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Instructional Designers' Perceptions Regarding Preparation For Practice In A Health Care Environment

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INSTRUCTIONAL DESIGNERS' PERCEPTIONS REGARDING PREPARATION FOR PRACTICE IN A HEALTH CARE ENVIRONMENT

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DEDICATION

This chapter of my life is dedicated to my family; my inspiration.

To my husband Scotia for your love, encouragement, and unwavering belief in me.

To my children, Maya and Kailash - you both have brought so much love and joy into my life. The journey of life has many mountains to climb; embrace all that you encounter with an open heart and mind. Never give up on your dreams, keep looking up, appreciate those that are there to help you on your journey, always have faith, and strive to reach your pure potential.

Love Mom

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CHAPTER 1: INTRODUCTION AND PROBLEM STATEMENT

Upon graduation, instructional design and technology (IDT) students may choose to practice in a variety of environments such as higher education, business and industry, K-12 education, the government or military, health professions, and non-profit organizations (Larson, 2004). The roles, responsibilities, practices, and competencies required of each of these career environments vary (Richey, Fields, & Foxon, 2001, Klein & Richey, 2005; Spector et al., 2006; Larson & Lockee, 2009). There appears to be a lack of standards among IDT programs for addressing these differences via curriculum offerings, and few institutions describe their IDT programs as one that prepares students to practice in a variety of career environments (Richey et al., 2001).

Prior studies have explored the professional preparedness of instructional designers for business and industry settings (Julian, 2001; Larson, 2004, Larson & Lockee, 2009); however, examining instructional designer's professional preparation to practice instructional design (ID) in health care settings is lacking. In the health care industry, designers may need to incorporate knowledge from fields including computer systems technology, project management, and clinical aspects of the health sciences when participating in ID projects. For this reason, it is imperative to understand how instructional designers are able to capitalize on their professional preparedness in order to perform in a superlative manner in the workplace. This study explored how instructional designers perceived themselves in their ability to practice ID in health care environments.

What instructional designers do in actual practice has been explored from a variety of vantage points (Leigh & Tracey, 2010). Some studies have suggested that ID requires skills in management, technology, communication, along with the ability to work with diverse

populations (Rowland, Fixl, & Yung, 1992), and the ability to adapt to a multitude of situations (Wedman & Tessmer, 1993; Tripp, 1994; Liu, Gibby, Quiros, & Demps, 2002; Larson, 2004; Kenny, Zhang, Schwier, & Campbell, 2005; Larson & Lockee, 2009). According to Inglehart (2011), Graduate medical education (GME) (which includes teaching hospitals in the United States), received $9.5 billion from Medicare and over $3 billion from state Medicaid programs which also provided $6.5 billion as an indirect medical education adjustment to cover the added costs in patient care associated with training. Thus, it appears that further examination into the professional preparation of instructional designers is warranted in order to identify whether practitioners are prepared to practice ID in health care environments.

Research Questions

This study explored perceptions regarding the preparation of instructional designers when practicing ID in health care environments. Questions posed in this research study included:

1. How do instructional designers perceive their preparation to practice ID in health care environments?
2. How do instructional designers who practice ID in health care environments perceive the usefulness of professional development organizations or affiliations?
3. How are ID practices used by instructional designers when designing and developing ID projects in health care environments?

Purpose of the Study

This study explored instructional designers' perceptions regarding their preparation to practice ID in a health care environment. The study examined instructional designers' prior experience with ID, both academic and non-academic in nature. In addition, exploration into the

usefulness of professional organization affiliations in which participants had been a part was investigated. Finally, to what extent and how instructional designers incorporate elements of ID practice via use of the ADDIE process, and utilization of ID strategies such as Gagné's (1965) Nine Events of Instruction was investigated. The intent of this case study was to examine instructional designers' perceptions as they relate to preparation for practice when engaging in ID in one health care environment. Although no generalizations can be made, this case study may add to the body of knowledge as it pertains to the professional preparation of instructional designers in the health care sector.

Definition of Terms

The complex nature of ID in health care necessitates the need to provide definitions of key terms that were used throughout this study.

Competency. In order to provide ID students and professionals a standard for evaluating effective job performance and its associated acquisition of knowledge, skills and attitudes, competencies for a field must be identified. In this study, competency is defined as "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" (Richey et al., 2001). The IBSTPI working group's ID competencies have provided a framework from which instructional designers in the field can operate and identify gaps in knowledge and skill acquisition. IBSTPI competencies were created for the following facets of IDT: Professional Foundations, Planning and Analysis, Design and Development, and Implementation and Management.

Health Care Sector. Health care sector is defined as the "economic sector concerned with the provision, distribution, and consumption of health care services and related products" (National Library of Medicine, 1998). In this study, the health care sector was a teaching

hospital which employed instructional designers. Many teaching hospitals that focus on medical education will employ instructional designers to facilitate the design and development of instructional modules. An instructional designer may focus solely on the design or development phases of instruction, or may be involved in the entire design process often termed ADDIE, starting from analysis and moving towards the design, development, implementation, and evaluation components.

Instructional/Educational Technology. The field of Instructional/Educational Technology (IT) is defined as the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources (Januszewski & Molenda, 2008). The terms 'educational' and 'instructional' will be used interchangeably in this document. In this study, when examining instructional designer's professional preparation to practice ID in a health care sector, one facet that was explored was exposure to the IT field. The broader spectrum of IT includes performance improvement and training, interactive technologies, K-12 technology integration, and ID. Wayne State University's Instructional Technology program has been identified in this manner (WSU Instructional Technology, 2010).

Instructional Design. A subset of the field of instructional/educational technology is the branch: Instructional Design (ID). ID is seen to encompass the "science and art of creating detailed specifications for the development, evaluation, and maintenance of situations which facilitate learning and performance." (Richey, Klein, & Tracey, 2011, p. 3). For the purpose of this study, ID was considered a subset of IT since it focuses specifically on the ID element of IT. It is from this standpoint that participants had an opportunity to reflect on their ID experience via

reflection on curriculum offerings, participation in professional organizations, exposure to ID practice, and experience.

Instructional Design Practice. Involves use of the systematic instructional systems design model consisting of analysis, design, development, implementation, and evaluation (ADDIE), ID theories, and instructional strategies.

Journaling. Journaling can assist one in describing and expressing the inner states, and it slows does the thought process so one can observe one's inner experiences" (Gray, 2001, pp. 43-44). Journaling was used in this study as a mechanism by which participants could reflect on their thoughts, feelings, and experiences as they related to ID practice (Appendix F).

CHAPTER 2: REVIEW OF LITERATURE

The purpose of this study was to explore instructional designers' perceptions regarding preparation to practice in health care environments. This literature review focuses on the definition and evaluation of ID over time, ID professional preparation, and ID in health care. ID professional preparation explores the content and methods of current professional preparation and curriculum offerings available to instructional designers. ID in health care examines the types of ID projects in which instructional designers participate, the most common ID tasks in which instructional designers are involved, and how ID practice informs decisions made during the design and development of ID projects in health care environments.

1. How do instructional designers perceive their preparation to practice ID in health care environments?
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Instructional Design: The Definition

When examining the field of ID, it is essential to examine how it has been defined over time. To understand how a field originated and evolved is critical in order to plan and speculate on its future. Based on a field's definition, one can determine how theoretical perspectives at a given time shaped the field into what it currently represents. In addition, how a field is defined

allows students, practitioners, clients, and society to understand what instructional designers do, and the theoretical perspectives that relate to philosophies surrounding learning and instruction. Just as the definition of the field has gone through numerous iterations (Reigeluth, 1983; Reiser, 2001; Smith & Ragan, 2005; Gagné, Wager, Golas, & Keller, 2005; Gustafson & Branch, 2007; Richey et al., 2010), so has the definition of ID (Reigeluth, 1983; Reiser, 2001; Smith & Ragan, 2005; Gagné et al., 2005; Gustafson & Branch, 2007; Richey et al., 2010).

The early 1900s produced educational film that was referred to as the roots of the field of ID (Saettler, 1990). Between the 1900s and 1920s, use of visual aids in learning increased, and subsequently over the next two decades, so did use of media such as sound recordings, radio broadcasting, and motion pictures with sound (Reiser, 2007). World War II spawned the need for delivering efficient training programs where military personnel needed to be trained at a fast rate (Saettler, 1968). After the war, "psychologists such as Robert Gagné and Leslie Briggs continued to work on improving the instructional process by considering instruction as a system" (Cennamo & Kalk, 2005, p. 2). This work along with B. F Skinner's (1954) desire to apply principles of operant conditioning to instruction on a large scale led to the programmed instruction movement. ID at this time was considered instructional systems design to emphasize the systematic nature of the ID process. Another facet of ID that was intriguing at this time was the flourishing of behavioral objectives that was based on the work produced by Benjamin Bloom (1956) and Robert Mager (1962). ID models were being generated with a systems focus (Gagné & Briggs, 1974; Dick, Carey, & Carey, 2005), and needs assessment became evermore popular to include in ID due to research by Kaufman (1972). One can see that the focus on formulating measurable objectives based on identification of gaps in results was an important component and reflected how performance technology was slowly being integrated into the field

of ID where focus was not only on instruction, but on human learning that extended beyond the instructional event.

The 1980s brought about the proliferation of personal computers and the Internet which expanded the type of access to information, instructional media, and need to design instruction that would "support color, graphics, audio, and video, allowing the creation of multimedia-based instructional products" (Cennamo & Kalk, 2005, p. 3). In the 1990s we saw the flourishing of the performance technology movement that was one development that challenged the field of ID due to instructional designers having to create various types of non-instructional interventions to solve performance problems (Cennamo & Kalk, 2005). During this decade, one can see the progression from the prior behavioral learning orientation to design practices, to the cognitive and constructivist learning theories (Jonassen, 1990; Merrill, 1991; Wilson, Jonassen, & Cole, 1993; Reiser, 2007). As Reiser (2007) suggested, technological advances such as microcomputers and the Internet as well as instructional strategies and the human performance technology movement had a great impact on the field.

One of the earlier definitions by Reigeluth (1983) saw ID as being a planned activity that fell under the larger umbrella of instruction. From this perspective, ID was only one facet of instruction and was distinguished from instructional development, implementation, management, and evaluation. ID, from Reigeluth's (1983) perspective, de-emphasized the analysis phase, and stressed strategy selection in order to bring about "desired changes in student knowledge and skills for specific course content and a specific student population" (p. 7). This perspective veered away from utilization of non-instructional interventions, and, therefore, was not as all-encompassing as later ID definitions in the field.

Various ID definitions have been proposed in the last decade. Reiser (2001) referred to the field of ID and instructional design and technology (IDT), one that covers the areas of instructional media, ID, and performance technology. Reiser's definition of the field incorporates the key phases of ADDIE, but was unique in its incorporation of the concept of *management* of both instructional and non-instructional processes and resources that would improve learning and performance. Reiser's definition views ID as being systematic and systemic in nature, includes concepts relating to human performance improvement (i.e., analyzing performance problems, opportunities, and challenges in the workplace and applying both instructional and non-instructional solutions to identified problems), and places a greater emphasis on research and theory in the field (Reiser, 2001).

Gagné, Wager, Golas, and Keller (2005) viewed ID as being 1) aimed at aiding the process of learning rather than the process of teaching, 2) a complex process affected by many variables, 3) an individual or group effort, 4) an iterative process, 5) a process used to align and determine desired outcomes, instructional methods and activities, student assessments, forms of practice and feedback, and 6) a process that creates different types of instruction for addressing various learning outcomes. Based on these assumptions, it was apparent that Gagné et al. (2005) felt that one's "target goals and desired outcomes should guide the design and selection of learning activities" (p. 2). In addition, their belief that ID was an iterative process that should rely on feedback to improve upon itself represents the systematic nature of ID. Inclusion of Gagné's (1965) Conditions of Learning, illustrated the scientific approach to ID where "if one has the intention of making learning occur, as in designing instruction, one must deliberately arrange these external and internal conditions of learning" (Gagné et al., 2005, p. 4). From this iteration of the definition, it was evident that instruction was seen as a planned activity and was

systematic and scientific in nature in the fact that it was "documentable, replicable in its general application, and leads to predictable outcomes. Yet, it also requires creativity in identifying and solving instructional problems" (Gagné et al., 2005, p. 18). The concept of creativity while may not appear to be the focus of this definition, still presents the reader an interesting picture of how creativity can not be separated even when using a systematic and systemic approach.

Smith and Ragan's (2005) definition of ID was process based and is yet another definition that relied on the systematic process of planning to design solutions using problem-solving procedures to produce an end product that was useful to the end user. While Cennamo and Kalk (2005) felt that ID was similar to other design disciplines in all aspects of planning, evaluating, and revising, Smith and Ragan (2005) felt that "design is distinguished from other forms of instructional planning by the level of precision, care, and expertise that is employed in the planning, development, and evaluation process" (p. 6). The level of precision, care, and expertise was relevant when examining how Smith and Ragan viewed the systematic nature of ADDIE. The authors noted incorporation of all phases of ADDIE; however, they indicated that the design process could be completed in a non-linear fashion. To address this concept, the authors portrayed (in illustrative form) phases of ID as being interwoven in a non-linear manner where activities could occur concurrently or could be modified based on new information obtained that could be utilized later to inform decision making (see Smith & Ragan, 2005, Figure 1.3, p. 11). Without approaching design with precision, care, and expertise, utilizing a non-linear interwoven approach to ID could potentially become burdensome for a designer. The interwoven nature of ID as depicted by Smith and Ragan (2005) helped to explain the role of creativity in design. The authors suggested "just as the design of the architect benefits from creativity and imagination, so do the designs of the instructional designer. A critical need exists

for imagination and ingenuity in all instructional design activities" (Smith & Ragan, 2005, p. 7). Smith and Ragan's (2005) definition of ID emphasized a systematic process of design, utilization of principles of instruction and learning, use of problem-solving procedures to guide decision making, and indicated the critical nature of incorporating creativity in design. The one component that was lacking in this definition pertained to inclusion of the human performance improvement movement as an area to which ID is pertinent.

Gustafson and Branch (2007) defined ID as "a systematic process that is employed to develop education and training programs in a consistent and reliable fashion" (p. 11). From this perspective, the ID process is both systematic and systemic in its approach where ID consists of activities carried out in the key phases of ADDIE that can be completed in a non-linear manner. This concept would be supported by Smith and Ragan (2005) and Gagné et al. (2005) who also recognized the systematic nature of ID, yet supporting a more flexible approach to how the ID process is pursued (i.e., starting in different phases of ADDIE based on the instructional situation). Gustafson and Branch (2007) felt that in addition to the activities in the core phases of ADDIE, that the ID process should ensure the following characteristics 1) learner centered, 2) goal oriented, 3) meaningful performance focused, 4) measured, reliable and valid outcomes, 5) empirical, iterative, and self-correcting, and 6) team effort derived. Based on the aforementioned characteristics of ID, it could be viewed in a systematic, systemic, and creative manner; one that focuses on identified objectives, measurable outcomes, is an open system incorporating feedback to improve upon itself, and harnesses the strengths of various people such as subject matter experts (SMEs) in order to proceed with the ID process utilizing a team approach. Similar to that of the ID definition by Smith and Ragan (2005), Gustafson and Branch (2007) did not specifically incorporate elements of improving performance in their definition of ID.

A recent iteration of ID (Richey et al., 2011) appears to have a combination of both behavioral and constructivist philosophies. Inclusion of the words *science* and *detailed specifications,* exhibits the systematic nature of ID where ID is both a process and a planned activity. On the other hand, inclusion of the words *art of creating* refers to the artistic side of the field which utilizes a multitude of approaches, both technological and non-technological in nature. The artistic side of ID was considered by several researchers (Holt, Radcliffe, & Schoorl, 1985; Rowland, 1993, Sugar & Betrus, 2002; Wilson, 2005; Osguthorpe & Osguthorpe, 2007; Campbell, Schwier, & Kenny, 2005, 2009). Osguthorpe and Osguthorpe (2007) felt that the artistic side of ID becomes ever more important due to the fact that designers oftentimes must rely on their own judgment when determining next steps based upon identified needs at a particular moment. Campbell, Schwier, and Kenny (2009) alluded to the artistic side of ID when they described the role of the instructional designer as one that uses reflection and critical practice to ensure that tasks in which they are participating are conducted in a moral and ethical manner in collaboration with those with which they are working.

An integral part of this definition, which makes it stand out, is the incorporation of the concept of *maintaining situations* that facilitate learning and improve performance. The systematic nature of ID included reference to implementation as a design phase; however, implementation without mechanisms in place for maintenance may not provide for an effective learning environment. Including 'maintenance of situations that facilitate learning and performance' brings about an understanding that through science and art, detailed specifications can be provided and revised as needed, so as to ensure that the goal of facilitating learning and improving performance is met. The latest ID definition is a reflection of the changing times in which instructional designers must keep in mind the end goal: to facilitate learning and improve

performance by utilizing both a scientific and artistic approach to design. From this perspective, one can see the constructivist and artistic elements embodied in ID. The concept that ID comprises more than science and technology and is truly a design discipline has been supported (Rowland, 1993; Gibbons, 2003; Wilson, 2005; Parrish, 2009). As shown in Table 1, select ID definitions are listed from 1980-2011.

Table 1

Select ID Definitions From 1980-2011

Year	Definition	Source
1983	"Instructional design is concerned with understanding, improving, and applying methods of instruction"	(Reigeluth, 1983, p. 7)
2001	"The field of instructional design and 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"	(Reiser, 2001, p. 53)
2005	• Instruction is " a set of events embedded in purposeful activities that facilitate learning" (p. 1) • "Instructional systems design (ISD) is the process for creating instructional systems. It is both systematic and scientific in that it is documentable, replicable in its general application, and leads to predictable outcomes. Yet, it also requires creativity in identifying and solving instructional problems. ISD includes several phases, including analysis, design, development, implementation, and evaluation, and is characterized by the overarching concept of design" (p. 18) • ID must "aim at aiding the process of learning rather than the process of teaching, must consider various variables such as those embedded in Carroll's (1963) Model of School Learning, design is an iterative process using feedback to improve upon itself, and that different types of learning outcomes require different types of instruction" (pp. 2-3)	(Gagné et al., 2005)
2005	"Instructional design refers to the systematic and reflective process of translating principles of learning	(Smith & Ragan, 2005, p. 4)

	and instruction into plans for instructional materials, activities, information resources, and evaluation"	
2007	ID is "a systematic process that is employed to develop education and training programs in a consistent and reliable fashion. Instructional design is a complex process that is creative, active, and iterative."	(Gustafson & Branch, 2007, p. 11)
2011	"Instructional design is the science and art of creating detailed specifications for the development, evaluation and maintenance of situations which facilitate learning and performance."	(Richey et al., 2011)

Table 2 exhibits ID definitions and their areas of emphasis based on key characteristics prevalent from select definitions from 1980-2011.

Table 2

Major Areas of Emphasis for Select ID Definitions from 1980-2011

Major Area of Emphasis	Systematic/Systemic	Performance Improvement	ADDIE	Facilitation of Learning	Maintenance of Learning Situations	Scientific Nature of ID	Artistic or Creative Nature of ID
Source							
Reigeluth, 1983	•			•		•	
Reiser, 2001	•	•	•	•	•	•	
Gagné et al., 2005	•		•	•		•	•
Smith & Ragan, 2005	•					•	•
Gustafson & Branch, 2007	•					•	•

Richey et al., 2011	•	•	•	•	•	•	•

When examining the definition of the field of ID, it is both systematic and systemic in nature and utilizes science and creativity (art) to bring all parts of a whole together into something meaningful for the end-user. Utilization of systematic ID procedures allows the designer to focus on "the analysis of instructional problems and the design, development, implementation, and evaluation of instruction procedures and materials intended to solve those problems" (Reiser, 2007, p. 24). As Rowland (1993) suggested, most authors viewed ID as "a combination of rational and creative thought processes" (p. 88). Those that would follow the more 'rational' view would see the ID process as being linear in its approach where emphasis is placed on following rules and procedures (Rowland, 1993); whereas, those who favor the creative side of ID may feel that "intuition, creativity, and logical thinking are at work in a designer's think tank" (Earl, 1987, p. 32). From the later perspective, the instructional designer acknowledges that many variables exist, that each design situation is complex and unique, and that an artistic approach to problem solving is needed (Rowland, 1993). Jonassen (1998) supported this perspective as he felt that ID was "complex and interrelated. It draws upon an ill-structured knowledge domain" (p. vii). As Gustafson and Branch (2007) indicated, when it comes to instructional design processes that have been described in the literature, "all descriptions include the core elements (also referred to as phases) of analysis, design, development, implementation, and evaluation (ADDIE) to ensure congruence among goals, objectives, strategies, and evaluation and the effectiveness of the resulting instruction" (p. 11). Gagné et al. (2005), Smith and Ragan (2005), Gustafson and Branch (2007), Richey, Klein, and Tracey (2011) all felt that while the ADDIE phases were necessary, the design process did not have to occur in a linear

manner. All took on a systems approach to design; incorporated feedback systems so that the ID process could be iterative in nature, included aspects of both science and creativity (art) into the design process, and aimed to improve learning. The creative side of ID and focus on facilitation of learning and improving performance has solidified as time has progressed. The recent definition by Richey et al. (2011) eludes to the greater issue which pertains to how strengths in both science and art can be harnessed in order to maintain situations that facilitate learning and improve performance in a variety of settings. As Schiffman (1986) suggested, instructional systems design is multifaceted and "is a field requiring a wide range of psychological, sociological, interpersonal, and managerial skills if it is to be skillfully and creatively practiced" (p. 141). The ID definition has evolved and currently represents both the scientific and artistic paradigms that are required to truly design instruction with the intent of facilitating learning, improving human potential, and organizational performance.

When reflecting on defining a field it helps to refer to Ely (1970) who stated, "statements of philosophy and definition should always be cast in tentative terms. Ideas are given life by those who create them from the bits and pieces of life's experiences. One person's bits and pieces may form one mosaic while the same elements will form another configuration for another person" (as cited in Ely, 1970, p. 270). As time proceeds, changes will occur that will yet again alter the way in which the ID field is defined. To remain static would go against the very foundation of the field which is to remain an open system that is willing to accept feedback from the environment in order to improve itself via study and ethical practice. As changes occur in technology, theory, practice, and culture, so will the definition of the field. Wagner (1990) suggested that ID existed within the larger umbrella of Educational Technology. Luppicini (2005) indicated that defining the field of educational technology is much more complex due to

the fact that it is an applied field based upon multiple knowledge bases. This would be supported by Larson (2004) who stated that ID utilizes theories, research, and models from a variety of disciplines such as engineering, psychology, education, business, and computer science. Since the field is based upon multiple knowledge bases, it is ever more important to see how instructional designers perceive their preparation to practice in a health care industry that is based upon a multitude of knowledge bases.

ID Preparation for Practice

ID preparation can be viewed from three vantage points 1) based on perceptions held by practitioners in the field regarding their preparation, 2) the educational methods and types of programs offered to instructional designers to enable them to practice in an efficient manner, and 3) the ability to handle the roles and responsibilities held by instructional designers. Smith, Hessing, and Bichelmeyer (2006) investigated graduate students' perceptions about the field of IDT. They found that students stated IDT as being a broad, non-uniform field, comprised of people from many different backgrounds, one that is focused on intended outcomes and technology, and is systematic in its processes (Smith, Hessing, & Bichelmeyer, 2006). As indicated by Smith et al. (2006) "anyone with an interest in tomorrow's sustainability of IDT should be cognizant of the perceptions and expectations of today's students" (p. 18). Students' perceptions regarding the field of IDT were necessary to consider since they will eventually comprise the future academic and corporate arenas, and this information can bring to light whether or not there is a match between students' perceptions and the goals and intentions of the academic programs in which they are a part (Smith et al., 2006). Although not all instructional designers practicing in health care environments have an academic background in ID (i.e.,

academic coursework), their perceptions relating to their ability to practice will be based on how the corporate culture in which they work defines and incorporates ID.

How instructional designers perceive their preparation to practice in different career environments and opinions regarding their academic preparation program in its ability to meet the demands and challenges of actual practice have been investigated (Larson, 2005). Larson (2005) found that the majority of IDT students surveyed had attended a generalist IDT program (compared to an IDT program with a specific career emphasis such as business and industry or higher education), and that students in generalist programs felt 'somewhat' to 'fully prepared' to practice ID, and those in specific environment programs felt better prepared to address the competencies required by their specific career environment. Of special note was that 1.9% of graduates from 1994-2003 had indicated ID work experience in a health care environment; however, none of the respondents had reported attending an IDT program that had a specific curricula track focused on ID in the health care career arena. Variability in coursework and experiences such as participation in independent study or internships were also reported (Larson, 2005). In the health care environment, medical and allied health education standards are set by several governing bodies so it is possible that instructional designers could face challenges in bridging IDT standards with those in the health care industry if curricula or exposure to the field via independent study, internship, or professional affiliations are lacking.

Education of Instructional Designers. The second way in which preparation for practice was examined was by seeing how instructional designers have been educated to practice ID. In order to prepare instructional designers for the real world, alternative methods to bridge theory and practice have been considered (Rowland et al., 1992; Rowland, Parra, & Basnet, 1994; Quinn, 1994; Tracey, Chatervert, Lake, & Wilson, 2008; Tripp, 1994). Rowland (1992)

suggested that when it came to ID practice “in some ways, the problem is one of theory versus practice. Our efforts to train designers and to assist designers in their work are based on theory (i.e., a body of literature) that may be discrepant from practice” (p. 66). Rowland (1992) indicated that looking into other fields where both creative and technical processes amalgamate to create a new product may be useful to consider into design education. In order to educate designers towards developing skilled design processes, Rowland, Fixl, and Yung (1992) suggested learning in context, incorporating modeling of expert thought processes, and reflection. Tracey, Chatervert, Lake, and Wilson (2008) supported exposing students to real world design projects that harnessed students’ knowledge and skills from prior courses in order to create a realistic and meaningful end product. Benefits of this approach were exposing students to a teamwork environment, and learning through experience. The concept of modeling would be supported by Tripp (1994) who focused on how information should be learned and suggested that in order to enable a smooth transition from novice to skilled designer, that students be exposed to master works and the behavior of masters. Quinn (1994) viewed preparation of instructional designers from a different vantage point by suggesting that in addition to exposing learners to the technical skills required of the profession, that practical knowledge and skills such as appropriate use of technical language, insight regarding limitations of ID models and strategies, understanding of job roles, and project management skills be included. Others have looked to the fields of engineering, interior design, media design, and architecture to investigate perspectives on design, teaching methods, and what ideal design education entails from these various disciplines (Rowland et al., 1994). Researchers maintained that a more creative view of design education is necessary which included the study of artifacts

and inclusion of an ID studio to "encourage student-teacher and student-student interaction throughout the design process" (Rowland et al., 1994, p. 10).

Roles and Responsibilities of Instructional Designers. The third facet of ID practice pertains to roles and responsibilities. Larson and Lockee (2004) attempted to analyze various career environments, job roles, and how the field had changed over time. One component discovered was the expansion of human performance improvement which Larson and Lockee (2004) indicated had "broadened the scope of the field, and this has profound implications for IDT professional preparation" (p. 32). As Rossett (2000) suggested, IDT programs will need to find ways to ensure students have the knowledge, skills, and attitudes they need to effectively practice IDT and human performance improvement, especially in the business and industry environments. Larson and Lockee (2004) suggested that IDT programs have yet to agree on standard certification that would illustrate to business and industry that IDT graduates are prepared to practice human performance improvement. Currently, the field of human performance has a certification program entitled Certified Performance Technologist (CPT) that "is performance-based and is not tied to specific education requirements" (Larson & Lockee, 2004, p. 36). CPT certification provides one way in which potential employers can distinguish among practitioners in the field to determine who can provide results using a systematic process (i.e., using performance-based Standards of Performance Technology and application requirements) that have been developed and supported by the ISPI governing body (Van Tiem, Moseley, & Dessinger, 2012, p. 283). Not all CPTs have IDT backgrounds; therefore, if the corporate sector is to take IDT graduates seriously, curriculum in IDT programs will need to address human performance improvement in order to ensure IDT graduates are prepared to practice beyond the traditional scope of IDT. The study by Larson and Lockee (2004) focused

on human performance in the business and industry career environment; health care was not specifically mentioned. However, the flourishing of human performance improvement necessitated its inclusion when investigating perceptions related to preparation to practice.

There is a multitude of ways to prepare instructional designers for the real world. In order to develop ID expertise and increase collaboration, the case method is used (Kinzie, Hrabe, & Larsen, 1998). In a study by Lin (2007), professional technologists believed that technology, education, and adult learning experience provided the optimal combination in order to perform ID ethically with professionalism and confidence. To address this need, Lin (2007) suggested that practitioners seek seminars, resources, and network with practitioners in the field.

Thus far, no study has reported instructional designers' preparation for practice in health care environments. Studies by Larson and Lockee (2004) and Larson (2005) looked at ID preparation for practice in a variety of career environments for those participating in some type of formalized educational program whether it was generalized or career specific in nature. These studies; however, did not focus specifically on the health care environment and did not survey practitioners that may not have had a formalized educational background in IDT. For these reasons, it is critical that instructional designers' experiences, professional affiliations, programs, and exposure to curricula were explored in order to understand their perceptions with regard to preparation to practice ID in health care industries.

One specific component of ID that has been explored is general responsibilities and challenges faced by instructional designers regardless of career environment (Cox & Osguthorpe, 2003; Allen, 1996). Liu, Gibby, Quiros, and Demps (2002) reported that challenges faced by instructional designers included dealing with clients, balancing multiple roles, and adapting to rapid technological changes. The increased amount of time that instructional designers spent on

organizational tasks such as project management, supervising personnel, professional meetings, academic research, marketing and sales, and professional development has also been reported (Cox & Osguthorpe, 2003). Recent investigation supports this notion that there are several other responsibilities and skills required of instructional designers. Kenny, Zhang, Schwier, and Campbell (2005) in studying the design practices of instructional designers found that they spent the majority of their time on tasks outside of traditional ID models such as communications, editing and proof reading, marketing, media development and graphic design, project management, research, supervision of personnel, teaching students and faculty development, team building and collaboration and technology knowledge and programming. These responsibilities may appear as challenges for many instructional designers; therefore, designers must find ways to stay abreast of the IDT field, explore disciplines outside IDT such as communications and business and management studies, and stay connected with various organizations or networks.

ID in Health Care

When examining various career environments in which instructional designers were employed, some researchers identified health care as a distinct career environment category (Larson, 2005), while others categorized career environments into categories such as business and industry, government and military, and university or college or school district (Moallem, 1995). Health care was not included in Moallem's study as a distinct career environment. Moallem (1995) suggested that "the nature of the jobs in different institutions and their needs with respect to instructional design activities will always require different sets of skills and areas of knowledge as well as substantial areas of overlap" (p. 11). Currently, there is no single entity that tracks in which career environments instructional designers are employed. Tracey and

Morrison (2011) indicated that a large amount of ID practice has "occurred within the private sector, primarily in business and industrial settings" (p. 198). Byun's (2000) study indicated that at a large research university 44% of job announcements were for corporate positions. Other sources such as AECT indicated that the majority of ID practice, 83.5%, occurred in K-12 educational settings (Pershing & Lee, 1999). The most common organizations in which instructional designers were members include those that focused on K-12 education, business and industry, and higher education environments (Larson, 2004). Researchers have studied job roles within these three career environments as well as government and military (Tracey & Morrison, 2011; Surry & Robinson, 2001; Waterhouse, 2001); however, the limited number of instructional designers that have reported to work in health care environments oftentimes results in this particular career environment being overlooked for further examination (Larson, 2004). With regard to research and publication, through citation analysis that was performed on documents related to ID between 1980-2008, "26/758 documents were attributed to the subject area of health sciences and services as compared to 416 documents that were indexed as being part of education or educational research" (Ozcinar, 2009, p. 567). This is yet another indicator that although medical education is rapidly changing; information with regard to ID in the health care field is lacking.

The medical and allied health fields span a vast array of organizations such as the American Medical Association, American Nurses Association, and Accreditation Council for Graduate Medical Education in which instructional designers may be a part. The job titles that instructional designers hold vary based on their role in health care environments. Common titles found to those employed in the health care sector included Instructional Designer, Senior Instructional Designer, Training Analyst, Training Specialist, Nurse Education Specialist, and

Coordinator for Education. Curriculum development in a clinical setting can be an iterative and collaborative process using multidisciplinary, multi-professional staff and professional educators in order to design and implement training (Hertz, Williams, & Hutchins, 1976). Instructional designers in the health care industry come from various backgrounds and clinical settings; therefore, it has been deemed critical for instructional designers to have knowledge regarding what other disciplines are doing and how that can be of use (Baker, Gustafson, Beaubien, Salas, & Barach, 2005). Ruiz, Mintzer, and Leipzig (2006) indicated that numerous medical organizations are available that support instructional modes of delivery such as e-learning; however, the question remains as to whether instructional designers were aware of these resources, were utilizing these resources, and were finding them useful.

To what extent do practitioners in the health care environment feel they are prepared to handle these types of challenges? In order to determine if instructional designers perceive they are prepared to practice ID in health care environments, further examination is needed. Studying ID practice in health care environments as a distinct ID category can provide instructional designers and administrators with in-depth information relating to IDT practice and the challenges faced when practicing ID in health care environments.

Instructional Strategies in Health Care.

When examining the health care sector, "the complexity and rate of change characteristic of modern medical practice are placing unprecedented demands on medical educators to prepare young professionals to practice in the 21st Century" (Cannon-Bowers, 2008, p. 784). To respond to this fast paced changing environment, various types of training options and methods have been utilized to enable health care professionals to stay abreast of new technology, equipment, programs, and skills (Atreja et al., 2008). One mechanism that has been utilized to assist

practitioners in this pursuit is continuing medical education (CME). In 2005, commercial support for CME was reported as being in the hundreds of millions of dollars (Steinbrook, 2005); this amount has increased as expenditures towards CME have been recently reported as being in the billions of dollars (ACCME, 2009). CME and the broader form of medical education focus on improving professional performance (Waeckerle et al., 2001; Fordis et al., 2005; Baker et al., 2005; Kinzie, 2005; Hopper & Johns, 2007; Patel, Yoskowitz, Arocha, & Shortliffe, 2009; Hertz et al., 1976), enhancing patient safety (Battles, 2006; Thompson et al., 2008), and increasing opportunities for lifelong learning (Howatson-Jones, 2004). In the health care industry, training programs are offered in a variety of formats. Medical team-based training programs may include simulation or classroom-based approaches as well as low-fidelity simulations, use of standardized patients, embedded training, and scenario-based training (Baker et al., 2005). In addition, e-learning (often referred to as web-based learning) has been utilized in the delivery of many training programs. It was said that the effectiveness of any training system "depends on how well the system is designed and whether it embodies sound instructional features" (Cannon-Bowers, 2008, p. 785). Waeckerle et al. (2001) stated "utilizing an effective ID process is a necessity" (p. 591). Waeckerle et al. (2001) and Battles, Wilkinson, and Lee (2004) followed a systematic ID methodology which encompassed analysis, design, development, implementation and evaluation (ADDIE). Waeckerle et al. (2001) emphasized the need for a training needs analysis, subject matter analysis, and identification of performance objectives, use of instructional strategies, and a continuous focus on formative evaluation. What drove the use of the aforementioned utilization of instructional systems design is the desire to "make health care safer by design" (Battles, 2006, p. i29). Other studies in health care have utilized variants of the

ADDIE process. Thompson et al. (2008) followed a six-step curriculum development model established by Kern (1998) which encompassed

1) problem identification and general needs assessment
2) needs assessment of targeted learners
3) development of goal and specific measurable objectives
4) inclusion of educational strategies
5) implementation
6) evaluation and feedback

These researchers explored aspects of the ADDIE process; however, they did not focus on why a specific educational strategy was chosen, and did not discuss utilization of a select ID theory or process that may have helped to inform their instructional decisions. Hertz, Williams, and Hutchins (1976) explored a three-stage process, which consisted of the development of behaviorally oriented educational objectives, development of associated instructional methodologies to meet the identified objectives, and designing evaluation instruments. This study included formative evaluation throughout the design of objectives and instructional methodologies, and cited use of Mager's (1962) work on preparing objectives for instruction as being the foundation used to match instructional strategies to particular objectives. One component lacking in this study was inclusion of a summative evaluation tool. In this case, curriculum was developed, but the authors did not report on the effectiveness of the instruction.

Asher, Kondziolka, and Selden (2009) proposed utilization of an instructional theory termed integrated medical learning (IML), which is based on "dynamic interaction between all of the various elements of the learning process, is learner centered, and uses various formats and media to facilitate learning" (p. 226). This theory took the independent pieces of information

that a student may receive (i.e., meetings, lectures, publications) and streamlines information into a meaningful array of interactions between the teacher and student (Asher, Kondziolka, & Selden, 2009). IML was iterative and involved communication between the learner, instructor, and the medical community, as well as use of interactive forums to present evidence, obtain expert opinion, and gather clinical information. Since it has yet to be validated, the effectiveness of IML on learner participation and translation from theory to practice in clinical settings is yet to be determined.

Kinzie (2005) studied ID strategies by referring to Gagné's (1985) Nine Events of Instruction (EOI) to help health educators see how ID strategy could be used to inform instructional methods. Shachak, Ophir, and Rubin (2005) also pursued ID by referring to the work of Gagné; they designed instruction around Gagné's (1965) Conditions of Learning which encompasses the EOI by specifically 1) defining learning objectives, 2) creating a hierarchy of objectives, 3) incorporating events of learning, 4) testing and revising the tutorial, and 5) conducting the workshop. This study exemplified a symbiotic application of ID theory and process to the development of health care curriculum.

In addition to the Conditions of Learning, additional theories and processes have been reported. Battles (2006) utilizing the ISD framework, referred to use of Edgar Dale's (1946) Cone of Experience in the design of instruction. Letassy, Fugate, Medina, Stroup, and Britton (2008) utilized principles of team-based learning as an active-learning instructional strategy in a distance education environment. Utilization of cognitive learning theories have been explored in the medical literature (Khalil, Paas, Johnson, Su, & Payer, 2008; Patel et al., 2009; Terrell, 2006; van Merriënboer & Sweller, 2010). van Merriënboer and Sweller (2010) aimed to design principles and strategies to decrease extraneous load, manage intrinsic load, and optimize

germane load in health professional education due to the complexity of the field. Patel, Yoskowitz, Arocha, and Shortliffe (2009) emphasized the role that cognitive and learning sciences have in informing curriculum and instruction in medical education. In addition to discussing cognitive learning theories, the authors specifically referred to the benefits of Bloom's Taxonomy of Educational Objectives, the role of timely and individualized feedback, use of a variety of instructional methods such as lectures, small group interactions, and hands-on problem-solving opportunities, inclusion of a task analysis (including cognitive task analysis), and assessment based on the identified objectives for which a specified set of criteria had been established (Patel et al., 2009).

Some researchers performing ID roles in the health care field have utilized a systematic ID methodology (Waeckerle et al., 2001; Battles, 2006), Thompson et al. (2008) designed instruction using a curriculum development model, Hertz et al. (1976) followed the creation of behavioral oriented educational objectives when designing instruction, Shachak et al. (2005) and Kinzie (2005) referred to the work of Gagné and utilized the Events of Instruction and Conditions of Learning, and others such as Terrell (2006), van Merriënboer and Sweller (2010), Patel et al. (2009), and Khalil et al. (2008) examined utilization of the cognitive and learning sciences to perform ID in the health care arena. While there were many approaches to ID in health care, there is no standardized methodology for which instructional designers can depend. This opens the door to use a multitude of models, theories, strategies, and evaluation mechanisms for which we do not know if instructional designers are prepared to use in a given learning situation.

