five interviewees mentioned evaluation is important, but this doesn’t mean they actually conduct evaluation as part of their job task. One interviewee mentioned that “one thing I would emphasize is formative evaluation, I feel formative evaluation is not given enough attention. I work in a technology company, we simple can’t send out the training materials to thousands of thousands people, then find errors and make the changes.”

Turning to technology skills, 250 job announcements required designers to have knowledge and experience with E-learning authoring software such as Captivate, Presenter, Storyline, Lectora and/or others. Furthermore, knowledge and experience with these authoring

tools was the only technology skill mentioned by more than half of the interviewees (n = 15).

These results are not surprising due to the increased use of distance education delivered via the web (Alonso, López, Manrique & Viñes, 2005; Kanuka, 2006; Reigeluth, 1997; Zhang, Zhou, Briggs & Nunamaker, 2006). An interesting finding is that 17 interviewees said that designers do not need to be technology experts; rather they should have basic knowledge and be technology savvy. For example, one interviewee who worked in an educational consulting company said that “I think they need to very technology savvy. I don’t mean on particular tool, but the ability to take whatever the tool they need to use and pick it up quickly. For example, we use tools like go to meeting or connect, but with a new client, you don’t know what tools they will use, so you will be able to learn the tools they are using. You don’t need to be expert, but understand it, and you’re gonna be quick.”

Additionally, six interviewees mentioned that they did not expect their designers to master specific software tools, because technology experts were typically employed when required to develop instructional products. As an example, one interviewee explained that: “Regarding to the authoring tools, I do have some IDs can do the authoring tools, but I can’t make it mandatory, because they change all the time. So if the ID can understand the current authoring tools, I hate even to name them, because people talk like that’s the one everyone needs to know. No that’s the one for the moment. For example, the tool for the moment is Storyline, but very problematic. Another one for a while is Lectora, but again, if my ID doesn’t know it, and they have good instructional design skill and knowledge, they just need to do the paper work and I will hand it over to the developer to produce.” It is likely that the experience and training of the 20 project managers who were interviewed influenced their thoughts related to competencies related to instructional technology.

Personal skills were also mentioned many times in both job announcements and interviews. Instructional designers need to have multitasking skills, be able to work independently, meet deadline and work under press. They also need to be able to keep up with the new trends in IDT field. However, many interviewees mentioned that these skills, as well as communication/interpersonal skills, can't be seen from candidates' resume. Managers seek this type of information during job interviews. In addition, sometimes, these soft skills may be more important than instructional design skills. One example, "when I help to build the instructional design team, if instructional designer who is capable quickly turn around the working sample, or shift their instructional design framework, from a traditional storyboard design development approach to a just put PowerPoint together and learn it through whatever the tools, whatever to get out of the door faster. So the instructional designer who might be willing to accept a shorter deadline than the normal one, and still be able to produce the product without pushing back or challenge our clients too much. That might be a good fit."

5.2.2 The Competencies for Instructional Designers in Different Work Settings

Like this study, others have examined instructional designer competencies in different work settings (Andrews, Moses, & Duke, 2002; Byun, 2000; Heideman, 1991; Moallem, 1995; Larson & Lockee, 2004; Richey, Morrison, & Foxon, 2006; Surry & Robinson, 2001). Current findings reaffirm that business and industry is the most common working setting for instructional designers. Additionally, higher education and healthcare are common work settings for instructional designers (Byun, 2000; Moallem, 1995; Larson, 2004; Reiser, 2011b; Richey et al., 2006).

An interesting finding in this study is that job announcements in the higher education sector require more competencies in the instructional technology category than in other categories. This is likely due to the uniqueness of the higher education setting. The recent

Instructional Designer in Higher Education Report (Intentional Futures, 2016) identified four major responsibilities for instructional designers: design digital instructional materials; manage faculty, administration, IT and other instructional designers; training faculty to learn and use technology; and provide technical support for faculty. These responsibilities indicate that instructional designers have to have strong instructional technology competencies to be able to work in the higher education field successfully. One of the interviewee who worked in the higher education field stated “So based on what we consider when hiring, we would like to hire people that have some experiences with authoring tools, so people need to know how to work with Articulate, because that’s the tools that we are using here.”