Health Care Learning Environment. Another way in which ID was explored in the medical literature was by examining specific aspects of the learning environment such as faculty

commitments, library resources, issues pertaining to technology and intellectual property, and the perceived role of the learner and faculty member(s) (Wills, Stommel, & Simmons, 2001). To support the acquisition and transfer of skills and knowledge, instructional strategies as well as a focus on formative and summative evaluation were often pursued. As Battles (2006) indicated, formative evaluation "actually begins during the design phase" (p. i27). Formative evaluation has been examined and illustrated in many different ways. In the study by Waeckerle et al. (2001), formative evaluation included review of content materials and methods by SMEs, educational specialists, and representatives from the target audience. Shachak et al. (2005) tested and revised materials based on students' feedback to specific questions posed by researchers prior to final implementation of materials.

Evaluation of programs and products is another aspect of ID that is addressed in the medical literature. Summative evaluation provided a mechanism by which information based on feedback from participants and assessment techniques could be utilized to assess a given program or product. Several techniques for integrating summative evaluation into ID has been utilized. Kirkpatrick's 4 Levels of Evaluation have been proposed (Ruiz, Mintzer, & Leipzip, 2006; Battles, 2006). Thompson et al. (2008) critiqued students during their final project and provided them an opportunity to discuss their choices. Letassy et al. (2008) had students participate in unit examinations. Waeckerle et al. (2001) indicated that "summative evaluation would collect and analyze participant and faculty feedback as well as scores from assessments" (p. 598). Shachak et al. (2005) could not perform summative evaluation and instead relied on short observations of participants due to time limitations. In addition to the use of Kirkpatrick's model of evaluation, Battles (2006), following the ISD ADDIE process, proposed that one must evaluate the actual adoption of an instructional program. Citing Roger's Diffusion of

Innovations, Battles indicated “it is possible that a very effective instructional program could be designed and implemented only to find that no one outside the developing institution uses the new resource. To be considered truly effective an instructional program system must be used” (Battles, 2006, p. i27).

As suggested in the literature, it is apparent that numerous types of evaluations exist in the ID of health science curriculum, but that no single methodology or mechanism has been established as a standard to be followed. What makes evaluation in the health care industry unique is its impact on patient care (Battles, 2006). It has been suggested “no single instructional design is adequate to deal with all the requirements of physician learners. Various educational tools are needed to achieve the multiple goals of modern medical education” (Asher et al., 2009, p. 226). While studies pertaining to health science ID have included facets of ID theory and associated processes, a review of literature yields little when it comes to use of a standardized or well-established ID protocol for the design of health science curriculum. As Battles (2006) indicated, “applying well established principles of ISD using the ADDIE approach for the creation and use of instructional programs is one way in which we can make health care safer by design” (p. i29). The question now remains as to whether instructional designers in the health care industry are aware of the various resources available from medical education organizations, and whether or not they feel they are prepared to practice ID in a health care industry based on their experience, background, and professional exposure.

Summary of Literature Review

Through examination of the literature, it is apparent that ID has adapted to changing perspectives of learning and instruction. As Reiser (2007) suggested, many factors have impacted the field as it is currently known such as technological advances, instructional

strategies, models and theories, as well as the human performance movement. By investigating how ID has changed over time, it has provided a better idea of where the field is heading, and how learning and instruction are viewed in the present.

ID has recently been viewed upon as being a mechanism by which one can facilitate learning and improve performance by maintaining and evaluating situations that foster these characteristics (Richey et al., 2011). What has held constant over time is the systematic and systemic nature of ID. The recent definition by Richey et al., (2011) encompasses the key elements of the learner, learning context, strategies, and situations that facilitate learning and improve performance via instructional and non-instructional means. Based on this definition, it appears to be evermore important to investigate how instructional designers have been prepared to practice to ensure that the scientific and artistic elements of design are incorporated to create meaningful end products and learning experiences.

The majority of studies in the literature have reported on instructional designers working in higher education, K-12, business and industry, and the government and military career environments (Julian, 2001; Surry & Robinson, 2001; Larson & Lockee, 2004; Larson, 2005; Tracey & Morrison, 2011; Waterhouse, 2001). The health care field has yet to be examined to determine whether or not instructional designers feel prepared to practice in such a dynamic arena. Preparation for practice has been examined (Larson, 2005; Rowland, 1992; Tripp, 1994; Rowland et al., 1992; Quinn, 1994; Lin, 2007; Tracey et al., 2008); however, it is clear that investigation into the health care field to determine whether or not instructional designers feel prepared to practice is lacking. The health care sector is unique in nature due to the fact that instructional designers in this career environment have different job titles, roles and responsibilities, come from various clinical backgrounds, and have various types of experience

with ID both in academic and non-academic environments. Although numerous medical organizations have been available to support various instructional modes of delivery (i.e., simulation, use of standardized patients, e-learning, web casting), it remains unclear as to whether instructional designers are aware of the availability of these resources and how they can be of use when designing curricula. Based on the literature presented, ID in health sciences has included ID theory and processes; however, the variety of approaches to ID necessitates the need to investigate how instructional designers feel regarding their preparation to practice ID in an efficient and effective manner following the systematic and systemic nature of the ADDIE model and associated ID strategies.

This section examines the field of ID by introducing its definition, how instructional designers have been prepared to practice, ID competencies, and the types of ID activities and approaches that are used in the health care sector. As evident by the literature, a gap remains with regard to an understanding of the perceptions of instructional designers as it relates to preparation for practice in the health care environment. The following section will describe and explain the methodological approach taken to conduct this study. It defines the population studied, research setting, an explanation of the research design, and data collection and analysis procedures.

CHAPTER 3: METHODOLOGY

Overview

This study utilized a multi-case, bounded case, single-site case study research design to examine how well instructional designers perceive themselves able to practice ID in health care industries. Questions central to this study focused on how instructional designers perceive their preparation to practice, usefulness of professional development organizations or affiliations in which they participated while practicing ID, both academic and non-academic curricula, and utilization of ID practices when designing and developing ID projects in health care environments. The following section outlines the methodology utilized to answer the research questions listed below. It includes details pertaining to participants, the research setting, and methods followed with regard to data collection and analysis.

This study explored instructional designers' perceptions regarding their preparation to practice ID in a health care environment. Questions posed in this research study included:

1. How do instructional designers perceive their preparation to practice ID in health care environments?
2. How do instructional designers who practice ID in health care environments perceive the usefulness of professional development organizations or affiliations?
3. How are ID practices used by instructional designers when designing and developing ID projects in health care environments?

Qualitative research methods have been described in numerous ways (Denzin & Lincoln, 2008; Creswell, 2007; Corbin & Strauss, 2008). Creswell (2007) described qualitative research in the following manner:

> Qualitative research begins with assumptions, a worldview, the possible use of a theoretical lens, and the study of research problems inquiring into the meaning individuals or groups ascribe to a social or human problem. To study this problem, qualitative researchers use an emerging qualitative approach to inquiry, the collection of data in a natural setting sensitive to the people and places under study, and data analysis that is inductive and establishes patterns or themes. (p. 37)

Using Creswell's definition of qualitative research (2007), this study aimed to obtain rich data from participants in their natural setting and allowed the exploration of feelings and thoughts that pertain to the research questions posed. Merriam (1988) defined the qualitative case study as "an intensive, holistic description and analysis of a single entity, phenomenon, or social unit. [They] are particularistic, descriptive, and heuristic and rely heavily on inductive reasoning" (p. 16). This study was particularistic since it focused on a single phenomenon of ID practice in health care environments, provided thick descriptions via use of interviews, reviewed project documents and field journal entries which aimed to clarify the reader's understanding of the study. As stated by Yin (2009), case studies would be the preferred method to employ when "(a) 'how' or 'why' questions were being posed, (b) the investigator has little control over events, and (c) the focus is on a contemporary phenomenon within a real-life context" (p. 2). Since this study was anchored in real-life situations, the case study approach was optimal for developing an in-depth description, analysis, and understanding of multiple cases.

Utilizing case study research was critical for this study because it provided rich, detailed data from the perspective of instructional designers with regard to how they function in the health care environment in which they are employed. Instructional designers have their own set

of unique experiences from which they can draw upon. Yin (2009) discussed four types of case study designs, two of which pertain to multiple-case designs. Based on Yin's (2009) description of designing case studies, this study was designed to utilize multiple methods for a multi-case, bounded case, single-site case study.

Research Setting

The site selected for this study was a teaching hospital in Southeast Metropolitan Detroit, Michigan. This site was selected due to the number of residency programs offered and its emphasis on CME. A significant number of physicians, nurses, and allied health professionals have attended continuing medical education activities and others attend grand rounds (where physicians gather together to discuss a clinical case or problem) and other weekly or monthly conferences. These activities included graduate medical education, undergraduate medical education allied health, which offers training in several specialties, and continuing medical education providing ongoing training for physicians, physician assistants, clinical nurse specialists, and nurses. CME programs were offered throughout the year for senior staff attendees, house staff, and educational programs for medical students. With the emphasis moving towards offering CME using an online platform, instructional designers in this health care environment were placed in a unique position where they were in demand, and needed to provide a variety of instructional content and methods for this diverse population. Online CME could involve various facets of PowerPoint preparation, incorporating video, and then housing content in a learning management system.

Participants

Participants in this study held a position in a health care environment where the primary responsibility was to perform ID. Participants included in this study had various job titles, prior

education, and levels of expertise. All participants indicated a willingness to participate in an interview, share completed ID projects, and contribute to individual journaling. Three participants were male, two were female, and all participants were between the ages of 40-57, having been employed in the ID arena for over ten years.

Selection criteria. This study used convenient sampling to obtain detailed information about the experiences of instructional designers in the health care sector. Selection of participants involved gathering names of people who fit the criteria for inclusion. Criteria included holding an ID position in a health care environment, a willingness to participate in an interview, share at least two completed ID projects, and contribute to individual journaling. Inclusion criteria did not limit length of ID experience or type of professional background since this study aimed to look at the unique nature in which instructional designer's in health care are prepared in order to see if or how that has contributed to their perceptions regarding ability to practice.

The study limited the sampling size to five instructional designers who have been working in the health care environment, which allowed for greater in-depth exploration. When determining whether potential instructional designers met the criteria for inclusion as indicated above, full confidentiality was guaranteed. Once five instructional designers were found to meet the criteria for inclusion, the selection process commenced. Participation in this study was on a voluntary basis and participants received a $25 Visa® gift card upon completion of the interview with the principal investigator (PI).

Study Variables

This was a qualitative research study and, as Creswell (2009) described, qualitative research is exploratory in nature and "is useful when the researcher does not know the important variables to examine" (p. 18). Therefore, the independent variables for this study included the

type of experience, level or length of experience, types of membership in professional organizations, number and types of ID projects completed, the extent to which ID principles and models have been followed. The dependent variable was perceptions regarding preparation for practice.

Methods

Data collection. To ascertain participants' perceptions regarding their preparation and ability to practice ID in the health care sector, a semi-structured interview was employed since it allowed for flexibility in questioning while ensuring that critical questions relating to the study's research questions were addressed. Semi-structured interviewing provided a better chance to maintain focus. As Bryman (2004) indicated, "if one is conducting a multiple case study research, you are likely to find that you will need some structure in order to ensure cross-case comparability" (p. 315). A semi-structured interview ensured that the interviewee had the opportunity to reflect and add information that he or she felt was important.

To assist me in conducting the interview process, an interview guide was followed (Appendix B). According to Hoepfl (1997), an interview guide can "ensure good use of limited interview time; it makes interviewing multiple subjects more systematic and comprehensive, and it helps to keep interactions focused" (p. 52). Lindlof and Taylor (2002) spoke of interview guides as being more informal and flexible in nature and that they included "groupings of topics and questions that the interviewer can ask in different ways for different participants. There may be a preferred order for asking the questions, but the interview guide does not dictate that order. Nor does the guide dictate how the questions will be asked, because the social dynamics of interviewing change from one participant and context to the next" (p. 195). Utilization of an interview guide (Appendix B) suited the needs of this study since it provided a

general framework that helped me pursue critical topics using a free flow manner, which allowed participants to communicate freely. The guide allowed me to formulate topics in a way that allowed research questions to be answered, utilize language that was comprehensive and relevant to the interviewee, and avoid leading questions. Following this approach, questions posed to interviewees focused on instructional designers working in a health care setting and how they perceive usefulness of both academic and non-academic curricula or programs, program or association affiliations, ID practice, roles and responsibilities, and recommendations for how they could be better prepared to practice in a health care setting. Interviews were conducted in participants' natural work setting in a private area acquired by me and were audiotaped and later transcribed for accuracy. Each interview lasted approximately one hour in length and was conducted only with me.

Participants were told that if at any time they did not wish to answer a particular question, they could refrain from doing so and still remain in the study. Participants were informed as to their rights to withdraw at any given point without any potential consequence (Appendix A). Participants were asked questions regarding how ID practices were incorporated into ID projects based on utilization of learning objectives, ID processes and theory, and evaluation mechanisms (formative and summative in nature).

Journaling. Since interviewees may recall pertinent information at a later stage which would enhance my understanding of instructional designers' ability to practice in health care settings, participants were asked to journal on a daily basis for two weeks. When they were provided with the opportunity to write in a journal, participants were asked to reflect on current ID practice, roles and responsibilities, recommendations to future instructional designers pursuing employment in a health care arena, and any other anecdotes they felt were relevant in

aiding me in understanding ID preparation in a health care environment. Gray (2001) indicated "the value of journaling is twofold. It can assist one in describing and expressing the inner states, and it slows down the thought process so one can observe one's inner experiences" (pp. 43-44). From this perspective, journaling provided participants the opportunity to reflect on individual practices, thoughts, and experiences at their own pace. The amount of journaling provided by participants varied. Participants agreed at the onset of participation in the study to journal for a minimum of 20 minutes per day. Due to variation in penmanship, handwritten journals are oftentimes cumbersome for researchers to duplicate; therefore, participants were asked to journal using a computer application such as MS Word so as to enable easy comprehension. A two-week deadline was provided to all participants commencing from the initial date of the interview. In the event that participants were unavailable during the two-week journaling time period, an adjustment was made on a case-by-case basis. Journals were submitted via email either weekly or at the end of the two-week journaling period. Journaling provided participants with a unique opportunity to reflect on their personal experience and share their thoughts, feelings, and recommendations regarding ID preparation and practice in health care settings at their own pace and in a confidential environment. This additional data collection method served as a mechanism by which data could be obtained from multiple sources (data triangulation) in order to substantiate research findings. Participants were not limited to what they could share; however, to provide ideas of the type of information to provide, guiding questions were listed which encouraged them to reflect on their current ID practice, roles and responsibilities, recommendations to future instructional designers pursuing employment in a health care arena, and any other information he or she felt would aid the PI in understanding the preparation of instructional designers in health care environments.

Document review. In addition to the semi-structured interview and individual journaling, upon completion of the interview, I reviewed recently completed work projects from the last year in an effort to gain a better understanding of participants' use of ID practices (Appendix E). The purpose of reviewing completed work projects was to have a better understanding of whether and how ID practices were utilized in the design and development of ID projects. Criteria upon which ID projects were based included incorporation of learning objectives, use of ID processes and theory, and formative and summative evaluation methods. Research questions presented in Table 3 guided this study and include corresponding primary and secondary data collection methods and analysis procedures.

Table 3:

Research Questions and Primary and Secondary Data Collection Methods

Research Questions	Primary Methods	Secondary Methods	Data Analysis
1. How do instructional designers perceive their preparation to practice instructional design in health care environments?	1. Interview	1. Document Review 2. Individual Journaling	Constant Comparative Method using open coding for within-case followed by cross-case analysis
2. How do instructional designers who practice ID in health care environments perceive the usefulness of professional development programs or affiliations?	1. Interview	1. Individual Journaling 2. Document Review	Constant Comparative Method using open coding for within-case followed by cross-case analysis

3. How are ID practices used by instructional designers when designing and developing ID projects in health care environments?	1. Interview	1. Document Review 2. Individual Journaling	Constant Comparative Method using open coding for within-case followed by cross-case analysis

Data Analysis

Naturalistic Inquiry. The naturalistic paradigm was used to serve as a foundation for the methodology of this study. Norris and Walker (2005) stated "naturalistic enquiry is often best conceived as case study. It is not possible to pre-specify in detail the design for a naturalistic enquiry. The naturalistic enquirer has to go with the flow of social action, so to speak. The design of a naturalistic enquiry unfolds as the study progresses" (p. 133). Although naturalistic studies may be impossible to design prior to their undertaking, it is critical to clearly state the methods employed and corresponding interpretations so that readers "will be able to draw their own conclusions about the research process and outcomes" (Bowen, 2008, p. 150). This study followed the constant comparative method of data analysis for each case studied, followed by a cross case analysis.

Constant comparative method. The constant comparative method of data analysis is "the process of taking information from data collection and comparing it to the emerging categories" (Creswell, 2007, p. 64). The constant comparison will analyze units of data until the point of saturation is reached where I was able to determine that units of data no longer bring about new information (Boeije, 2002). The constant comparative method was appropriate for this study because it fosters organization so that data can be categorized, compared, and repeatedly refined as needed. This method helped ensure that when looking at each case, a holistic

perspective was taken, where emerging data were compared among all cases so that the end result would be a portrait of meaningful data. Since this was a multiple-case design using multiple data collection methods, performing constant comparison of data across all cases was beneficial in order to code and formulate emerging themes. Data analysis was conducted using MS Word and Ruona's (2005) four stage procedure which included

1) data preparation
2) familiarization
3) coding
4) generating meaning

Data preparation involved obtaining all interview transcripts, individual journals, and field notes, applying pseudonyms to all data to protect participants' anonymity, and the creation of an electronic filing system to back up and store transcripts and other associated data. The second stage involved becoming familiar with data by listening to interview tapes, re-reading journal entries and field notes. By total immersion into data, I had a better understanding of participants' meanings. This process allowed for further reflection, which was useful in identifying potentially important data (Ruona, 2005). Coding is the third stage and has been identified as a process that can be thought of as "mining the data, digging beneath the surface to discover the hidden treasures contained within data" (Corbin & Strauss, 2008, p. 66). Ruona (2005) described coding as a combination of data reduction and complication. From this vantage point, the coding process involved the breakdown of data into its component parts from which categories emerged, but also opened data to critical analysis so that I was able to formulate new questions and levels of interpretation (Coffey & Atkinson, 1996 as cited in Ruona, 2005, p. 241). The last stage of data analysis related to generating meaning from the interpretation of data.

Coding. The case study was coded using Ruona's (2005) data analysis procedure, which consisted of

1) Preparing data by transcribing interviews and assigning each participant a code number

2) Identifying meaningful segments of data

3) Compiling a preliminary list of themes

4) Creating an initial coding system using a four to five digit coding number to each category

5) Merging all data into a master document in order to conduct a cross-case analysis

The coding process utilized for this study followed Ruona's analysis procedures, utilizing the Microsoft® Word 2007 program.

Reliability. Qualitative researchers view reliability from a variety of standpoints (Silverman, 2005). One viewpoint that has been argued is that reliability in its true sense pertains to the quantitative domain due to its concern with measurements, and is, therefore, not reflective of qualitative inquiry (Altheide & Johnson, 1998; Stenbacka, 2001). Others have described reliability from the perspective that it should focus on intercoder agreement among multiple coders (Creswell, 2007)**,** ensuring that data collection procedures can be repeated with the same results (Yin, 2009)**,** reducing error and bias (Yin, 2009), and establishing trustworthiness (which consists of four main components credibility, transferability, dependability, and confirmability) (Lincoln & Guba, 1985). For qualitative researchers following Lincoln and Guba's (1985) criteria for determining reliability and validity in qualitative studies, attention was paid to triangulation of data, member checking, and audit trails. Mays and Pope (1995) expressed that researchers could ensure reliability by carefully

documenting interviews, observations, and all components of analysis. By utilizing the perspective of Yin (2009), to reduce error and bias, member checking (Guba & Lincoln, 1981), reflexivity (Jootun & McGhee, 2009), and a clearly documented research agenda via an audit trail will be incorporated (Wolf, 2003). Qualitative researchers use the audit trail to "establish the rigor of a study by providing the details of data analysis and some of the decisions that led to the findings" (Wolf, 2003, p. 175) and to establish authenticity and trustworthiness of data (Speziale & Carpenter, 2007). The audit trail includes components such as contextual, methodological, and analytic documentation, as well as reflexive notes to illustrate personal reflections (Rodgers & Cowles, 1993). Member checking was incorporated during each interview where I restated, summarized, or paraphrased information obtained from participants to ensure that what was heard and written reflected participants' original meaning. In addition, notes and personal reflections have been provided in the documentation of the study's results in a section entitled Researcher Reflexivity (Appendix L).

Validity. The concept of validity has been viewed from many perspectives. One popular perspective on validity is that "an account is valid or true if it represents accurately those features of the phenomena, that it is intended to describe, explain or theorize." (Hammersley, 1987, p. 69). Morse, Barrett, Mayan, Olson, and Spiers (2002) indicated that it is a "means for obtaining rigor through using techniques of verification" (p. 14). Winter (2000) indicated that when examining qualitative researchers' perspectives of the concept of validity, that two main themes emerged which are **"**whether the means of measurement are accurate... whether they are actually measuring what they are intended to measure... it is essential to address both internal and external validity" (p. 1). Hoepfl (1997) referred to internal validity as "the extent to which the findings accurately describe reality" (p. 58). Steps taken to ensure internal validity included

obtaining information directly from respondents by tape recording interviews, and verifying consistency in coding, a second coder was asked to review and code sections of the transcript and a participant's journal entry in order to have the opportunity to discuss discrepancies or lack of clarity. In addition, for an audience to have confidence in research findings and interpretations, credibility must be established. In this study I triangulated data by conducting member checking, providing thick description, and incorporated reflexivity to establish credibility. Triangulation is "a process that involves corroborating evidence from different sources to shed light on a theme or perspective" (Creswell, 2007, p. 208). This study draws upon multiple sources of information in order to check for inconsistencies and irregularities in data. Data obtained from interviews, individual journals, and review of completed work projects provided additional information on participants' perceptions of ID experience in health care environments. After each interview, I used a reflexive journal to provide the opportunity to reflect on the process and see how personal values, experiences, interests, and beliefs shaped the research (Ortlipp, 2008). The reflexive journal was part of an audit trail that was utilized in the data analysis phase of the study (Rodgers & Cowles, 1993). A section titled 'Researcher Reflexivity' was included in relation to the research process of the study. External validity has been referred to as "the extent to the applicability of representations to other groups (Schensul, Schensul, & LeCompte, 1999, p. 275) or "the ability to generalize findings across different settings" (Hoepfl, 1997, p. 59). Guba and Lincoln (1981) referred to the degree to which findings can be generalized to other contexts, settings, or populations as transferability. Transferability was enhanced through the incorporation of thick description. Detailed accounts were recorded that included my own interpretation of data, which provides readers the opportunity to make decisions regarding transferability. By ensuring that both reliability and

validity were addressed, trustworthiness as described by Guba and Lincoln (1981) can be established.

For a within - case analysis, each participants' responses are analyzed and categorized into developing themes. Themes were generated for each participant based on open coding which was generated for all three data sources; interviews, journal entries, and reviewed ID projects. Once data sources were coded, interrelated codes or elements were bridged together to create emerging themes. The main themes that emerged that were explored for each participant were: a) ID Practice, b) ID Challenges, c) ID Preparation, and d) Recommendations.

Upon completion of the within case analysis, a cross-case analysis was conducted to formulate a thorough understanding and provide conclusions and recommendations for IDT practitioners practicing in health care environments. Table 3 exhibits the research questions that were investigated in the research design along with associated data collection methods.

Table 3:

Research questions and primary and secondary data collection methods

Research Questions	Primary Methods	Secondary Methods	Data Analysis
2. How do instructional designers perceive their preparation to practice instructional design in health care environments?	2. Interview	3. Document Review 4. Individual Journaling	Constant Comparative Method using open coding for within-case followed by cross-case analysis

2. How do instructional designers who practice ID in health care environments perceive the usefulness of professional development programs or affiliations?	2. Interview	3. Individual Journaling 4. Document Review	Constant Comparative Method using open coding for within-case followed by cross-case analysis
3. How are ID practices used by instructional designers when designing and developing ID projects in health care environments?	2. Interview	3. Document Review 4. Individual Journaling	Constant Comparative Method using open coding for within-case followed by cross-case analysis

This study utilized a multi-case, bounded case, single-site case study research design to examine how well instructional designers perceive themselves able to practice ID in health care industries. Using a case study approach, convenient sampling was utilized to obtain detailed information about the experiences of instructional designers in the health care sector. Using an interview guide, data were collected via semi-structured interviews. Upon completion of interviews, participants had the opportunity to show completed work projects. Upon completion of both these steps, participants provided reflection on ID practice via journal entries over a two week time period. Once all data were collected, and using the constant comparative method of data analysis, a within - case analysis was conducted followed by a cross case analysis. Data analysis was conducted using MS Word and Ruona's (2005) four stage procedure. Upon completion of the within - case analysis, a cross-case analysis was conducted to identify integral themes which help to provide conclusions and recommendations based on research findings.

CHAPTER 4: FINDINGS

This chapter includes the findings generated from a multiple case bounded case, single site case study using constant comparative data analysis of instructional designer's perceptions regarding preparation for practice in a health care setting. Analysis was conducted to address the following three research questions:

1. How do instructional designers perceive their preparation to practice ID in health care environments?
2. How do instructional designers who practice ID in health care environments perceive the usefulness of professional development organizations or affiliations?
3. How are ID practices used by instructional designers when designing and developing ID projects in health care environments?

Analysis of data were based on three methods of data collection in order to increase credibility of findings and to have a better understanding as to participants' experiences. As discussed in Chapter 3, detailed interviews were conducted along with review of individual journals and completed ID work projects.

This chapter is divided into two sections which include a full within-case analysis based on the themes that emerged for each participant, followed by a cross case analysis where a comparison of themes that emerged were analyzed across each individual case. Table 4 provides a visual representation of participants ID background.

Table 4:

Academic Background of Participants

	ID Courseowork	Interactive Technologies	Psychology/Neuropsychology	Statistics	Management	Computing	Teaching & Learning/Education
Participant							
Albert	●	●					
Cat			●				
Jane						●	●
Johnson							
Tyler		●	●	●		●	●

Interviewing is a valuable data collection method used in qualitative research. Through interviewing, one can obtain in-depth information based on participants' experiences and feelings, which can then be used to find patterns and overall meaning / themes of a phenomenon. Semi-structured interviews were conducted as they allowed for flexibility in questioning while ensuring that critical questions relating to the study's research questions were addressed. Semi-structured interviewing provided me with the opportunity to maintain focus. All interviews were conducted in-person and lasted approximately 1 – 1 1/2hours each. Interviews were audio taped for accuracy with permission from the participant. Once interviews were completed, participants selected ID projects that had been completed within the last year. Review of each project took approximately one half hour to complete. ID strategies/models utilized on each project were noted. The third component of data analysis was the review of individual journals. Each participant provided a journal in which they reflected on their current ID practice, roles and

responsibilities in their current job, recommendations to future instructional designers pursuing employment in a health care arena, and any other information they believed relevant in understanding ID preparation in a health care environment. In order to truly immerse myself in the thoughts and feelings of each participant I read journal entries between 4-8 times; until I felt that data could be coded in an effective manner.

Data Analysis Procedures. I followed two phases of data analysis; transcription and the analysis of data using Ruona's (2005) 4-step procedure. Upon completion of in-person interviews, I reviewed and transcribed audio-tapes into text to begin my analysis. An external company specializing in transcription transcribed all five interviews. I communicated with the professional transcriptionist regarding the format of the interview transcript as well as removal of words such as "um", or 'ah'. Once interview transcripts were completed, all interviews were reviewed to ensure matching of data between audiotape materials and transcribed text. This was especially useful not only to ensure accuracy in the transcribed text, but also to provide me with an additional opportunity to become familiar with data.

Five interviews were conducted in-person over a period of one month. Once transcriptions were available, I replayed all audiotaped interview files, re-read transcripts to ensure accuracy of transcribed text, and I started highlighting segments of data that appeared to be meaningful. I then entered the transcribed data using Ruona's (2005) table format for analysis. This table proved to be extremely useful as it allowed me to easily locate pertinent data, indicate meaningful segments of data, and place notes or memos based on my initial findings that were associated with specific coded segments. An example of how coding was integrated using Ruona's methodology is provided in Appendix C. By reading and re-reading transcripts, associated journal entries, and notes taken when examining completed ID work projects, I

established an initial coding scheme for all data collection tools. For interviews and journal entries, the code number field was used in the data analysis table. For completed ID work projects, codes were applied to my notes for each completed work project where notes were then linked to the appropriate participant. Once I coded one interview transcript, associated journal entries, and notes taken on completed work projects, I then asked an additional coder to code the same interview materials (using the established coding scheme) to ensure inter-coder reliability. Opportunities were provided for the second coder to communicate any discrepancies, questions, or clarifications that needed to be addressed. As more interviews and associated interview documents were analyzed, the coding scheme was altered to reflect the relevant themes and associated constructs present. The coding scheme illustrating the themes that emerged are provided in Appendix D.

Within-Case Analysis. This section explores the main themes for each participant by providing thick description to illustrate each participant's viewpoints and experiences.

Albert. Albert is a mid-level Instructional Systems Designer whose educational background is: Bachelor's in Psychology, Master's in Educational Psychology, Master's in Library & Information Science, Educational Specialist Certificate in Instructional Design, and was pursuing a PhD in Instructional Technology (at the time of the study). He is in his late 50s and has been working in the field of ID for approximately 18 years. Prior to working in a health care environment, Albert functioned in an ID capacity in the automotive industry where he worked with lean systems and manufacturing and as a temporary worker at a placement agency where he had the opportunity to create curriculum with internal SMEs. Albert provided insight into how educational exposure to ID, performing ID in various work environments, and

knowledge of the health care industry and associated subject matter can impact ID in a health care environment.

ID Preparation. Albert's background included being a Training Manager for 5 years where he then worked in ID for 18 years. His first job was in the automotive industry and then worked for a placement agency which placed health care workers in remote or underserved areas. His role in the placement agency was that of Director of Training where he had the opportunity to design curriculum with internal SMEs. His ID experience led him to working in a health care environment. In terms of formalized ID preparation, the PhD program in which Albert enrolled offered him the opportunity to take courses as listed below in Table 5

Table 5:

Academic Coursework Taken by Albert

Course	Content Covered
Fundamental instructional systems design	• Defining task analysis • Development of objectives • Project management • Course development
Advanced ID	• History of the ID field • ID theories such as Learning theories
Message Design	• Dual channel processing/dual coding • Working memory limitations • Chunking • Layout typography • Image and oral

	processing
Media Development	• Dreamweaver • Flash
Other ISD Courses	• Interactive technology • Educational Psychology

When asked as to what extent doctoral coursework in ID related to actual ID practice, Albert revealed that while Masters level courses in ISD or the courses in Educational Specialists certificate were useful, some doctoral courses did not focus enough on media development, and could include more on photography and videography. Albert expressed that having exposure during his undergraduate education in cinematography was useful in his current ID role as was his "ability to use cameras, still cameras and motion cameras" (Albert, Appendix G, Line 381). Based on his coursework in ID, Albert found that content from ID curriculum were "useful for work in this field. Concepts and principles from ADDIE related courses are directly applicable to the work of creating courses for the classroom or for online environments" (Albert, personal communication, October 2010), and that interactive technology and performance improvement curriculum were useful, although, at times, Albert found it difficult to utilize methodology he acquired via academic methods due to workplace time constraints.

Understanding that with time, technology changes, Albert felt that with regard to knowledge of design tools needed in order to perform in an ID role similar to his, Albert suggested several areas in which one should be exposed such as the entire Microsoft Product suite especially PowerPoint, graphic editing programs, SoundBooth, Premiere, Flash, Pinnacle, exposure to videography, HTML, SCORM, and learning management systems. Albert learned some of these skills on the job such as:

> utilization of learning management systems, interesting things about how you can take Microsoft products, specifically PowerPoint, and make them into shockwave flash movie (swf) file type and drop them into HTML and play them on the Web (Albert, Appendix G, Line 387).

When asked as to whether these skills could be learned in any other way other than via work experience, he responded "probably not without entering the workplace where it was used without having a more effective course on the subject"(Albert, Appendix G, Line 399). One way in which Albert regularly identified ID skills being sought after was by reading current job descriptions. Upon doing so, Albert noticed that:

> what you will find is more and more people are looking for the ability to put database applications online, to use Access and program Access so that people coming online can fill out, can interact, can do more Web type activities. And that's a whole new set of information, a whole new set of skills (Albert, Appendix G, Line 441-445).

With regard to this type of skill set, Albert indicated that without a background in these types of skills it would:

> be a real learning curve. Either you're a coder or you're not a coder. And you can be a very successful instructional designer without being a coder. They're completely different skill sets so that when employers say, 'Well we want both,' they're really asking for a very hybrid kind of individual (Albert, Appendix G, Line 449-452).

With respect to participating in academic or non-academic ID curricular activities such as continuing education (CE) opportunities or workshops, Albert revealed that he had not participated in any CE as he was continuing his work on his PhD but that he wanted to "be more involved with professional organizations, specifically the Association for Educational

Communications & Technology (AECT), and not so much the ISPI anymore" (Albert, Appendix G, Line 466-467). His desire to be more involved with AECT was grounded in the fact that he felt "it has a good reputation… and it seems to have more of a research bent" (Albert, Appendix G, Line 540). In addition, when asked if it would be important for his career to be involved with an environment such as AECT, he responded, "yeah because I think we'll get into things of substance there" (Albert, Appendix G, Line 549). The other association Albert mentioned was ISPI. He expressed that he would consider being a part of ISPI if he had a desire to become "more of a performance improvement consultant which would be easier to do than becoming a coder and an Access programmer" (Albert, Appendix G, Line 468-469). Albert was a member of ISPI while working in the automotive industry and when asked if being part of an organization such as ISPI was helpful in his ability to practice ID, he replied that "while people look for those on your resume they are really just networking opportunities…I didn't find the networking to be especially useful and… I never really learned anything" (Albert, Appendix G, Line 525). Albert felt the same thing regarding association meetings such as ISPI and annual conventions such as AECT, where:

> you go from room to room to room and you get overviews of things people are doing but in reality they're just there presenting trying to stimulate interest so others will come up to them afterwards and give them their card and ask them for a call so they can come out and consult..and you never really acquire the pithier skills (Albert, Appendix G, Line 532-536).

Ultimately, what Albert found to be most useful in terms of educational opportunities that have assisted him in his current ID role, were taking specific courses in Instructional Systems Design, technology, message design, and other media related courses. When asked as to how

instructional designers should prepare themselves for practice in a health care industry, Albert noted that while he has an aptitude for "biology and healthcare related sciences. Not everybody will" (Albert, Appendix G, Line 644-645), and that "helps to understand the subject matter yourself." (Albert, Appendix G, Line 647-648). Albert recommended that "nurses pursue this. I would not necessarily recommend that engineers pursue this or liberal arts majors pursue this" (Albert, Appendix G, Line 652-653).

Albert felt well prepared to practice ID in his role in health care due to his prior education (more from his undergraduate and Master's level courses), prior work experience, and exposure on the job. Prior work experience gave him "some confidence and the ability to interview and work with subject matter experts (SMEs)" (Albert, Appendix G, Line 697). These experiences allowed Albert to gain the skills and knowledge he felt he needed in order to perform ID effectively and efficiently.

ID Practice. Albert's role in ID spanned "designing and developing instruction for a number of internal clients" (Albert, Appendix G, Line 101), primarily with material on human resources or health care related information on performing administrative tasks, performing the course publication process, editing, sequencing, formatting, animations, development of objectives, reviewing content, project management, and curriculum planning. Based on the SME with whom Albert was working, his role varies from working with "SMEs who want a lot of direction on course structure and some who are very comfortable and confident in their ability to design…so I can go from hands-on to hands-off " (Albert, Appendix G, Line 115). When asked whether he followed any specific ID model or process, he indicated that he followed ADDIE. His involvement in the various ADDIE phases varied as he indicated that he usually came in at the "design stage and might go back to analysis, I might have to back the client up to task

analysis, but I have never been on a project which would involve actual needs analysis" (Albert, Appendix G, Line 127). With respect to the design phase, Albert was involved with sequencing of tasks and learning. He indicated that if one was to look at the design process from the A^2DDIE where the process of design "is a circle and the analysis and the evaluation are very, very similar. I really think they could be combined because if you were to go around the spectrum from analysis all the way to implementation, then you really should be back at analysis" (Albert, Appendix G, Line 252-255). Ideally, Albert pointed out that all aspects of analysis should be within his ID role, but specifically that within the design phase, he was more involved with sequencing of tasks and learning.

During the development phase, he developed ID projects solely in an online environment, stating that he had "yet to design a course for classroom instruction" (Albert, Appendix G, Line 149). The development phase in which Albert was exposed was performed always for online learning. His concept of his typical involvement with the development phase was illustrated in his description of a typical ID project request he encountered where an SME would send him a PowerPoint file that they had used in a classroom setting and ask him to put it online. Albert indicated that oftentimes he would look at the material and know that it

> would have been good in a classroom setting but you need a different design when it goes online because that's self-instruction and it has to be more brief. We have to condense things because people won't sit still in a healthcare facility. We have to break things down into 15-minute modules or they are on their way (Albert, Appendix G, Line 160-165).

Albert talked about how in the majority of ID projects, the development phase consists of "reworking, rewording, editing, technical writing, reorganizing, making things more concise,

eliminating redundancy, and eliminating excess words" (Albert, Appendix G, Line 168-169). These types of projects were described by Albert as situations where "no time is spent on design and little time is spent on development. There is little opportunity to apply and reinforce design skills on this type of project (Albert, personal communication, October 2010). In terms of ID Practice, Albert utilizes ID theories in the design and development of instruction such as Mayer's principles of multimedia, Paivio's dual channel processing, and Sweller's cognitive load theory indicating their relevance to ID, "I believe in a simplification of the message, elimination of extraneous data…elimination of redundancy, alignment of images and words, They all work together very well" (Albert, Appendix G, Line 286-289). As it relates to utilizing Mayer's principles of multimedia, he is "a big proponent" (Albert, Appendix G, Line 290), and also follows Paivio's dual channel processing and Sweller's Cognitive Load Theory, citing that "they all work together very well" (Albert, Appendix G, Line 293).

One example where Albert was seen using principles of multimedia design in the development stage of a project that involved video capture by a SME, re-design of materials for expanded explanation of procedures, videos being dissected into stills and put into PowerPoint, the recording of voice over narrations in SoundBooth, transferring finished PowerPoint to SCORM using Articulate Software, and the publication of materials onto a learning management system.

As we move towards the evaluation stage of ADDIE, Albert typically utilizes Kirkpatrick's 4 Levels of Evaluation model. Albert indicated that he was working towards the development of a full-scope evaluation and that up to this point, he had only conducted what Kirkpatrick would call level two evaluations; therefore, he felt that there was a need "to move on to level three which is: Did the learner take it back to the workplace and use it?" (Albert,

Appendix G, Line 195). The way in which Albert described the typical Level 2 evaluation, in which he would assist in designing, was an online test. When asked whether course assessments came pre-created by the SME or if Albert collaborated with the SME to develop a given assessment, he stated:

> often I'll ask the SME to write the test and then I will look at the text and I can go back and compare it to or use it to create objectives and then I can compare the objectives with the actual instruction and often can flush out instruction or eliminate extraneous instruction based on the objectives (Albert Appendix G, Line 206-209).

Albert found Kirkpatrick's evaluation model to be "the best way of discussing evaluation...I use it when I'm explaining evaluation to other people" (Albert, Appendix G, Line 310-312). Although Albert receives and encourages feedback throughout the ID process for a given project, (regardless of the ADDIE phase), it is very common for him to go back to the drawing board and make edits even when projects look finalized or when a preliminary stamp of approval is given by an SME.

Albert conducts what he calls a "design expert evaluation" (Albert, Appendix G, Line 216). Albert described this expert evaluation (his form of formative evaluation) as generating a design with a set of objectives where he may share the design with a co-worker in order to obtain his or her feedback so that improvements can be made, and then he would share the newly designed project with the client and communicate that he had obtained expert review and modified the project based on feedback acquired. Albert expressed that he had never received feedback directly from a participant, but that was something that he and his team were considering in the future. Albert noted that evaluation was the most under performed aspect of training and development and that is why he felt that management " looks at us sometimes and

says, “What are you good for? What good are you doing?” (Albert, Appendix G, Line 237-238). Albert mentioned that he knew of very few people that had ever conducted a Level 4 evaluation where one looks at return on investment, but that Level 4 evaluations were “going to be critical. I think that’s going to be more and more critical here because cost is so important in healthcare” (Albert, Appendix G, Line 240-241).

ID Challenges. When performing as an Instructional Designer, Albert discussed a few challenges faced in this capacity. Since needs or gap analysis were not within the prevue of Albert’s role (a role which he indicated would be ideal for someone in his position to have), Albert identified that this “should theoretically fall into the hands of one of our internal consultants but I’m not sure that it ever does” (Albert, Appendix G, Line 132-133). As Albert mentioned, if analysis were conducted in a more cyclical manner, one would move from analysis to evaluation, then ultimately be back at the analysis phase so that the question could be posed “is the training now effective in the current environmental context?” (Albert, Appendix G, Line 257).

Challenges pertaining to evaluation included the need to obtain direct feedback from course participants and the need to move to Level 3 & 4 evaluations to identify transfer of learning and return on investment, respectively. Albert stressed the importance of evaluation and being able to exhibit ones value to upper management; especially as Albert stated because “cost is so important in healthcare” (Albert, Appendix G, Line 241). As it relates to evaluation, Albert reflected on a time when he was a project leader with the goal of planning a project evaluation. One challenge that Albert found in this situation pertained to the collaborative nature of the project. He indicated that because many instructional designers are trained in methodical research methods, they are “inclined to cite sources as well as methods when we discuss a

project. The outcome of this approach is not always positive, because academic methods are often impractical in the work place" (Albert, personal communication, October 2010). This brought out the question in Albert's mind as to "if academic detail, theory and method are not entirely practical in the work place, then how should it be changed?" (Albert, personal communication, October 2010).

Albert eluded to additional challenges when he explained how SMEs want to add images in presentations because "they want something to be visually stimulating" (Albert, Appendix G, Line 298). Albert found that he had to "persuade other subject matter experts that redundancy can be a bad thing and it can overload working memory… as well may be distracting or even confusing" (Albert, Appendix G, Line 297).

When specifically discussing the health care environment, Albert was asked if he felt that ID in health care was unique. Albert indicated that what was unique in health care is that:

> we really are an ongoing learning organization and whereas learning and training and development and corporate education, etc., can come and go with corporate profitability in automotive, there are places like the military and healthcare where it has to be done; the real question is: is it being done properly, is it effective? (Albert, Appendix G, Line 324-328).

Challenges Albert indicated he faced in his ID role include: keeping up with the workload, being underpaid, keeping up with changing technology, the need to remain creative and learn new software, not having control over particular phases of ADDIE such as analysis, availability and allocation of resources such as time, graphics, and media technology, the need to manage multiple projects or abandon projects in which they have invested much time and personal commitment, and the often overlooked evaluation" (Albert, personal communication,

October 2010). The evaluation phase which is "is the forgotten step – not only in healthcare but in all industries. Evaluation is not performed because it is a time-consuming and expensive process. Furthermore, it is difficult to get cooperation on this activity" (Albert, personal communication, October 2010)

To address the issue of analysis and its role within the larger ID role, Albert declared that in some cases he would recommend that "for the purpose of quality control that designers back the project up to the analysis phase" (Albert, personal communication, October 2010). However, he declared that "sadly, instructional designers in this organization simply lack this authority, and poorly-designed courses are sometimes the result" (Albert, personal communication, October 2010). With regard to workload and project priorities, Albert mentioned that "one project is set aside; another project takes its place. Management will determine projects and priorities, and instructional systems design (ISD) staff will be challenged to adapt to shifting workloads and priorities" (Albert, personal communication, October 2010). Ultimately, Albert summarized challenges faced by instructional designers in health care in the following way:

> the principle challenges faced by ISD staff are therefore those of time allocation and persuasion. ISD workers may need to manage multiple projects, or even abandon projects in which they have invested much time and personal commitment, in order to start a new project with a more-immediate priority. ISD staff may also feel the need to persuade management to supply more resources or authorize more hours of work for the accomplishment of ever-changing priorities (Albert, personal communication, October 2010).

Recommendations. Albert provided recommendations for all three entities: prospective instructional designers interested in the health care industry, academic institutions supporting ID

curricula, and health care administrators who employ instructional designers. A summary of recommendations are included in Table 6.

Table 6:

Albert's Recommendations for ID Preparation

Instructional Designers	• Have an understanding of the subject matter/health sciences • Exposure to interactive technology (good for those who enjoy sound, motion, and multimedia • Have knowledge of library science related concepts such as where to find medical illustrations, videos and references, copyright information, citation styles • Keep up with technology • Get exposure to online multimedia instruction including basic animation for PowerPoint or Flash files, audio recording and editing software such as SoundBooth, and video editing software such as Premier or Pinnacle • Understand message design principles
Academic Administrators	• Reduce the non-ISD related courses such as Educational Psychology classes • Reduce the amount of group related activities within ID projects • Ensure students know of the latest technological programs such as the Adobe Suite • Offer a course on teamwork
Health Care Administrators	• Need to take the role of training and development more seriously in order to understand return on investment

For instructional designers looking into working in a health care environment, Albert mentioned how he had a quick aptitude for biology and the health care related sciences, but that not everyone will. Albert stated "the theory of instructional design, as you know, is that given the right SME you can write a course on anything. But in reality it helps to understand the subject matter yourself (Albert, Appendix G, Line 646-648).

In addition, Albert described how he found working with interactive technologies provided him with satisfaction and a sense of relaxation and indicated that:

> if people enjoy the color, sound and motion of multimedia, then they will enjoy this kind of work. If one enjoys learning about new subjects, then ISD is good field of work… the varieties of new learning make the job interesting for me, but this may not be the case for others. Some people may prefer to work toward expertise rather than work as a knowledge generalist, and for them, ID and HPT may be a poor choice of careers (Albert, personal communication, October 2010).

In terms of career growth, Albert felt "the field of ISD does not tend to open doors to the general field of human resources or industrial relations. Instructional Designers tend to be left in the field of training and development, and passed over when higher-level jobs become available" (Albert, personal communication, October 2010). He recommended that those who aspire to work in the areas of compensation, benefits administration, industrial relations and other HR related areas to "pursue a degree in business or organizational development, and then enter human resources work directly" (Albert, personal communication, October 2010). Albert conveyed that the current institution in which he works was one of the very few institutions that "allows non-healthcare workers to work in instructional design" (Albert, Appendix G, Line 654-655); therefore, he felt that pursuing ID in a health care environment may be best suited for those with clinical knowledge and experience.

An analogy that Albert used to describe the ideal person to enter the field of ID was to see how it would be ideal "for a lawyer to be a Law Librarian" (Albert, Appendix G, Line 670) and that being your own SME can give you the rapport and "credibility with your subject matter experts. So it would be good for an automotive person to be an automotive instructional designer, a healthcare worker to become a healthcare instructional designer and so forth" (Albert, Appendix G, Line 666-667). However, as Albert noted:

> the problem with having this industry is because we are somewhat undervalued with respect to our positional training or as a cost center rather than a profit center or revenue center, you could slide a nurse would make more than a healthcare instructional designer. An engineer would make far more than a plant instructional designer and so forth (Albert, Appendix G, Line 670-674).

Although Albert expressed that specialized training in health care may be ideal, he felt that it was not essential and that instead what may prove to be useful is having the knowledge on "where to find medical illustrations, videos and references…copyright and proper citation" (Albert, personal communication, October 2010), concepts which are often linked to library science, but if applied, could be helpful to healthcare developers. Albert noted that often:

> Master's level students do not always know which industry they will enter after graduation. Would a single course that covers image-reference databases for all industries fill the bill? Perhaps, but a specialized course taken at the time when one enters the workforce would be more likely to provide workers with skills that they would actually use (Albert, personal communication, October 2010).

Albert offered additional suggestions for those pursuing ID in a health care environment such as getting familiar with the subject matter, keeping up with technology, getting exposure to online multimedia instruction including basic animation for PowerPoint or Flash files, audio recording and editing software such as Soundbooth, and video editing software such as Premier or Pinnacle, and an understanding of message design principles.

For academic administrators who design ID curricula, Albert recommended several things including reducing the amount of group based projects, and modifying the type of curricula offered. Albert found the "orientation toward team projects is a waste of time" (Albert,

Appendix G, Line 485-486) where people end up taking on the role in which they are already an expert, thereby limiting their exposure to learning new concepts or techniques. With regard to modification of curricula, Albert reflected on his educational experience and indicated that a course be given on teamwork. In Albert's experience, "you need exposure to all of the skills involved before you go to work on a team. Teamwork is not where you acquire all of the separate skill components" (Albert, Appendix G, Line 506-507). In addition, when academic programs prepare Instructional Designers for practice, Albert recommended that "we should, at least through the Master's level, stick to the nuts and bolts, stay away from the history and the arcane trivia and get some other courses into the curriculum and get rid of the fluff courses, the Ed psychs" (Albert, Appendix G, Line 587). Other areas that need to be taken into consideration from this viewpoint were for master's level programs to ensure that people become proficient in the Adobe suite and to provide the opportunity for people to take these courses at community colleges if it can not be offered at a given university. In Albert's eyes, schools are "trying to put it all into one course and it's too much" (Albert, Appendix G, Line 597). Albert would prefer to "cut out the Ed psych or much of the ed psych. I would say put in more of the hands-on media. I would say get rid of this teamwork perspective" (Albert, Appendix G, Line 598-599). Regardless of work environment, for doctoral coursework, Albert found the need for "a lot more direction and a lot more consistency" (Albert, Appendix G, Line 634), especially as it pertains to preparation for research based projects.

Health Care Administrators were the third group for whom Albert had recommendations and revealed that he would recommend that:

> healthcare administrators take the whole training and development effort more seriously and look upon it as an opportunity to have a positive impact on the bottom line and that

> is applicable to for profit and non-profits because if they do not value the evaluation process they are not getting valuable data with respect to how things are actually improved by what we do (Albert, Appendix G, Line 680-682).

Cat. Cat is an Instructional Designer who had an educational background consisting of: Bachelor's in Psychology, Master's in Community Psychology, and PhD in Educational & Clinical Psychology with a specialization in Neuropsychology. She was in her late 50s and at the time of the interview was employed as a Director of Instructional Design. She had worked in that role for over 7 years. Cat's experiences ranged from working as a neuropsychologist where her focus was on understanding cognitive load theory, memory, reasoning, and how the brain processes information, to developing and customizing faculty development institutional curriculum and program improvement initiatives. Cat's reflections on being an instructional designer in a health care environment were intriguing as she discussed her roles and responsibilities in this environment and also provided insight into the understanding of medical culture and the importance of understanding this type of culture when practicing instructional design in a health care environment.

ID Preparation. The theme of ID preparation was discussed in many ways throughout Cat's interview. Cat's educational background was in Educational and Clinical Psychology with a specialization in Neuro-Psychology. Prior to her current ID role, she had been an instructor for both Residents and Fellows in health care arenas where she performed ID for a graduate medical education-accrediting agency, and designed and developed curriculum in the forms of PowerPoint presentations, facilitator guides, and other online learning components. Although Cat was exposed to teaching in the health care environment, she had no ID work experience; she had taken two ID courses. When asked if Cat learned based on a combination of her work

experience and education from her Psychology background she agreed, saying “a lot of my conceptualization of it comes from my background in psychology and comes from the fact that I was a clinician for so many years. So I really understand medical culture” (Cat, Appendix H, Line 60-62). Due to being a clinician for several years, she indicated that she was very familiar with cognitive load theory, memory, reasoning, and executive functions, which she indicated was “a very different background than the majority of Instructional Designers in healthcare” (Cat, Appendix H, Line 68); Instructional Designer’s for whom she felt the majority had ID degrees.

As far as skills and knowledge, Cat described many qualities and functions she felt Instructional Designers should possess in order to be prepared to fulfill a role similar to hers which included: creative thinking, knowledge of gap analysis, performance improvement, going beyond typical survey development to other types of assessment tools/methodology, familiarity or exposure to web-based learning, ability to design curriculum so that it resonates within a medical culture, and the ability to identify how best learners learn given ones target audience. Additional skills of importance in preparing for an ID role that Cat suggested were having lots of energy, being detail-focused, ability to multitask, being adaptable to change, having the ability to generalize ones teaching based on audience, exposure to verbal learning so that one can listen to and integrate feedback from large groups of people, and having knowledge of diffusing out change. As Cat indicated, these were “not necessarily things she could have learned in a course” (Cat, Appendix H, Line 313).

It appeared that in addition to work experience, affiliations with professional associations may be useful. Cat belonged to the Society of Simulation in HealthCare, Society of Teachers in Family Medicine (who talk about curriculum design, assessment, and program improvement), and the Accreditation Council for Graduate Medical Education (ACGME) (which one does not

belong to, but may follow and learn from). Although Cat did not maintain activity in all these organizations, she had participated in the past and found their affiliated conferences to be of practical use in the ID field as they helped her keep up with the field, understand where ID was heading and in what capacity (i.e., online, via simulation, utilization of assessment methods). As Cat reflected on her preparation for practice, she felt prepared to practice, and stated "I don't think school prepared me. I think that my career path is very different from many people and I don't think this is because of school" (Cat, Appendix H, Line 581-583).

ID Practice. Throughout the discussion with Cat, the concept of ID practice emerged and appeared to be significant in nature. Cat's background was based in Neuropsychology where her clinical experience afforded her the opportunity to delve into learning about key working functions of the brain such as cognitive load, learning, metacognition, memory, and retention. Based on several years of work in this domain, she was able to assimilate that knowledge and interweave it into her role and function as Director of ID. Cat indicated that 4 main *buckets* represented her role which was to: design, develop, and evaluate curriculum and faculty development, perform curriculum assessment, program improvement, and general administration duties which pertained to sitting on committees and partnering with other people in the system to launch various initiatives. When it came to how Cat addressed curriculum, she harnessed her knowledge of psychology and medical culture in order to conceptualize best methods for curriculum development.

Cat utilized the ADDIE model with regard to curriculum development for both in-person and online training. The curricula in which Cat was engaged was directly tied to institutional-level sentinel events and patient satisfaction rating systems by agencies such as Press Ganey and Hospital Consumers Assessment of Healthcare Providers and Systems (HCAHPS). In addition,

a large portion of curricula within Cat's domain was directly linked to state and national accrediting agencies such as The Joint Commission. Cat approached ID practice by utilizing knowledge acquired through her educational and prior clinical experience in Neuropsychology to determine how best to design, deliver, implement, and evaluate curricula by following the ADDIE process. By engaging in a variety of educational opportunities and researching methods for providing instruction in her prior work setting, she was able to learn more about utilization of ADDIE. While she stated that she kept ADDIE components in mind when approaching the design of curricula, she did not design based on specific ID principles. Instead, Cat would often reflect back to various communication, evaluation, and change management models in which she was exposed via her neuropsychology background and would piece them together in combination with her prior work experience to determine how best to impact her target audience; which in this case were those whom she identified as being highly stressed, cognitively overloaded, time strapped individuals for whom the educational experience must be one that is highly fruitful from a knowledge standpoint and one that provided the opportunity for them to step back, reflect, discuss, and then process information. As Cat indicated, "once they leave the room there will be no continued processing of whatever it is you were teaching. It doesn't matter what you're teaching because… they're going back to the floors or in the clinics and they're dealing with patients, so whatever they take out of that session is your outcome" (Cat, Appendix H, Line 249-250).

Curriculum development consisted of PowerPoint slides, facilitator and debriefing guides, online modules, objective structured clinical examinations (OSCEs), and generating communication scripts for use by standardized patients. When working with these types of curricula, CAT utilized popular communication models utilized in the health care environment

which included Teach Back and SPIKES (Cat, personal communication, October 2010). Both these models are communication models that are often utilized in health care settings to help practitioners address specific communication components. For example, Teach Back involves clinicians "explicitly asking patients to repeat back key points of instruction with every patient receiving new care management instructions" (Jager & Wynia, 2012, p. 294). SPIKES is a protocol used to deliver bad news (Baile et al., 2000), In some instances, Cat had projects that encompassed several of these components such as developing clinical based scenarios for OSCEs to be completed by standardized patients and residents. These types of projects included development of communication scripts, three evaluation components for the various people involved, and coordination of the implementation of the OSCE.

Cat's ID practices in a health care environment were vast in terms of how she utilized strategies, theories, and principles. With respect to how Cat approached the Analysis phase of ID, she indicated that analysis of needs were based on actual datasets that have emerged based on sentinel events, HCAHPS scores, and Press Ganey patient satisfaction scores (Cat, personal communication, October 2010). By approaching ID from this vantage point, all curricula in which Cat was involved were based on knowledge gaps, and not on what subject matter one thought was important for hospital personnel to know. Learning objectives are therefore created based on data acquired from multi-disciplinary committees that had identified knowledge gaps that are critical for hospital personnel to address. Cat regularly consults with SMEs in order to understand learning objectives and ensure that curriculum components are aligned with learning outcomes.

Cat approaches the design phase by relying on her prior experience with working with Residents to determine what works. She uses:

> some foundational didactic that form concepts and help build schema but that also trigger questions to get them to discuss and think about the areas that are being talked about. When they see it in practice it helps them link it directly to their own experience (Cat, Appendix H, Line 176-178).

When Cat performs design functions, she looked for "what is key content for them, what are they going to need now and in five years, and then I'm looking at how do I narrow down the content and pull out the key, absolute key salient points and present them in a way that they can hear them" (Cat, personal communication, October 2010). Based on this, Cat indicated she did not really utilize theory per se when designing, but uses neuropsychology concepts such as cognitive load theory, and Kotter's work on diffusion of innovation and organizational change as a base from which to start the design process.

Cat indicated that most of her assessment work relied on her background in Psychology and assessment theory, and incorporated more than standard pre/post tests to include OSCEs, observation of faculty teaching, and focus groups. In this regard, she performed both formative and summative evaluation using the Plan-Do-Study-Act (PDSA) model throughout the ID cycle which she learned about on the job. One example of how she approached evaluation was in an OSCE that Cat developed. CAT developed a clinical scenario for both the standardized patient and resident where both parties had to follow a prescribed communication script. Upon completion of the OSCE, three evaluation instruments that Cat developed were provided. One instrument was utilized by residents to self-evaluate their own performance, another was utilized by the standardized patient to evaluate the residents' performance during the patient encounter, and a final assessment was utilized via use of a debriefing guide which contained behavior anchors for rating the residents; faculty members would watch a videotape of the OSCE, review

key learning objectives for the clinical encounter, and examine which key areas they were to focus on for their feedback based on the debriefing guide so faculty could effectively rate the patient encounter. This was one way in which Cat performed summative evaluation throughout that process to ensure content was being delivered in the most appropriate manner and that previously established learning objectives were being met.

While Cat felt that many instructional designers in health care utilized ADDIE, she felt that there was lack of creativity in the development of needs assessments. She mentioned "typically one gets a survey without much attention being placed on the ample data available in health care organizations that identify gaps in knowledge" (Cat, personal communication, October 2010). In addition, Cat discussed how she felt that curriculum design must take into account medical culture which she indicated was different from academia or corporate culture due to its intense time pressures and the increased need for online courses which had a direct impact on the quality of patient care and satisfaction. Cat found that in the medical environment, health personnel may:

> not absorb much of didactics because their day is very time compressed, it's very high stress; they're already cognitively overloaded when they walk in the room. And so their educational experience has to be one where they can step back, they can reflect, they can discuss, they can process (Cat, Appendix H, Line 246-249).

From this viewpoint, this time-pressed and often stressful environment puts even more emphasis on the instructional designer to produce quality materials that are both engaging and address the gaps in knowledge identified (Cat, personal communication, October 2010).

Cat's roles and responsibilities include: diffusing out system level initiatives, performing administrative duties such as scheduling, coordinating multimedia video clips, reviewing

scholarly articles, publishing in the field of medical education, creating PowerPoint presentations and facilitator guides, training Residents and Faculty, designing and developing new curricula for system wide initiatives for both novice and expert users in the in-person and online environment, negotiating implementation of curriculum, and implementing and evaluating curricula and curricular programs.

ID Challenges. Cat identified several challenges that she faced in her role as Director of ID. Since diffusing out system level initiatives and obtaining buy-in was part of her ID role, she indicated that this required an "enormous amount of energy, is detail focused, involves a great deal of time on task, and you don't always see the end results of what you do" (Cat, Appendix H, Line 279-280). When diffusing change, Cat indicated that at times it could be challenging to work with SMEs. Cat normally created content for novice users, so when SMEs wanted to make global changes to content, it sometimes created tension due to what the Instructional Designers felt the user would grasp versus creating curriculum based on what experts (SMEs) felt was important for learners. While collaborating with several people/departments was useful, Cat identified that a challenge to this was that one had to "learn how to separate the good feedback from the not so good, while retaining the integrity of the educational product and learning how to blend the good feedback so that the product is improved" (Cat, Appendix H, Line 322-323). Being able to "deal with the drama of getting residents through curricula, scheduling issues, and the meltdowns of staff" (Cat, Appendix H, Line 353) are all challenges experienced in this ID role.

Other challenges in fulfilling her ID role were lack of resources in terms of people and time, and proper utilization of her skills. An example of how some of Cat's skills were utilized include "creation of facilitator guides, scheduling, and coordinating multimedia video clips"

(Cat, Appendix H, Line 330-331). Some of which she felt "a Master's level person might be able to do and do well and be gratified; but I don't really think its using my skills" (Cat, Appendix H, Line 332-333). Based on Cat's reflections, it appears that her skills were often utilized towards more administrative types of duties instead of honing in on actual ID. In terms of challenges she faced with respect to development of ID content, Cat indicated that she had to develop original content and could not use content that was pre-made, which meant that the curriculum Cat designed could not use copyrighted materials, and therefore, would have to be original in nature. Cat designed a great deal of online learning in order to reach large groups of learners; however, indicated that "unfortunately due to security and bandwidth issues, the online learning that is typically developed resembles a PowerPoint that learners click through and complete a quiz" (Cat, personal communication, October 2010). As Cat noted, "in medical education, there is a move towards incorporating technology into the learning process…our learners are those students who are extremely familiar with using technology; the challenge is that faculty are not" (Cat, personal communication, October 2010). This placed more emphasis on Cat's role as a designer as she felt that "for learners to be engaged in online activities, these activities need to be structured in such a way that they provide foundational information and are linked with experiential activities that learners engage in with their faculty in order to apply and synthesize the information" (Cat, personal communication, October 2010).

Due to Cat having 4 main *buckets* of ID roles and responsibilities, ID cycle time varied, multiple projects were worked on simultaneously, and because Cat did not have a designated ID department in which she could rely, she had to manage multiple large projects on her own. Based on Cat's experiences, her challenges appeared to be based on proper utilization of skills, workload, time, and lack of resources such as staff.

Recommendations. In regard to recommendations to future instructional designers, and both academic and health care administrators, Cat offered many suggestions. A summary of recommendations is included in Table 7.

Table 7:

Cat's Recommendations for ID Preparation

Instructional Designers	• Be open to feedback • Multi-task between exceptionally large projects • Effectively use and implement new technologies • Knowledge of learning management systems, social networking sites, • Programming interactive web based learning • Strong technical skills • Knowledge of rapid prototyping and analysis of program evaluation data • Exposure to ePortfolio • Knowledge of medical culture • Managing and leading change initiatives • Ability to integrate feedback • Negotiate and implement change • Affiliation with professional organizations such as Society for Simulation in Health Care, Society for Teachers in Family Medicine, American Association of Medical Colleges • Attendance at conferences such as the Royal College Conference
Academic Administrators	• Consider including a medical education specialty • Curriculum covering use of wikis, blogs, SharePoint, Facebook, ePortfolio • Technology courses in handling and modifying video clips and digital photography • Curricular focus on rapid needs assessment, use rapid prototyping techniques, determining effective assessment strategies, and a strong grounding in rapid analysis of program evaluation data.
Health Care Administrators	• Understanding time constraints • Understanding the cost for implementing tools

For instructional designers thinking of entering a health care environment similar to Cat's, she stressed the need to be open to feedback. With respect to being open to feedback, Cat mentioned that feedback was something that the instructional designer "would get and they can't

take it personally. They have to have a thick skin and be able to roll with it" (Cat, Appendix H, Line 346-374). Although being open to feedback may not be unique to the health care sector, it is nevertheless a critical component of the evaluation components of ID. Additional recommendations Cat discussed included being able to multi-task between exceptionally large projects, have a strong background in how to effectively use and implement new technologies such as course and learning management systems and social networking sites, and programming web based learning that is interactive and engaging. Another facet of Cat's role which she felt would be useful for those entering the ID field in health care was to have knowledge of medical culture which she felt was very different from the business or academic environments and included being able to launch new educational activities which requires skills in managing and leading change initiatives.

The medical environment is one in which Cat feels that learners expect rapid turn around time of educational deliverables and courses or experiences to have direct applicability to their daily work. If curricula were presented in an abstract fashion, Cat mentioned that it would then be "viewed upon as a waste of time…participants become frustrated" (Cat, personal communication, October 2010). Cat indicated that:

> they need to have an understanding of what it's like to work within a medical culture, and that varies depending on whether your target audience is nursing or whether your target audience is physician. And I think some idea of how those groups kind of think, process information, take in information, respond to different kinds of teaching strategies is really important (Cat, Appendix H, Line 540-543).

In order to gain knowledge of medical culture, Cat recommended that this type of knowledge be acquired via coursework and internships – having exposure to both simultaneously would be

ideal based on Cat's insight. Having an academic subspecialty in medical culture is another way in which Cat felt one could learn about medical culture. Her conceptualization of such a learning model can be described as:

> you'd have coursework in that, but then you would do a short internship where you'd actually go into a healthcare environment and really begin to design and develop something and begin to think about how is that going to resonate and see the results of your work. So something short where you could evaluate it and say whether it worked or it didn't work (Cat, Appendix H, Line 551-552).

From Cat's perspective:

> very little of what is learned in the academic setting will apply in this time pressured world. Rapid turnaround time, ability to integrate feedback from physicians, ability to negotiate agendas to push out change are all skills that will become increasing important in the future (Cat, personal communication, October 2010).

Understanding the culture of medicine, what we're preparing physicians for, and how to link both with the students and the faculty in basic sciences to promote small group learning are concepts important to Cat. Cat spoke about how the "day of the 200 people in the room didactic microbiology course is gone and the faculty across the country are at a loss in terms of how to use technology to stimulate small group learning, and how to do this in a way that really begins to link curriculum with clinical work" (Cat, Appendix H, Line 520-523). These are the facets that Cat feels are the big challenges for instructional designers entering the health care environment.

Cat explored how participation in professional affiliations could be a mechanism of preparing oneself for performing ID in a health care environment. Cat mentioned how affiliation

with associations such as the Society for Simulation in Health Care, Society for Teachers in Family Medicine, and the American Association of Medical Colleges were useful if one wanted to work in medical education. Also, attending the annual conferences for both the ACGME and the Royal College Conference (RCC) in Canada may be useful to go to as the RCC is "sort of a variation of the ACGME conference where the big Canadian names in medical education go and talk about what they're doing with students and residents at their institution" (Cat, Appendix H, Line 490-492).

For academic programs aiming to prepare instructional designers entering health care environments, Cat indicated that they need to think about having some "specialty in medical education…this is an area that over the next 20 years is going to have significant need at a number of levels from ID so the ability to use technology for education is huge right now in the medical schools" (Cat, Appendix H, Line 499-501). Cat discussed how there are several ID components in health care for which designers may not be aware such as use of Wikis, blogs, Sharepoint, and utilization of social media via Facebook®. Cat felt that "medical schools really need instructional designers with major technology skill" (Cat, Appendix H, Line 505-506). When it comes to technology skills, Cat cited the ability to design ePortfolio so that they're easy to use and intuitive for both students and faculty, handle video clips and digital photography, and be able to develop powerful web-based learning that was interactive and spawned deeper thinking. In addition, Cat felt that:

> while instructional design models are wonderful from an abstract point of view, in the healthcare environment, those entering the field will need to figure out methods for rapid needs assessment, use rapid prototyping techniques, determining effective assessment

strategies, and be strongly grounded in rapid analysis of program evaluation data (Cat, personal communication, October 2010).

Recommendations for health care administrators, Cat indicated that "I think in healthcare today we have rapid turnaround time for everything and that's the nature of environments across the United States…They need to have talent and that talent needs to have time" (Cat, Appendix H, Line 564-567). Understanding time constraints, as well as cost seem to be some areas that Cat felt health care administrators may need to place more attention. For example, when using ePortfolio, asking as to what is the cost of implementing such a tool needs to be thoroughly researched. As Cat stated, "let's not get halfway through the software and find out we don't have money" (Cat, Appendix H, Line 567). Understanding time and money seem to be central components of how health care administrators approach ID in health care environments.

Jane. Jane is in her late 40s and has over 28 years of experience in the field of ID. Her current role is as a Consultant in an ID department for over 6 years. Her educational background includes having a Bachelors of Arts in Computer Science and a Masters in Education with a specialization in Teaching and Learning with Technology. She considers herself to be at the late stages in her career and worked in government, automotive, and career education prior to health care. Her exposure to ID in health care enables her to be part of the development of instructor led training, classroom activities, facilitation, performing stand-up training, and creating, editing, and implementing instructional materials in both classroom-based and online environments. Jane provided reflections on ID practice and preparation, the importance of collaboration in an ID environment, how she attributed a great deal of her skill and knowledge acquisition to on the job training, the creative and technical side of ID, and her desire to learn more about ID and its principles and theories in which it is based.

ID Preparation. Jane's educational background consisted of a Bachelor's of Arts in Computer Science and a Master's of Education in Teaching and Learning with Technology. Via her education, she has been exposed to ID principles such as redundancy, modalities, and synchronous learning and found these to be helpful especially when working in the online environment. In addition, Jane found that she was becoming better prepared due to the courses in which she was participating through her Master's program. Jane elaborated on how she found her educational background a "perfect marriage, taking my computer background and my attraction for the medical field. So, I feel like it's the best of both worlds" (Jane, Appendix I, Line 554-555).

Her prior work experience spanned working in the government for 5 years, automotive for 14 years, career education for 4 years, and health care for the past 6 years. She started off conducting a great deal of training on both UNIX and PC based systems, as well as had the opportunity to perform technical writing and work on the design and development of projects which entailed looking at pre-created manuals and developing exercises focused on particular target audiences. Jane reflected on ID concepts back in the 1980s indicating "I don't even know if they had even coined the term" (Jane, Appendix I, Line 513). Her prior exposure to classroom instruction for schools provided her the opportunity to "get me warmed up to the world of teaching and instructing again and face to face classroom interaction. There, I did not have any opportunity to develop any coursework. It was just basically teaching canned classes, which was fine. But what it did was that it gave me the opportunity to instruct non-computer related courses. So, I taught things like business, math, legal terminology, interpersonal skills, and English" (Jane, Appendix I, Line 640-641).

When Jane entered the health care industry, she started off as a Training Analyst

and did not foresee that "the whole departmental structure was going to change and it was going to open the door for me to be ushered into instructional design and instructional technology" (Jane, Appendix I, Line 575-576). When Jane's job scope merged into the field of ID, she welcomed it with open arms and her desire to learn was what drove her to pursue a Masters in a similar field. Although exposure via coursework in her Master's degree exposed her to a few ID principles, when asked as to how her skill and knowledge base could have been acquired besides job exposure, Jane indicated that her preferred method would have been to attend a class or a series of classes on matching instructional design with various applications. Jane mentioned that "the way that I think that most of us really have learned is just getting in there and doing it" (Jane, Appendix I, Line 618). In regard to working in the health care environment, Jane indicated that her preparation for ID practice was related to her on the job experience, participation in webinars that were provided in a group setting, and pursuing coursework in her Masters of Teaching and Learning with Technology program. Although Jane was not affiliated with any professional organizations pertaining to ID, she indicated she relied on the "kindness and generosity of my colleagues, who know more than me" (Jane, Appendix I, Line 925) when she needs to learn more about an ID principles, methodologies, or strategies.

ID Practice. Jane described her experience with ID as one where she utilized her sense of creativity, and the technical aspects of design combined with her own instincts to make instruction both informative and visually appealing. Based on the type of project in which Jane is working, she can be involved with the analysis, design, development, and implementation of online course modules, a facilitator for instructor led classes, and can perform as a Lead Designer for a given project. Some roles and responsibilities held by Jane include: conducting instructor led training, facilitation, creating, editing, and implementing courses in the online

environment which houses various education initiatives for staff, searching for appropriate images, photos or other illustrations that enhanced content, and utilizing various technology during the development phase of ID. Jane approached ID by using the ADDIE process of design and based a great deal of how she approached design on personal instinct. In addition, she started an additional Master's program in Teaching and Learning where she learned more about ID and found that to be helpful as it allowed her to match theory with practice. Jane reported that her exposure to working with a few individuals who had an ID background proved to be useful as it has allowed her to "absorb a lot from them and actually, it's really helped me understand theories a lot better because I've had practical application, that now it's making more sense" (Jane, Appendix I, Line 123-124). Jane viewed ID from the lens of the learner where she would ask herself how content could be more appealing so that the learner would be able to absorb information to the best of their ability. Being exposed to ID principles such as modality and redundancy in the educational environment has made her aware of: how design needs to be done, the best practices or standards for creating online curricula in an asynchronous environment, and provided a lot of understanding and reinforcement regarding the way in which she practices ID. This experience provided her the opportunity to see how ID principles are intertwined with each other.

The majority of time, Jane was brought into projects during the analysis phase of design where she described her role as one where she received information and had to analyze the content for the project. Depending on the project, she sometimes assisted in the creation of learning objectives; in other instances, SMEs may have already had them established.

The analysis phase consisted of reviewing content, identifying the optimal presentation method, and deciding whether content had to be broken down into sections. Jane performed

document archiving throughout her involvement with all ID projects which entailed saving all notes and storing notes in a project related email folder so that in case she needed to clarify, rectify, or justify any project related information (such as dates, times, commitments, or other details), she could do so with ease.

When describing her involvement with ID projects Jane described how in an initial meeting with the SME, she would discuss course content, enhancements, time constraints to completion of a project and how content could be broken down into more manageable segments of information. For example, in one instance, a SME originally provided Jane with 170 PowerPoint slides, which then turned into 240 slides. At that point, Jane was asked to break down the content in meaningful chunks. Content for a project such as this had distinct themes from which content could be segmented, while others in which Jane could be involved had no distinct themes from which to work. In all situations, Jane was charged with reviewing presentations and the way they look, structuring the content so that the learner had a better opportunity to absorb the information, and ensuring that objectives were clear and that learners were not bombarded with too much information.

When a SME initiates an ID project request, Jane compiles all documents provided by the SME (such as PowerPoint, Word documents and video clips) and creates a file structure based on the content provided. She then analyzes the information provided, takes into consideration the scope and the vision of the project and helps the SME to create a vision if one has not been previously established. She then takes into consideration completion time and determines ways to enhance the material. Jane noted that the degree to which she is involved in the ID design process depends on the type of project; however; at minimum she will edit content to ensure that color schemes and fonts are appropriate, edit all documentation for spelling, grammar, and

formatting. Once completed, Jane updates the SME with the projects status and based on SME feedback, makes changes as requested and then finally implements the course by placing it in an online portal that supports online education within the hospital. Although Jane indicated that the majority of the projects in which she was involved are provided in the online environment (96%), there are other projects where she has created and facilitated an instructor led class. For the later, Jane had to develop the entire instructional module in collaboration with the SME.

With respect to design and development, for an actual design of a project, one standard practice Jane follows (especially when working with content that is very medical oriented such as anatomy or physiology), is to search for ways to enhance content for learners via inclusion of images within content. As Jane professed, she likes to "add at least one image that's pertinent, that makes it relatable" (Jane, Appendix I, Line 279-280). Another phase of the design process where Jane spends much of her time is with technology. Jane regularly utilizes programs such as Articulate, Dreamweaver, Camtasia, Captivate, Photoshop, Illustrator, Engage, and Lectora for development of course materials. Implementation involves placing finalized course materials on a learning management system for online use by health care staff.

When asked about the role evaluation plays in curriculum design and development, Jane discussed both formative and summative evaluation. It was apparent that formative evaluation took place throughout the analysis, design, development, and implementation phases in the projects in which Jane is involved. Jane indicated that there was "exchange between the SMEs to ensure that it looks exactly the way they want it to prior to implementing a project, but also during analysis where the scope and vision were being developed as well as learning objectives" (Jane, Appendix I, Line 113-114). For instructor led classes, Jane mentioned that "we've been doing paper evaluations that can be scanned and comments can be entered on the back" (Jane,

Appendix I, Line 369), but that "because of the move towards the online evaluations and we're just moving away from the paper based" (Jane, Appendix I, Line 371). For online course development, Jane mentioned that the evaluation component is not normally included but was "something that we're projecting that we're going to start incorporating so that we can get feedback" (Jane, Appendix I, Line 356-357). Jane indicated that she was always looking for ways to enhance the ID process and the evaluation phase was specifically one area she knew was lacking in critical data on the learning process. The desire to include summative evaluation in course design was on the horizon for her ID team with the next few years and will provide Jane and her ID group with the feedback they desire.

With respect to ID in health care, Jane revealed that ID in the health care industry was unique as it was "more detailed and there is more than one aspect to it...we deal with the clinical and non-clinical" (Jane, Appendix I, Line 527). In addition, noting how busy she was with multiple projects occurring simultaneously, she indicated that "it is still invigorating to know that ID, particularly in health care, is utilizing applications and methodologies that will keep this industry at pace with the technological expectations of our employees, patients, and customers" (Jane, personal communication, October 2010). Reflecting on a project in which she was currently working, Jane described how for an anatomy and physiology course that was generally technical in nature and for clinical employees who are familiar with the terms, Jane had to create a course on this subject material for non-clinical employees which meant that she had to utilize different terminology, breakdown key concepts into manageable, or as Jane stated, *a layman's version* of medical terms, ensure nothing was too graphic, and utilize images and appropriate illustrations to assist this target group of learners who may otherwise be new to the content.