Furthermore, current findings revealed that the number of required competencies in the communication and interpersonal category was similar to those in the instructional design category for jobs in higher education. According to the Instructional Designer in Higher Education Report the number one barrier for instructional designers in the higher education sector is difficulty in working and collaborating with faculty. The interviewees in higher education sector also mentioned that “I think one of the biggest thing for me is someone who is able to communicate effectively, clearly and directly. So yes, someone with good communication skills both verbally and in writing. Because of the type of work that we do, I want to be able to have someone to talk to me directly if there is possible issue. At the same time, that competency is really important to have when it comes to working with the instructors, we need to communicate with the instructor respectfully, and both verbally and in writing, because we are writing emails and calling them. Also because we are working with content scripts, we need someone who has a strong sense of English, which is the main language here, to be able to understand the content and make sure that the content is written properly, and there are no

grammar mistakes.” Therefore, it is understandable why this sector has a high requirement for communication and interpersonal skills.

On the other hand, instructional design is the most required competency category for business and industry, educational consulting and healthcare. Richey, Morrison & Foxon (2007) explained that in business and industry and in consulting, instructional designers’ major responsibility is during the consulting and design phases. Furthermore, business and industry outsources a large amount of programming and development of training products (Richey et al, 2007). Similarly, Mani (2013) reported that in the healthcare industry, the primary tasks for instructional designers were to learn and analyze the needs from SMEs and design the relevant training programs.

5.2.3 The Must-have Competencies for Different Levels of Instructional Designers

Another key finding in this study is that although entry-level and advanced instructional designers are required to possess competencies from the same categories, the competency levels are different within each category. In other words, all instructional designers should have competencies in the five major categories, but experienced instructional designers are required to have higher proficiency than entry-level instructional designers. The IPSTPI standards (Koszalka, Russ-Eft, Reiser, 2013) listed the instructional design competencies in five different domains, within each domain, the competencies were labeled as essential, advanced, or managerial. One interviewee pointed out that: “I think they have the same competencies, but at different levels. So I think entry IDs have level 1 & 2 competencies, but I would expect level 3 & 4 competencies. So take influencing SMEs as example, I would say entry ID has lower skills at that level, but advanced ID has a higher level.”

In this study, a major difference between entry-level and experienced instructional designers' competencies is regarding the management category. According to the literature, there are four types of management competency: project management, talent management, leadership, and change management (Koszalka, Russ-Eft, Reiser, 2013; ISPI, 2015b; ATD 2016b; Fox & Klein, 2003; Kenny et al., 2005; Klein & Jun, 2014; Larson & Lockee, 2007; Moallem, 1995; van Rooij, 2012). However, the study results show that it is important for all instructional designers to have basic project management competencies, but for advanced instructional designers to possess the other three types of management competencies. This can be explained through the interview findings, eight interviewees mentioned that leadership or talent management skills are more required for a project manager or an advanced instructional designer, who may or may not directly perform instructional design work. These position levels are usually required to manage or direct a team, to negotiate and influence stakeholders, and make important project-level decisions. On the other hand, basic project management skills are foundational competencies, which are generally required for all levels of instructional designer positions (Koszalka, Russ-Eft, Reiser, 2013; van Rooij, 2011). One project manager explained that: "Junior people probably won't have the competency up front, like strategies, conceptual need assessment perspective. My experience is that you get people who can just do instructional design, they can create lecture, webinar, study guide. But be able to go to the full chain, be able to do the needs assessment, be able to make the recommendation, sell a piece of work, that's for senior level people. I'd also say junior level most of time only focus on what they do, while other senior people they can manage the junior people, solve problems, negotiate with clients. That's the difference between junior and senior people."

Another major difference between entry-level and experienced instructional designers' competencies involves the communication and interpersonal category (Brill, Bishop & Walker, 2006; Koszalka, Russ-Eft, Reiser, 2013; van Rooij, 2012). Eight interviewees explained that both entry-level and advanced level instructional designers should have strong verbal and written communication skills in various setting, and be able to collaborate with others. However, the entry-level instructional designers are only required to interact within the team, such as other designers, project managers, SMEs or IT specialists, while advanced designers are also required to be able to communicate and interact with clients and stakeholders and make project decision with them. For example, one interviewee from business and industry sector said: "I think the entry level ID don't have the contextual skills and perhaps the communication skills are not advanced. The advanced IDs are definitely the client facing people, so they will deal with clients, set up the project, set up the needs analysis work. The entry level IDs are usually doing the develop part, do the drafting, the back room work."