ID Challenges. When specifically asked as to what challenges Jane faced when

practicing ID, she discussed issues pertaining to time constraints, need for more staff, inclusion of evaluation strategies, and opportunities for learning more about instructional methods or strategies. She addressed the issue of how much time she is provided for a given project, the time allocated for multiple projects in which she is simultaneously juggling, and the time needed to adjust for learning curves. Jane explained how time constraints affected her ability to "methodically take each project through completion, time to learn all the specifics of the applications we have available, and time to educate all past, current, and potential SMEs in the planning, steps, and timelines needed to properly construct an online course" (Jane, personal communication, October 2010). An example Jane described where time may be needed to accommodate for learning curves included getting an idea of what a software was capable of doing and matching that up with what the course has been envisioned to look like. For example, Jane attended training on a development tool called Lectora; however, upon returning from her course, she never had the opportunity to utilize it. In terms of juggling multiple projects, Jane can be working on as many as seven ID projects at a given time with other projects on hold until she has further communication from an SME.

With the enormous amount and type of projects in which Jane and her team were involved, she felt that additional staff was needed. Her team's positive reputation spawned more projects to be assigned to the ID group and while Jane applauded new projects on the horizon, she felt the pressure of time and lack of resources. Jane tried facing the challenge of learning more about ID methods and strategies by learning through her Masters in Teaching and Learning program, and communicating with other instructional designers with whom she works.

With regard to challenges specifically with working with SMEs, Jane described the following:

> SMEs for instructor-led courses seem to have a more realistic perception of the time and energy involved in creating a course, and the instructional designer is consulted the planning and fit-gapping stages. For online course, the exact opposite is true. Many times, their perception is that the process can be completed in a matter of a few days, which at best, is unrealistic (Jane, personal communication, October, 2010).

One way in which Jane and members of her ID group tried to address challenges such as the issue of timeframes for ID projects, was to collaborate with SMEs on a regular basis with the hope to "better educate potential SMEs on the process" (Jane, Appendix I, Line 173-174). These are all ways in which Jane tried to face the challenges of ID in her current role.

Recommendations. Upon reflecting on her ID experience, Jane was able to provide recommendations via a three-tiered approach on how the practice of ID could be more effective and efficient for instructional designers, academic programs, and health care administrators, which are summarized in Table 8.

Table 8:

Jane's Recommendations for ID Preparation

Instructional Designers	• Volunteer or be an intern • Develop a relationship with a mentor in ID • Job Shadowing • Keen interest in the medical environment • Medical background is helpful • Willingness to interact with people from various disciplines • Team Player
Academic Administrators	• Partner with a health care facility to provide internships for ID students • Reduce reliance on group activities for ID knowledge acquisition
Health Care Administrators	• Implement job shadowing and succession planning • Implement an ID internship program spanning high school, undergraduate, and post-graduate students • Implement a mentoring program for current instructional designers

Jane recommended that those interested in an ID career in health care consider volunteering of applying for an intern position working with ID as she felt that "it is beneficial to incorporate learned theories will the practical application available in real-world situations. It also establishes a personal network of professionals of all different employment levels" (Jane, personal communication, October 2010). Connecting with a professional in the field, a mentor may also be beneficial as Jane indicated, "being mentored by someone whose current occupation is a part of their career track can become an invaluable connection and resource" (Jane, personal communication, October 2010).

Even more important than having a clinical background in health care, Jane felt that "interest is the main thing that someone would have to have opposed to an actual medical background, but it wouldn't hurt" (Jane, Appendix I, Line 557) and that any way one can be exposed to healthcare would be beneficial. Also, Jane suggested that making contacts and doing job shadowing in order to get a feel for how the healthcare industry utilizes ID would be helpful. Since Jane's ID role involved a great deal of communication and collaboration with SMEs and various stakeholders, she indicated that being a people person is definitely needed in the health care environment and that the healthcare environment may not be the best choice for someone who prefers less interaction.

Other characteristics Jane noted were important for someone considering employment in the health care environment was to be adaptable, collaborative, and a willingness to interact with people from various disciplines. Reflecting on how her ID team was well integrated and how group dynamics played an important role in the functioning of their unit, Jane stressed the need for an Instructional Designer to be a team-player since having a group that has a level of trust (both personal and professional) was essential for the functioning of Jane's ID group. She

compared the collaborative nature of ID in health care to the automotive industry when she described how in health care:

> you're dealing with medical service…you're dealing with people who constantly have to deal with people as opposed to automotive where you're dealing with engineers who don't really have to deal with people as a part of their broad job requirement. We deal with people who have to provide service to people in the medical area, which is sometimes sensitive, complex, and regulated (Jane, Appendix I, Line 866-870).

For academic programs, Jane mentioned that based on her conversations with colleagues that have participated in ID programs at local educational institutions that course content appeared to thorough; however, Jane provided the following recommendation that educational institutions partner with a healthcare facility so that ID students can get practical experience simultaneously while pursuing their coursework. In conjunction with this type of partnership, internships were mentioned. Jane provided an example of how someone had volunteered to work in Jane's ID group, who "didn't have any practical experience. So, in order for her to be equipped to get a job in instructional design, she felt that she had to be in the trenches and see exactly how concepts and theories and principles are being used in the real world" (Jane, Appendix I, Line 740-742).

Jane also recommended for academic programs to abstain from heavily relying on group projects for knowledge acquisition as she felt that there were too many difference between working in groups in a classroom setting versus the real world. She stated:

> I don't know if the interest is more vested in real life because we know that our performance precedes our reputation and all of that ties into us having a job. Whereas in group environments if somebody is identified as being one who's not going to let lack of

> activity from the group be the downfall of that project, then it's okay for them to do the majority of the work. It's beneficial for them because if it's a group grade, then everybody gets the group grade (Jane, Appendix I, Line 790-796).

Jane recommended for healthcare administrators to implement job shadowing and succession planning so that people have the opportunity to see where their career paths can lead and to have something in place so that once one identifies an area of interest, a mechanism is in place in order to establish contact and be allowed to shadow a person that's already performing a certain role so that one can better prepare themselves. Jane shared how implementing internships and mentoring programs could span high school and college level students as well as those already within the ID field as internships or mentoring programs could "help people prepare for jobs that they would like to acquire, but it could also give them a better understanding of the responsibilities involved" (Jane, personal communication, October 2010).

Johnson. Johnson was a Training Analyst who had ID experience based on some college work and exposure on the job while being contracted to work for the hospital in which he is currently employed. Johnson spent 25 years working as a contractor and was hired as a full-time employee 6 years ago. He is past mid-point in his career where he provided stand-up training, facilitated aspects of curriculum, developed and designed online courses, and made recommendations regarding utilization of the most appropriate learning mode based on target audience. Johnson expressed his continued desire to learn by seeing each day as an opportunity for learning and applying what he learned. Roles and responsibilities held by Johnson included: facilitating in-person training, designing and developing online courses, developing classroom material, interviewing SMEs, performing all aspects of the ADDIE process serving as project manager for various projects, and content editing. Johnson has a keen interest in the curricula

with which he worked, is eager to communicate and collaborate with SMEs, has a strong desire to teach and learn, and aims to make each instructional experience relevant to the learner to improve transferability of learning. He aims to promote a culture of learning and continuous improvement.

ID Preparation. Johnson did not have an educational background in ID or instructional technology; however, he did have some college experience as a math major and over 19 years of experience as a Training Analyst with the organization for which he works. He started off facilitating training where he ran classroom and individual training, gained management experience as a Consultant, and then moved into ID; first in stand-up training courses, followed by online courses. His two strongest areas were in online learning and in-classroom settings. He attributed much of what he learned throughout his career to experience on the job indicating that in both the online and in-person environments, "that's where I really learned how to do ID in the field…taking what I learned from other people's material and what I saw best in those, and then applying it to courses I created myself" (Johnson, Appendix J, Line 203-204).

When asked as to what types of skills and knowledge he acquired, he indicated that knowledge of human behavior is one area in which he has been exposed and has learned a great deal. How people learn, how people react, what motivates people and "how to present the material in a way that's motivating for them" (Johnson, Appendix J, Line 343-344) are all areas in which Johnson has gained greater depth in knowledge due to his work experience. He attributed this gain in knowledge due to his intuitive nature, intense sense of curiosity, and being exposed to behavioral psychology when teaching a developmentally disabled population where he "learned to use a behavior-based psychology model...that really taught me about taking complex things and breaking them into learnable steps" (Johnson, Appendix J, Line 393-394).

Johnson indicated that project management skills were something that he acquired when working in the field of management. Discussing his management experience, Johnson stated that he could have possibly learned management related skills in an alternate setting, but that he did not know if he would have been able to practice it efficiently: ”I don’t think you can master those skills in an academic setting. You just don’t have time” (Johnson, Appendix J, Line 523).

Technological applications Johnson is familiar with include PowerPoint, e-learning tools such as Captivate and Dreamweaver, graphics editing software including FireWorks and Photoshop, video editing via use of Adobe Pro, Articulate, and Lectora, as well as SoundBooth for sound editing.

When asked whether he had been exposed to any professional affiliations which he found to be helpful, Johnson mentioned that that he was a member of ASTD about 10-15 years ago, but that membership in ASTD was “not helpful. That’s why I’m no longer a member. It was more social and I saw it more as people looking for jobs” (Johnson, Appendix J, Line 648). Instead of relying on professional affiliations or organizations to keep up to date, Johnson relies usually on his colleagues, peers, and library, in addition to doing his own research on the Internet. He keeps up to date by perusing literature in the field of ID in related literature databases. He attended freely available webinars or other types of CE opportunities; for fee-based courses, he was able to attend a few occasionally. Johnson mentioned affiliation with Wayne State University as another good resource to keep up to date with the field as he “had interns come in who have helped me a lot with what’s going on in the academic world and showing some best practices and what they’re seeing out there. So I’ve learned a lot from that” (Johnson, Appendix J, Line 666-668).

Overall, Johnson felt fairly well prepared and felt that he had a good grounding on what he needed to do. He had a willingness to learn and explore new methodologies that are available and how they work. In addition, he was ready to face new challenges that came his way due to knowing where to go to obtain further information or resources.

ID Practice. ID projects in which Johnson had been involved focus on diverse subjects. Johnson follows the ADDIE ID process. Typically, he is brought into projects during the development phase and once in a while had the opportunity to conduct an analysis and make recommendations on the most appropriate use of media. In the analysis phase, Johnson indicated that he liked to ask "what do you want people thinking, seeing, doing, hearing, saying, what kind of behavior change are you looking at?" (Johnson, Appendix J, Line 141-142). Depending on the project, analysis could be either in-depth or surface level. For regulatory content that needs to be distributed on a wide scale with quick turnaround time, learning objectives are already established by regulatory bodies; therefore, the scope of analysis is limited. When analyzing content, Johnson proceeds with an instructional project based on fundamental questions related to how content is relevant, its value to the end-user, and ultimately why the information is important for participants and other key stakeholders in the larger organization.

When pursuing the design and development phase, Johnson stated he uses what he feels is an adult learning three step approach whereby he presents material, offers ways to practice it in a structured setting, and then provides the user the opportunity to practice it on their own with direction. Following this approach, Johnson feels that this allows for best transference of knowledge. Citing knowledge of adult learning models in curriculum design (but not having stated any specific model), Johnson indicated that most adults need to know why they are learning specific subject matter; therefore, making content relevant to the learner is critical to

Johnson. Johnson also relies on his experience to move through the ID process, indicated by his comment “I call on my experience for what works and what won’t” (Johnson, Appendix J, Line 100) and takes best practices acquired by attending other online and in-person educational offerings.

Oftentimes, Johnson receives a PowerPoint presentation from a SME for which he must provide ID strategies in order to make the presentation available for use. When faced with this type of situation, he approaches the development phase by asking questions pertaining to whether strong instructional content is present, whether or not goals and objectives are established and measureable, and whether the content provided support established goals and objectives. If a SME provided content that does not sufficiently support the desired goals and objectives for a given course, Johnson examines how the material could be enhanced. In addition, he also determines if the appropriate amount of information was presented and whether that information is too overwhelming; these are skills that Johnson acquired from his experience observing other instructors and designers. At times when Johnson needs clarification on content, he conducts an interview with the SME and re-visits the analysis phase of ID to ensure that expected outcomes were aligned with content goals and objectives. At times, Johnson stated that he has to work with time sensitive material where content has to be placed online and distributed without much analysis or design. Rapid turnaround of projects occurs in part due to new clinical standards or other critical information being implemented across the health care system. In these cases, Johnson utilizes rapid e-learning tools such as Lectora or Articulate which enable him to quickly take course content and create an online course in as little as 1 hour. He noted that these situations are not necessarily the best as there have been times when he had to “drop everything and slap something together that really isn't very good, but it's the best we can do in the time we

have" (Johnson, Appendix J, Line 559-560). Johnson noted that in the development phase, when questions arise, feedback is acquired from SMEs to improve on materials and provide needed revisions. For this reason, he felt that it is essential for an instructional designer to "work diplomatically with the SME to develop sound learning design into a course" (Johnson, personal communication, October 2010). The majority of his work in the development phase pertains to online learning and in-classroom settings. When Johnson approaches the development phase, he applies what he learned as best practices based on participating in other instructor's courses in terms of how content was delivered and then applies those techniques to the courses he develops. In the online environment, Johnson uses a variety of graphic, video editing, and authoring software such as Captivate, Dreamweaver, PhotoShop, Fireworks, Soundbooth, and Lectora.

With respect to the evaluation stage of the ID cycle, formative evaluation is apparent throughout Johnson's ID practice as he indicates that he engages in communication and feedback from SMEs at all phases of the ID cycle which affords him the opportunity to revise materials as needed. Johnson enjoys working with SMEs and indicated his interest in the content in which he works, which makes obtaining feedback on improving curriculum design even more important to him. When discussing summative evaluation, Johnson stated he utilizes established evaluation instruments provided by accrediting agencies as well as creates his own instruments for materials depending on the subject matter being covered. Johnson indicated that focus on post training evaluation was something in which "we don't do the best in evaluation that we should be doing" (Johnson, Appendix J, Line 159). In instances where Johnson is involved with development of an evaluation instrument, he indicated that the amount of client feedback varies based on the scope of the project; a greater amount of feedback is received for large scope projects compared to unit- based material that may be shown to a limited number of users.

One key learning point pertaining to ID practice shared by Johnson was how flexible an instructional designer must be and the need to remember their broad audience which include senior staff physicians, residents, nurses, and general hospital staff, and how well the instructional designer can satisfy their varied learning preferences.

When looking at ID compared to other environments Johnson had been exposed to including automotive, Johnson indicated that he did not find ID in health care unique and that while " everybody thought that everything they did was unique…you had different names for stuff" (Johnson, Appendix J, Line 335). From Johnson's point of view "designing courses is designing courses and it doesn't really matter what the content is, it's the process (Johnson, Appendix J, Line 336-337). With respect to various ID environments, Johnson felt that design cycle times may vary, but not due to type of environment, but more due to "the scope of the project and the availability of your SMEs or people you're interfacing with to respond quickly" (Johnson, Appendix J, Line 544). Another area in which Johnson felt ID was not focused (regardless of career environment), was the role in which evaluation and measurement played. Once data has been obtained, Johnson noted that one needs to consider "what an organization plans on doing with acquired data, how are data going to be shared, what additional value does having data provide, and are data going to be used for process/continuous improvement" (Johnson, personal communication, October 2010). When asked why he felt this was not being pursued in health care, he stated that fear of failure may lie at the heart of this deficiency:

> What if we don't get the results that we want...we spent a lot of money on this, it's a big deal, what if the numbers show it doesn't really work all that well? Is our organization at a point where they'll accept that? …I think we need to go there in healthcare (Johnson, Appendix J, Line 631-634).

ID Challenges. Johnson typically indicated being brought into projects during the development phase, but as he described he has many roles and cites these multiple roles as being a challenge. He discussed how in many ID environments, an ID team may consist of: an instructional designer who specifically handles the analysis and development phases for course development and establishes goals and objectives and a course outline, a technical writer to write scripts, a graphic artist or designer to create images, and a programmer to embed Flash and other interactive components into the design of curricula. Johnson and his ID team each hold all these responsibilities. By putting on all these hats, one instructional designer must take on multiple roles and this is a challenge Johnson faces with looming deadlines and multiple projects. Although Johnson and his ID team are involved with all aspects of ADDIE, he indicated that typically and perhaps ideally, team members should be responsible for certain ID elements due to having areas in which each ID member may have expertise. Johnson sees the role of the instructional designer as project manager who can call upon a colleague and ask him/her to develop different portions of an ID course or "maybe have volunteers or interns who are working on stuff for us" (Johnson, Appendix J, Line 244-245). In this type of ID environment, each person is called upon at a critical point in the ID process in which his or her expertise is required, but the main instructional designer with whom a client has a relationship, is the project manager for that given project. Currently, Johnson's team not only manages a project, but also creates the content, which he stated is "not an ideal process…it tends to water down the quality of the content" (Johnson, personal communication, October 2010).

Having enough time to complete projects, lack of resources in terms of people and time, making course content interesting, creating content in multiple delivery modes, developing strong relationships with SMEs, and being able to establish appropriate evaluation instruments

are additional challenges faced in Johnson's ID role. Johnson often works on a half a dozen ID projects simultaneously covering a wide gamut of subject matter which he finds overwhelming. In addition, some of these projects may be regulatory in nature, for which, Johnson has to be able to take course content and make it interesting and relevant to the learner. Creating and developing mandatory content that is relevant and provides relevance through content delivery is of utmost importance from this perspective. According to Johnson, "a challenge for all instructional designers in health care is to take relatively high levels of technical information, especially in the clinical areas, and make it understandable and relevant to the student" (Johnson, personal communication, October 2010). In relation to this, he finds that it is challenging to create flexible media where students can select their method of learning meaning some people are able to view an online presentation with audio, video, and images while others can simply read the online material and skip the "cool flashy stuff" (Johnson, Appendix J, Line 354). A course having two modalities is a challenge based on how Johnson sees being able to provide a broad audience and satisfy all their learning needs with one tool.

Collaboration with SMEs is something in which Johnson takes part in all ID projects in order to obtain feedback so that revisions can be made in a timely manner. However, one area pertaining to working with SMEs that Johnson finds to be challenging is getting SMEs to share everything they know with the instructional designer; especially when faced with short timeframes. From Johnson's experience, the amount of information the SME provides depends on the level of comfort and the level of trust they have with the designer. In this regard, Johnson finds that establishing and maintaining a partnership with a SME can be challenging. In the past, Johnson and members of the ID team with whom he worked experienced a breakdown in

communication with a SME that resulted in degradation of the relationship; a relationship which he stated was critical to the success of any ID project.

An additional challenge Johnson faces is with the end result measurement. As Johnson stated, "we don't do the best in post training evaluation that we should be doing" (Johnson, Appendix J, Line 159). In addition, he mentioned that "convincing SMEs regarding the importance of setting measureable goals/objectives can be challenging" (Johnson, personal communication, October 2010). Some key questions Johnson pondered with regard to the importance of evaluation in ID were: "is the organization getting the ROI that they should be?.. are we really changing behavior in a way that's integrate and aligned with the organization, with the system goals, strategic goals?" (Johnson, Appendix J, Line 609-612). This is an area which he and his team do not do a good job. Johnson indicated that in order to perform measurement, he must have the resources to fulfill that role and a clear idea of how data will be utilized in the larger organization.

Recommendations. Johnson provided recommendations for instructional designer's entering the field, academic administrators, and healthcare administrators. A summary of his recommendations can be found in Table 9.

Table 9:

Johnson's Recommendations for ID Preparation

Instructional Designers	• Knowledge of the health care environment • Problem solving skills • Skills for creating innovative content • Time management skills • Project management skills • Good technology base • Academic background in ID • Exposure to ID practice in real-world settings • Exposure to human behavior and interpersonal relationships • Passion for learning

Academic Administrators	• Utilize academic curricula within real-world settings/context • More integration of ID content such that one sees how all components come together as a whole • Bridge the gap between ID theory and practice
Health Care Administrators	• Additional resources such as capital spending for computer and technology tools • Promote a culture of development and learning

In terms of project management, Johnson does not feel that an instructional designer have to be certified in project management, but should have knowledge on "how to effectively manage projects and work them through from beginning to end". With regard to development of a good technological knowledge base, he recommended that technological tools change all the time, so what is even more important that the actual tools, was to "be a good learner of tools and really focus on your learning skills and how you can adapt" (Johnson, Appendix J, Line 723-724). Due to the tough economic climate, he stated that without any academic credentials, he felt most people would not even be granted an interview for an ID position. He stated that "that's a bare minimum requirement...to have a Bachelor's degree or Masters, something in the field" (Johnson, Appendix J, Line 733-734).

Johnson advised "a broad educational experience can mean the different between success and failure when providing ID in the health care setting" (Johnson, personal communication, October 2010). Not only did Johnson refer to exposure to formal education, but also to "exposure to a wealth of experiences focusing on human behavior and interpersonal relationships outside of formal education" (Johnson, personal communication, October 2010), which he felt are invaluable for the development of a strong instructional designer. He stressed how ID in a health care setting frequently involves diverse subjects that utilize a wide range of tools targeted to large groups of diverse individuals, and that the most successful designer's "will not only have a strong grounding in ID theory, but also the application of those theories in a practical sense in

real-world settings, and they will have studied human behavior beyond just learning development" (Johnson, personal communication, October 2010).

For academic administrators, Johnson stressed using academic materials in real life situations and to put people in real life situations. He also recommended that there to be more integration with content and its use stating that the focus should not be on the "little pieces, but how all the different elements fit together" (Johnson, Appendix J, Line 685-686). Johnson discussed how it was a common occurrence to hear people talk about past classes and complain that they did not know why or how a particular class was related to what they are doing in the real world. From his perspective, he felt that there is "a lot of theoretical knowledge that many people find difficult to generalize" (Johnson, Appendix J, Line 689) and what is critical is for learners to know how to apply theoretical knowledge and tie things together to make an end-product. Based on Johnson's experiences, oftentimes, one is in a situation where he or she has "learned how to do X, I learned how do to Y, I learned how to do Z, but how do I pull all those together when I'm in an environment where I need those three pieces?" (Johnson, Appendix J, Line 695-696). For those reasons, Johnson feels that academic programs need to bridge the gap between theory and practice.

For health care administrators, Johnson recommends "they need to give us the resources we need and the people …resources such as capital spending for computer and technology tools" (Johnson, Appendix J, Line 740-745). In addition, he recommends that health care administrators need to promote a culture of development or a culture of learning stating "ID dies when an organization doesn't see the value in learning…in a continuous improvement culture, you need to have ID" (Johnson, Appendix J, Line 749-750). This sentiment stemmed from his

belief in the value of evaluation and measurement; concepts that Johnson felt would be held in high regard from an ID perspective, if seen as a high priority from administration.

Tyler. Tyler was a Senior Instructional Technologist and had been working in the health care environment for over 10 years. His educational background consists of a Bachelor's in Psychology and Art, Master's in Education (focusing on graphic web design and interactive media), and a Master's in Mechanical Engineering, specializing in human computer interaction. Tyler has a background in statistics which spawned his interest in evaluation and measurement specifically in learning outcomes. Tyler is in his late 40s and past mid-point in his career. He has a desire to pursue further education pertaining to measurement and quantitative methods. Tyler provided insight into the types of experiences in which Instructional Designers may be exposed, and how one's ability to learn on demand can be helpful in a health care environment.

ID Preparation. Tyler's background is in psychology, art, education, and mechanical engineering where he was exposed to cognitive psychology, intelligence and perception, psychometric research, graphic designing, web design, interactive media, statistics, and human-computer interaction. He worked in Nursing Development and Human Resources where there was a strong team focus, materials were developed for entire modules, and a 360° perspective was utilized in order to gather ideas and approach ID in a systematic manner. In those environments, Tyler indicated that most of his team did not have an education background in ID so they rarely used an ID model such as ADDIE when designing curricula. Tyler's focus as a Senior Instructional Technologist is on design and incorporating his technological expertise and knowledge of measurement into his ID role.

Tyler was self-taught with respect to acquiring skills and knowledge in web development, interactive media, video, and incorporation of all these elements. Much of what Tyler learned on

the job, he internalized through repetition of tasks. He described his learning process as one where he performs a task using one methodology and then evaluates the end product; then based on his findings, may repeat a given task, share it with others to review and incorporate their feedback. By utilizing this process, he "learned new skills and developed a good knowledge base" (Tyler, personal communication, October 2010), all the while taking into consideration feedback acquired by many SMEs.

The majority of Tyler's work with SMEs relates to utilization of technology to fill in gaps for the design and development of content for an instructional module or an intervention tool. Tyler is self-taught in technology preparation using programming languages such as PHP. Tyler has a strong desire to learn and be innovative which was apparent when he discussed ways in which he fills in ID gaps in both the design and development of ID curricula and interventions using a variety of technologies. One intervention in which he was involved and used his self-taught computer programming was with the creation of an application to track admission rates and times using an iPad. Tyler found that based on the ID projects in which he was involved, that technology could not be separated from ID, stating that "I personally don't understand how they can design without incorporating it…technology is really the crux of it" (Tyler, Appendix K, Line 948).

With regard to professional affiliations, Tyler was certified as a Myers Briggs screener. Although he noted that he did not use that too often, it gave him "an idea towards learning styles" (Tyler, Appendix K, Line 200), and provided him insight when looking at personality/behavior types. He was also a certified quality engineer through the American Society for Quality (ASQ) which he found helpful as it provided him with training opportunities

related to the fundamental question “what do you think about quality?” (Tyler, Appendix K, Line 460).

ASQ focuses on evaluation and quality, and even though there are no standard educational evaluation models utilized, it exposed Tyler to quality and quality related industries such as manufacturing and the airline industry. His affiliation with ASQ helps in his ID role and he has taken what he learned about quality in the aforementioned industries and compared it to health care, “our quality departments in healthcare, when they’re looking to develop their models, they look to the airlines. They look to other companies for their service models” (Tyler, Appendix K, Line 516-517). Tyler noted that quality in health care was “in its infancy, to a degree, in the sense that we’re just now starting to identify measures in the environment that have an influence on what’s considered quality” (Tyler, Appendix K, Line 517-518).

Tyler’s experience with statistics helps him see how “numbers are meaningful” (Tyler, Appendix K, Line 559) and as Tyler illustrated, when administering a test, one can utilize “predictive pieces, mathematically based upon past collected data, to help identify who could potentially be at risk of failure” (Tyler, Appendix K, Line 568-569), or statistics can be handy “when you’re looking at response, internal consistency or reliability type testing of your instruments that you develop” (Tyler, Appendix K, Line 572-573).

Tyler noted that his educational exposure via his Masters program was helpful to him when working with the development and implementation of materials, as was real world experience stating that “a lot of times when you’re getting exposure as a student, you’re not actually applying it yet. And it’s not until you apply it that you actually learn the lesson” (Tyler, Appendix K, Line 590-591). From this perspective, although his academic experience was useful; he felt that ultimately, “it wasn’t the education so much as the work experience that was

most helpful. in the real world, one is given projects and what you learn from those, even through the trial and error process, can be invaluable" (Tyler, Appendix K, Line 597-599).

Tyler mentioned that he has attended one instructional developer's workshop lead by Harold Sink which he found to be helpful in that he "pulls information from that workshop and uses is as a map" (Tyler, Appendix K, Line 604); a map which he feels was built upon the experiences and best practices experienced by the speaker. When reflecting on future attendance, he does not plan on attending classes related to ID, but is looking into applying to a program at a University that is geared towards measurement and quantitative methods stating that "I'm losing interest on the content end much more than the evaluation" (Tyler, Appendix K, Line 614). To address his interest in evaluation, not only is he considering a Masters program in the area, but is looking into pursuing the Six Sigma Black Belt which is geared towards performance improvement.

Tyler explained that "I'm not going to claim to be an expert and know everything. I prefer diversification" (Tyler, Appendix K, Line 995) and when he gets a task for which he does not know the answer, he "knows where to go" (Tyler, Appendix K, Line 995). Tyler feels prepared to practice ID, although at the same time, he recognized that "we never stop learning… things are going to be changing constantly and one needs to be aware of it, but the other thing is to be part of it" (Tyler, Appendix K, Line 1005-1008).

ID Practice. Tyler has held many roles and responsibilities including: learning software architect, researcher, design and development of online learning and content, and data collection and analysis. When describing ID, Tyler stated that he did not prescribe to a specific ID model when working with ID projects. ID projects in which he participates involve creating and delivering content in multiple forms such as streaming video, web pages, and interactive

learning. Most of the content Tyler receives is for pre-established curricula; however, periodically he is involved with the design of an intervention to facilitate a learning process. He described his role as one where he fills in gaps in the ID process; gaps which he mentioned are often filled via the use of technology. Depending on the project, Tyler can be brought in at the analysis phase to assist with needs assessment; essentially identifying gaps in knowledge. In this phase, he collaborates with a team of SMEs (who normally would already have ideas for what they want to accomplish), in order to identify learning objectives and the variables to be measured using evaluation instruments to determine the extent learning occurred. He discussed how although he did not follow a specific ID model, he did follow a "series of steps and they seem kind of generic in the sense of needs assessment, identifying the needs, and developing objectives, goals etc." (Tyler, Appendix K, Line 414-416). One strategy he gravitated towards and shared with his colleagues was formulating objectives using Bloom's Taxonomy indicating that it helped create measurable objectives.

Tyler works with the design, development, and implementation of interventional tools rather than on course content. More often, Tyler is requested to work on ID projects specifically in the development, implementation, and evaluation phases. With regard to development and implementation, Tyler is involved with the development of technical aspects of data collection, whether it is a pre/post test or an ongoing questionnaire. He discussed his heavy focus on needs assessment, survey development, and data collection. He implements these tools in the online environment as well as embedding them into computer programs to enhance tracking and facilitate real time data analysis.

While he stated that it is beneficial for him to be part of all phases of ADDIE, he felt that possible resistance in involving him to this extent might be "a cultural thing" (Tyler, Appendix

K, Line 320). Even when Tyler is not involved in all ID phases, he aims to identify as much information as possible for any given project.

The evaluation phase is a special area in which Tyler has great interest. Tyler uses the PDSA model for particular ID projects upon receiving regular feedback from SMEs. Following this model enables him to plan, test, analyze, and modify evaluative components in which he is involved. Once Tyler receives feedback from SMEs of his work with a given ID project, he revises materials as requested. He assisted in identifying learning outcomes and creating evaluation instruments. Regular communication with SMEs allows Tyler the opportunity to modify instruments he develops for evaluation of learning objectives. He creates evaluation tools that included knowledge based cognitive tests where one examines knowledge, comprehension, application, evaluation, as well as interpersonal communication skills. Tyler mentioned having used instruments such as Myers Briggs as well as developing instruments from scratch alongside the SME. In one instance Tyler performed a summative evaluation by utilizing an externally developed assessment called the Berlin questionnaire (geared towards evidence-based medicine training), where he placed an exam online, and as the exam was being completed, real time item-analysis was conducted. This enabled him to "see that 30% of people got a particular question wrong which may point to either we may need more content in that area or more teaching around that particular subject" (Tyler, Appendix K, Line 360-361). He then reported these data to the SME to see if course content could be modified based on user response via testing

ID Challenges. Tyler faces challenges in his ID role including resistance from others to change, occlusion pertaining to project decision making, and lack of emphasis on evaluation and measurement of learning. The team Tyler works with on ID projects consists of SMEs from

various clinical areas of the medical sciences, and not instructional designers. At times, Tyler finds it challenging especially when SMEs do not have an educational background in IT, so their approach to ID is “they were taught the subject matter, therefore they can teach”, and although Tyler noted that there are times when SMEs had a good understanding of learners needs; in other instances, “they make common mistakes that are pretty visible” (Tyler, Appendix K, Line 289). At times when Tyler feels the need to be more involved with the entire ID cycle (using the ADDIE model as a base foundation), he finds resistance from SMEs. Tyler acknowledges that this resistance is not necessarily intentional, but could be a “cultural thing” (Tyler, Appendix K, Line 322) based on the independent nature of how physicians are taught to solve problems and handle difficult situations. This sense of independence may be at the heart of why there is slight resistance to Tyler being involved in all phases of the ID cycle. Resistance to change was evident when Tyler described situations in which he was charged with reviewing research protocols and evaluation instruments to identify potential problems. Tyler indicated that at times, SMEs are already aware of potential problems or limitations of how content will be delivered or evaluated and may be willing to listen and resolve potential problems. Other times, SMEs exhibit resistance because they are “ready to move on” (Tyler, Appendix K, Line 338) and have already dedicated time to the design and development of their project. When Tyler faces a situation where he identifies problems that impact an established product or curricula that requires take time to modify, he faces resistance to change. In one instance where an evaluation instrument was utilized which pointed to the need to modify curricula, Tyler indicated that “the client did not change anything in terms of the design of the materials” (Tyler, personal communication, October 2010).

Tyler indicated that he faces resistance especially when trying to bring ID theory into practice and getting buy-in for his ideas, some of which he feels is caused due to SMEs thinking that because they are experts in the subject matter, that "they know what they're doing …they just can't be proven wrong a lot of times" (Tyler, Appendix K, Line 700-701). From Tyler's experiences, there is "as much resistance to change as there would be acceptance to something" (Tyler, Appendix K, Line 679-680). Tyler discussed how he works with people who prefer to work and make decisions based on intuition and others who prefer more structure to their ID approach. Tyler finds it difficult at times to manage these types of situations where resistance to change is prevalent.

Tyler works on various types of ID projects without help from other instructional designers. At times, he has the opportunity to collaborate with SMEs during the analysis phase to identify needs, but in other instances a separate group of SMEs identify potential needs as well as curriculum design and only involve Tyler with the development and implementation of a project or intervention. Proceeding with established needs from a separate group of people is difficult for Tyler in his ID role. He noted that when needs arise they are passed onto developers who then focus on the development of specific components and other people are brought into the ID of a project if a specific need has been identified. This type of compartmentalization is what Tyler feels should be more integrated, where all ID components are seen an equally important and integral to the whole (Tyler, personal communication, October 2010), and all those involved in a given ID project are consulted and all opinions are considered.

Another challenging aspect of Tyler's ID role relates to the role of evaluation and measurement. Tyler finds that in health care, transfer of learning is not necessarily measured. Tyler indicated that oftentimes curricula is administered whereby statistics on the amount of

people taking a specific test is recorded, but there is no focus on whether transfer of learning took place. In an example he provided, Tyler spoke about a mandatory course that all health system employees had to participate and results showed that 100% of employees took the test associated with the curricula. Tyler indicated that although percentage of employees having taken the course was recorded, there was nothing in place to determine whether transfer of learning occurred, "we often leave off that gap. We focus on the idea that everyone got 100% and not whether transfer took place: did we learn and use what we learned in the workplace?" (Tyler, Appendix K, Line 476-477). This is the most missed metric in the health care environment from Tyler's perspective; looking at whether education or training changed behavior. When reviewing content, he mentioned that "educators should continuously review and recycle data back into improving the effectiveness of each educational event" (Tyler, personal communication, October 2010), and realize that "nothing you develop is truly ever done, so never consider anything finished" (Tyler, personal communication, October 2010). Oftentimes, Tyler shares his concerns with SMEs regarding lack of data pertaining to transfer of learning to no avail. These are the challenges Tyler faces in his ID role.

Recommendations. Tyler provided recommendations for instructional designers entering the field in a health care environment as well as academic administrators in the field of ID and health care administrators who overlook ID in health care environments.

Table 10:

Tyler's Recommendations for ID Preparation

Instructional Designers	• Strong knowledge and aptitude for technology and associated technology skills • Understanding of the ID process and its essential elements • Academic ID experience and ID work experience • Affiliations with professional societies • Familiarity with data collection

	• Knowledge of computer programming in programs such as C, PHP, Java • Understanding research such as problem identification and definition • Use of psychometrics • Understanding of quality improvement
Academic Administrators	• ID students need to go through the research process • Students should have more exposure to evaluation and measurement
Health Care Administrators	• Must pool ID talent from various departments within the hospital

Tyler's strongest recommendation pertains to knowledge of technology, stating that "technology is having an increasing influence in how medical education is being delivered" (Tyler, personal communication, October 2010). He described a scenario where younger generations are used to social media tools such as Facebook®, and how students in medical schools want to learn in an asynchronous learning environment where they can listen to lectures via podcasts, a learning environment which Tyler felt needed to be addressed in the future. In addition, he recommended the following: affiliation with a society such as the ASQ, familiarity with data collection strategies which may involve use of technology, experience with computer programming so that data collection can be captured in case a data collection tool does not exist, understanding research steps including that of problem identification and definition, use of psychometrics and an understanding of quality and quality improvement. Essentially, his recommendations to prospective instructional designers entering the field are summarized as follows: "what I find that they want and need most is around analysis and evaluation. Its constant" (Tyler, Appendix K, Line 812-813). Tyler utilizes technology to a great extent as it pertains to the creating of data collection instruments. There were instances when Tyler used an online survey generating tool such as Survey Monkey®, but other times when more confidential data was being perused and which could not be housed in the online environment due to security issues. In the later instances, Tyler created databases using computer programming in order to input data, and then place data and associated files onto a server. This meant that Tyler had to

have knowledge of not only programming the data entry and capture of information, but also knowledge of Information Technology network infrastructure including maintaining and running servers in which data is stored. A complicated data structure model where computer programming was required was when patient data needed to be captured which had to be populated and customized based on physician login. In these situations, Tyler used computer programming languages such as PHP, C, or JavaScript, all popular and fundamental programming languages widely. When Tyler stated "I personally don't understand how one can design without incorporating technology" (Tyler, Appendix K, Line 946), it was apparent that Tyler believed knowledge and willingness to learn technology was crucial when it came to practicing ID in a health care environment.

Tyler indicated that being flexible in how the environment is structured, whether ID models are followed or not; was critical to one's success. Tyler mentioned that if he were hiring someone in a similar position, he would not hire someone without an understanding of the ID process and its essential elements. He did not feel that education in and of itself was the only answer in getting prepared to practice ID, but that a combination of academic knowledge (evaluation and needs assessment) and work experience would be the ideal combination. Tyler felt that an instructional designer needs to ask themselves whether they want to be an innovator or just want to meet the basic needs of the job. The answer to that question, will lead an instructional designer down a path of either status quo or a path of new challenging opportunities.

For academic programs, Tyler suggested that graduate students in the ID field "go through the research process and go through a research project…so that they understand why things are the way they are" (Tyler, Appendix K, Line 753). Due to his strong interest in the

fields of evaluation and measurement, he feels that “you can’t prove what you can’t or don’t measure” (Tyler, Appendix K, Line 764); therefore, he recommends that students have more experience with evaluation, measurement, and research in their academic programs.

Tyler provided recommendation to health care administrators who oversee medical education. Tyler feels that in his current organization, “we approach things individually and not as a collective peer type environment where we pool talent. Talent it isolated and put into silos” (Tyler, Appendix K, Line 970-971). Imagining himself in an administrative role, he identified how in this capacity one must “pool your talent together when you’ve got global educational needs…that way you’re using the best from all the different departments” (Tyler, Appendix K, Line 976-977). He described the limitations departments would face if they had to develop something on their own; they would be limited to the potential of the person occupying an ID role. Instead, taking a 360◦ perspective, they could involve multiple entities and incorporate the talent from several individuals to make the end product efficient and effective. As Tyler stated, “when you diversify things, you may arrive at a slower decision, but you have a better quality decision, more of a long term decision in the end because you’re less likely to make mistakes” (Tyler, Appendix K, Line 982-983).

Cross Case Analysis

The following section compares each participant's experiences across key themes that emerged via analysis of data. To help the reader understand participants' relation to each theme, thematic based summary tables (Tables 11-17) are presented which display key attributes held by each participant so as to help clarify commonalities and unique attributes of each case.

Theme 1: Cross Case Analysis of ID Practice

When examining across all five cases, ID Practice was experienced in multiple ways with participants engaging in some or the entire key phases in the ADDIE process of ID. How and the extent to which participants were involved in each of these phases differed. All participants ultimately followed the concept of the ADDIE process; however, how ID was carried out throughout the phases of ADDIE varied.

All participants took part in the analysis phase. Key elements in which participants focused related to identifying needs, performing task analysis, and setting clear and measurable objectives. Albert discussed performing task analysis with SMEs, Cat created learning objectives from data acquired via sentinel events which were derived at an organizational level as this way "all curricula created are based on knowledge gaps, and not on what subject matter one *thinks* is important" (Cat, personal communication, October 2010). Learning objectives were formulated in conjunction with SMEs with whom Cat worked to ensure that curriculum components were aligned with identified learning outcomes. Jane handled creation of learning objectives (for which she did not indicate use of a specific strategy) as well as perusing pre-formulated content to see if information flows, and to determine the best presentation method to employ. Johnson approached analysis from the vantage point of looking at potential content and seeing its relevance to the learner. He liked to ask himself "how is this relevant to me, what's

the value to it for me, why should I be doing it, what do I get out of this, what's the importance fro me and for the larger organization?" (Johnson, Appendix J, Line 327-328). He did not use a specific strategy or model when performing analysis, but relied on his own desire to learn in order to perform his ID roles. Tyler specifically mentioned being brought into projects to work with SMEs to conduct a formalized needs assessment with which he also could collaborate to determine appropriate objectives that had been deemed essential for learning. Tyler noted use of Bloom's Taxonomy to create objectives and how he liked to use that strategy because he found that the verbs used in the taxonomy helped to establish measurable objectives. Each participant viewed the analysis phase in a different light and utilized different methods to complete this phase.

For the design and development phases of ID, several strategies were utilized by participants including Cat's utilization of cognitive strategies acquired in the field of psychology, including that of cognitive load theory, memory, and retention, utilization of the PDSA model by both Cat and Tyler, Tyler's use of the Meyer's Briggs instrument, Johnson's reliance on knowledge of adult learning theory, and Albert's use of Mayer's principles of multimedia and Sweller's cognitive load theory when designing and developing ID projects in the online environment.

Participants handled the implementation and evaluation phase in multiple ways. Cat utilized Kotter's research on diffusion of innovations to implement the ID projects in which she was working. Other participants relied on learning management systems to house their ID modules and deliver content. Specifically related to evaluation, two participants expressed desire to be part of all phases of ADDIE, but that the evaluation component was the one area in which they were often not involved. For these two participants, the desire to pursue evaluation in

conjunction with collaboration with SMEs existed, but their work environment/structure did not lend itself to being involved with this specific stage. For the other participants who were able to pursue the evaluation stage in their ID role, different methods were utilized to formulate evaluation instruments and evaluate. Cat created her own evaluation instruments that included OSCE scripts. Albert discussed use of Kirkpatrick's 4 levels of Evaluation to complete summative evaluation. Both Cat and Tyler were involved with capturing data; however, the mechanisms by which they did varied from Tyler using the PHP computer programming language to create a data entry and analysis tool, to Cat utilizing a simple paper based or Excel spreadsheet to collect and analyze data. The majority of participants alluded to the fact that more could be done with regard to evaluation and assessment of educational programming within their health care environment.

Table 11:

Thematic Summary of ID Practice

ID Practice	Use of ADDIE	Analysis	Design	Development	Implementation	Evaluation	Blooms Taxonomy	Kirkpatrick's 4 Levels of Evaluation	Cognitive Load Theory	Mayer's Principles of Multimedia	Summative Evaluation	Formative Evaluation	Communication Models	Diffusion of Innovation	Plan-Do-Study-Act Model	Adult Learning Model	Meyer's Briggs
Participant																	
Albert	●	●	●	●	●	●		●		●	●	●					
Cat	●	●	●	●	●	●			●		●	●	●	●	●		
Jane	●	●	●	●	●							●					
Johnson	●	●	●	●	●							●				●	
Tyler	●	●	●	●	●	●	●				●	●			●		●

As it relates to ID practice, participants identified many roles and responsibilities in which they were a part (Table 11). All participants were involved with working in the online environment that included working with multimedia (images or video clips, PowerPoint) as well as editing ID projects at various stages of the ID process. Cat and Jane were involved with performing training or facilitator type functions in conjunction with the ID projects in which they worked. Cat and Albert performed technical writing and content creation functions, whereas the other 3 participants indicated that they were given PowerPoint presentations that were pre-designed and were charged with developing corresponding materials that could then be delivered in the online environment. Other roles that were identified include that of pursuing scholarly communication whereby Cat and Tyler were involved with publishing articles based on their ID work in a collaborative venture with other project members from the design team or directly with associated SMEs.

Table 12:

Participants Roles and Responsibilities

Roles and Responsibilities	Editing (includes grammar checking)	Technical writing/Creating Course Content	Works with multimedia	Diffusion of innovation	Administrative Duties (scheduling)	Publishing articles	PowerPoint Presentations	Training	Data Collection & Analysis	Needs Assessment
Participant										
Albert	•	•	•				•			

Cat	•	•	•	•	•	•	•	•	•	
Jane	•		•				•	•		
Johnson	•		•				•			
Tyler	•		•			•			•	•

Theme 2: Cross Case Analysis of ID Challenges

When looking at the various challenges identified by participants, it is evident that there are many commonalities regardless of each participant's ID role or extent if ID involvement. All participants noted time constraints, need for additional staff, handling multiple projects at any given time, and lack of feedback from either course participants or the SMEs with whom they are working as a constant challenge in their ID work. Albert and Tyler noted that getting buy-in from SMEs with regard to course content and incorporation of ID theory can be difficult especially since the SMEs know the content so well "they just can't be proven wrong a lot of times" (Tyler, Appendix K, Line 701), when it comes to the design of the material. Albert mentions specifically how he has to "persuade SMEs" (Albert, Appendix G, Line 294) and that redundancy in material can overload working memory and how visual cues should be used in appropriate ways to elicit specific feelings.

Most participants cited technological knowledge as a challenge due to the changing nature of the ID tools involved, the time needed to learn new tools, and faculty experience with various technologies. Jane spoke specifically about many different software packages she utilized such as Camtasia, Articulate, Dreamweaver, Engage, Captivate, Adobe (Jane, Appendix I, Line 323) and how she has had training on these packages but has yet had time to sit down and use them (Jane, personal communication, October 2010). Albert discussed how because technology is constantly changing that he feels that opportunities for continuing education are necessary in order to keep ones skills up to date (Albert, Appendix G, Line 709).

Health care culture was mentioned by all participants except Albert as being unique from others including that of automotive, academe, or the military due to the intense time pressures involved, unique nature of the content being covered, intricacy with respect to the content which needs to be conveyed in a relevant manner to clinicians; ultimately all of which has a direct impact on patient care.

Cat and Tyler discussed how resistance to change was a challenge where Cat specifically discusses how being the point person to diffuse change could be a challenge (Cat, Appendix H, Line 278), as well as communicating to others on an ID team what changes to content should or should not be made (Cat, Appendix H, Line 322). Tyler specifically spoke to the resistance he felt when working with SMEs on a project where modifications need to be made, or mistakes are pointed out and how that can create both a challenge and tension (Tyler, personal communication, October 2010).

While Cat did not specifically discuss the need for further evaluation or measurement, all other participants mentioned how additional data was needed both from SMEs and course participants in order to proceed with formative and summative evaluation of course content and to see whether learning has occurred. Jane indicated that in her current role, there was no emphasis on evaluation (Jane, personal communication, October 2010). Albert reflected on Kirkpatrick's Levels of Evaluation and felt that although Level 2 evaluation had been conducted, there was a need to move to Level 3 which pertains to transfer to learning (Albert, Appendix G, Line 193). Johnson mentions that although he has done second and some third level evaluations, it is not something that is always done or done well "frankly we don't do the best in post training evaluation that we should be doing" (Johnson, Appendix J, Line 159). From Tyler's perspective,

evaluation and measurement are critical components that should be included as he feels that you "can't prove what you can't or don't measure" (Tyler, Appendix K, Line 764).

Participation in all aspects of ADDIE was a common theme amongst the majority of participants. While most participants cite lack of participation in the Analysis phase of ADDIE to be a challenge from the vantage point of not being directly involved with needs assessment or the formulation of objectives, it is clear that there is a desire for the instructional designer to be part of all ADDIE phases (Johnson, Appendix J, Line 239), and Albert's feeling that ideally all instructional designers should be part of the Analysis phase and that it should be ongoing throughout utilization of ADDIE (Albert, Appendix G, Line 249). Tyler indicates that although he feels that it would beneficial for all instructional designers to be involved in all ADDIE phases, that there is resistance to this type of inclusion on project teams (Tyler, Appendix K, Line 316) due to the fact that his subject expertise is not in medicine; which is contrary to the members (SMEs) with whom he works.

As it relates to evaluation of content, it appears that lack of feedback from SMEs, course participants, or current ID initiatives appears to be a resounding challenge for these instructional designers. Albert indicates that he has yet to get feedback directly from participants (Albert, Appendix G, Line 233), while Jane mentions that while she obtains feedback from SMEs, that there is not enough feedback as it relates to the actual learning process or evaluation data which prevents her from conducting more evaluation type of activities (Jane, Appendix I, Line 364). For Johnson, obtaining feedback depends on the scope of the project in which he is a part where he may get more feedback from large scope projects (Johnson, Appendix J, Line 289). Tyler illustrates how although there are feedback mechanisms in place, at certain times, those feedback loops turn into a linear process where information is gathered and points of interest are

mentioned to the ID team, and no changes are made (Tyler, Appendix K, Line 372). This linear feedback process is seen as a challenge for Tyler as his goal is to address potential needs which end up being delegated to a completely different group to address (Tyler, Appendix K, Line 388). Cat mentions an intriguing challenge which is that at times she gets feedback from numerous entities and her challenge is then to learn "how to really separate out the good feedback from the not so good, retaining the integrity of the educational product" (Cat, Appendix H, Line 333), and doing this within a given timeframe.

Table 13:

ID Challenges

ID Challenges	Time Constraints/Workload	Staffing	Buy-in from SMEs	Technological Resources/Knowledge	Health Care/Medical Culture	Resistance to Change	More emphasis on evaluation needed	Participation in all ADDIE phases	Lack of Feedback
Participant									
Albert	●	●	●	●			●	●	●
Cat	●	●			●	●			●
Jane	●	●		●	●		●		●
Johnson	●	●			●		●	●	●
Tyler	●	●	●		●	●	●	●	●

Theme 3: Cross Case Analysis of ID Preparation

Based on information gained from participants it appears that all participants feel well prepared to practice ID in their respective work setting. All participants had some form of prior ID work experience in a variety of work settings including automotive, government, and

corporate. Although only 1 participant had academic coursework in ID, others utilized information gained from other areas of concentration from academia including that of psychology, management, and statistics. Cat utilized her background in education and clinical psychology where she uses information gained on memory, learning, and metacognition to conceptualize projects or curriculum (Cat, Appendix H, Line 60). She found her prior role as a neuropsychologist (which focused on cognitive load theory, memory, reasoning, and executive functions) helped her to begin thinking about the ID work she does from a cognitive load and memory perspective" (Cat, Appendix H, Line 68). For this reason, she felt that her background was "a very different background than the majority of instructional designers in healthcare" (Cat, Appendix H, Line 70-72). Johnson discussed how his prior management experience assisted him by "helping in project management to manage my time as effectively as can be" (Johnson, Appendix J, Line 514-515). Tyler on the other hand, discussed how his background in statistics was going to be used for planning future analysis for his ID projects (Tyler, Appendix K, Line 238) and how this type of knowledge has assisted him in understanding how data can be meaningful (Tyler, Appendix K, Line 560). Although Tyler's educational background was useful in his ID practice, he felt that "it wasn't the education so much as the work experience…given projects and what you learn from those, even through the trial and error process" (Tyler, Appendix K, Line 598-600).

Most participants considered themselves to be self-taught where they learned on the job, through trial and error, and via feedback from project team members. Based on their current ID roles, all utilized peer learning as a mechanism by which they could learn new ID techniques, ways to implement ID into their work projects, and identify ID tools that could be of use. While Jane indicated that she would "really attribute just about everything that I know how to do now

to on the job training" (Jane, Appendix I, Line 565-566), she indicated that "if time had allowed or resources…if I had gone to a class or had a little short series of classes on matching instructional design with the application. It would be nice" (Jane, Appendix I, Line 607-610).

Only two participants, Cat and Tyler identified that affiliations with associations was helpful and kept them up to date with the field of ID and with evaluation and measurement. Cat found following the Society for Simulation in Health Care to be useful and had been active in the Society of Teachers in Family Medicine as they focused on curriculum design, assessment, and program improvement (Cat, Appendix H, Line 470). Tyler had a different preference for professional affiliations, which he found helpful which focused more on quality improvement (American Society for Quality). Tyler found ASQ to be a venue where additional environments such as the airline and auto industries were used as examples of how quality improvement has been conducted and how this applies to health care. Albert indicated that he hoped to get involved with AECT as they have a good reputation in the field and have more of a research focus (Albert, Appendix G, Line 540-544), and found ISPI to be something that would be useful to one who was a performance improvement consultant (Albert, Appendix G, Line 469) and was a venue where networking was more of the focus (Albert, Appendix G, Line 524). Albert indicated that for him, his academic background in his Doctoral work, especially with message design and media was useful in his current ID role as they were applied to instruction (Albert, Appendix G, Line 492). Although Johnson had no formal academic ID training, he has participated in webinars, workshops (Johnson, Appendix J, Line 442-446) and has found partnering with Wayne State University as a useful resource, "so we've had interns come in who have helped me a lot with what's going on in the academic world and showing some best

practices and what they're seeing out there. So I've learned a lot from that" (Johnson, Appendix J, Line 665-668).

Table 14:

ID Preparation

ID Preparation	Psychology	Statistics	Automotive	Government	Corporate	Self-taught	ID Academic Background	Prior ID Work Experience	Management Experience	Peer Learning	Participation in continuing education (webinars etc.)	Participation in Associations
Participant												
Albert			●				●	●		●		
Cat	●					●		●		●		●
Jane			●	●	●	●		●		●	●	
Johnson					●	●		●	●	●	●	
Tyler	●	●				●		●		●	●	●

Theme 4: Cross Case Analysis of ID Recommendations

Academic programs that offer courses or degree programs in ID were provided ways in which students' experiences could be enhanced. All participants discussed the importance of offering technology courses in ID curricula even though ID tools change with time. Tyler specifically addressed the importance of being able to utilize various programming languages such as C, JavaScript, and PHP (Tyler, Appendix K, Line 842-845), whereas all other participants focused on familiarity need with ID tools such as Camtasia, PowerPoint, Dreamweaver, SharePoint, and Facebook. Albert and Johnson both agreed that bridging ID theory to practice is critical as is integrating individual ID components into a whole so that the

learner sees how one ID principle relates to another. They also indicated that courses offered should be relevant to what occurs in the real world and the types of projects and scenarios one could face.

With respect to ID curricula and the way in which it is taught, Albert and Jane mentioned that there should be less focus on group assignments or team projects within ID curricula due to varying degrees of personal investment (Albert, Appendix G, Line 493) (Jane, Appendix I, Line 752-762). Jane mentioned, "group assignments and projects in a classroom as opposed to working in a group in real life, it's just completely different. I don't know if the interest is more vested in real life because we know that our performance precedes our reputation and all of that ties into us having a job." (Jane, Appendix I, Line 790-793). From Jane's perspective, in the workplace, you have:

> supervisors that you're accountable to. You have SMEs that you're accountable to. You're concerned about your reputation. You're concerned about, you know, your collaborations with your colleagues. All of that is tied together with what you do. And I don't think people, a lot of people think it's that serious when it's in a classroom setting. There's no long term consequence, maybe, other than what they feel that they're satisfied with as far as their grade is concerned. But it's nothing that can really circle back to haunt you if it's not done correctly or the procedure isn't followed" (Jane, Appendix I, Line 805-813).

With respect to ID curricula, Cat was the only participant that mentioned possible creation of an ID specialization or focus area specifically geared towards medication education similar to what currently exists for the performance improvement specialization. Citing that health care facilities need instructional designers strong in technological skills, knowledgeable of web-based learning,

integrating curricula using standardized patients, utilizing digital photography, and video clips. (Cat, Appendix H, Line 498-529). A specialized area in medical education ID focus would help students have a better understanding of medical culture, which she indicated:

> is very different from the academic world. So they need to have an understanding of what it's like to work within a medical culture, and that varies depending on whether your target audience is nursing or whether your target audience is physician. And I think some idea of how those groups think, process information, take in information, respond to different kinds of teaching strategies is really important. (Jane, Appendix I, Line 540-547).

All participants indicated that providing a way in which students could participate in some type of internship would be useful for those wanting to pursue ID at a later stage as it would help them to see what the expectations are, project timelines and constraints, and see the intricacies of the ID cycle. Albert provided some insight for alumni who have participated in ID courses in the past, who are in the work environment and are in need of continuing education. Providing online CE opportunities was one way in which Albert felt practicing instructional designers could keep up to date with the field (Albert, Appendix G, Line 721-723).

Table 15:

ID Recommendations for Academic Programs

Recommendations for Academic Programs	Bridge theory to practice	Courses Relevant to Real World	Integrating Concepts	Partner with Health Care Facilities	Provide Internships or other ID opportunities in the real world	Less Emphasis on Group Projects	Medical Education ID Focus	Provide CE opportunities for Alumni	Technology Courses
Participant									
Albert	●	●	●		●	●		●	●
Cat					●		●		●
Jane				●	●	●			●
Johnson	●	●	●		●				●
Tyler					●				●

For current instructional designers or those thinking of entering the health care arena in an ID capacity, participants offered numerous ways one could enhance his or her ID experience or ability to obtain an ID position. All participants indicated that a designer needs to have a desire to learn, a desire to improve and stay up to date with the field, and a willingness to be a team player and accept feedback from others. The majority of participants noted that academic coursework would be beneficial in an ID role as would be any type of ID experience ranging from internships to job shadowing, or mentorship. Key differences were in Tyler's recommendation that there be awareness of quality improvement and data analysis and measurement. All participants spoke on knowledge of the ID cycle; ADDIE and especially with regard to analysis and evaluation.

Table 16:

ID Recommendations for Potential or Current Instructional Designers in Health Care

Recommendations for Instructional Designer's in Health Care	Academic Coursework or Degree	ID experience (job shadowing, internship, etc.)	Flexibility/Adaptable to Change	Collaboration/Team Player	Data Analysis	Project Management Skills/Multitasking	Desire to Learn	Knowledge of Quality Improvement	Knowledge of Health Care/Health Sciences Field	Problem Solving Skills	Knowledge of ADDIE/ID Theory
Participant											
Albert	●		●	●		●	●		●		●
Cat		●	●	●		●	●		●	●	●
Jane	●	●	●	●			●		●		●
Johnson	●	●		●		●	●		●	●	●
Tyler	●	●	●	●	●		●	●			●

Participants offered health care administrators recommendations that varied from providing a clear vision of ID within the organization and its relation to the larger scope of its mission, offering job shadowing opportunities for employees in order to prepare for succession planning to providing more resources in terms of people, resources, pooling talent from all departments within the organization, having a better understanding of what is involved with training and development, and promoting a culture of continuous learning and improvement via offering CE opportunities.

Table 17:

ID Recommendations for Health Care Administrators

Recommendations for Health Care Administrators	More Collaborative Environment	Promote Culture of Learning/Continuous Improvement	Have a clear vision & strategic Plan	Promote job shadowing	Knowledge of Training & Development & Cost of ID
Participant					
Albert		●			●
Cat					●
Jane				●	
Johnson		●	●		
Tyler	●	●			

CHAPTER 5: DISCUSSION AND CONCLUSION

The goal of this research study was to examine instructional designers' perceptions regarding their preparation for practice in the health care sector. The journey explored the definition and evaluation of ID over time, ID professional preparation, and ID in health care. Specific focus was placed on researching professional backgrounds, ID practice and associated challenges faced, and recommendations for major stakeholders: ID practitioners, academic ID programs, and health care administrators. A qualitative approach was employed for this single site, multi case, bounded case study whereby multiple methods of data acquisition were utilized to increase credibility of results.

The first chapter in this dissertation highlighted the significance of examining ID in the health care sector due to the rapidly changing nature of health care and limited data available on ID in health care environments. The literature review in Chapter 2 provided a holistic approach in covering the topic of ID in health care by discussing the overarching component of the change of ID over time. Next, I delved into ID preparation, and finally to underscore ID in health care, we investigated ID in the health care sector from the basis of the variety of instructional strategies that are employed. Chapter three provided a detailed explanation of the study's research methodology and rationale for the research design. Both a within case followed by a cross-case analysis was provided in Chapter four to illustrate findings. The purpose of the final chapter is to present a summary of research findings pertaining to the three identified research questions; discuss implications for ID and technology, and recommendations for future research. The following three research questions guided this study:

1. How do instructional designers perceive their preparation to practice ID in health care environments?

2. How do instructional designers who practice ID in health care environments perceive the usefulness of professional development organizations or affiliations?
3. How are ID practices used by instructional designers when designing and developing ID projects in health care environments?

Research Question 1: How do instructional designers perceive their preparation to practice ID in health care environments? It was important to determine whether or not ID practitioners felt prepared to practice in the health environment in which they were employed. Based on their ID exposure via educational and non-educational means, and their work experience, participants were able to delve into their ID experience and relay its impact on their daily practice. All participants felt prepared to practice ID in the health care environment in which they were a part. The degree to which they felt prepared ranged from well prepared to extremely well prepared; all participants added that learning was ongoing in their organization and within their ID role.

As Rowland (1993) has suggested, design is "a learning process. By engaging in design, the designer discovers what he or she knows and does not know about a problem and its solution" (p. 85). These participants exemplify this concept of design whereby they are learning while doing, and are obtaining feedback from other designers on their ID team or SMEs when needed.

Theme 1 – ID Preparation: As it pertains to ID preparation, the majority of participants did not have a formal background in ID. Most relied heavily on past work experience and trial and error to proceed with ID in the current health environment in which they were a part. Educational backgrounds of all participants ranged from coursework in a doctoral PhD program in IDT, statistics, neuropsychology, teaching and learning, and business. The extent to which

participants relied on prior academic coursework varied. Albert mentioned ID theory and utilization of message design when referring to ID development, Cat discussed her background in Neuropsychology that helped her with determination of cognitive load, memory, and retention, and Tyler found his background in statistics to be helpful when examining data during the evaluation phase of the ADDIE process. It appears that the way in which they conducted ID was primarily based on past experience with ID projects, feedback from their peers from within the organization or from within their ID team, and trial and error. A few mentioned a desire to get further knowledge of ID theory; however, not necessarily pursuit of a degree. Instead, additional webinars or ID focused workshops were cited as having potential for use.

All participants had affiliation with professional organizations ranging from those that were specifically geared towards ID to performance improvement, quality, and medical education. Although the majority of participants did not cite direct advantages of participating in professional organizations, both Tyler and Cat discussed how keeping up with quality and medical education was helpful in their ID role. The majority of instruction in this health care environment is conducted by these instructional designers (and possibly two more); if there is no formal outlet for them to stay abreast of new ID knowledge and applicable skills, is it hampering their effectiveness? I find this to be an opportunity for professional organizations such as those identified by participants (AECT, ISPI, ASQ) to reach out to various health care organizations and share how they can be seen as a value-added resource for designers in various health care environments. To address the needs of those interested in the health care environment, it may be in organizations' best interest to support these designers via workshops on how ID has been utilized in health care environments, bringing in presenters from a variety of health backgrounds to discuss ID and its utilization in health care.

Theme 2 – ID Challenges: Several challenges were presented by participants when asked to reflect on their ID practice. Key challenges included time, resources (money, personnel, etc.,), lack of feedback from SMEs, getting ID buy-in, resistance to change, lack of focus on instructional evaluation, ability to be involved with all aspects of the ADDIE process, and keeping up with technology. First, it is important to note that keeping up with technology was mentioned by several participants as a challenge; however, they do not discuss keeping up with design. Keeping up with design and how to utilize technology for design was not mentioned by any of the participants. Due to the changing nature of technology, in an instructional situation, as Johnson so eloquently stated, "technology changes all the time; instead ..be a good learner of tools and really focus on your learning skills and how you can adapt" (Johnson, Appendix J, Line 723-724); ultimately, what is important is to know how to design rather than how to use the software in and of itself. Along these lines, Albert mentioned not having a background in health care as a potential challenge, stating that it may be better if "a health care worker were to become a health instructional designer" (Albert, Appendix G, Line 668); however what he does not discuss is that if more emphasis was placed on instructional designers learning how to ask SMEs the right questions there would be less need to see knowledge of health science curricula is a barrier. If one works effectively with a SME to find out what he or she needs, there is no need to learn content per se. Having the right interview skills could potentially save an instructional designer time and could increase effectiveness. In addition, building rapport and credibility does not solely come with knowing the subject matter in question; these attributes are communication issues and hone in on the essential components of being trustworthy and open to feedback.

Aspects of the ADDIE process such as being able to participate in all phases of ADDIE and getting enough feedback from SMEs were a challenge for all participants regardless of what

aspect of an ID project in which one was working. Tyler worked a great deal with evaluation, but lacked feedback from SMEs as well as buy-in by SMEs to utilize specific approaches to evaluation. Cat found the same challenge when trying to get other personnel on her ID team to pursue certain ID approaches and saw herself as having to diffuse out change and handle the pressure that went along with that role. In terms of change, both Cat and Johnson discussed resistance to change as a challenge in the ID process, which begs the question of what these practitioners can do to increase awareness of ID in their health care environment. It also brings up the idea that additional knowledge in change management may be a value-added skill or knowledge base for instructional designers regardless of career environment.

Challenges such as time and resources are a common component of all industries and were therefore not considered unique to ID in health care. What I find unique is that none of the participants found lack of ID knowledge or ability to keep up to date with ID theory to be a challenge. All indicated that instructional designers entering the field should be well versed in ID theory; but none declared personal lack of ID knowledge to be a challenge in their current ID role. When reflecting on challenges faced, participants noted dealing with clients or other stakeholders, balancing multiple roles or projects, and the need to adapt to the changing nature of technology as factors they faced on a daily basis, similar to what has been found in the literature (Liu et al., 2002). In addition, more time was spent on tasks such as those discussed by Kenny et al. (2005) which include editing, and proof reading, media development and design, team building, and technology knowledge and programming. While a few of these roles may fall within the confines of desktop publishing, there are roles that are aligned with project management and communication. It was clear based on participant's reflection that they feel the pressure of time when working on ID projects and that lack of resources is a hindrance in

accomplishing their ID goals. If skills such as team building and technology knowledge and programming are part of their daily functions, what resources are they using to fine-tune these skills? Are they turning to communication literature to understand the intricacies of team building? Are they taking computer-programming courses to help with their knowledge of computer science? Tyler was the only participant who indicated that he would pick up a programming book and learn by doing and then apply his skills; but how are the rest of the participants staying abreast of this type of knowledge? These are a few areas that I am surprised did not come up as challenges for this group of instructional designers based on their limited exposure to the field of IDT.

Theme 3 – ID Recommendations: Participants discussed at length, many recommendations they had from a three-pronged approach: for potential or current ID practitioners, academic administrators, and health care administrators. All felt that having knowledge in ID theory would be helpful to have on the job and that in the economic climate in which we live, having additional ID exposure via academic curricula would be essential. In addition, having a desire to learn, being open to change, and being able to handle multiple projects all at once appear to be critical components for potential/current instructional designers in health care environments.

It was also recommended that people entering the field obtain as much work experience in a health care environment as possible; whether it be via mentoring, and internship, or volunteer opportunity. Larson's study (2005) noted variations amongst IDT programs with regard to inclusion of internship opportunities. In situations where an internship may not be part of an academic experience, I feel that volunteering and setting out to find one's own internship opportunity is essential. For practitioners in the field, job shadowing was mentioned by Jane as a

useful way to see what your peers are doing and helps see alternate ways in which ID is being conducted.

Although Albert indicated that those entering the field should be familiar with technology and associated software such as SoundBooth, and PowerPoint, he did not mention the importance of taking the time to investigate the appropriate design tools that should be utilized in various instructional settings/situations. Technology is integral in health care (Szczerba & Huesch, 2012), but with software changing so rapidly, the focus for instructional designers should be on investigating design tools and their applicability in health care. Without knowing what design tools to utilize, one may miss the opportunity to provide a meaningful learning experience. The focus therefore should not only be on the technology, but the true ID theoretical base and its application for a given ID project or instance.

Having the desire to learn and being open to feedback seem to be critical factors that one should have when entering the ID field in health care. SMEs come from a variety of disciplines, have different needs and time constraints; all of which needs to be handled in a sensitive and professional manner by the instructional designer. Being open to new methodologies, strategies, and having good communication skills can help to reduce resistance to change in this ever-changing environment.

Academic administrators are offered many ideas ranging from how to handle group projects within academic curriculum, partnering with local health care organizations, the need to include internship opportunities for students, as well as the need to develop a health science or medical education field of study within IDT. The concept of group projects was seen as a hindrance to learning by both Albert and Jane as they discussed how real life work situations provide a greater incentive to produce quality results due to the fact that as an employee one is

responsible, their credibility is at stake, and their continued employment and evaluation rests on their effectiveness. In academic settings, these participants felt that the academic setting did not provide an environment where people felt accountable. I do not feel that the issue here is whether or not academic institutions should or should not continue group work; but rather that there is more accountability built into group situations to ensure that all group participants work hard and have a sense of accountability. The group work one does in an educational setting is not the same as in the work setting; however, group work teaches communication skills, teamwork, and helps to identify ones strengths and weaknesses.

Developing a specialized IDT track for medical education was mentioned as a possibility in order to provide practitioners with experience pertaining to medical culture. However, I think that taking a health science course(s) through the medical school that pertains to medical culture or a health education course through the school of Public Health could also provide practitioners with equally useful information pertaining to medical culture. As espoused by several researchers (Tracey et al., 2008; Rowland et al., 1992, 1994; Quinn, 1994; Tripp, 1994), it is imperative to bridge IDT theory and practice by offering ample exposure to real-world design experiences which may be possible via ID internships in health care of shadowing a current instructional designer in a health environment. This was a component noted by all participants as a critical way in which learning about ID can and should take place.

Health care administrators are the third group to receive recommendations which rested mainly in providing additional opportunities for designers to participate in workshops or other types of CE opportunities, having a greater understanding of what ID entails, how much it costs, what resources are involved, and how and to what extent ID impacts organizational goals. Some ways in which health care administrators can attain this knowledge is to have annual funding for

instructional designers to participate in workshops or identified CE opportunities that are aligned with organizational goals or projects. In order for administrators to have a better understanding of what ID entails, data needs to be gathered including information on how much time instructional designers spend on various projects, how many projects are being handled simultaneously, a report of what other ID departments in comparable health care environments are doing (staffing, resources, etc.,), identification of resources utilized, problems encountered, and have designers provide feedback of how they feel this contributes to the organizations strategic goal. If health care administrators take an active role in identifying the various contributions their ID team/employees contribute, they will see if they are meeting their educational objectives from an organizational perspective, and will be in a better position to address the needs of their respective ID departments or teams.

Research Question 2: How do instructional designers who practice ID in health care environments perceive the usefulness of professional development organizations or affiliations? Participants provided examples of the professional organizations in which they have been a part or are currently involved such as AECT, ISPI, ASQ, and following the latest information from the ACGME. The extent to which they felt that these organizations were an added value on the job was limited. A few things to note were how a few participants felt that how some organizations had more focus on research rather than practice or were geared towards networking as mechanism to help people get employed in the industry; for these reasons, professional organizations were not seen as useful. Participating in ASQ and following medical education via the ACGME and the Royal Canadian College was seen as helpful since these organizations focus on measurement and the later set guidelines for how medical education

should be integrated for graduate medical education. Participants relied more on peer communication as well as gaining new knowledge via the personnel hired through internships.

Although numerous medical organizations have been cited as being available to support instructional designers in their pursuit of incorporating ID in medical education (Ruiz et al., 2006), none were mentioned by participants as a resource they utilized to further their ID knowledge; other than the ACGME. Instead the majority, 4/5 participants sought information via workshops, seminars, and networking, a concept that would be supported by Lin (2007). Perhaps an alternate idea would be pursuing a Health Professions Education (HPE) degree. Tekian and Harris (2012) discuss the purpose of HPE which includes fostering instructional strategies that may prove useful to those in the field of medical education. This is one example of how one could further their knowledge in a program that is geared towards the health care environment.

Theme 1 – ID Preparation: Just as graduate students reported (Smith et al., 2006) that they felt IDT was comprised of people from various backgrounds, this held true with regard to the backgrounds of participants in this study. Their backgrounds spanned a variety of disciplines ranging from psychology to statistics, and management. One participant had an academic background in IDT. When Larson (2005) examined professional preparation, she found that the majority of IDT students attended a generalist IDT program; rather than career specific. Albert, the one participant with an educational background in ID was taking part in a generalist program and found that to be sufficient. Cat on the other hand, recommended that a subject specialization would prove useful for future ID practitioners due to the ability to gain a better understanding of medical culture. Multiple participants also held the view that health care was unique in nature

for a variety of reasons and exposure to health care from an ID perspective would be integral for an instructional designer entering the field.

Research Question 3: How are ID practices used by instructional designers when designing and developing ID projects in health care environments?

All participants described themselves as following the ADDIE process; however, their role within the phases of ADDIE and the extent of their involvement within each phase varied. Similar to what has been identified (Kenny et al., 2005; Liu et al., 2002); these designers did not follow a specific ID model in rigid form, did not spend a great deal of time with any given ID model, and conducted many tasks outside the realm of traditional ID models. In terms of spending time on tasks outside what is considered to be ID focused, participants spent time editing, proof reading, checking for spelling and grammar, editing color and fonts, and focused a great deal on acquisition of technology knowledge, all of which has been previously researched Kenny et al. (2005); Cox (2003); Rowley, Bunker, and Cole (2002); Bichelmeyer, Misanchuk, and Malopinsky (2001); Liu et al. (2002). This begs the question of whether or not these tasks should be seen as integral to the ID role, or whether additional resources should be utilized to assist in this capacity. As Gustafson and Branch (2007) indicated, it is necessary to not only follow the ADDIE process, but to supplement the process by focusing on elements such as team effort which was exemplified by this group of designers. Similar to the beliefs held by many researchers (Gagné et al., 2005; Smith & Ragan, 2005; Gustafson & Branch, 2007; Richey, et al., 2011), participants held a desire to be part of all aspects of the ADDIE process with an understanding that the associated phases involved, could be approached in a non-linear manner.

Theme 4- ID Practice: ID Practice was one of the themes that emerged from research findings. Although ID was handled in multiple ways, the ADDIE process was one that all

participants followed to some degree based on project scope. Identification of objectives, mode of instructional delivery, and evaluation mechanism were a few components of the ADDIE process that was described by all participants; however, none mentioned a specific ID model they utilized. Facets of the ADDIE process were described utilizing ID theory such as Kirkpatrick 4 Levels of Evaluation, Bloom's Taxonomy for the development of objectives, and cognitive load theory, but no specific ID model or approach was described. Due to the majority of participants relying on past experience and trial and error to modify ID approaches, theoretical perspectives of IDT were not widely utilized outside of those mentioned. It is quite likely the case that IDT approaches were not utilized due to the majority of participants' having gained knowledge of ID by trial and error through the various jobs they have held and the projects in which they have been involved. Only Albert had an academic background in IDT and indicated trying to utilize evaluation models for some ID projects. Cat utilized her background in Neuropsychology to help guide her ID decision making, and the other three participants learned while on the job, from their peers, or researched ID on their own.

Jane mentioned completing tasks such as checking for spelling, grammar, and editing color and fonts; all of which are more in the desktop publishing realm, rather than ID tasks. The ID components that participants such as Jane felt are within their ID focus, are in fact tasks from other areas that need to be identified so that a clearer picture as to what ID entails can be established. This could also address the staffing issues that all participants mentioned, as someone could be hired or referred to for these types of project activities in order to save time and place the ID emphasis where it should lay.

The practice of ID in health care was found to be unique for most participants in terms of the content one works with, restricted amount of time to work on ID projects, and the unique

culture in the medical sciences. Cat and Jane spoke to the uniqueness of the health care environment when they discussed the enormous time pressures clinical staff face when learning materials and the increased amount of information they must store at any given time; all of which impacts how ID is carried out. Cat discussed how as an instructional designer she had to critically think about how she could teach or provide instruction in such as way so as not to overload the working memory of the clinician and to make the learning experience relevant in the limited amount of time provided. Jane discussed the unique culture of medicine from the vantage point that what makes it different from other industries such as automotive is that:

> you're dealing with medical service…you're dealing with people who constantly have to deal with people as opposed to automotive where you're dealing with engineers who don't really have to deal with people as a part of their broad job requirement. We deal with people who have to provide service to people in the medical area, which is sometimes sensitive, complex, and regulated (Jane, Appendix I, Line 866-868).

This is similar to what Cat described in terms of the critical nature of the content, but Cat's perspective focused more on how as a designer you take cognitive load, memory, retention, relevancy, and time into consideration when designing and developing projects in the health care environment, all of which was found to be particularly useful by Hodges and Kuper (2012) when designing graduate medical education. Albert eluded to the unique nature of medical sciences when he discussed how in the military and healthcare environments, learning and training must occur (Albert, Appendix G, Line 326). Based on participants reflections on the unique nature of ID in health care, I think that what makes ID in health care unique is a combination of what participants have described, but also the rapid technological change seen in health care, from integration of Electronic Health Records into medical education (Hammoud et al., 2012; Adibe

& Jain, 2010), ID in simulation based education (Cook et al., 2012; McKinney, Cook, Wood, & Hatala, 2013), e-learning or internet-based learning (Cook, et al., 2010; Cook et al., 2008), and utilization of numerous learning management systems (Scherl, Dethleffsen, & Meyer, 2012; Seluakumaran , Juso, Ismail, & Husain, 2011; Broudo & Walsh, 2002) and data mining/warehouse initiatives (Peek & Swift, 2012). The health care environment is one that is constantly changing due to the desire to provide evidence-based health care in the most safe and efficient manner. The need to ensure patient safety and quality includes knowledge that both clinical and non-clinical staff need to know often has an ID practitioner in the background creating and implementing instruction.