5.3 Limitations

The results of this study must be interpreted with the limitations of the collected data, and the data collection methods. All conclusions made in this study are based on the understanding of the limitations of the study.

First, the phase one data was collected through job announcements. These may have been created by human resources departments, which may not fully represent what is actually needed by the employers. Moreover, the length of each job announcement was different. This means some of them listed very specific competencies and requirements for instructional designers while others only had a general job description, thus this may influence the study results as well.

Second, the phase two data were collected through 20 interviews. The 20 interviewees were collected by convenience sampling method. Therefore, they do not represent the entire

population of instructional design project managers. For example, they all had received formal education in IDT field. They might have some bias opinions on the most important competencies for instructional designers. Also, most of the interviewees worked in business and industry or instructional consulting sectors. Therefore, their opinions may only represent what these two industry sectors' expected for the instructional designers.

Last, the job announcements data was collected from two resources in a short period (May 1, 2015 to May 31, 2015), and only in the United States. In addition, with only using two data resources, there is a chance that some relevant competencies in other industry sectors might not have been collected and interpreted in this current study.

5.4 Implications

5.4.1 For IDT Practitioners

I want to use the current study findings to provide IDT practitioners some recommendations, which can help them to improve their competence. Findings show that half of the interviewees and a third of the job announcements included the personal competency of “keep up with IDT trends and willing to learn new technology when needed.” Second, instructional designers should advance their written and oral communication skills and interpersonal skills. Specifically, they should practice their presentation skills and professional writing skills. Third, to advance in their position, designers should gain experiences in program management, talent management, leadership, and change management.

5.4.2 For Employers of Instructional Designers

I also think my study has implications for employers. For example, when an employer develops a job description, they can use my findings as a reference. They can also use them to evaluate the competencies of the job candidates. Second, employers should consider ask candidates to provide work samples during the hiring process. Many interviewees mentioned that

after the candidates meet basic job requirements, it is very helpful to see their performance on applying instructional design knowledge in a given scenario, which can help them to evaluate the candidates' competencies in all competency categories. In addition, several project managers also mentioned that during the interview phase, focusing on candidates' soft skills is critical. Due to the nature of the IDT field, it is important to consider if the candidate can fit in with the company and team culture. Some interview questions should also determine candidates' competencies in project management, interpersonal and personal areas.

5.4.3 For Current Students in IDT Programs

I hope this study can also provide some insight for students currently enrolled in an IDT graduate program. First, students should learn and practice their skills related to ADDIE procedures, especially related to analysis and design. They should also be able to apply learning principles and theories. Over half interviewees and job announcements indicated this competency is important. Second, they should also learn about frequently used technology applications. Students should learn about E-learning authoring software, and be able to use at least one of the software platforms to create instructional product. Besides E-learning authoring software, students should also seek opportunities to improve their skills and knowledge related to graphic design, LMS, screen casting, video production, and Microsoft Office. Third, since many employers require their candidates have at least one to three years of work experience, students should seek and prepare for internships during their education. Internships can help students gain real world experience, and can help students relate what they have learned in the classroom to real life situations. When seeking internships, it may be important for students to consider the industry sector, since different settings focus on different competency categories. Last, students should become accustomed to learn new trends in the IDT field. The study results show that while employers do not expect instructional designers to be experts in various technology

applications, they do expect designers to be technology savvy and be able to choose appropriate technology to develop the instructional products. Therefore, students should continue to regularly read journal articles, blogs or community websites about the new trends in IDT.

5.4.4 For IDT Academic Programs

Based on the current study, I also list the following recommendations for IDT academic programs. First, the academic programs should focus on covering knowledge, principles, methodologies, methods, and strategies related to instructional design. Second, academic programs should have students apply the frequently required tools and software to create the effective instructional products. Third, academic programs should also help students develop the habit of researching new trends and technologies. This means that institutions should teach students how to search for new tools and technologies, how to use their knowledge to judge and evaluate these new tools and technologies, and make decisions on when and how to apply these tools and technologies in their real world working situation. Fourth, school programs should also focus on teaching project management skills and communication and interpersonal skills. For example, they should be providing students group project-based learning opportunities, where they can manage the project and timeline as a team in order to complete a successful project. In addition, school programs can provide job aids and seminars on issues and tips related to these skills, to provide students chances to access to these types of competencies. Fifth, the IDT programs should provide real world learning experience. The study result shows that most employers require the candidates to have one to three years of work experience, therefore, academic programs can consider building relationships with local companies, schools or other industry sectors, and let students work to solve the real world problem through their learning experience. There are many benefits of this: students will gain real world knowledge and develop communication skills and management skills through the process. It can also help the local

business to grow. Students can actually use what they have learned to create products in the real world. Another way to provide real world learning experience is requiring students to gain work experience through internships. In addition to the benefits mentioned above, good internships may lead to a full time job position, which can help the academic program increase the job market opportunities for their students. Sixth, students should be provided opportunities to develop an industry specialty. For instance, if one student wants to work in the higher education field as an instructional designer, it is important for this student to gain some knowledge and experience on working with learning management systems, and gain some teaching experience in the higher education setting. On the other hand, if a student wants to work in the healthcare field, this student should obtain some basic knowledge related to healthcare, and how to apply instructional design in the healthcare sector. Last but not least, the academic programs can consider use this study results as reference to fully understand the gap between what the job market needs and what the academic programs provide.

5.5 Recommendations for Future Study

The following section, I list some recommendations for researchers who are interested in conducting studies related to instructional designer competencies. The current study is a snapshot of instructional designer competencies over a one-month period of time. Future studies can use findings from this study as a baseline and compare findings to determine whether the competencies change over time. Second, it is important to note that how the job announcements were created and who created them was unknown in this study. Therefore, it is possible that the people who developed the job announcements had little knowledge about the IDT field, and it is also possible the job announcements were old ones which were created for their previous hiring cycle. This means, the future research should consider asking questions related to job announcement. Furthermore, further research should include more job announcement data from

each of the industry sectors that will be studied, such as 100 job announcements from each of the business and industry, the higher education, the healthcare, the government/military, and instructional consulting sectors. Last, future studies should collect data from different parts of the world, since more and more IDT positions can be found outside of the United States, and geography may play an important role in determining the requirements on instructional design competencies.

APPENDIX A

INTERVIEW PROTOCOL FOR INSTRUCTIONAL DESIGNER

COMPETENCY STUDY

Interview # _____

Date _____ / _____ / _____

Time _____

Interviewee Name _____

Position of interviewee _____

Start with the Florida State University Informed Consent Script first

After receiving the agreement to participate the study, you can start to ask the interview questions.

Part 1. Background Information:

Transcript: The first part is about your background information.

1. How many years have you worked in instructional design or a related field?
2. How many years have you managed instructional design projects?
3. How many projects have you managed in the past 12 months?
4. Have you participated in hiring any instructional designers? (If the answer is yes, can you tell me how were you involved in the process?)
5. What degrees and certifications do you hold?
6. What industry sector do you work in now? How about before your current job? (e.g. health, government, finance, higher education, consulting)?
7. How many instructional designers are there in your organization (entire organization/particulate unit?) And how many do you manage?

8. How often does your organization hire new instructional designers? And at what level?

Part 2. Competencies and other requirements for instructional designer:

Transcript: Part two has several questions related to important competencies and other requirements when hiring an instructional designer.

Competency is the knowledge, skill or attitude that enables one to effectively perform the activities of a given occupation or function to the standards expected in employment.

1. Based on this definition, when hiring an instructional designer, what are the critical competencies in your opinion?
2. In addition to competency, what are the other requirements do you seek in hiring an instructional designer? (Can lead to work experiences/ education background/ working samples when necessary)

Transcript: The following questions aim to determine your opinion on competencies in five areas: instructional design, instructional technology, communication and interpersonal skills, management, and other foundational competency. You may already have included some competencies in the questions above. The purpose of this part is to make sure you get a chance to describe all the important competencies for instructional designer in various areas. I'm going to ask you questions in each of the five areas I mentioned above.