Various approaches to instruction are utilized in health care environments ranging from simulation or classroom based approaches, use of standardized patients, and e-learning (Baker et al., 2005; Cannon-Bowers, 2008). Research on ID in health care has found that fundamental components such as needs analysis, subject-matter analysis, identification of objectives, utilization of instructional strategies, and focus on evaluation is incorporated (Waeckerle et al., 2001); however, based on participants' responses and review of their completed work projects, it is clear that not all these components have been considered. Whether lack of incorporation of these ID components is due to lack of knowledge or support needs to be further investigated. Participants mentioned getting buy-in from SMEs to be one factor that has impacted their inclusion within the ADDIE process. Perhaps communicating examples of research in which ID has been incorporated in a health care environment could be used as a sounding board from which ideas can be generated. Several studies have provided information on utilization of ID in medical education curricula (Asher et al., 2009; Thompson et al., 2008; Kinzie, 2005; Shachak, Ophin, & Rubin, 2005; Battles, 2006; Letassy et al., 2008; Khalil et al., 2008; Patel et al. 2009;

Terrell, 2006; van Merrienboer & Sweller, 2010). If participants conduct further research into integration of ID into medical curricula and share their findings with SMEs, they take on an evidence-based approach to the utilization of ID.

It is clear based on research findings that what ID encompasses (including tasks) is different for all participants. Having a greater understanding of what ID entails and how ID tools can be utilized for a given instructional situation may prove extremely useful for this group of practitioners in both saving time and utilizing resources more efficiently.

Potential Limitations

Limitations of this study include limited access to potential participants due to the focus of the study solely geared towards instructional designer's engaged in ID practice at a teaching hospital in Southeast Michigan. A single site was selected to allow for a fundamental component of this study to be examined, namely, the diverse professional experiences of instructional designers that are practicing ID in a health care environment. Unfortunately, this particular qualitative technique offers the least amount of generalizability. In this case study, the aim was to explore instructional designers' perceptions regarding preparation for practice in the health care sector. As Yin (2009) stated, a case study is "an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context" (p. 18) and is a useful approach for those aiming to gather in-depth understanding of a problem, issue, or situation (Noor, 2008). Finally, it is possible that results may not be extended to wider populations (novice or expert) in other career environments.

Significance of the Study

The significance of this study is threefold. This study provided information to both practitioners and educators for improving the professional preparedness of instructional

designers in health care environments in that it 1) provides ID students and practitioners with guidelines on types of academic and non-academic experiences to consider that may improve utilization of the ADDIE process and associated instructional strategies (ID practices) in health care settings, 2) assisted educators in identifying skills and knowledge that are needed by instructional designers in the health care sector, and 3) provides administrator's in health care settings with information on what design practices are involved or needed when practicing ID in health care environments. The rapidly changing nature of the health care environment necessitates the need for exploring instructional designers' perceptions regarding their ability to effectively meet these demands.

Implications for ID and Technology

There are many implications for IDT based on the research findings. While the majority of participants in this study did not have an educational background in ID, they had either been exposed to workshops, learned from peers, and pursued ID based on trial and error in order to be able to practice in the environment in which they worked. There are many ways in which practitioners can become well versed in ID and its integration within health sciences curricula. One way to harness those skills is to participate in CE courses, pursue an internship within a health care environment, take additional ID courses or enroll in an ID program, and join an association that relates to IDT such as those mentioned by Cat and Tyler (e.g., Society for Simulation in Health Care, Society for Teachers in Family Medicine, American Society of Quality, and following the ACGME). In this competitive economic climate, all participants noted the importance for potential instructional designers seeking ID positions to have sound ID knowledge via a formal ID degree and as much ID experience as possible; even if just a volunteer opportunity. Noting how internships can provide unique learning opportunities that

academia alone cannot; they highly recommend getting as much ID experience in order to be marketable.

Participants were extremely open to discussing what potential instructional designers would need to have in order to be successful in a health care environment. They discussed the following characteristics as being critical to success: being flexible in ones ID approach, having the ability to multi-task and handle strict timelines, having excellent communication skills in order to work with team members and SMEs, knowledge of the latest technology, ability to discern as to which ID tool or process to utilize based on a given ID project, and understanding medical culture and how it is different from other career environments such as automotive, government, or the corporate sector.

Understanding medical culture is of utmost importance when pursuing ID in health care environments for the reason that unlike other industries which have been researched, health care deals with intense time pressures, educating people who have limited time and cannot be cognitively overloaded, working with multiple people who have many different roles within an organization, working with "material that is sensitive, complex, and oftentimes regulated" (Jane, Appendix I, Line 870); all of which can potentially impact patient care. Knowledge and experience with medical culture cannot be understated. To truly have an understanding of the learner; one must have an understanding of this type of organization and the intricacies that clinical staff face on a daily basis.

From an academic standpoint, there is room to grow current ID curricula to include additional opportunities for real-world design, incorporation of internships and mentoring opportunities, and formulation of CE opportunities for alumni to refine their ID skills. In addition, partnerships can be built with local organizations to facilitate both mentoring and

internship opportunities. Both are beneficial; it can help develop students' ID skills in the real world and can at the same time allow practitioners who are in the field to be exposed to the latest ID tools, processes, or research that may be useful in their ID work. Building partnerships and garnering the learning process is aligned with the ID definition, which involves the facilitation of learning and pursuit of lifelong learning. From a marketing standpoint, these types of collaborative opportunities can help education programs bring in new students. From an organizational perspective, it shows how the organization is giving back to the community and addressing what Kaufman (1995) would describe as societal impact, and is fostering new partnerships and addresses the needs of local organizations who wish to serve as an internship provider; all the while providing the instructional designer real world opportunity. It would also help academic ID program administrators if while teaching ID, a differentiation made between technology tools and ID tools so that the practitioner does not think that by knowing the latest software technology, that they know ID. ID is more than the software that is utilized for an end-product; it is the ability to know what ID tools to utilize for a given learning situation so as to enhance the learning experience and facilitate learning. This is the crux of ID and needs to be re-instated in multiple venues within the academic realm.

Health care administrators have an opportunity to provide their instructional designers with opportunities to fine-tune their ID skills and learn how to integrate new ID tools into the ID projects in which they are working. In addition, more resources in terms of people, time, and money need to be allocated to ID departments so that practitioners can work in a more effective and efficient manner. Health care administrators would also benefit from setting a clear strategic goal of what they see as quality education for their clinical and non-clinical staff, and how ID practitioners within their organization can help to reach those goals. This helps to establish the

instructional designer's role within the learning context of what the organization wishes to accomplish. Having an appreciation of what the ID team does and how it contributes to overarching goals is important for both administrators and the ID team.

Suggestions for Further Research

While the qualitative approach to identifying whether or not these ID practitioners felt prepared to practice in a health care environment was answered, the effectiveness of these designer's and the quality of their ID work was not examined. In addition, it was found that the projects in which these designers' participated were not evaluated via administration to determine whether or not (and to what degree) sound ID was integrated. While these participants felt very well prepared to practice ID, their preparation and degree of quality is subjective and would need to be further established by examining their completed ID projects from an administrative perspective alongside organizational goals or expected outcomes. I think that if administrators or project clientele with whom these designers worked had an evaluation component to determine the quality of their work, it would help to establish whether or not they are truly prepared to practice ID in health care environments.

It may also be beneficial to examine the differences in level of ID exposure from novice to expert designer and see if that plays a role in one's ability to practice ID and whether ways of acquiring and staying abreast of ID knowledge vary based on level of expertise. Additional research can also examine preparation for practice for instructional designers working in alternate health care environments such as medical schools, teaching vs. non-teaching hospitals, and the pharmaceutical industry.

Summary

This study sought to have a better understanding with regard to practitioner's ability to practice ID in a health care environment. Using semi-structured interviews, offering participants an opportunity to reflect on their ID practice, and a review of select ID work projects, I have been able to ascertain as to whether or not these practitioners felt prepared to practice, the types of learning opportunities that were of use, and discover IDT recommendations for practitioners, academic and health care administrators. This study validated the idea that instructional designers have many roles and responsibilities (Kenny et al., 2005; Larson & Lockee, 2009, 2004; Smith et al., 2006; Cox & Osguthorpe, 2003; Julian, 2001; Atchison, 1996; Allen, 1996; Rowland, 1992), and utilize multiple methods to acquire ID knowledge. Many challenges were mentioned that are seen across career environments such as time and other resources such as personnel. While challenges such as these may not be unique to the health care career environment, participants did expose critical aspects of health care that are unique compared to the automotive or corporate industry such as working with material that is sensitive and often regulated, working under strict time regulations, creating instruction for numerous health science disciplines, and the rapidly changing nature of health care that necessitates a thorough understanding of medical culture; all of which impact patient care. It is clear that part of what makes the health care environment unique is its direct impact on patient care.

Participants in this study have a strong desire to learn and contribute to their organizations learning goals. Ultimately, it is their own personal ambition that drives them to produce quality work and meet the challenges they face head-on and in a team based approach. These participants exemplify how one's pursuit of lifelong learning (regardless of the way in which one acquires information i.e., academic coursework, webinar, or workshop) can have a positive impact on career growth and satisfaction. All participants felt prepared to practice, confident

they knew where to go for additional information, and harnessed a team-based approach to working with each other as well as SMEs. Their outlook on ID is positive and their approach remains open to feedback in order to provide the best ID integration possible; a truly systematic and systemic approach to ID.

APPENDIX A: INFORMED CONSENT

Nandita S. Mani, ADDRESS

1. WHY IS THIS RESEARCH BEING DONE?

You have been asked to take part in a research study because you perform and/or participate in instructional design activities and projects at the [Hospital Name]. The purpose of this study is to explore how instructional designers perceive their preparedness to practice instructional design in a health care setting.

There will be approximately 5-6 people in this research study at [Hospital Name].

2. WHAT WILL HAPPEN IF I TAKE PART IN THIS RESEARCH STUDY?

Your participation in this study will last a total of 1.5 hours for the in-person interview and review of your completed work projects, and writing in a journal for a minimum of 20 minutes per day for duration of 14 days that will occur after the in-person interview.

- You will participate in one in-person interview with the PI for approximately 1.5 hours. You will have the opportunity to share at least two instructional design projects in which you participated with the PI.
- The review of your completed work projects will provide a better understanding of whether and how ID practices are used in the design and development of your instructional design projects. Criteria upon which your project will be examined will be based on inclusion of learning objectives, use of ID processes and theory, and formative and summative evaluation methods.
- In addition, you will be required to journal for 20 minutes per day for a total of 14 days. You will be asked to reflect on current ID practice, roles and responsibilities, recommendations to future instructional designers pursuing employment in a health care arena, and any other information you feel is relevant in aiding the PI in understanding ID preparation in a health care environment.

The interview will be audio-taped and later transcribed by an individual other than the PI. A randomly assigned pseudo-name will be applied to the interview transcripts and audio recordings and journal entries, and audio recordings will be provided to the transcriber without any in identifying information. All audiotapes will be destroyed 6 months after completion of the study. The list that links your name to the study will be maintained in a locked cabinet at the PI's advisor's office at Wayne State University.

3. WHAT ARE THE RISKS OF THE STUDY?

It is not expected that you will have any complications or discomforts from being in this study. There may be risks or discomforts that are not known at this time.

4. WHAT ARE THE BENEFITS TO TAKING PART IN THE STUDY?

You may not be helped by participating in this study. However, others may be helped by what is learned from this research.

5. WHAT OTHER OPTIONS ARE THERE?

You do not have to participate in this study.

6. WHAT ABOUT CONFIDENTIALITY?

By signing this consent form, you agree that we may collect and use your interview responses, information from the review of your two instructional design work projects, and journal entries.

We may release this information to the following people:

- The Principal Investigator and his/her associates who work on, or oversee the research activities.
- Government officials who oversee research

Once your information has been released according to this consent form, it could be released again and may no longer be protected by federal privacy regulations.

[Hospital Name] or others may publish the results of this study. No names, identifying pictures or other direct identifiers will be used in any public presentation or publication about this study unless you sign a separate consent allowing that use.

This consent to use and release data from your interview responses, journal entries, and the review of your work projects will not expire at the end of this research study.

You do not have to sign this consent to release your information and may cancel it at any time. If you decide not to sign this consent or cancel your consent, you can not participate in this study. If you notify us that you wish to stop participating in this study, we may continue to use and release the information that has already been collected. To cancel your consent, send a written and dated notice to the principal investigator at the address listed on the first page of this form.

7. WHAT IF I AM INJURED?

There is no federal, state, or other program that will compensate you or pay for your medical care if you are injured as a result of participating in this study. You and/or your medical insurance may have to pay for your medical care if you are injured as a result of participating in this study. You are not giving up any of your legal rights by signing this consent form.

8. WHO DO I CALL WITH QUESTIONS ABOUT THE STUDY OR TO REPORT AN INJURY?

Nandita Mani, Librarian and Doctoral Candidate has explained this research study and has offered to answer any questions. If you have questions about the study procedures, or to report an injury you may contact Nandita Mani at [###-###-####]. Medical treatment is available to you in case of an injury

If you have questions about your rights as a research subject you may contact the [Hospital Name] IRB Coordinator at [###-###-####].

9. DO I HAVE TO PARTICIPATE IN THIS STUDY?

No, your participation in this research study is voluntary. If you decide to participate, you can stop at any time. You will get the same medical care from [Hospital Name] whether or not you participate in this study. There will be no penalties or loss of benefits to which you would otherwise be entitled if you choose not to participate or if you choose to stop your participation once you have started. You will be told about any significant information that is discovered that could reasonably affect your willingness to continue being in the study.

10. WHO ELSE CAN STOP MY PARTICIPATION?

The Principal Investigator can end your participation in the research study at any time.

11. WILL IT COST ANYTHING TO PARTICIPATE?

We do not expect there to be any additional costs to you if you participate in this study.

12. WILL I BE PAID TO PARTICIPATE?

You will be provided a $25 Visa® gift card upon completion of the in-person interview.

13. CONSENT

You have read this consent form or it has been read to you. You understand what you are being asked to do. Your questions have been answered. Any technical terms you did not understand have been explained to you. You agree to be in this study. You will be given a copy of this consent form.

_____ _____ _____

Signature of Subject Date Time

_____
Print Name of Subject

_____ _____ _____
Witness to Signature Date Time

_____
Print Name of Person Obtaining Consent

_____ _____ _____
Signature of Person Obtaining Consent Date Time

APPENDIX B: SEMI-STRUCTURED INTERVIEW GUIDE

1. **Introductions**
    a. My background
    b. Purpose of the Study
    c. Confidentiality
    d. Informed Consent Form

2. **ID Preparation**
    a. Prior Education and experience
        i. Could you please describe your educational experience in ID?
        ii. Could you please describe your prior work experience in ID?
    b. Affiliations with professional organizations
        i. Are you currently or have you been a part of any professional organizations where focus is on ID?
        ii. If so, how do you feel they have helped you practice ID?
    c. Curricula or programs attended
        i. What curricula or programs (both academic and non-academic) do you feel have prepared you to practice ID in the health care environment?

3. **Current Practice**
    a. Current roles and responsibilities
        i. What are your current job roles and responsibilities?
        ii. What types of ID projects have you participated in?
    b. How ID practice is integrated into design projects
        i. To what extent do you follow the ADDIE model when practicing ID?
        ii. What instructional methods do you find useful in ID practice?
    c. Skills learned on the job
        i. What skills and knowledge do you feel you learned on the job?
        ii. Are there ways in which you could have learned these skills or knowledge any other way?

4. **Recommendations and Reflection**
    a. Recommendations for academic programs preparing instructional designer's for practice
    b. Recommendations to Instructional designers
        i. Recommendations for those entering an ID position in a health care environment
        ii. Content areas, programs, or affiliations instructional designers should be exposed to
    c. Recommendations to health care administrators to help prepare instructional designers in the health care environment
    d. Overall perceptions
        i. When you reflect on your ability to practice ID, how prepared do you feel to practice ID in a health care setting?

APPENDIX C: CODING TEMPLATE

Code	ID	Line #	Data	Notes
	NM	55.	*None okay. So whatever you've learned you really had to learn on the job as you've gone along and you've taken information then from your prior experience with psychology then to help you?*	
3004 3003 1003 1003 1000 1003	CAT	59.	Right. Right. So I would say that if you look at how I conceptualize projects or curriculum or faculty development a lot of my conceptualization of it comes from my background in psychology and comes from the fact that I was a clinician for so many years. So I really understand medical culture and because I was a neuropsychologist, you know, that kind of is the basic science for a lot of things that we talk about now like cognitive load theory, memory, reasoning, executive functions. So looking at how the brain operates and processes information kind of helps me to begin to think about the work that I do from a cognitive load perspective, from a memory perspective, from a how many times does someone have to hear this perspective before they really understand it building schema, you know, that kind of thing. So it's a very different background than the majority of instructional designers in healthcare.	Theme: ID Preparation • Learned on the job • taken psych experience to help Theme: ID Practice • Conceptualize projects/curricula based on background in Psych • Understand med culture • Think about the work/ID from a cognitive load/memory perspective, how many times does someone have to hear something before they understand it and build upon their schema

APPENDIX D: CODE BOOK

1000 – ID Practice
- 1001 – Roles & Responsibilities
- 1002 – Definition
- 1003 – ID Health Care
- 1004 – Desire to Learn
- 1005 – Innovation

2000 – Collaboration
- 2001 – Professional communication
- 2002 - Teamwork

3000 – ID Preparation
- 3001 – Technology
- 3002 – Skills & Knowledge
- 3003 – Educational Background
- 3004 – Professional Background

4000 – Challenges
- 4001 – time
- 4002 – resources (people, money)
- 4003 – technology
- 4004 - workload

5000 – Recommendations
- 5001 – courses/webinars
- 5002 – affiliations
- 5003 – technology
- 5004 – work experience
- 5005 – job shadowing
- 5006 – internships

APPENDIX E: RUBRIC FOR EXAMINING COMPLETED ID PROJECTS

Were Learning Objectives Used/Created	ID Theory/Processes Used	Evaluation: Formative, Summative, Both
Comments:	Comments:	Comments:

APPENDIX F: JOURNAL ENTRY COVER SHEET

For the next two weeks, please use this Word document (starting on pg. 1) to reflect on the following:

- Current instructional design (ID) practice
- Your role(s) and responsibilities
- Recommendations to future instructional designers pursuing employment in a health care arena
- Any other information you feel is relevant in aiding the Principal Investigator in understanding ID preparation in a health care environment.

Please ensure a date is inserted on the left hand corner of your journal entry page for each day you journal. Please submit your journal by DATE via email to PI EMAIL

Many thanks,
Nandita Mani

APPENDIX G: ALBERT'S TRANSCRIPT

INTERVIEW WITH ALBERT

NM: Albert, as you know, the purpose of this research is to help in understanding how instructional designers perceive the preparedness to practice in healthcare environments. Today's session will take about one and a half hours. It will have two parts. The first part of the session will consist of a one-on-one interview with me that will be guided by questions that I ask you. The interview will focus on your ID experience, methods of preparation, and recommendations to others in the field. Afterwards, you'll have the opportunity to share two completed ID projects in which you've participated. If you need to take a break at any time during the interview, please feel free to let me know. Also, if there are any questions that you prefer not to answer, feel free to decline. As agreed upon by you signing the consent form the session will be tape recorded for purposes of accuracy. The tapes will be kept under lock and key for purposes of confidentiality and you will be de-identified as well as your place of employment. There will be approximately 16 questions but before we begin do you have any questions about the informed consent?

Albert: No.

NM Okay. Let's talk a little bit about ID preparation. What is your current job title?

ALBERT: Instructional systems designer.

NM And prior to working at this hospital did you have any work experience in instructional design?

ALBERT: Yes.

NM Okay. What type of experience did you have? Was it also in a healthcare environment?

ALBERT: No. No, this is my first healthcare assignment.

NM Okay. So prior to here your ID experience was…

ALBERT: Well, my first official instructional design job was in the automotive industry. And the next one was in a tangent to the healthcare industry, which was what they call locum tenens, which is the temporary placement of healthcare workers in remote areas or in underserved areas.

NM Okay.

ALBERT: But it was really more of a placement agency than it was a healthcare company.

NM And at this placement agency you were able to perform instructional design activities?

ALBERT: Some. My title there was Director of training, so I designed my own curriculum, but not in collaboration with a series of, well let me take that back, I worked with internal subject matter experts, not external clients.

NM And was that also when you were in the automotive industry? Was it a similar nature?

ALBERT: No, no. I said I moved from there, from automotive into the (locum tenens), which is placement (skill).

NM Okay. Do you have an educational background in instructional design?

ALBERT: Yes.

NM Can you describe that for me in terms of are you taking particular courses or…

ALBERT: Well in 1996 I got a degree from Michigan State University with a concentration in instructional systems design. And then I came back to Wayne in about 2004 I started work on a degree, an ed specialist degree in interactive technologies, which is a subset of instructional systems design. And I am currently a doctoral student in instructional systems design.

NM You mentioned that currently you are a doctoral student in instructional systems design, can you please describe some of the types of courses that you've taken that relate to instructional design specifically?

ALBERT: Well there are, you have your fundamental instructional systems design, which covers the process of defining of task analysis with development of objectives, project management, and course development. I also had a course in advanced instructional design, which got more into the history of the field and into different theories, in learning theories. I then took a course in message design, which was very helpful and covered things like dual channel processing or dual coding theory, working memory limitations, chunking, we also touched on layout typography, image processing, oral processing.

NM So it covered a wide gamut really the courses that you've taken that pertain to ISD.

ALBERT: Well, I would say specialized with respect to how people learn and how we design instruction more than wide gamut.

NM Okay.

ALBERT: However I did take courses also in Ed psych, courses in the background and history of the field, tangent courses of limited direct application.

NM And the Ed psych classes that you've taken, would there be any specific ones that kind of stand out in your mind that pertain to instructional design or helped you understand the ..

ALBERT: No, I would say that they were a waste of time with respect to direct application in the field.

NM Okay. Now in terms of current practice, what are your current job roles and responsibilities?

ALBERT: Well, I designed and developed instruction for a number of internal clients. I've done courses on human resources subjects such as diversity or diversity in healthcare. I've done a number of nursing courses for patient care, stroke, heart attack, pain management, angioplasty, and a number of different courses with nurses. And I'm trying to think if I've done any others. They would either be administrative, a number on hospital worker safety, eight different courses on annual mandatory education for general hospital workers, or four for them and four healthcare workers, so I would say principally it would be either human resources related or healthcare related.

NM Okay. And in terms of these different projects that you're working on currently or that you have worked on in the past, what kind of role do you normally play in the project?

ALBERT: It will vary with respect to the subject matter expert. Some subject matter experts want a lot of direction with respect to course structure and some are very comfortable and confident in their ability to design course structure. So it can go from hands-on to hands-off.

NM So if we kind of look at one of the models that's often talked about, which is ADDIE, you know, analysis, design, development, implementation, evaluation, are you normally brought into the process of a project at a specific phase of this kind of model or are you involved with all aspects?

ALBERT: I've never been involved in this job with analysis.

NM Okay.

ALBERT: I usually come in at the design stage and might go back to analysis, but let's clarify our terms. You can analyze with respect to what's not happening, what's wrong, a gap in performance, or you can analyze with respect to the actual tasks at hand such as in task analysis. I might get involved and I might have to back the client back into task analysis, but I have never been on a project which would involve actual needs analysis or actual gap analysis. That job should theoretically fall into the hands of one of our internal consultants but I'm not sure that it ever does. I think our internal consultants work more with human resources concerns and I'm not sure that anybody's working with healthcare performance gaps as such in our department.

NM So then you're more involved with design, development, implementation, and evaluation?

ALBERT: Yeah, I can touch on the second type of the assessment with respect to task analysis and sequencing of tasks and sequencing of learning, but by then we're getting over into design.

NM Okay. And do you do then a lot of the development stage as well?

ALBERT: I do almost all the development, which is done for always for online learning.

NM Okay.

ALBERT: We have yet to design a course for classroom instruction.

NM Okay, so it's all online learning then.

ALBERT: Mm-hmm.

NM And then in terms of the evaluations that are done for these online courses that you're creating in conjunction with your SMEs, do these assessments normally, do they come directly from the SME already created, or do you get to work with somebody?

ALBERT: It's very, it's really common for an SME to send me a PowerPoint file that they have used in a classroom setting and ask me to put it online, in those words. And when we look at it we can see that it's not really ready to go online. It would have been good in a classroom setting but you need a different design when it goes online because that's self-instruction and it has to be more brief. We have to condense things because people won't sit still in a healthcare facility. They're too busy to sit still for two or three hours. We have to break things down into 15-minute modules or they are on their way. So it does require reworking, significant reworking. The easiest part is actually transforming a PowerPoint into a format that can be put online. The majority of the development work goes into reworking, rewording, editing, technical writing, reorganizing, making things more concise, eliminating redundancy, eliminating excess words, and then finally when all that's done then you can, if you want begin to add sounds or refine images.

NM So do you get a lot of feedback then throughout the process of your projects that you're working on?

ALBERT: Well they, yeah, I have to encourage dialogue at several points so that we go through, when we're done we're really done and yet it seems to turn out very often that we get approval all along. And then after everything should be ready to go we'll send it over and then it'll come back with a message that, "Somebody else finally saw it and they have some ideas or corrections or questions," so it's hard to head that off.

NM Let's just go back to the evaluation stage.

ALBERT: Well, by evaluation you mean after implementation or before analysis?

NM Yeah, after implementation.

ALBERT: Okay.

NM Do you get to work at that stage =

ALBERT: We are right now working on a proposal, I am working on a proposal, for what you would call a full-scope evaluation. We have up to this point done only what Kirkpatrick would call level two evaluations, what Mosely and Dessinger also refer to as summative which is, "Did the learner learn?" We need to move on to level three which is, "Did the learner take it back to the workplace and use it?" And we have not done that yet. And we're writing, I'm working on a proposal for that right now.

NM Okay. That's great. Now when it comes to you mentioned that you do some summative evaluation and Kirkpatrick level two

ALBERT: Which is basically a test, an online test.

NM Okay. And does SME give you authority to create that in conjunction with them or is that something that just comes directly from them?

ALBERT: Well, often I'll ask the SME to write the test and then I will look at the text and I can go back and compare it to or use it to create objectives and then I can test the or I can compare the objectives, the actual instruction and often can flush out instruction or eliminate extraneous instruction based on the objectives. But I tried to get them to work backwards which is a standard technique in this industry starting with the test.

NM And you're constantly doing a formulative evaluation. You're constantly revising your work you think?

ALBERT: Well, a formative evaluation the way Tessmer describes it and the way we finally decided on doing it is we do a design expert evaluation when it's necessary. So if I was to, if you were my co-worker, my co-designer, and I was to generate a design and that would be a fairly thin design at that point, a set of objectives, a statement of treatment and so forth. If I was concerned because it was a big project and I wanted to make sure that I didn't invest a lot of time in the wrong course of action, I might hand it off to you as my co-designer and get you to approve it then or you to, your feedback and alter it. Then when I went back to the client and asked for their approval I can say that I'd already consulted with a co-worker or another expert on it. But that extra point of view, that objective point of view is how we would treat it. There's other ways of doing formative design, formative evaluations even down to the level of the actual, you know, the prospective student or pass the subject matter expert to former students of a similar course. There's a lot of approaches to it, but they're very cumbersome and probably not practical in this setting. They might be practical in the military setting, a huge setting, a setting where there's a huge number of trainer, but we don't seem to need that here.

NM So do you get any feedback from any of the participants of ..

ALBERT: I've never gotten direct feedback from a student. And that's a good question and that's something that's coming up as we look at the evaluation process. Well as you know, and I don't mean to get off topic 'cause I know you're trying to stay on this, but as you know, evaluation is the most under performed aspect of training and development. It's the reason why management looks at us sometimes and says, "What are you good for?" [laughs] You know, "What good are you doing?" I know of very, very few people that have ever gotten to level three, level four, you know, return on investment and that's going to be critical. I think that's going to be more and more critical here because cost is so important in healthcare. So we'll see how it turns out, but I am on that project now and it is interesting.

NM You had mentioned that the analysis phase that you don't get to really work on that and then you kind of see it as being one of your internal consultants that really should theoretically be there to assist with that. Do you think that that should be something that's within your role?

ALBERT: Ideally it would be. If you were to look at the design process, not the process, well yeah the process, if you were to look at it from the project management or the macro perspective, which is typically defined as an ADDIE or by some of our professors at Wayne as double A ADDIE, AADDIE. To me it is a circle and the analysis and the evaluation are very, very similar. I'm the only person who thinks this way, [laughs] but I really think they could be combined because if you were to go around the spectrum from analysis all the way to implementation, then you really should be back at analysis. It doesn't make a lot of sense to me to say, "Did the training work?" You have to say, "Is the training now effective in the current environmental context?" Which is really an analysis perspective. And I've never really met anybody who wanted to look at it that way or was willing to look at it that way. They wanna say, "No, no, let's look at did the intervention work." But it's a lot like anthropology, if you go in to make an observation, you change the setting. If you make some kind of an alteration, everything changes. It's very dynamic. So in a continuous improvement or in a quality situation you'll see more of this perspective where you move from analysis through to analysis through to analysis and around and around and around in the endless pursuit of improvement. And that is really more my perspective and I probably am more that way because I, while in the automotive training I did a lot of work with lean systems and lean manufacturing and I buy into it.

NM Okay.

ALBERT: Did that help? [laughs] Or did that take you off track?

NM No. That's good. How many projects do you normally have juggling at the same time?

ALBERT: It has gone as low as 4 and it gone as high as 10, no 12.

NM Twelve? Okay. Now when you look at the different projects that you're working on, what instructional methods, models, or strategies do you find useful when you practice instructional design?

ALBERT: Oh okay, well, yeah, let's go back to ADDIE for a second. ADDIE to me is not a development—or is not an instructional design tool. It's a project management tool. And all of the little steps you take going around the ADDIE circle are actually the development tools. Now within design itself, which is really where you do your brain work, I really rely a lot on Mayer and his principles of multimedia. They make sense to me and he's borne them out in research and they work. And I believe in a simplification of the message, elimination of extraneous data, which is really a technical writing perspective too, absolute clarity, elimination of redundancy, alignment of images and words, which could be in text form but don't have to be in text form. I can touch on that again in a minute. But I am a big proponent of Mayer and in order to be a big proponent of Mayer you have to also buy into the thinking of (Pavio) and his dual code, his dual channel processing and I do. It makes perfect sense to me. And I also go along with Sweller's cognitive load theory. They all work together very well. And I buy it and I use it and I frequently find myself in a situation where I have to persuade other subject matter experts that redundancy - you know, you'll often hear the words, "Well a little repetition is not a bad thing." But it can be a bad thing and it can overload, you know, anything that overloads working memory—you have to use this when people put in pictures just because they want something to be visually stimulating. Visual stimulation or any kind of stimulation for gathering interest is also an error based on this, especially in online learning. It's especially true in online learning 'cause you're there using it all alone. And you may look at a picture of somebody smiling or a doctor smiling and it has absolutely nothing to do with the text on the page. And where somebody might like that picture on one end, somebody on the other end might say, "Well why is the doctor smiling? This is about pain. Or this is about suffering." It might be distracting or even confusing.

NM You had mentioned earlier Kirkpatrick level two. Do you follow Kirkpatrick's levels of evaluation when you can?

ALBERT: Well Kirkpatrick is old. I think he was, I think that was '51 and he's come under some—and even he has said that, you know, it might merit some change. And still it is I think the best way of discussing evaluation. It still is. I use it when I'm explaining evaluation to other people. Does he say enough? If you were to look at the ASTD handbook of instructional systems design they have a whole chapter on evaluation and they mention him and several other people in that and it's good. But what it really comes down is to four or five basic tools for finding out what people know and people do and you either use them or you don't get to see those people. [laughs]

NM Okay. This question kind of relates to your past experience in the automotive industry, the temporary placement of healthcare workers, the job that you held. Do you feel that instructional design in healthcare is unique and if so, why?

ALBERT: No, I don't think it's terribly unique except with respect to the subject matter. But what is good about a position or what is let's just say noteworthy about a position in healthcare is that we really are an ongoing learning organization and whereas learning and training and development and corporate education, etc., can come and go with corporate profitability in automotive, there are places like the military and like healthcare where it has to be done. The annual mandatories (JCAHO's) and so forth it has to be done. The real question is is it being done properly? Is it being effective?

NM You mentioned that, you know, you're pursing course work and a PhD in instructional systems design. To what extent do you feel that what you've learned about instructional design through your coursework, how do you think it relates to actual practice in the healthcare environment?

ALBERT: I think as soon as you leave the courses at either the Master's level or the Ed specialist level which are essentially the same courses, once you get out of the courses I mentioned earlier—and at that point in the interview I should have mentioned also the media development courses work where we work with DreamWeaver and Flash and we should be working with Sound Booth and Premier and we don't get to, so that's a deficiency in our program. But once you get past that and you start getting into the philosophy of the field, into what somebody, what speech somebody wrote while flying over the Grand Canyon in 1958 or to what flash of insight somebody had back in the forties or even what John Dewey thought, while interesting and very appropriate, or let's say influential, it is to put it somewhat cynically, a little bit of instructional design trivia and not at all related to practice.

NM Okay. In terms of skills learned on the job what skills and knowledge do you feel that you've learned on the job?

ALBERT: On the job?

NM Mm-hmm.

ALBERT: I've gotten better with the software applications. I've become more proficient with the Adobe, the Adobe brothers.

NM The Adobe suite?

ALBERT: Yeah, the Adobe suite.

NM Okay.

ALBERT: That was a (pun). And got exposure to Premier for the first time which is really complex.

NM Okay.

ALBERT: And I missed Pinnacle which we did work with back at Wayne but I had to order Pinnacle on special just to get it on my desktop. Anyway, more work with the media, with the media development tools. I knew photography and I knew videography from undergraduate studies when I got to Wayne and we really never touched on it. I think that's a deficiency.

NM Do you feel that the courses you took in videography have helped you then on the job?

ALBERT: My coursework, my undergraduate coursework in video- which actually at the time was cinematography and involved film editing, but the principles still apply.

NM Okay.

ALBERT: .. was helpful. My ability to use cameras, still cameras and motion cameras, has come in, has been useful. And not everyone has that. Some people are actually as intimidated by cameras as some people are intimidated by software which surprises me. But actually they're a lot more complicated than when I learned photography with film. But those are transferable skills. So to get back to your question about what I've learned on the job, let me fill that in. I've also learned some interesting things about how you can take Microsoft products, specifically PowerPoint, and make them into swfs and drop them into HTMLs and play them on the Web. And the other thing I've learned and even though we had a course in this it was—I think the instructor would agree too—it was a failed course on learning management systems. We never really managed to get our learning management system to work in that class and it did not turn out well. I have now a better understanding of learning management systems and what a SCORM is and what we really need to know about SCORMs and what you don't really need to know about SCORMs, and what you really need to do in order to get code to work without actually sitting down to write code and so forth.

NM Are there any ways in which you could have learned these skills any other way?

ALBERT: Probably not without entering the workplace where it was used without having a more effective course on the subject.

NM And what do you see are some of the challenges that you face in your current role?

ALBERT: I don't mean to be difficult. What do you mean by challenges?

NM In your current job role, if you were to..

ALBERT: With respect to my task or with respect to my career?

NM With respect to your tasks.

ALBERT: Okay with respect to my—I see business as usual. The big problem for all of us is keeping up with the workload. The good problem for all of us is that we have a workload.

NM Okay so that would be a challenge is kind of the workload?

ALBERT: Juggling clients.

NM You mentioned the other option as challenges of your career, you mentioned that

ALBERT: Oh my career?

NM Yeah, what would that entail?

ALBERT: I would say that as a group we are underpaid. And I'm looking for work elsewhere simply because at this point I am 30 hours a week and I have no benefits. And I've been in this position for 30 months with the constant dangling carrot of, "We're going to bring you on full time," and it's never happening. And I've just heard recently that there will be no raises this year and the hiring freeze will continue. So I am definitely looking and I think that's a career challenge is finding a place where I'm valued. Now my co-workers are all full time and I will say adamantly that I'm treated very, very well by co-workers and management. No complaint in that respect. Financial constraints are what they are and this is an urban hospital with urban hospital problems. And I can be sympathetic to that but sometimes one must be proprietary.

NM And do you feel that in terms of your career, that the fact that you've had coursework in your background, now you have job experience, do you feel better positioned to find something else then?

ALBERT: Yes and no. And I don't want to go off track but I can tell you what's missing, and I've noticed this in the course of reading different job descriptions. What you will find is more and more people are looking for the ability to put database applications online, to use Access and program Access so that people coming online can fill out, can interact, can do more Web type activities. And that's a whole new set of information, a whole new set of skills.

NM That would be a challenge then?

ALBERT: Oh it would be a real learning curve. Either you're a coder or you're not a coder. And you can be a very successful instructional designer without being a coder. They're completely different skill sets so that when employers say, "Well we want both," they're really asking for a very hybrid kind of individual.

NM Okay. Thank you.

ALBERT: Usually they don't go together at all. I know one person who can handle both jobs.

NM [laughs] Okay. In terms of the curricular programs that you've attended, do you feel that there are any curricular programs that have helped you practice or helped you be prepared to practice instructional design? These could be academic or non-academic. I know you talked about some of your coursework, but are there additional opportunities that have helped prepare you to practice, like CEs, webinars, workshops?...

ALBERT: I haven't done any of those because I'm still working on the Ph.D. and I'm trying not to get involved. I want to be more involved with professional organizations, specifically the AECT, and not so much the ISPI anymore. Although I would go to the ISPI if I became more of a performance improvement consultant which would be easier to do than becoming a coder and an Access programmer. So no, I have not. But I can tell you what, you know, if you want me to reiterate what was useful in my—okay what was most useful in my preparation for this course would be the one course I took at Michigan State which was the Introduction to Instructional Systems Design. The other courses which were in technology were back at the dawn of the Web. Actually the web was within its first year while I was there and we were using a program called—it was, you don't see the program anymore, HyperCard. We were programming in HyperCard which was scriptable and Apple-based to come up with our multimedia products. I never saw HyperCard again when I left Michigan State so all I was left with was the concept and by the time I got to the automotive business we were doing strictly classroom assignments. So all my multimedia there went away. That's why when I came back to Wayne I was looking for re-establishment of technical skills or computer-based skills because it was coming into its more there. At Wayne I would say specifically that my message design course and my media courses while somewhat lightweight—you might actually get better hands-on training at a community college than we did in some of our classes—but at least they were applied to instruction. I do have another observation about a deficiency at Wayne if you're interested. I really think that the orientation toward team projects is a waste of time. People need to learn all of what's offered in a course and when we're put in team assignments we always wind up doing the same thing we've done in previous assignments. "What are you good for?" "Well I'm good with typography. What are you good for?" "Well I'm good with course architecture." By the time we get out we've done whatever it is we do well five or six times in a row and we haven't really even put our hands on the computer to do anything else. Also in team situations there's always conflicts and they would not happen in the workplace because there would be supervision. When you have groups of four and five people vying for control of a project, and I've been in situations where team members hoard projects and then complain that they had too high a workload. It's just, and we don't even train at Wayne. We don't even give a course in teamwork. So it's really a bad approach to classroom education. It's not what we're paying for. We're not paying for an opportunity to compete for knowledge on a team and you will hear instructors say, "Well, employers come here and they say if you can work on a team you don't know how to work in their environment." Well it's not good preparation for a team. The end results if you were to compare it to medicine would be if you were to walk in to see a doctor and

say, “I need someone to remove my appendix,” and she was to say to you, “Well, you know, when I did the surgery team thing I worked on bandaging, or I worked on suturing. I don't know how to really make yank the appendix but that’s okay. This will be fine. I’ll try it this time.” You need exposure to all of the skills involved before you go to work on a team. It’s not..teamwork is not where you acquire all of the separate skill components. So I and almost all of my classmates have discussed this and we all violently object to this teamwork concept.