1. I would like to use ADDIE as the framework to discuss related competencies. Within the five components of analysis, design, development, implementation and evaluation, what are the most important skills for instructional designers? You don't need to follow the order of ADDIE procedure, I want to know in your opinion, what competencies are the most important ones. Please be specific (Provide examples when necessary).
2. In addition to instructional design competency, what are the most important technology skills when hiring an instructional designer?

3. What communication and interpersonal skills do you think are important when hiring an instructional designer?
4. What management skills do you think are important when hiring an instructional designer? (Provide example when necessary such as project management, talent management, leadership, and Change management).
5. Are there any other competencies that you look for when hiring an instructional designer?
6. Do you think entry-level instructional designer and advanced instructional designer have different required competencies? What are they?
7. Before we conclude this interview, is there anything else you would like to share?

***** If participant wishes to discontinue study, ask if they would be willing to share why:**

Thank the participant for his/her participation

APPENDIX B

EMAIL TO POTENTIAL INTERVIEWEES

Dear XXX,

My name is Wei Kelly, a Ph. D. candidate in the Instructional Systems and Learning Technologies program at Florida State University under the direction of Dr. James Klein. I am writing to invite you to participate in my dissertation research project on the competencies employers require when hiring an instructional designer. Your participation is requested because you have worked as a practitioner in the instructional design and technology (IDT) field for over five years and you have managed one or more projects.

The study has two phases. Phase one (which is completed) is an analysis of approximately 400 job announcements. Phase two includes interviewing 20 individuals with project management experience. The purpose of this interview is to determine the importance of the competencies and other job requirements revealed during Phase one.

Depending on your schedule, the interview will be conducted sometime in February, 2016. It will last approximately 40 minutes, be conducted via an electronic communication tool such as skype or FaceTime or phone call, and can be scheduled at your convenience. I will audio record the interview digitally. The audio records and transcripts will be kept safely with me.

By participating in this interview, you will receive a list of the top 25 competencies for instructional designers based on the job analysis findings. This can help your organization when addressing human resource requirements for future projects. Findings can also benefit instructional designers to self-examine their own skills, and assist academic IDT programs update their curriculum to meet the current market.

I sincerely hope that you will consider participating in my research study. If you are

willing to participate in the interview, please contact me. If you have any questions about this study, please feel free to contact me as well.

Sincerely,

Wei Q. Kelly

Ph. D. Candidate

Instructional Systems and Learning Technologies

Florida State University

APPENDIX C

FLORIDA STATE UNIVERSITY INFORMED CONSENT SCRIPT

**COMPETENCIES FOR ENTRY LEVEL INSTRUCTIONAL DESIGNERS: A VIEW
FROM EMPLOYERS**

Principle Investigator: Wei Kelly

Educational Psychology and Learning Systems

Florida State University

Faculty Supervisor: Dr. James Klein

Educational Psychology and Learning Systems

Florida State University

Script

Welcome and thank you for your participation today. My name is Wei Kelly and I am a Ph.D. candidate at Florida State University in the instructional systems and learning technology program. This is my dissertation study, it aims to determine the must-have competencies and other requirements for instructional designers from an employer's perspective. The study has two phases. In phase one, I conducted a job announcement analysis, where I aimed to determine the competencies for instructional designers. The interview is the second phase. The purpose of this interview is to identify the instructional designer's competencies from instructional design project manager's perspective, and determine whether there is any difference between the job announcement analysis result and the interview result.

This interview will last about 40 minutes, and it will include two parts. The first part is about your background information. The second part is about identifying the competencies and other requirements for instructional designer.

I would like your permission to audio record this interview, so I may accurately document the information you provide. If at any time during the interview you wish to discontinue the use of the recorder or the interview itself, please feel free to let me know. This study has no known risks. Please know that I will do everything I can to protect your privacy. Your identity or personal information will not be disclosed in any publication that may result from the study. The audio file and notes that are taken during the interview will be stored in a secure location. Your responses will remain confidential and will be used to develop a better understanding for the instructional designer competencies.

Your participation in this interview is completely voluntary. If at any time you need to stop or take a break please let me know. You may also withdraw your participation at any time without consequence. Do you have any questions or concerns before we begin? Then with your permission we will begin the interview.

APPENDIX D

FLORIDA STATE UNIVERSITY SUBJECTS COMMITTEE APPROVAL LETTER

The Florida State University
Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 5/4/2015

To: Wei Kelly

Dept.: EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
COMPETENCIES FOR ENTRY LEVEL INSTRUCTIONAL DESIGNERS: A VIEW FROM
EMPLOYERS

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and one member of the Human Subjects Committee. Your project is determined to be Expedited per per 45 CFR § 46.110(7) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 5/2/2016 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is FWA00000168/IRB number IRB00000446.

Cc: James Klein, Advisor
HSC No. 2015.15274

The formal PDF approval letter:

http://humansubjects.magnet.fsu.edu/pdf/printapprovalletter.aspx?app_id=15274

APPENDIX E

FLORIDA STATE UNIVERSITY SUBJECTS COMMITTEE RE- APPROVAL LETTER

The Florida State University
Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

RE-APPROVAL MEMORANDUM

Date: 4/13/2016

To: Wei Kelly

Dept.: EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From: Thomas L. Jacobson, Chair

Re: Re-approval of Use of Human subjects in Research
COMPETENCIES FOR ENTRY LEVEL INSTRUCTIONAL DESIGNERS: A VIEW FROM
EMPLOYERS

Your request to continue the research project listed above involving human subjects has been approved by the Human Subjects Committee. If your project has not been completed by 4/11/2017, you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the committee.

If you submitted a proposed consent form with your renewal request, the approved stamped consent form is attached to this re-approval notice. Only the stamped version of the consent form may be used in recruiting of research subjects. You are reminded that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor are reminded of their responsibility for being informed concerning research projects involving human subjects in their department. They are advised to review the protocols as often as

necessary to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

Cc: James Klein, Advisor
HSC No. 2016.17723

The formal PDF approval letter:

http://humansubjects.research.fsu.edu/pdf/printapprovalletter.aspx?app_id=17723

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BIOGRAPHICAL SKETCH

EDUCATION

Florida State University, Tallahassee, FL 08/2016
Doctoral, Instructional Systems and Learning Technology
GPA: 3.91
Florida State University, Tallahassee, FL 12/2010
Master of Science, Multilingual Multicultural Education
GPA: 4.0, Dean's List
Shaanxi Normal University, Xi'an, China 07/2009
Bachelor of Arts, English Education
GPA: 3.34
University of North Florida, Jacksonville, FL 05/2008
Exchange Student (non-degree)
GPA: 3.72

RELEVANT EXPERIENCE

Multimedia Instructional Designer 06/2015-Present
Innovative Education, University of South Florida, Tampa, FL

- Developing and maintaining online courses in USF's learning management system
- Working with faculty to develop online learning environments that apply adult learning theory with instructional design methodology
- Utilizing appropriate technology to develop and design learning material
- Performing all aspects of online instructional design, which includes analysis, design, development, implementation, and evaluation of instructional materials
- Providing technical support for faculty using multimedia, audio, and video technology
- Researching and integrating instructional design research and theory for the enhancement of online learning environments

Instructor 01/2012-05/2015

Department of Modern Languages and Linguistics, Florida State University, Tallahassee, FL
Advisor: Dr. Feng Lan

Responsibility & Accomplishments:

- Teach courses *CHI 1120: Elementary Chinese I, CHI1121: Elementary Chinese II, and CHI2220: Intermediate Chinese*
- Develop online and multimedia activities and cultural exploration opportunities
- Create various instructional techniques for teaching foreign language
- Create and develop the assessments and practice exercise for students

Teaching Assistant 08/2014-12/2014

Instructional Systems and Learning Technology, Florida State University, Tallahassee, FL
Advisor: Dr. Kerry Burner

Responsibility & Accomplishments:

- Assisted instructor to develop and delivered online course *EME 5603: Introduction to Systematic Instructional Design*
- Evaluated students' assignments and provided feedback on instructional design core knowledge
- Coordinated the online course and answered students' questions related to course design and tools

Instructional Design Consultant (Internship)

05/2014-08/2014

The GMarie Group, Glendale, AZ

Advisor: Jayne Klein

Responsibility & Accomplishments:

- Revised and converted existing face-to-face instructor-led materials to online format
- Created job aides for banking professionals.