NM Okay. You had previously mentioned affilitations with professional organizations. Are you currently or have been part of any professional affiliation that focuses on instructional design?

ALBERT: I’m a former member of the ISPI.

NM Okay. And any..

ALBERT: In my automotive, in my automotive instructional design days I was ISPI.

NM And do you feel that being part of ISPI back then was helpful to you in terms of your ability to practice instructional design?

ALBERT: Well I’m going to come across as a real curmudgeon here aren’t I? No. [laughs] I think there’s ..you know, while people look for those on your resume they are really just networking opportunities. And week or month after month I’d go to those meetings and learn nothing. And we’d all come in and have a small glass of wine and some hors d’oeuvres and the whole idea was to walk around and shake hands as if the networking would do us good. But in reality we were just talking to a group of people who would compete with us for jobs. So I didn’t find the networking to be especially useful and I didn’t find it, I never really learned anything at the—I’ll take that back. I went to one presentation from which I extracted very useful information but it’s rare. The association meetings also, the conventions, same thing. You go from room to room to room and you get overviews of things people are doing but in reality they’re just there presenting trying to stimulate interest so others will come up to them afterwards and give them their card and ask them for a call so they can come out and consult. And you never really acquire the pithier skills.

NM You had mentioned earlier that you may want to join…

ALBERT: AECT. It has a good reputation =

NM Okay.

ALBERT: …and it seems to have more of a research bent.

NM And do you feel that would be important for you if your career’s involved in this environment?

ALBERT: Yeah because I think we'll get into things with substance there and if we don't I wouldn't remain a member.

NM Okay.

ALBERT: I also attend the meetings at the U for doctoral candidates. We have them once a month. I don't make all of them but those are more about how to get your degree than they are about how to be a big designer.

NM Okay so this is like an informal group?

ALBERT: I'm trying to remember the name of it, but Dr. Moseley is the sponsor and we meet over in one of the dorms.

NM Okay.

ALBERT: It's got a name.

NM But it's more about how to get your degree?

ALBERT: Yeah it's more of a support group for doctoral candidates.

NM Do you find it useful?

ALBERT: I find it reassuring.

NM Okay.

ALBERT: More than useful knowledge. It's just while you're in the dissertation phase it's good you remain in contact with other students and with teachers or you can begin to kind of feel lost and isolated.

NM Okay. This is the last part. It's about your recommendations and your reflections. What would your recommendations be—and I know you've touched on this—for academic programs preparing instructional designers for practice?

ALBERT: I think we should, at least through the Master's level, stick to the nuts and bolts, stay away from the history and the arcane trivia and get some other courses into the curriculum and get rid of the fluff courses, the Ed psychs and, you know. I've had a course in Ed psych where we talked about adolescent problems and family problems and it's very interesting and everybody should be aware of and it has nothing to do with instructional design. I've had courses where we just went on and on and on about what was done back in the, at the dawn of the field and that's interesting and it's not nuts and bolts. So at the master's level I think we should make sure that people become proficient in the Adobe suite or whatever will replace it—and something will replace it soon—the

media development tools before we get media development projects. And if we're not going to do that we should let people go to the community college where they do learn the Adobe suite and if necessary the Microsoft suite before they apply it. We're not doing that. We're trying to put it all into one course and it's too much. It's too much. So I would say cut out the Ed psych or much of the ed psych. I would say put in more of the hands-on media. I would say get rid of this teamwork perspective. It's just wrong.

NM Okay.

ALBERT: It's just wrong.

NM Now you specified that for Master's level. What would it be then for the doctorate since you're part of the doctorate what would your recommendations be for academic programs in that area?

ALBERT: Well the theory of the doctoral program is that they're preparing you to do research. And this could just be me but it seems like we spend an awful—everything seems so vague when I go through these courses and I can find no consistency whatsoever from one professor to the next. They all have their own shifting perspectives, their own idea of what things should involve, their own ideas of what research should be like or what constitutes whatever, and if you are exposed to more than one professor you're inevitably going to be—I was confused by the variation, by the variety. And that's probably good that I saw these things but when you're trying to do your first serious research project you really wish you could focus in on a single method. I wished I could focus in on a single method and just do it. Also I think it would be better if at least for me, if there were more opportunities to replicate past studies. This was the case when Gary Morrison was here. It's still an option but it's hard to get a professor here to say, "Replicate this or replicate that."

NM So you think that that would help instructional designers in the healthcare environment?

ALBERT: I, no, no I'm not, I thought we were on the doctoral program.

NM Mm-hmm. We are.

ALBERT: More generally and without respect to the healthcare program.

NM Okay.

ALBERT: So a little more direction and a little more consistency. No, a lot more direction and a lot more consistency. With respect to the healthcare it doesn't really matter whether it's automotive, healthcare, military or whatever. The principles of learning are the same, the principles of instructional design are the same and the need to understand media development tools are all essentially the same.

NM Okay. Now what would your recommendations be to actual instructional designers entering the healthcare environment in terms of what content area, programs or affiliations would you recommend instructional designers to be exposed?

ALBERT: Well I'm not sure I would recommend that anybody enter healthcare. Although I like it and I took to it well, I seem to have a quick aptitude for biology and healthcare related sciences. Not everybody will. That would be true too of somebody entering automotive. The theory of instructional design, as you know, is that given the right subject matter expert you can write a course on anything. But in reality it helps to understand the subject matter yourself.

NM So you'd recommend them to have some type of biology or health science background?

ALBERT: I would recommend that nurses pursue this. I would not necessarily recommend that engineers pursue this or liberal arts majors pursue this. In fact, if I were to leave [name of hospital] it might be impossible. We're one of the very few institutions that allows non-healthcare workers to work in instructional design as I understand it, so it might not have been a good way to go.

NM Okay. So..

ALBERT: It may turn out well, we'll see.

NM Are there other content areas or programs that you would recommend for an instructional designer who was going to enter in this field?

ALBERT: Yeah. I think I would continue on with my previous thought, which is it's really good to be somewhat your own subject matter expert. It gives you rapport and it gives you credibility with your subject matter experts. So it would be good for an automotive person to be an automotive instructional designer, a healthcare worker to become a healthcare instructional designer and so forth. That would be ideal, just as it's ideal for a lawyer to become a law librarian. The problem with having that industry is because we are somewhat undervalued with respect to our positional training or as a cost center rather than a profit center or revenue center, you could slide..a nurse would make more than a healthcare instructional designer. An engineer would make far more than a plant instructional designer and so forth.

NM Okay. What would your recommendations be to healthcare administrators to help prepare instructional designers in this environment?

ALBERT: Rather than recommend that I would recommend that healthcare administrators take the whole training and development effort more seriously and look upon it as an opportunity to have a positive impact on the bottom line. And that is applicable to profs and non-profits. Because—and this is our earlier conversation—because they do not value the evaluation process they are not getting valuable data with respect to how things

are actually improved by what we do. We don't know and we can't find out without their support in a fairly expensive but potentially very beneficial evaluation effort.

NM Okay. This is your last question. When you reflect on your ability to practice instructional design how prepared do you feel you are to practice instructional design in this particular healthcare setting?

ALBERT: Well I think I am at this point well prepared but are you asking me because of experience or because of education?

NM It could be both.

ALBERT: Because of education I came in with—and previous experience—I came in with some confidence and the ability to interview and work with subject matter experts. Because of exposure to the new media—and as I said, when I started out it was HyperCard, and now it's something different and as we see Flash is going to be replaced by something else we'll have to change again—I felt better prepared. And I'm glad that I had those classes at Wayne and I don't think I would have gotten here without those classes at Wayne. So it was good in that respect. So I would say fairly well prepared but two things have to take place and one is you have to get familiar with subject matter. And in my case that would be mainly nursing and some human resources courses. And you also have to try to keep up with technology which is constantly changing.

NM Okay. Is there anything else that you would like to add?

ALBERT: Now that I've said that I realize that what I should be saying is we need continuing education opportunities for advancing technologies.

NM Okay.

ALBERT: And it should be based at our alma mater. Why not?

NM So these continuing education opportunities should come from the university environments or something or should…

ALBERT: Well I think that we would benefit from that and I think a Wayne—or now Michigan State's out of it—but a Wayne or a Indiana or a Florida State or a Georgia, they would all benefit from the opportunity to bring alums back in and to help them stay up to date or maybe help them stay up to date online. But involvement with alums would be good for them.

NM Do you think it would be good for the students to be exposed to you?

ALBERT: Yes, very good. Well now Flash is going away. Flash is in the process of dying. They're working on some new kind of HTML that's supposed to replace it. Of course we'll need front ends to do that. I don't know if those front ends are even in the process

of being developed. Something along the lines of a Captivate or a even a Flash itself or a Camtasia or some kind of a program Articulate will be needed to get things into the new HTML format. We're not getting ready for that. We're hearing about it but we're not getting ready for that.

NM Do you think those CE opportunities should be offered by your employer?

ALBERT: I think they should be supported and funded by my employer yes.

NM Okay.

ALBERT: I'm not sure they would be and I'm not sure that I wouldn't pay for them anyway because it would be that valuable to me. So now would I do it immediately? No, not 'til I finish my dissertation.

NM Okay. Well thank you.

ALBERT: Thank you. This was fun!

APPENDIX H: CAT'S TRANSCRIPT
INTERVIEW WITH CAT

NM: Cat, as you know, the purpose of this research is to help and understand how instructional designers pursue their preparedness to practice in healthcare environments. Today's session will take about one and a half hours and will have two parts. The first part of the session will consist of a one-on-one interview with me that will be guided by questions that I ask you and the interview will focus on your ID experience, methods of preparation and recommendations to others in the field. Afterwards you'll have the opportunity to share with me two completed ID projects in which you've participated. If you need to take a break at any time during the interview feel free to let me know. Also feel free to decline if there's any questions that you prefer not to answer. As agreed upon by you signing the consent form this session will be tape recorded for purposes of accuracy. The tapes will be kept under lock and key for purposes of confidentiality and you will be de-identified as will your place of employment. So please answer each question completely and as time permits, include information that you believe is pertinent to the study. Do you have any questions prior to starting regarding informed consent?

Cat: No.

NM: Okay. What is your current job title?

Cat: Director of instructional design.

NM: Okay and if you could describe your current job roles and responsibilities how would you describe them, just generally speaking?

Cat: So there are four large buckets, responsibilities. There is the bucket of accreditation so I work very closely with program directors from 46 different residency programs around the educational structure of their residency to make sure that it meets the ACGME accreditation mandates, specifically in areas related to curriculum, assessment, program improvement. Okay. Then there is a bucket which is the institutional curriculum and in that bucket I design, develop, implement and evaluate curriculum that we've run centrally for all residents here and in areas such as communication skills, research and statistics, business of medicine, and human factors. And the title of that curriculum in aggregate is called "Creating Synergy." The third big bucket is faculty development so I develop, implement, and evaluate faculty development at an institutional level and at a program level. So I do faculty development institutionally for program directors as well as customize faculty development for their specific specialty. And then the fourth big bucket is general administration, sitting on committees, partnering with other people in the system to launch different initiatives so that kind of thing.

NM: Okay. So in terms of what would be your educational experience then with instructional design? And if you did not have any educational background with ID where have you learned everything that you know about instructional design?

Cat: So my PhD is in educational and clinical psychology and instead of doing the educational track I took the clinical track. And so within the clinical track my specialty was in neuropsychology which looks at things like memory, learning, metacognition, that kind of thing. And for probably 25 years that would have been my primary professional identification. Outside of [Place of Employment], nobody really identifies me as an educator. Okay. I've had two instructional design courses but that's about all the educational background I have in instructional design per se.

NM: Okay. And what is your prior work experience with instructional design prior to here? So you had..

Cat: None.

NM: None okay. So whatever you've learned you really had to learn on the job as you've gone along and you've taken information then from your prior experience with psychology then to help you?

Cat: Right. Right. So I would say that if you look at how I conceptualize projects or curriculum or faculty development a lot of my conceptualization of it comes from my background in psychology and comes from the fact that I was a clinician for so many years. So I really understand medical culture and because I was a neuropsychologist, you know, that kind of is the basic science for a lot of things that we talk about now like cognitive load theory, memory, reasoning, executive functions. So looking at how the brain operates and processes information kind of helps me to begin to think about the work that I do from a cognitive load perspective, from a memory perspective, from a how many times does someone have to hear this perspective before they really understand it building schema, you know, that kind of thing. So it's a very different background than the majority of instructional designers in healthcare.

NM: Okay. And based on your experience when you're referring to like the majority of the instructional designers in healthcare what do you feel their experience normally has been?

Cat: What do I think their experience is?

NM: Yes 'cause for you, you know, you've taken the courses and then you've had a very different background. You've had like the neuropsych background so you're bringing in those kind of theories. Where do you think the other people have been able to attribute their knowledge from then?

Cat: I think a lot of them have done degrees in instructional design. Yeah.

NM: So in terms of the type of ID projects you've worked on, I know you're talking about like faculty development and things of that nature, can you describe to me some of the ID projects for which you've participated and in what capacity?

Cat: Mm-hmm. So in the building bridges piece of the institutional curriculum I designed, developed, implemented, and evaluated four modules and communication skills. These modules

really became a partnership with the department of quality and safety and they were used as a mechanism for diffusing out important quality and safety initiatives here at [Place of Employment] to residents. The problem with most education when you are working within the medical culture it's given to nurses or ancillary staff within a hospital is it isn't suitable really for the medical staff and they don't resonate very well with it. So it really is taking material and beginning to think about how would this resonate with residents. So the way that it's set up is for two of the four modules they do an online, short online module that we already have developed, so it's patient safety 101 and its informed consent 101. And then we developed, I developed a power point lecture that lasts 45 minutes as well as a facilitator guide and the faculty of each of the programs, and there are 20 different programs so this is spanning all specialties, come down to the SIM center and present the power point and facilitate the discussion among their residents in small groups. Once the discussion is done the residents do two OSCE's per module and the OSCE's are observe structure clinical encounter, so I also developed the cases for the standardized patients and the residents go in and they actually have to demonstrate the communication script that we talked about. So for informed consent it's around teach-back. For error disclosure it's around the heart model. For sharing bad news it's a Spike's model. And for the team training handoff it's around I-switch. And these are very specific communication mnemonics if you will that we want them to demonstrate with the standardized patient. So the assessment component of this is that the residents self-evaluate their performance. After each OSCE the standardized patient evaluates their performance and the faculty review a videotape of their performance at some point in time. It could be immediately; it could be delayed, but they also complete the same assessment tool. And the faculty who are completing these tools receive a debriefing guide so that goes over key learning points, what you need to do, you know, areas that we really want faculty to focus on in terms of giving feedback and provides them with behavioral anchors for rating the resident on the tool so that they can rate effectively.

NM: So for a project like building bridges then typically will you be called in to assist with the four phases that you mentioned with the design, development, implementation, evaluation, is that a very typical occurrence that you will be involved with all four phases in a project, or do you sometimes get pulled into projects only focusing on the design or only focusing on the evaluation?

Cat: No. With med ed I'm doing all of the components of the project so no I don't really have that luxury.

NM: When you are focusing on let's say the design phase, you mentioned that there's power points that sometimes are given to you, sometimes perhaps you build them yourself?

Cat: Yeah.

NM: Do you use any instructional design models when you're designing these kind of projects or do you think about various instructional strategies when you're designing some of these products?

Cat: Yeah, so the needs assessment for the institutional curriculum as a whole came out of a number of datasets. It came out of sentinel event review committee so what areas were we

having challenges with institutionally that needed addressing. So for example, the OSCE's are all linked back to a particular sentinel event that we had here at [Place of Employment]. So they aren't just things that we thought of would be cool. In Error Disclosure for example we have retained (Guidewire) as one of the OSCE's and that's one of our big challenges institutionally when we're putting in central lines. The other data that we used for the needs assessment were the Press Gainey scores, HCap survey scores, you know, what kinds of things did residents need to be able to do at the point of care with patients and what would be important to them as they kind of grew up and graduated. So, you know, the easiest way for me to talk about this is to print off the thing I just did for the Royal College, okay 'cause it'll give you a much more linear structure.

NM: Okay.

Cat: Okay, so let me do that. The data was not based on a survey. That data was then taken to a multi-disciplinary committee and reviewed and decisions were made about what topic areas were most important to residents in their first year; what people on the committee thought should be some of the key learning points; and what people on the committee, based on their experience, thought should be some of the communication scripts, how we should teach communication.

NM: So that would then drive this kind of data that you're talking about, would drive your learning objectives =

Cat: Yes.

NM: = for example that you're incorporating?

Cat: Yes.

NM: And you then work towards developing those learning objectives in conjunction with the other subject matter experts then at times?

Cat: Yeah.

NM: And then when you're putting together the way in which or the best way the residents would learn this information, at that juncture, are you kind of grabbing back into your mind about the adult learning theories or anything like that, or what helps you figure out the best mechanism for teaching the residents at that time?

Cat: No I'm not using adult learning theories 'cause I'm not sure that they're really valid.

NM: Okay.

Cat: [laughs] What I'm using is a whole lot of experience having taught residents so what works with them is, you know, some foundational didactic that forms concept and helps build schema but a lot of trigger questions to get them to discuss and think about the areas that are being talked about. When they see it in practice it helps them link it directly to their own experience. So

when I'm designing this I'm looking for what is key content for them, what are they going to need now and in five years, and then I'm looking at how do I narrow down the content and pull out the key, absolute key salient points and present them in a way that they can hear them.

NM: Okay.

Cat: Okay, so it's not based on theory at all. Well, it's based more on neuropsych which is if you look at these power points what you see is that there are main themes and then there is supporting content that backs up the main themes. But the main themes are made very clear so that it sort of creates this memory if you will, around these areas. Does that make sense?

NM: Yeah absolutely. So 'cause again I know you mentioned like schema and like the whole social, the cognitive load theory =

Cat: Yeah.

NM: So you are thinking about some of these things then?

Cat: Yeah.

NM: But not necessarily gravitating it from..

Cat: But not drafting it from principles.

NM: Okay.

Cat: So if I look back on the work I can say, "Yes, okay, you know, this is something that, for example, the power point or the content is too rich in this point. They're not going to get it because it's taxing their ability to process the information. So this is a particular area that either needs to be thinned down by picking out even more clear salient detail or it, you know, it needs work." So in that respect yeah, I'm using sort of my knowledge about memory and, you know, encoding and learning and how do you best do that, but not adult learning. I don't know that adults learn differently from children.

NM: Alright.

Cat: I don't have data on that Nandita... So here, I'll just give you, here is the institutional overview of the curriculum and then this is a power point of the curriculum design process that we use here which is an adaptation of a whole lot of stuff. It's blending in some of Kotter's work from the Harvard Business School about diffusing out innovation. It's blending in very little of what we know in education as curriculum design but, you know, what sort of it's a thinned down version of ADDIE.

NM: Okay.

Cat: Customized medicine.

NM: And since you mentioned ADDIE, to what extent do you think that instructional design in healthcare follows ADDIE?

Cat: I think they do. I think the problem where a lot of people get stuck is they are not particularly creative or thinking out of the box in terms of needs assessment. So what you usually get is a survey, when in fact in healthcare systems today there's tons of data that can be drawn at the system level to really look at where are the gaps, what are the needs, what do I need to do to improve performance? Is that educational or is it something else? The other place that they get stuck is not really understanding how to design the curriculum so that it resonates within a medical culture. So within a medical culture as opposed to a university, academic culture, or a corporate culture, there are intense time pressures on everybody and so there's tons of required online courses that we all have to take just to keep JCAHO certification. So how do you make your online course kind of stand out among all those, you know, mandatory courses? And again, I think there's a role for web-based learning or e-learning but what I find with residents is they often click through and then they can't really recall much of what they've done. So what I have found is they learn best in small groups where there is foundational content laid and then discussion is built upon that foundational content.

NM: The teach-back that you were talking about and the personal evaluations?

Cat: Yeah. Yeah, yeah. They don't absorb much of didactics because their day is very time compressed, it's very high stress; they're already cognitively overloaded when they walk in the room. And so their educational experience has to be one where they can step back, they can reflect, they can discuss, they can process, because once they leave the room there will be no continued processing of whatever it is you were teaching. It doesn't matter what you're teaching because they can't. They're going back to the floors or in the clinics and they're dealing with patients and so whatever they take out of that session is your outcome.

NM: How long have you been in this role?

Cat: Here?

NM: Yeah, here.

Cat: Four years.

NM: And prior to?

Cat: Prior to this role I worked two years at the ACGME, which is the accrediting body nationally. I developed power points and facilitator guides that are sort of a national initiative in faculty development. Prior to that I was here for a short time and prior to that I was at another hospital which is kind of about an hour from here, where and I think that was the most gratifying job I had. So I did a portion of my time was spent training residents okay doing what I'm talking about here and, you know, running courses on leadership and all kinds of different things. Part of it was training post-doc fellows in health psychology so supervising all of their clinical work

and doing their curriculum for their, you know, two-year fellowship. And part of it was doing faculty development and then part of it was administration.

NM: So when you look back 'cause you had a very full history and you've had a lot of experience obviously, so when you look back in terms of this job, what kind of skills do you think that you've learned specifically on this job?

Cat: I have learned how to diffuse out system level initiatives and to get buy-in and to create innovation. And that has pros and cons. So that takes enormous amount of energy, detail focused, time on task and you don't always see the end result of what you do.

NM: Okay.

Cat: So that's kind of what I've learned here.

NM: Are those kind of skills and that knowledge that you've gained, is that because of what you've just experienced on the job? Do you think that you could have learned this type of, you know, these type of skills or knowledge in any other way?

Cat: No. Because I'm negotiating the implementation of this curriculum across 20 different programs. So the programs in surgery say, "We want this. We don't want that." The programs in internal medicine want something different, pathology needs something different. Radiology needs something different. So how do you blend all of that feedback and all of those needs into something that will generally resonate across all specialties? And that is a very, that is not something we do in medical education well. So for example, yesterday I was talking to the woman we're going to have come from Oregon who's going to talk about medical decision-making and she's saying to me, "Well I can't do surgery cases. I'm an internal medicine person." And I said, "But in your audience there are going to be very few internal medicine and a whole lot of other so you have learners ranging from program directors of core residencies to fellowships to chief residents. So these cases have to be generic enough to resonate across specialties." And she was quite stymied with that. "What do you mean?" And I said, "Well, you know, what we do here with the institutional curriculum is the cases are not based in medical detail because they're communication." Now I don't know how she's going to work that but they can't be based in detail that these people need to know because if they're surgeons they may not know the detail.

NM: So being adaptable and being able to generalize to some extent based on your audience.

Cat: Yeah.

NM: So are these necessarily things that you could have learned in a course? Or..

Cat: No.

NM: Or a program or a workshop or something?

Cat: No.

NM: These are things that you feel…

Cat: This is verbal learning. This is feedback from 50 people all at once, emails, "We don't like this. We don't like that. Change this, change that." And learning how to really separate out the good feedback from the not so good, retaining the integrity of the educational product and learning how to blend the good feedback in so that the product is improved at the end of a year.

NM: So, in your role at the present what then would you see are some of the challenges for fulfilling?

Cat: I think there are a lack of resources. You know, I do a lot of coordinator work so I'm formatting facilitator's guides and I'm, you know, scheduling and coordinating the multi-media video clips that we're using in the power points. You know, it's a lot of I don't really think it's using my skills. I think it's really something that a master's level person might be able to do and do well and be gratified by but I'm not.

NM: Okay.

Cat: So we have lack of resources and then we have the challenges that are inherent in being the point person just diffusing out change.

NM: So if someone were to take on a role like this, what kind of recommendations would you have for them in terms of being able to learn how to deal with, dealing with change and that change environment?

Cat: I think for someone to be successful in this role and to feel gratified by their work they'd have to be able to do two things. One is they have to be really, really open to feedback because they're going to get it and they can't take it personally. So they have to have kind of a thick skin and be able to roll with, "Okay, you know, I understand they don't like this but they're adamant about they don't like this so it has to change even though I like it." So there can't be that, you know, "I'm doing it this way 'cause I'm the expert," because really what I'm doing is creating curriculum for people who are novices in this area and so they don't know what they don't know. And I often know they don't know what they don't know so the changes I'm being asked to make are because they don't know and that can be frustrating because I do know. So there's that tension. And so being able to roll with all that feedback and the drama involved in that and the drama in getting 200 residents through this and the scheduling issues and the meltdowns of the staff, and you know, whatever. And then I think the other thing that they really would have to be able to do is multi-task between exceptionally large projects. So at the same time I'm developing this curriculum I'm dealing with the educational component of the accreditation for however many programs are up for review. Or I'm dealing with the internal reviews of programs and so toggling between that huge thing, the curriculum and then the faculty development piece.

NM: Okay which is a lot. When you're getting a project, let's say.. do you ever get a situation where all the information is canned? You've talked to subject matter experts, they've said, "This is exactly how we want to do it. Please go develop it, implement it and we already know how we're going to evaluate it." Do you ever get a situation like that?

Cat: No. No because we have decided to make the institutional curriculum to not use copyrighted written, copy something material so that we can diffuse this out to other institutions without paying copyright. And so no I can't get canned stuff. I wish I could because there's a lot of good canned stuff out there. But that's not an option.

NM: Oh what if it was just one a subject matter expert who had developed his or her own power point slides, said, "This is exactly what I want distributed."

Cat: No.

NM: And in terms of evaluation you said that sometimes it's just like a simple survey. What kind of mechanisms do you use to be able to determine what kind of evaluation is needed and do you follow any type of model for that, any type of evaluation model?

Cat: So in the medical education yeah I kind of do, in the medical education literature the reason that we put self-assessment into the institutional curriculum is that we know residents cannot self-assess, that they assess too high particularly in the communication domain. They think they're fabulous; the patients do not. And so one of the top points in their debrief is, "You rated yourself at a five. This standardized patient rated you as a three. What do you think the difference is?" And it becomes a rich learning experience for them. So we incorporated self-assessment even though we knew that they would overrate because that could be used as a, you know, significant learning. We also know the faculty overrate in that they tend to give on a five point scale, four's and five's just sort of because. And so we included behavioral descriptors on each of the numbers for the scale for each of the questions so that they would have some guidance in terms of rating more accurately. I think the gold standard for rating is standardized patients because they have been trained and they do it all the time and there is some consistency. So we use assessment theory, yeah in terms of developing the assessment component. The tool that we're using, we did reliability and validity studies on, we published a paper on that and as a first step in the research arm of this curriculum to make sure that the tool we were using had adequate psychometric data but that doesn't come from education; it comes from psychology.

NM: So when you're, you know, dealing with OSCE's in the development of these type of interventions, where did you start learning more about these options that can be used in the healthcare environment for teaching purposes?

Cat: In a medical school environment OSCE's are routinely used across all four years so they're not new.

NM: Okay.

Cat: In a graduate medical education environment which is at the residency level they are new and they're not used as routinely and so, you know, I had knowledge about OSCE's. OSCE's are one of the best ways to really measure performance because they're actually measuring the ability to demonstrate the skill you've just taught rather than pre and post test. So, you know, we knew that we wanted to go in that direction and we formed a partnership with Wayne on that so that they would give us the OSCE's and, you know, we would, you know, develop the cases and provide all this stuff.

NM: When you work on a project like building bridges and you're designing, you're implementing, you're evaluating, are you also doing like a formative evaluation where you're evaluating throughout the process of developing this product?

Cat: Mm-hmm.

NM: Is that a common occurrence?

Cat: So we use what I call educational PDSA cycles and what we do is this allows us to do a lot of graph and prototyping so if things don't work we know it early on and we change. And that's in the lecture that I gave. So what that really means is the curriculum is launched and then I begin looking at course evaluation data early on and if I am seeing things that clearly suggest an issue then, you know, we look at that more deeply. I also do periodic focus groups either with residents or with faculty. "How is this going for you? How is it resonating?" And sometimes I go down and simply observe the faculty teaching because that can tell me how that material is being communicated that I wouldn't already know. And so in kind of taking that data then we can make, you know, changes to the curriculum quickly. So what we found after the first year is we had developed online modules for all four of the little mini courses if you will and residents got burned out doing them so we kept the two that had the most powerful message, which was informed consent and patient safety 101 and we dropped the other two. We also changed the way we scheduled to make it more convenient for faculty so that they wouldn't have to repetitively teach the same thing over and over and over and over. And so these changes are made I'd say bi-yearly. I mean this is quick turnaround. That whole curriculum was developed and launched within a year, all four =

NM: Is that an average cycle time you think for these types of projects?

Cat: Not when you have the other three buckets of stuff =

NM: Right.

Cat: so yeah. I mean if we just had a department of instructional design then yeah that would be fine, but we don't.

NM: Okay. I'm going switch focuses just a little bit. In terms of your affiliations with professional organizations if you could let me know if you are currently part or have been part of professional organizations that you think have pertained either to instructional design or to instruction in general or curriculum development that you're focusing on right now?

Cat: No.

NM: Okay.

Cat: [laughs] I have a weird career path Nandita... What can I tell you? [laughs]

NM: Are you a member of ACGME?

Cat: You're not a member.

NM: Oh you're not a member okay.

Cat: No. It's not that you, yeah.

NM: Oh okay. So you don't belong to any other professional affiliations?

Cat: I belong to the Society for Simulation in Healthcare but I'm not really active in that. I belong to STFM okay so that's Society of Teachers in Family Medicine, and I'm not active but I have been active in the past. And they do talk actually they do talk about curriculum design, assessment, program improvement. Omerad which is up at Michigan State University is really the med ed branch of kind of education and they do a one-year fellowship with MD's around educational, developing educational programming that's really sound and effective. Now I didn't get to do that one-year fellowship 'cause I'm a PhD not an MD, but I was exposed to the material I guess when I was at the [previous place of employment] so that's not new to me.

NM: Would you recommend for instructional designers coming into a healthcare environment to be part of those kinds of affiliations like your simulation in healthcare, that association as well as the Teachers in Family Medicine?

Cat: It depends on what they're doing. If they're going to work in medical education I think those are good affiliations. I think also the AAMC they're a national, you don't belong to the AAMC but they have a huge national conference…

Cat: American Association of Medical Colleges. They have a huge conference every year and they do discuss a lot about educational programming and I think that's really something important to go to periodically. The ACGME conference is important to go to. I just got back from the Royal College Conference in Canada and that's sort of a variation of the ACGME conference where, you know, the big Canadian names in medical education go and talk about what they're doing with students and residents at their institution.

NM: Okay that's great. The last part is going to focus on recommendations that you have and just your personal reflections. What would your recommendations be for academic programmers preparing instructional designers for practice specifically in healthcare environment?

Cat: I really think they need to think about is some specialty in medical education. This, like you have in performance improvement. This is an area that over the next 20 years is going to have significant need at a number of levels from instructional design so the ability to use technology for education is huge right now in the medical schools. How do you use Wiki and blogs and, you know, sharepoint, all these things that are out there that our students are communicating on that we as faculty have no idea. You know, like Facebook, what is Facebook? I don't know man. How do you get on it? What are all these messages in my spam box about? So I think faculty need development in that but I think medical schools really need instructional designers with major technology skill. ePortfolio is huge right now and they need to be able to design ePortfolio so that they're easy to use and intuitive for both students and faculty who use them for promotion and tenure but also, you know, can contain the kinds of things medical, artifacts medical students might produce. So video clips and digital photography and all those kinds of things. They also need instructional designers who can develop powerful web-based learning so not the click through but really the interactive deeper thinking, branching learning. There is a project going on right now called "The Virtual Patient" where patients are developed like standardized patients and medical students have to go through and kind of choose different diagnostic possibilities and kind of interview the patient. And this is very cool but it's, you know, very kind of cutting edge. In Europe they have IBIMEDS which is an online medical school and it would not surprise me if we move 15 years from now that we begin thinking about this in the United States. Right now our version of online med school is videotaping lectures. They also need so instructional designers who really understand the culture of medicine and what we're preparing these kids for and how to link both with the kids and the faculty in basic sciences to really promote small group learning. So the day of the 200 people in the room didactic microbiology course is gone and the faculty across the country are at a loss in terms of "how do I use technology to stimulate small group", "how do I stimulate small group", you know, "how do we do this in a way that really begins to link curriculum with clinical work". And that's the big challenge. Many medical schools are moving from first two years basic science curriculum second, the last two years clinical curriculum to an integrated curriculum. So how do you design curriculum that manages to make sure everybody's being taught the same thing about the brain and the eye and the heart and, you know, and those things are not falling off the page.

NM: So if you were to speak to an instructional designer that was going to start working or think about working in a healthcare environment, what would your recommendations be for that individual in terms of what kind of content areas or programs should they focus on or affiliations, what would be necessary for them to consider when entering the field?

Cat: I, you mean in terms of coursework?

NM: It could be coursework; it could be clinical knowledge; it could be knowledge of the basic sciences. What do you feel an instructional designer entering the healthcare environment right now would need?

Cat: I think they need some knowledge of medical culture which is very different from the academic world. So they need to have an understanding of what it's like to work within a medical culture, and that varies depending on whether your target audience is nursing or whether

your target audience is physician. And I think some idea of how those groups kind of think, process information, take in information, respond to different kinds of teaching strategies is really important.

NM: So to understand or learn more about medical culture what would be the best way to do that? Would it be through a course? Would it be through internship or..

Cat: I think so. I think both actually. The way that I would conceptualize this subspecialty is that you'd have coursework in that but then you would do a short internship where you'd actually, you know, go into a healthcare environment and really begin to design and develop something and, you know, begin to think about how is that going to resonate and see the results of your work. So something short where you could evaluate it and say, you know, "It worked. It didn't work."

NM: Okay.

Cat: Yeah.

NM: What would your recommendations be to healthcare administrators to help prepare those such as yourself, people to fulfill their job roles in the healthcare environment?

Cat: I think in healthcare today we have, you know, rapid turnaround time for everything and that's the nature of environments across the United States. And so I think administrators really need to understand cost, so what is the cost of implementing an ePortfolio? Let's not get halfway through the software and find out we don't have money. They need to have talent and that talent needs to have time. So, you know, there is a thinking I think in healthcare that we can just hire a master's level educator and they're going to do great. And oftentimes their failure occurs within the first six months 'cause the environments that they come out of, the academic environment, teachers, education, trying to switch over to medicine if they don't understand the culture they are not going to meet the expectation of the administrators.

NM: Okay.

Cat: Okay.

NM: Final question. When you reflect on your ability to practice instructional design, how prepared do you feel you are to practice ID in a healthcare setting?

Cat: Well I mean [laughs] I think I can do it okay Nandita but I don't think school prepared me. I think that this really, you know, my career path is very different from many people and I don't think this was really school.

NM: Okay. Well thank you. What we can do now is review some of the completed work projects that you've done and you can just show me how aspects of the ADDIE model that you described were addressed, how objectives were integrated, what kind of evaluation mechanisms you've used, things like that.

APPENDIX I: JANE'S TRANSCRIPT

INTERVIEW WITH JANE

NM: Jane, as you know, the purpose of this research is to help in understanding how instructional designers perceive their preparedness to practice in health care environments. Today's session will take about 1.5 hours and will have two parts. The first part of the session will consist of the one-on-one interview with me that will be guided by questions that I ask you. The interview will focus on your ID experience, methods of preparation, and recommendations to others in the field.

Afterwards, you will have the opportunity to share two completed ID projects in which you have participated. If you need to take a break at any time during the interview, feel free to let me know. Also, if there are any questions that you prefer not to answer, feel free to decline.

As agreed upon by you signing the consent form, this session will be tape recorded for purposes of accuracy. The tapes will be kept under lock and key for purposes of confidentiality and you will be de-identified, as will your place of employment. If you could answer each question completely, and as time permits that would be wonderful. There will be approximately sixteen questions that I will be asking you, but before we begin, do you have questions about the informed consent in terms of your time commitment or what is required of you?

JANE: No.

NM: Okay, great. So let's get started. What is your current job title?

JANE: My current job title is Consultant. That's my official job title.

NM: Okay. So Consultant. And prior to working at this facility in this hospital did you have any work experience in Instructional Design elsewhere?

JANE: I guess it's a little bit hard to say. The definition (at least in my own mind) of what Instructional Design is has changed over the past few years. Years ago, I was instrumental in creating courses – this was before the Internet came out, actually doing technical writing, creating course manuals and things like that, so I know that in a broad spectrum its considered Instructional Design because you are designing instructor led class sessions, so with that being said, the answer would be ;Yes' . As far as the online part; 'no'. But as far as technical writing, structuring classroom activities, doing stand-up training and being involved with the development of that; 'Yes'.

NM: Okay, and was that also in a hospital facility? Or was that in a different type of industry?

JANE: That was in Government, private industry (computer based), and also automotive.

NM: Do you have an educational background in Instructional Design?

JANE: No I don't. I am pursuing, I guess the degree I am pursuing qualifies as you know, being a part of, well it has a lot to do with Instructional Design. The official title of it doesn't specifically mention Instructional Design, but its teaching and learning with technology which is kind of the same department.

NM: Okay. So in terms of being a consultant, can you describe for me your current job roles and responsibilities?

JANE: My job roles, how specific do you want me to be?

NM: As specific as..

JANE: How about average?

NM: Yes, average would be fine.

JANE: I conduct instructor-led classes for Human Resources applications here at the hospital, they include Workforce Connect which is an application that allows managers to better manage (for lack of a better word) the people that work for them, their managerial hierarchy; Time Entry which is the time keeping payroll system that the majority of the hospital uses with the exception of [hospital name] 1,2,3, and 4. They use the other time keeping system which I also do instructor-led training for which is Kronos. I also do instructor-led training for PeopleSoft applications that HR personnel interact with in order to process employees and employee information. And lastly, I also do instructor-led training for Performance Management which is the performing tool that the company is going to be utilizing in mass starting 2011. We rolled it out in 2008 with a test group being managers and HR personnel throughout the system and starting 2011 we will begin rolling out to the general population of employees. So those are the five classes that I teach. I also do facilitation; the new employee orientation every Monday of every other month so I'm on October and Ill be doing it every other Monday in December and will alternate with my colleagues so we don't get completely burned out by doing that because it is time consuming that requires preparation. The orientation has been shortened to 4 hours as of the beginning of this year. The new employees do online classes, online courses that cover a lot of mandatory education that all employees are accountable for. The instructional design department which I'm also a part of was instrumental in creating, editing, and putting them out there on the facility web site. [hospital name] online University (which I am also a part of) are the ones that assign the courses to the new employees once they become active in the system.

NM: Okay, and those classes that they have to take..the online components, are you involved with the creation of those at all?

JANE: Yes, indirectly we were. They were created not by the instructional design team here – we used an outside vendor, but I guess the initial setup – we have the asset data so that

any changes that need to be made we can do them, which is exactly what we did for this years annual mandatory education modules. There, many of them they are exactly the same because new employees need that information initially and it may be that they end up taking them more than once per year as far as their initial employment is concerned, but that's just what they have to do..sorry guys, you may have to do it again. [laughter]. So that and meeting with subject matter experts when..oh. I left out the instructional design part. I'm part of the instructional design team at [hospital name]..[Phone Call]

NM: So, in terms of..you were talking about your instructional design responsibilities..