Teaching Assistant- CourseSite MOOC Designer and Developer

01/2014-05/2014

Instructional Systems and Learning Technology, Florida State University, Tallahassee, FL

Advisor: Dr. Vanessa Dennen

Responsibility & Accomplishments:

- Designed, developed, and promoted MOOC: Social Media for Active Learning (<http://meme.coe.fsu.edu/smooc>) including content and course assessment
- Curated course content and provided weekly curation report.
- Assessed participants' performance and provided badges to participants

Instructional Design Specialist (Internship)

05/2013-08/2013

Learning & Development Department, ReSource Pro Qingdao Office, Qingdao, China

Advisor: Dr. Kirk Fleming

Responsibility & Accomplishments:

- Designed and developed company's online leadership training programs and face-to-face employee training program
- Provided workshops on instructional design and technology learning principles
- Helped facilitate learning of English in various informal, conversation-based classes

Instructional Effectiveness Research Assistant (Internship)

09/2012-05/2013

Instructional Effectiveness Department, Tallahassee Community College, Tallahassee, FL

Advisor: Dr. Lei Wang

Responsibility & Accomplishments:

- Developed coding scheme and conducted qualitative analysis for strategic planning survey results
- Assisted administration of survey of entering student engagement
- Reviewed program-level and course-level student learning outcomes

Instructor

05/2011-05/2012

School of Teacher Education, Florida State University, Tallahassee, FL

Advisor: Dr. Rebecca Galeano

Responsibility & Accomplishments:

- Taught courses: *TSL 4081: Teaching English Learners* and *TSL 4324: ESOL in Content Area* and *TSL 4324: ESOL in Content Area* as an instructor.
- Instructed face-to-face and online classes
- Developed and administered assessments, case studies, and mini-lecture opportunities

Graduate Teaching Assistant

08/2010-12/2010

School of Teacher Education, Florida State University, Tallahassee, FL

Advisor: Dr. Barbara Edwards

Responsibility & Accomplishments:

- Worked with Dr. Barbara Edwards on course *EEX5920: Pre-Student Teaching Seminar*.
- Taught students the strategies for English Language Learners (ELLs) in their future teaching experience.

Graduate Teaching Assistant

08/2010-12/2010

School of Teacher Education, Florida State University, Tallahassee, FL

Advisor: Dr. Headley White

Responsibility & Accomplishments:

- Worked with Dr. Headley White on course *EDG5208: Foundation of Teaching*.
- Designed the online section of this course, graded the assignments, and responded to students' questions.

Graduate Teaching Assistant

05/2010-08/2010

School of Teacher Education, Florida State University, Tallahassee, FL

Advisor: Dr. Elisabeth Platt

Responsibility & Accomplishments:

- Worked with Dr. Elisabeth Platt on online course *TSL5325: ESOL in Content Area*.
- Designed the online section of this course, graded the assignments, and responded to students' questions.

English Tutor (Internship)

08/2009-12/2010

Center for Intensive English Studies (CIES), Florida State University, Tallahassee, FL

Advisor: Dr. Rebecca Galeano

Responsibility & Accomplishments:

- Tutored students who use English as a second language;
- Conducted foreign language and English assessment;
- Provided cultural instruction.

PUBLICATIONS

Journal Articles

Kelly, W. Q. & Klein, J. (2016). The Effect of Type of Podcasts and Learning Styles On Language Proficiency and Confidence. *Journal of Educational Technology Systems*, 44 (4), 421-429.

Wang, C.X., Chen, H., Qiang, W., Cui, G., Chen, X., & Zhang, Z. (2014). Innovate, Integrate and Communicate: Commenting and reflecting on 2013 AECT International Convention. *Journal of Distance Education*, 32 (1), 3-17.

Conference Proceedings

Qiang, W., & Klein, J. D. (in press). Effects of Podcasts and Learning Styles on Language Proficiency and Attitudes. *The 26th Annual Proceedings of Selected Research and Development Papers*. Association for Educational Communication and Technology.

Qiang, W., & Ke, F. (2013). Using Virtual World Lego to Develop Fraction Understanding. *The Game, Learning, and Society Conference 9.0 Proceedings*, Game Learning Society. 536-537.

CONFERENCE

Association of Educational Communications and Technology (AECT) 38th Conference 11/2015
Hyatt Regency Indianapolis, Indianapolis, IN
 Annual conference meeting concurrent section

Association of Educational Communications and Technology (AECT) 37th Conference 11/2014
Hyatt Regency Jacksonville Riverfront, Jacksonville, FL
 Annual conference meeting concurrent section

Instructional Systems Program 40th Reunion Conference 04/2014
Florida State University, Tallahassee, FL
 Conference meeting poster section

Marvalene Hughes Research in Education (CORE) Conference 04/2014
Florida State University, Tallahassee, FL
 Annual conference meeting poster section

DigiTech Exhibition Conference 03/2014
Florida State University, Tallahassee, FL
 Annual conference meeting showcase section

Association of Educational Communications and Technology (AECT) 36th Conference 10/2013
Hyatt Regency Orange County, Anaheim, LA
 Annual conference meeting concurrent section

Games Learning Society (GLS) 9.0 Conference 07/2013
Memorial Union, Madison, WI
 Annual conference meeting poster section

DigiTech Exhibition Conference 03/2012
Florida State University, Tallahassee, FL
 Annual conference meeting round table section

CERTIFICATIONS

<i>Career Center, Florida State University, Tallahassee, FL</i> Career Internship Certificate	2013
<i>Center for Global Engagement, Florida State University, Tallahassee, FL</i> Global Partner Certificate	2013
<i>STARTALK Program, University of Florida, Gainesville, FL</i> Certified by accomplished the STARTALK---Teach Chinese as Second Language Program	2010

AWARDS& HONORS

Gagne/Briggs Award for Outstanding Service to the Instructional Systems Program The Instructional Systems and Learning Technology Program, Florida State University, Tallahassee, FL	2014
Finalist for the Ruby Diamond Future Professor Award The Instructional Systems and Learning Technology Program, Florida State University, Tallahassee, FL	2014
ISD@FSU40 Alumni Conference Scholarship (\$50) The Instructional Systems and Learning Technology Program, Florida State University, Tallahassee, FL	2014
Florida China Linkage Scholarship (9 hour credits tuition waiver) Florida China Linkage Institute, University of West Florida, Pensacola, FL	2011
Ellen H. Le Duc Scholarship (\$2425) The college of Education, Florida State University, Tallahassee, FL	2010
Kathryn and David Platt Endowed Scholarship (\$1000) The college of Education, Florida State University, Tallahassee, FL	2010
Name is on Dean's List Florida State University, Tallahassee, FL	2009

SERVICES

Journal Reviewer <i>The Internet and Higher Education Journal</i> <ul style="list-style-type: none"> Review submitted journal articles to help the editor and authors 	Present
Instructional Systems Students Association President	2014-2015

Instructional Systems Students Association at Florida State University

- Work with other ISSA Board members to organize students' events.
- Communicate with faculties as the student representative.

Guest Speaker

The Maclay School Global Learning Committee, Maclay School, Tallahassee, FL 2014

- Gave speech on Chinese & American Educational Systems

Conference Volunteer

2013-2014

Association for Educational Communications and Technology 2013&2014 conference

- Volunteered to help on conference setup, conference presentation preparation

Conference Proposal Reviewer

2013

Games Learning Society 2013 conference & 2013 Educator Symposium

- Volunteered to be the paper reviewer for Games Learning Society Conference in 2013, Reviewed 5 conference proposals.

Conference Proposal Reviewer

2013-2016

Association for Educational Communications and Technology 2013-2016 conference

- Volunteered to be the paper reviewer for Association for Educational communications and Technology conference. Reviewed conference proposals in Design & Develop Division, School Media & Technology Division, and Society of International Chinese in Educational Technology Affiliation.

REMBERSIPS

Association of Educational Communications and Technology (AECT) 06/2013-Presnet

Golden Key International Honor Society 05/2010-Present

Professional Educators Network of Florida (PEN) 09/2009-09/2010