JANE: Ah, well, maybe the best way to describe that is through the process. When someone decides they need an instructional design project created and completed they fill out a form, they triage that to my manager who is also the manager of the instructional design team. She assigns it not necessarily randomly, but based on content, sometimes based on past experience that the subject matter expert has had with the designer – they may already have a relationship or rapport and understand what is going on, and we receive it, we make initial contact with the subject matter expert, we do our backend administrative part as far as placing it on the shared drive and creating the file structure and things like that. Usually, well a lot of times there are accompanying documents and things that the SMEs put together like PowerPoint, Word documents, video clips, whatever it is that they want. Most of the time they are open to suggestions that we make after we analyze the information that they have given to us; we take into consideration the scope or the vision that they have for it (oftentimes they don't really have one, they rely on us for that). We definitely take into consideration the completion time if we have time to really work on it before its something major that's due which oftentimes it is not, we would have a little more time so that we could enhance it better. So we factor all that in. We never ever really just take something or take content that we have received and place it on the University site. You know..at minimum we go in and we make sure that coloring is right and make sure that spelling, grammar, formatting, and fonts are right because a lot of times they are just typing in massive data and we know that with instructional design principles there are certain ways that things need to be viewed in order for the learner to be able to actually absorb the information, so if one slide has 6 bullets that's just way too much for one slide, so after that we start working on it. We usually update the SME as far as our progress especially if it's a really tight deadline. Once we get it to a semi-completed form we give them access to it through the University so that they can look at it, fine tune it, make sure they like the color, the presentation, make sure that we didn't accidentally misspell anything or have any grammatical errors. After they do that, they give us their feedback and we make whatever changes are needed, that they review it again, and that part goes continuously back and forth until they say "ok its ready to go". Then we publish it and if its assignable they complete a course assignment form, submit it to the University administrator and he/she will be able to assign it to a unit administrator based on their job titles. If its elective, then anybody can access it through the University.

NM: So, these ID projects that you are describing, these are specifically in the online environment?

JANE: Yes. Well..not, not 100%. I would say maybe 96% are. There are certain things, certain rollouts, like when we began PeopleSoft that it was—I'm sorry, performance management in 2008. We had to create the class. I wasn't involved in that one, but I was one of the instructional designers or, yeah, that was doing the instruction, the instructor led classes. Which was a massive undertaking because we started here with corporate and then we went to each different location and did a series of classes there, so. For a while, we were doing two classes, two four hour classes every day for weeks at a time.

NM: And so for those kind of instructor led sessions that you do you, in conjunction with others, actually develop the entire instructional module or the instructional class?

JANE: Mm-hmm.

NM: Okay, you do.

JANE: Yes.

NM: And that would be in conjunction with the SME, normally?

JANE: Yes.

NM: Okay.

JANE: Now, usually the ones, the ones that we've done so far, the SMEs have been in HR. We've not to my knowledge created an instructor led course for a non human resources application as of yet.

NM: Okay. What do you feel are some challenges in your current role right now?

JANE: Hmm. Time.

NM: How much time do you normally get to complete a project?

JANE: It really depends on what I guess as the University develops and we get our Web page up and running and people find out more about our process. We're really hoping to better educate potential SMEs on the process so that they can give us realistic timeframes.

NM: Okay.

JANE: When we get the request and we look at the timeframe and look at the content and after we—when we set up that initial either phone conference or face to face meeting, depending on their location, we let them know whether or not the timeline they requested is realistic. So, we initially try to negotiate it to let them know what all is involved, to ask them if they want certain enhancements, and if they really are excited about it, let them know how much extra time that'll take. With some requests that we get, maybe because

they don't get them until very late, they just want something they can put out there now for compliance purposes. And then when they feel they have more time and can get an earlier start on it next year, they would like it to be enhanced more because they'll start, like, months ahead of time before it's actually due.

NM: Okay.

JANE: I've had a couple of projects within the last month and a half that were, like, due ASAP, and compliance based courses, whether it's JCAHO or any other kind of governing body. And they just needed it up there now, which is something we can do, but we really don't like to do it because our reputation is attached to the way things look, the way they function. And even though we're diligent about getting things done to make sure that it is as timely as possible, we know that if we have a reasonable amount of time, we can do better work. So, I think with all of us, our biggest issue is time. Time for the projects, time for learning curves. Usually, our learning curves includes maybe getting an idea of what a software is capable of doing, matching that up with what we envision that course looking like, and then holding our noses and jumping in to try to figure it out as we get it done simultaneously. Which we've, I guess by necessity, become pretty good at, but not the preferred mode of learning. [laughter] At least not on my part. [laughs]

NM: And, and from the sounds of it, like with what you're saying in terms of that the time and how you have to keep all of this in mind when you work on these projects, how many projects do you have going on at the same time? Just like, a typical, typical month.

JANE: Let's see, how many do I have open now? Open and active. The ones with the check marks, the green check marks are completed. I only have one red check mark. The others are open. Some are active. Some are on hold. So, let me, let me see the open, the active ones. Hmm. And when I say active, meaning that I've had some kind of correspondence with the SME…

NM: So, these are in the process. Like, you're working on them right now?

JANE: Mm-hmm…One, two, three, four, that's on hold…So, right now, seven that are active.

NM: Okay.

JANE: And then with that, it looks like one, two, three… Seven that are active, six that are open but on hold.

NM: Okay. Waiting for feedback or something from them?

JANE: Mm-hmm.

NM: From some person, entity.

JANE: Yeah, mm-hmm, usually the SME and sometimes they're restructuring content. Like, 222 and 223, I had an initial meeting with them, but then they decided they had to involve some more people and restructure the content, so I haven't had contact with them for some months. Two thirty five is currently under review, waiting for the SME to give me final approval on that one, as is 158.

NM: So, when you're doing these projects, let's maybe look at just online projects that you work on, at what stage do you feel that they actually bring you in? In, instructional design, sometimes people talk about this ADDIE model.

JANE: Mm-hmm.

NM: You know, your analysis, design, development, implementation, evaluation.

JANE: Mm-hmm.

NM: I don't know if that really applies to what you do… But if it does, at what stage do you feel that the majority of people bring you in on a project?

JANE: The beginning.

NM: So during the analysis?

JANE: Mm-hmm. When we receive the information and then it's my job, for the project that I've been assigned – oh, I forgot one. Sorry. [laughs] I got to add one to the board. It's my job to analyze the content for the project that was given to me.

NM: Okay, and do you also get to work with the SME to do the learning objectives that are associated with some of these projects, or?

JANE: Sometimes they've already established them, sometimes they look for us to establish them. But it's usually either/or.

NM: So, when you do analysis, what do you normally see as constituting analysis?

JANE: The analysis is reviewing the content, getting a feel for the best presentation method, if it has to be sectioned or compartmentalized. For example, I had one course, number 147, which was, it began as, I think, 120 PowerPoint slides. And then when they gave me the second version, it became 240 PowerPoint slides. So, that had to be segmented—[laughs] It had to be broken down into sections and parts and I mean, you know, it just really had to be divided up. And a lot of times, that, that one did have some distinctive dividing lines, but then we get some where it's just, hey, 80 PowerPoints, here you go. And we have to analyze, sometimes, the order to make sure that it flows. Because a lot of times if they're creating Power Point, they just put down information as it comes to their mind and they're not looking at any logical sequence. They, they don't think of that a lot. So, in our analysis, not only reviewing presentation and the way it should look, but

how it should be structured so that the learner has a better opportunity to absorb the information since they're all self study. There's no, you know, synchronous activity that they have to do simultaneously with anybody else. We try to make sure that the objectives are clear and that we don't crowd them with too much information. And that we try to, well, the way I like to, if, if at all possible, I like to add at least one image that's pertinent, that makes it relatable. My preference, I really strongly do not like clip art.

JANE: I mean, if I was doing a PowerPoint for some kids, yeah. But in a professional environment, medical environment, I always look for photos.

NM: And will you do that as your, in, as part of your role when you can find appropriate images and things?

JANE: Oh, yes. That's standard for me.

NM: Okay.

JANE: That's standard. If not an image or a picture, an illustration, especially when I'm having to do courses that are very medical, like anatomy and physiology.

NM: Right, okay…

JANE: For other courses that aren't so medical, then like, code of conduct. Actually, I've done three semi code of conduct when I did sexual harassment, and then a code of conduct for [hospital name], and then the one for the, the whole, the whole hospital. Just looking for images that reflected what that particular slide was talking about, making sure it was appropriate.

NM: So, and so when it comes to the actual development of everything, let's say you've gone through this process and you've looked at the content, you've adjusted the structure, and you've figured out what images you want to use. Do you also then do the development?

JANE: Yes.

NM: Okay, you do the development as well?

JANE: Mm-hmm.

NM: And what kind of software packages do you use for development?

JANE: Well, we, in our instructional design lab that we have down the hall, we have a lot of different applications that we use. We have the standard Microsoft Office suite with, on one of the workstations, I think, one or two with the PowerPoint we have Articulate Presenter, which allows us to make a PowerPoint presentation SCORM compliant so that, it can be more interactive with the Learning Management system. We have the Adobe

suite, which includes, oh, geez. Oh, okay. I'll just start naming off applications. I can't remember if they're in the Adobe suite, or. Okay, we have Engage. We use Dreamweaver, Camtasia, Captivate. We have Photoshop, Illustrator. I don't have a lot of experience with those. I, one of the areas I'm, I want to learn about is the video editing. We have one of our designers that everybody just gives him all the video stuff, but you know, we're in the process of kind of learning it also. Let me see, what else? We have, oh, I can't think of, what's the name of the other one?

NM: But for the ones that you've already mentioned like, Articulate and Captivate ..

JANE: Uh-huh.

NM: so, you actually, you know how to use all those other resources like Camtasia?

JANE: Yes. Camtasia, I don't have a lot of experience in. The ones that I use most often, Power Point and then with Articulate and Presenter with that. DreamWeaver, Engage, Captivate. We use some of the other ones, like you know, Adobe, we use Flash. Oh, and we have a new one, Lectora, which we went to training in, but I haven't had the opportunity to slow down and actually do something with that yet.

NM: So, after the design and the development of the actual module or, or course, who would then implement it then?

JANE: After we do, after, yes, implement the design..after it's published, after we've had that, you know, exchange between the SMEs for them to review it and to make sure that it looks exactly the way they want it to look, you know, and we ask them to review it with a fine tooth comb and just everything, from any inconsistencies—because sometimes it's kind of hard, you know, to, because you're looking at it all the time. If there's, you know, any missing letters or anything, we want them just to examine it from head to toe. So, once it's A-OK as far as they're concerned, then we publish it and then it's available on the University.

NM: And is there normally an evaluation component included to make sure, to see if there's learning that's occurred?

JANE: No, but that's something that we're projecting that we're going to start incorporating so that we can get feedback.

NM: Okay.

JANE: Because, I guess, the instructional design part of what we do is, I guess, considered still somewhat new. It's maybe about three years old. They're, we're still looking for ways to enhance things and we know that's an area that we need more information on is the feedback of the learning process. Now that we're, we've just started incorporating in some of our, some of our current classes and then next year, all of the classes that we do, whether they're instructor led or not, will contain evaluations. So, we're doing, we're

entering into the world of online evaluations. So, that's going to go across the board, which will give us the feedback that we've been lacking in that area. With the instructor led classes, we've been doing paper evaluations that can be scanned and comments can be entered on the back. But because of that, because of the move towards the online evaluations and we're just moving away from the paper based. So, that will give us the opportunity to incorporate that type of evaluation into everything that we do online.

NM: And that kind of, kind of segways into your instructor led projects that you do.

JANE: Mm-hmm.

NM: So, from the sounds of it, for your online courses, you really are involved with all phases in terms of the analysis, design, development, implementation. Not necessarily the, end evaluation, like the summative evaluation, but it sounds like there's a lot of formative evaluation going on with you and the subject matter expert so that you're able to revise.

JANE: Mm-hmm.

NM: Are you involved in the same type of phases with the instructor led courses, with the addition of the evaluation then?

JANE: The instructor led courses, except for performance management, were all in place when I became employed here. From time to time, the system will get a new version of it and I've been involved before in updating current manuals and things to reflect the changes. They're upgrading PeopleSoft for the next year and I hear it's going to be completely different from the way it is now. Massive undertaking. I'm trying to prepare myself now for that. So, I don't know exactly what role we'll have in partnership with EHR as far as developing a class, but it is on my radar as far as projects that I'm assigned. So, that'll be more of a group effort as opposed to individual project that I'm just working on.

NM: Okay. But for right now, for the instructor led, is it safe to say, then, that you do more of the implementation, then?

JANE: Yes.

NM: Okay.

JANE: Implementation, evaluation.

NM: Okay.

JANE: Yeah, the other parts have been done and don't change that often. [laughter]

NM: Until this other new one comes along, perhaps.

JANE: Yeah, because this new big upgrade, overhaul, that just shakes everything up. So, yeah.

NM: Okay. For the online modules that you're involved in, are there specific instructional methods or strategies that you find useful when you're looking at these different modules that you need to participate in?

JANE: That aspect of it, I'm learning more about. A lot of things that I do, after I got maybe a basis of, a general overview of the procedure, a lot of the way I do things has been kind of instinctive, now because I'm back in school and learning about instructional design. I'm able now to match theory with what I've been doing. It's helped a lot being around instructional design brains, like [co-workers name], you know, gotten her Ph.D. and [co-worker name] who is working on his Ph.D. and they've been doing this. And then a volunteer that worked with us, [volunteer name], who is working on her instructional design Ph.D. So, I've been really absorbing a lot from them and actually, it's really helped me understand theories a lot better because I've had practical application, that now it's making more sense. And then also kind of validating some of the things that were kind of intuitive, as far as I'm concerned, about the way I look at things, the way things should be presented. I always look at, I always take it from the viewpoint of being the learner. How would this be more appealing to me if I had to really learn and absorb and be accountable for knowing this information? So.

NM: Is there any specific theory or model that you kind of hone in on at any point?

JANE: Not particularly, except the one that you mentioned, the..the ADDIE. Mm-hmm.

NM: Okay.

JANE: Mm-hmm. That's the main one.

NM: And you said that you were doing teaching and learning…

JANE: With technology. Master of Arts in Teaching and Learning with Technology.

NM: Okay, in that Master's program.

JANE: Yes.

NM: And so they do talk a little bit about the instructional design and things of that nature?

JANE: Yeah, I've learned about the different principles and you know redundancy and modality and things like that, so.

NM: Has that helped you?

JANE: Mm-hmm.

NM: You know, in terms of being able to do the design, especially in the online environment.

JANE: Mm-hmm. I think it's just, it's, it's made me aware of things that, I guess, were done previously and whether or not—how they fall on the scale of being best practices or standards as far as creating instructional design online in an asynchronous environment. So, it's, it's really provided a lot of understanding and reinforcement, and also, you know, awakening. I'm like, okay, I want to learn more. This is something I want to know, you know. [laughter] It's like this, you know, you know, the, what do they call it? The a-ha moment, when you see things just kind of come together and you see how they're interchanged with each other.

NM: Mm-hmm.

JANE: Yeah.

NM: You had mentioned that your prior experience, you had had a little bit of experience in the automotive industry.

JANE: Yes, I worked with Ford Motor Company for 14 years.

NM: Was that kind of like an instructional design capacity or did you do instructional design work?

JANE: Not, no. I, I keep finding my way back to instructing. I really tried to get away from it [laughs]. It keeps pulling me …

NM: So you did online instructor?

JANE: No, I did not. When I was at Ford, I did no training, really.

NM: Okay.

JANE: I was out of it. My first job out of college, I got my first exposure to, actually, the teaching environment, which was okay. Basically being a very shy, introverted person, that was definitely out of my element, but you know, it's something that I, I did. And at my second job, that was my primary, that basically was my job ..to do training.

NM: But was that in the government?

JANE: No, that was in the private computer industry. Actually, we were a computer company that was contracted, it had government contracts to do computer training for the Tenth Command out in Warren, Michigan.

NM: And did you get to do any of the design at that, or was it more implementation?

JANE: It was both.

NM: So, if you kind of look at that compared to what you're doing now in healthcare, do you think that instructional design of healthcare is especially unique at all?

JANE: Because that was so long ago, that's like, 1987. So, [laughs]. The whole world is different from the way it used to be. With the technology that was available back then, because in comparison now, it was so limited, when I was doing technical writing and instructing on a Unix system and also a PC based system. So, the opportunity to really, I guess, implement instructional design concepts, I, I don't even know if they had even coined the term.

[laughter]

JANE: I doubt that they had. It was just, I guess the standard way at the time of taking a course, looking at the actual manual that came with the software, creating exercises that focused on the target audience, and the, and made them relatable to the jobs that they had to do was more of the task. So, I don't think, it's a lot of originality except for maybe coming up with an idea for exercises.

NM: Okay. So, would you think that the healthcare industry is a little bit different in terms of instructional design, then?

JANE: I would think so. I would think it has to be more detailed and there is more than one aspect to it. Because we deal with the clinical and non-clinical, I think it's even more important to be aware of the target audience. And what's going on. For example, the anatomy and physiology class, the course I'm doing. Well, generally, anatomy and physiology use a lot of technical terms because it's basically for clinical employees who are familiar with all of the terms. That course is based for contact center employees who are non-clinical, but need to be aware of terms of the names and pronunciations of conditions, the different systems in the body so when they're triaging calls so that patients can get appointments with the right specialists, they need to understand what either the patients describing or what the nurse or doctor or whatever is referring to. They're going to be calling in prescriptions to pharmacies and things. They just, they need a layman's version of medical terms. So, it was important to the SMEs that when I was constructing that course and to me, it was just vital that I have images to go along with everything. And I found a lot of images about things I didn't know, but I had to maintain that consciousness of them being non-clinical. So, certain things couldn't be too graphic. Certain things, it was better to show a medical illustration as opposed to a picture. So, yeah.

NM: Do you, do you feel that in your role, it's handy to have any kind of clinical background, or?

JANE: I've always been a medical wannabe. [laughs] My mom is a nurse and when I was little, I wanted to be a OB/GYN because I love babies, so I figured I'd help babies get here. But when I discovered that I wouldn't be done with school until I was close to 30, that was way too old. I figured I'd be too old to get married and have kids. And that's how you

think when you're eight. So, I decided [laughs], to go the route of computer science as my mother suggested when I had to decide on which high school I wanted to go to and what focus that I was going to, you know, as far as, you know, high school curriculum was concerned. So, to me, it's a perfect marriage, taking my computer background and my attraction for the medical field. So, I feel like it's the best of both worlds. So, maybe interest is the main thing that someone would have to have as opposed to an actual medical background, but it wouldn't hurt because the director of the university has a nursing background. So, you know, but then there are people that are senior leadership here who don't have a medical background. So, I guess it really just depends on what the job scope is, how much you're willing to learn, you know. So, yeah.

NM: In terms of the skills and knowledge that you have learned, what do you feel that you've really learned on the job?

JANE: I would really attribute just about everything that I know how to do now on the job training. When I was informed, I guess that's the best way of putting it, that I was going to be a part of the instructional design team, [laughs] I was excited because before I became a [hospital name] employee, I had gotten wind of the fact that that was something that was up and coming. And at the time, I had no desire at all to go back to school for a graduate degree. So, in the back of my mind, I was trying to figure out, now, how am I going to get my foot in the door to this without having to go back to school? I was thinking, well, maybe I could take a class or two or get some kind of certification that would, you know, be sufficient. But when I was hired here, I was hired as a training analyst. Again, back in the world of training. But I did not foresee that the, the whole departmental structure was going to change and it was going to open the door for me to be ushered into instructional design and instructional technology. So when the decision was made by management that I was going to stay up here and that was going to be a part of my job scope, then as we started building the lab and started incorporating more applications, it just gave me the opportunity to explore what they could do and really just kind of match the software to what I have in my mind as far as the best presentation for a class, so.

NM: So, the things like the skills and knowledge, do you attribute that, then, more to the technical skills and knowledge that you've gained, then? Like, through the software applications..?

JANE: I think a bit, mixture of both. I'm kind of creative. I'm a visual learner. And with knowing about the different applications and their technical capabilities, but then also tapping into the creative side to be able to present something that I feel is informative, visually appealing, and I don't know, just sufficient for the learning objective is something that I know that… maybe not everyone who is well versed in the technical aspect of the applications could do also. People have told me before, oh, you've got an eye for that. And you know, it's just kind of something that's, you know, instinctive, you know.

NM: Do you think that there's any other way that you could have learned these skills?

JANE: Well, see, the, the technical skills?

NM: Technical skills or… you had talked about the, the creative side.

JANE: Mm-hmm.

NM: In order to develop these skill sets or that knowledge base, is there any other way that you feel that you could have gained this other than just from on the job?

JANE: Well, yes. I, I guess my preferred method, it would have been, if time had allowed or resources or whatever, if I had gone to a class or had a little short series of classes on matching instructional design with the application. It would be nice. It would have been nice, but you know, I guess we've gotten so accustomed to just getting in there and doing it. You know, if we could have a—if we had a course of, you know, a class on how to use it. But the one that we did, the Lectora package that we, I haven't had a chance to touch it since we finished the two day class. So, whenever I get a chance to do that, which I'm hoping the week during Christmas when things are nice and quiet around here, I can just kind of come in and play with things and get, you know, more knowledge from them. I'm wondering how much will I have remembered. It'll probably be familiar. I'm like, oh, okay. I can, I remember that. But the way that I think that most of us really have learned is just getting in there and doing it. And because we have so many projects and we have other roles that we have to do and try to, fitting all of that into our work week, that we do find that sometimes if it's been a while since I've used an application, I have to sit there for a minute. Or because we're working on projects simultaneously, they're never, we don't have the luxury of doing them sequentially. It's really what needs to be completed first or who's screaming the loudest or whatever. And so if, for example, if I picked up working on 147 again and it's been a while, then it may take me a few minutes to sit there and kind of remember some of the main things as far as, I think I did that one in Engage, just to get the ball rolling again. If it's something you're working on a little bit every day, then it stays fresh. But if there's a gap because there's so many other things going on in my head that it is, it takes a little, little time to kind of get reacquainted with that.

NM: Do you feel that there are any other curricula or programs, both academic and non-academic, that have prepared you to practice instructional design in the healthcare environment? Via continuing education opportunities, webinars, workshops, lectures?

JANE: Mainly, all of that I've been exposed to since being here. Webinars, things like that. Before I came here, I was doing classroom instruction for Schools, which I guess did get me warmed up to the world of teaching and instructing again and face to face classroom interaction. There, I did not have any opportunity to develop any coursework. It was just basically teaching canned classes, which was fine. But what it did was that it…it gave me the opportunity to instruct non-computer related courses. So, I taught things like business math, legal terminology, interpersonal skills, English. [laughs]

NM: So, a wide variety of content.

JANE: Whatever they told me to teach, I taught it. As long as I stayed two chapters ahead of the class, I was good.

NM: And then in terms of things that you had participated here, you mentioned that you had taken, I think, some Webinars?

JANE: I've done a couple. They're usually in a group setting.

NM: Okay.

JANE: So, I've had a little exposure to the technology of online meetings or teleconference meetings, things like that.

NM: Have any of these helped you prepare to practice?

JANE: Nothing I can think of right now, but now that I'm being exposed through my degree work to the whole concept of synchronous learning and not sure if, not being sure if that's something that's going to be a part of the University, when or if ever, it has given me some background on that capability and how that could potentially be a part of what we offer.

NM: So, when you look at your preparation for practice, what do you feel has helped you be prepared the most? Do you, is there anything you can pinpoint that has just been you're a-ha moment?

JANE: [laughs] I guess.. I, I think, I think I came up with an answer for that. I think the biggest a-ha moment for me in doing all of, any, whatever it is that I'm assigned to do as far as my courses and I'm not sure exactly what has happened or at what point of actually doing instructional design, but when it got to the point where I felt very confident in the output that I was producing, when I felt that it was well received…… I remember an a-ha moment. Okay. The a-ha moment came back in 2007 when I had this core surgical count policy course that started off as kind of a large PowerPoint, but then I was able to collaborate with other instructional designers and we ended up using DreamWeaver for that course. We split it into two courses, one for clinical and one for non—no, one for the hospital and the other for other sites other than the main hospital because some of the procedures are different. We ended up writing a script. We got media resources went over to the simulation center. We staged surgical count procedures with the surgical staff over at the main hospital. You know, people were in scrubs in the operating room and counting sharps and counting sponges and we had some of the sponges with ketchup on them so they looked, you know, [laughs] realistic. And you know, over there and directing and having media resources to do some still shots and incorporating the still shots and the video clips into the course and knowing what an impact that would have on, on the surgical staffs at all the locations that actually do surgery. And for them to receive it as well as they did and just to have that collaboration with the other designers. Even

though I was the lead designer on it, which meant that I was ultimately responsible for it. But the success of that really was a catalyst in boosting my confidence in being able to not only sufficiently analyze and visualize how a course should look, but also being resourceful enough to consult with somebody that was an expert in the area more than I was or going outside of our instructional design circle to reach out to media resources or whatever, whichever entity that was going to help complete the project. So, it was a mass undertaking. It really was.

NM: So, when you reflect on your ability to practice instructional design, how prepared do you feel you are to practice?

JANE: [laughs] Well, now I feel I'm very prepared and I've, I'm becoming more and more prepared with each class that I complete. It makes me feel more, I'm feeling more rounded. Not just based on what I've been exposed to here, but knowing the theory behind it and then in April, having the paper to actually…I'll be done in April. Yeah, I've got four classes to go. That are just, that'll be additional, I guess, validation on my part. At least to me, anyway.

NM: Absolutely.

JANE: Yeah.

NM: In terms of—we're going to kind of move on to the last part, which is your recommendations and your reflection. What would your recommendations be for academic programs who are preparing instructional designers for practice in the healthcare environment?

JANE: Hmm. Recommendations as far as technology or preparation, or?

NM: Preparation…could be technology, coursework, just general preparation. What would you recommend for academic programs to consider?

JANE: College level academics?

NM: Mm-hmm.

JANE: Okay. Hmm. I guess that would be kind of hard for me to answer because I'm not sure exactly what's out there. You know, as far as, I, I've heard things from my colleagues who are, you know, currently or have been at Wayne in the different classes and programs that they've been involved with. It sounds that they're, it sounds like, to me, they're quite thorough already. The one thing that I, that comes to mind and maybe it's because of the exposure that I've had through them, that it would be a good thing, and I don't know if this is in existence already, if they do have a partnership with a healthcare facility so that these students can get practical experience simultaneously. Because with [co worker name], she first got here when she was an intern. Then we had another intern when she came in. Keith. I can remember Keith. But [co-worker name] was an intern.

NM: So having internships.

JANE: Mm-hmm, internships or like [co-worker], who was doing it voluntarily. She had the knowledge, but she didn't have any practical experience. So, in order for her to be equipped to get a job in instructional design, she feels that she has to be in the trenches and then see exactly how concepts and theories and principles are being used in the real world. I don't know if that would transcend the healthcare industry and you know, be, you know, applicable to any other industry, but I think that would be really helpful. I've noticed that with my online courses, with some of the assignments that we've had with the six courses that I've completed already, some of my classmates have mentioned in the discussion thread that it was great that I've had exposure to this or that I've done projects in this when instructors have mentioned certain software. Not all of them I'm familiar with or have heard of, but I would say maybe about 85%, 90%, I had.

NM: So, technology application?

JANE: Mm-hmm. And in some cases, it's helped me take the lead on, like with this class I'm in the last week of now, with doing group projects, it helped me to take the lead in order to do it. And I actually absolutely hate group projects. I hate, hate them with a passion and I let my instructor know that [laughs] not that it made a difference. And then my experience with this group has totally reinforced my feelings on how much I absolutely hate group projects. And it was even more difficult because it's online. I'm in Michigan. One person's in North Carolina. Somebody else is over here, southwest somewhere or another. And it's just, it's just different time zones, different commitment levels. You know, I'm very proactive. I get things done early.

NM: Would you recommend academic programs not to rely then heavily on group projects?

JANE: Oh, most definitely.

NM: Okay.

JANE: Because I'm a strong proponent of asynchronous learning. It's that I'm a self studier. Give me the book, tell me what I need to learn, and I'm going to learn it. That's my, because I can break it up into chunks. I can do this here. That's one reason why I absolutely love online learning. If they had the Internet back in 1980, I would have never been on Wayne's campus at all, ever. [laughs] I just would have done it all online, which is great. But I realize that, and people tell me who don't like online, that it requires discipline, but I'm very disciplined anyway, so it's a natural fit for me. You know, I can go online in my pajamas at six in the morning. You know, it would be hard for me with all that I have to do here and then sometimes having to be here late to finish something to go and sit in a classroom after work. That would just be brutal.

NM: So when you have to work in a team environment when you're working with an SME and possibly some other entities, like let's say you have to call upon media resources. Do you

feel that that's very different, then, from the type of group work that you're typically exposed to?

JANE: Mm-hmm. It's, it's almost, it's like night and day. I mean, group work here at work, to me that's the norm. That's great. I can't be an island here. Everything I do is connected. I either need to bounce an idea off of another designer or, hey, do you remember how to do this? Can you tell me how to do this? Can you show me how to do this? It's completely different, and I don't know why, if it's just me, but group assignments and projects in a classroom as opposed to working in a group in real life, it's just completely different. I don't know if the interest is more vested in real life because we know that our performance precedes our reputation and all of that ties into us having a job. Whereas in group environments and I think maybe I'm finding that to be the case when it comes to schoolwork, if somebody is identified as being one who's not going to let lack of activity from the group be the downfall of that project, then it's okay for them to be content and let them do the majority of the work. It's beneficial for them because if it's a group grade, then everybody gets the group grade. For the person that's stressed out, like me [laughs]…

NM: So, there's a little bit of a difference in terms of what goes on in school and how you're taught and how you're working on these things and learning skills compared to what you're doing on the job?

JANE: Mm-hmm. And I don't know if it's because on the job, you see these people every day, you work with them every day. Projects are, they need to progress every day if they're projects that are active. I mean, you have supervisors that you're accountable to. You have SMEs that you're accountable to. You're concerned about your reputation. You're concerned about, you know, your collaborations with your colleagues. All of that is tied together with what you do. And I don't think people, a lot of people think it's that serious when it's in a classroom setting. There's no long term consequence, maybe, other than what they feel that they're satisfied with as far as their grade is concerned. But it's nothing that can really circle back to haunt you if it's not done correctly or the procedure isn't followed.

NM: Whereas in a job, it can be?

JANE: Yes. You know, yes, yes, yes. Then yeah, some of that's been going on around here lately and I'm just trying to make sure it's not me. [laughs]

NM: And what would your recommendations be to actual instructional designers that are wanting or thinking about entering an ID position in the healthcare environment? Like, are there content areas, programs, or?

JANE: If they're, if they're looking to enter in the, the healthcare environment?

NM: Yeah, specifically looking for, an instructional design position. What would your recommendations be for them?

JANE: Well, if they have an instructional design background already, if they're doing some, that's always good. But any way that they can be exposed to healthcare, especially because it's the new industry here in Michigan, kind of replacing automotive, we're doing new employee orientation every Monday of every other month. A lot of the, a fair amount of new employees are transitional from the automotive industry just as I was. It wasn't a direct jump, but you know, it's been a transition. So, making contacts, having some kind of resources in healthcare, even if it's maybe contacting somebody to possibly do some job shadowing, just to get a feel for how the healthcare industry utilizes instructional design in comparison to whatever industry that they're coming from I think would be something that could add to their resume and would help them as far as, you know, being able to make that adjustment and see, really, what the differences are. Even though we don't get very, very—I mean, we're not, you know, in the operating room, you know. But you know, healthcare may not be a good fit for everyone. You know, they may want something that is more technical, that requires less people to people interaction, even if it's just with the SMEs. Sometimes we go to the SMEs' environment to, you know, take a look at, okay, how is this going to be presented? We're going, is this something they're going to do at home? Is this a course they're going to do on the job? What kind of equipment do you have? What's their environment that they can get this done here? You know, sometimes SMEs will bring in other—sometimes the requestor of the project is not necessarily the SME. Sometimes on the project request form, there will be multiple people listed. Sometimes they have certain areas of expertise, so we may have to contact all of them or all of them will have to review the course we developed before final approval is given.

NM: So a lot of communication…

JANE: Yeah, and some people, like I have friends who, we all went to Wayne together in the '80s and we all got computer science degrees, but their job focus has always been technical. When people were doing programming, you know, when we're doing the writing the code and all that prehistoric stuff, that's what they love to do. I've never programmed professionally because I couldn't take it. It's just, it is too isolating. If you're not that much of a people person, healthcare may not be a good fit because it's very seldom where you're not going to have interaction with people consistently.

NM: So, they should be…

JANE: A people person. It's better. It's much better because you're dealing, you're in the service industry. Even though it's considered corporate, it's corporate, it's nonprofit and it's service, medical service. So, you're dealing with people who constantly have to deal with people as opposed to, you know, automotive, you're dealing with engineers who don't really have to deal with people as a part of their broad job requirement. We deal with people who have to provide service to people in the medical area, which is sometimes sensitive, complex, regulated, you know. And if you're not adaptable, very collaborative, because I know a lot of times some people, they work, they want to be

alone. Just give them a task that doesn't involve a lot of people, a lot interaction, a lot of collaboration or group dynamics and that's something that they can do.

NM: So, do you think that these are things that they should have or they should at least kind of acquire if they want to be in this environment?

JANE: Mm-hmm, or at least be aware that it may be a strong requirement. We were just interviewing for a position and we do group interviews when it comes to University. And even though a lot of people had a lot of great things listed on their resume, that's important, but it's more important to us as a group that the person fits. So, your resume may look great, but if we're not getting a good vibe, if we don't see how your personality which is displayed at the interview will fit in with the people that you're constantly going to have to work with and interact with, if we get some red flags as to potential personality conflicts that maybe we've dealt with before as a group and the outcomes were less than positive, then no matter what your resume says, you're not going to be considered. Because, at least in our instructional design team, group dynamics is of the utmost importance. We've developed a level of trust amongst each other, personal and professional trust. And we know that if for some reason somebody needs something, we're going to be there to help each other. We're not siloed. And people who have that type of personality or they work, prefer to work in that type of environment won't fit in well. We're do our part, you know, to help you out when you need it, but when it comes time for you to reciprocate it may not be there and that in our group dynamic, would not be acceptable.

NM: Okay. What would your recommendation, then, be to healthcare administrators to help prepare instructional designers such as yourself in this environment?

JANE: In this environment? One thing that, I think they're, they're starting to implement more corporate-wide is the concept of job shadowing. As a part of, I think, succession planning and having people be very conscious of where their career path, where they want their career paths to go, that once they identify an area of interest, to be able to establish some contact and be allowed to shadow a person that's already doing that so they really understand what it takes so they can prepare themselves. Because when the job opening becomes available it's too late to start preparing yourself. You know, so and, and making people realize that, you know, that that opportunity is becoming available, that you can be mentored by somebody whose job you aspire to attain. Hopefully it would be within our health system, but if that's just something you want to do regardless of where you do it, then it's still something that you need to know. Internships or mentoring programs aren't exclusive to the younger set, the high school and college. You know, it can be incorporated in the corporate world, in the business or the healthcare environment. So that it will not only help people prepare for jobs that they would like to acquire, but it also gives them a better understanding of the responsibilities that other people have that have to constantly interact with them, which I think will make their expectations more realistic. Their knowledge of the whole process will be more thorough. And I think it will just, it'll make collaboration a lot easier because at least

they'll have that communication foundation laid and they can just focus on, you know, the main things as opposed to just trying to establish that two way communication.

NM: That's interesting because you mentioned mentoring programs and possibly if you can't have a mentor within the work environment, you can look, possibly, elsewhere. Are you a part of any kind of association or do you have any affiliations with any type of association right now that's helped you with instructional design?

JANE: With me, no. Just, just the kindness and generosity of my colleagues. [laughs] Who know more than me. But I've been able to, in turn, help some of the interns and volunteer that's come through here and they've learned through me as well as the other instructional designers. So, our information sharing is very fluid. It's very seamless how we share information. Nobody is really hoarding information. Certain people have certain areas that they're better in, but it's not that we can't learn. It's just that we haven't gotten to that part yet. But we realize that hoarding information is not a way of securing our position because it makes us anti team oriented. So, the more we share information, that reinforces the relationship of trust that we have. And we know that we can just, you know, just put it out there on the table and pick up what we need and share as necessary and it doesn't diminish anybody's credibility.

NM: Do you have, you know, like, monthly meetings or something where you kind of just have like a round table and you talk about new things that have come up or something that you learned in order to do this kind of sharing, or?

JANE: Mm-hmm, mm-hmm. And then it's usually ad hoc. Our instructional design room, we affectionately call the Bat Cave [laughs].

NM: The Bat Cave?

JANE: I gave it that name. I don't remember. I say so many silly things sometimes just to keep people laughing. I don't remember giving it to it, but they like to work in the dark like CAD cam designers.

NM: Ah, yes, I did see the dark room in there.

JANE: Yes, and it's something that I had to get used to. I mean, I can see the benefit, especially when you're working with color and presentation. You can see it better. We do have the recessed cubicle lighting which is, you know, helpful, but I think I probably said it looked like a bat cave, you know, like Batman, something. And so the name just stuck and that's what we, we call it. The Cave or the Bat Cave.

NM: So, you retreat to the Bat Cave and once in a while just kind of … as it comes, you guys just discuss?

JANE: Mm-hmm, mm-hmm. Or sometimes if we have to have a meeting about something, like the lovely 2010 AMEs that we had to do. And that was my section. I had to do personal

safety for clinical and non clinical for the whole hospital and there's separate AME for CCS, for community care services. So, when we had to talk about that, when we had to figure out what edits, divvy up the responsibilities, talk about the new information we got from the outside vendor that actually created the framework for us, you know, we had a meeting in the Bat Cave and we just, you know. Everybody grabs a chair, sits at a cubicle. We just, yeah. We hash it out.

NM: How many people are in your group?

JANE: Instructional designers, really, there are four of us who actually do the majority of the design. Then we have [co-worker name], who's the intern, and we have one person who's learning design and then a manager. So, I guess technically seven.

NM: Okay.

JANE: Actively, four. Consistently, actively four.

NM: Okay. Do you think that for the amount of projects that you have that, that you have enough staff?

JANE: I, well, yeah, we could use some more. I actually prefer doing this and I, if I had to give up any of my three hats, the first one that I would readily give up is technical training, the instructor led classroom training. Even though I always find my way back to it, it's not my preferred—yeah. [laughs]

NM: Do you feel that you have enough staff to handle all the different projects that are going on?

JANE: No. No. Because, well, a lot of the technical classes that I've been doing have been given to a contractor because our reputation is getting out there and because we're just constantly getting more, which is good. But being able to do this brings out my introverted self which is still a part it should be masked because I have to be extroverted. What I'm in—and I haven't had this for a while where I had just really huge blocks of time to be in our instructional design lab, but when I get in there and I have a big block of time, I just kind of get in the zone. And I'm just, I mean, the creative juices are flowing and you know, I'm just clicking on all cylinders as far as being focused on the project, but because I do have a lot of hats and you know, a lot of times I can just do only little segments and I'm all over, I'm all over the place. A lot of times people say they don't, "Oh, I don't see you." Because I'm all over the place, you know. If I'm not here, I'm in the classroom downstairs facilitating or in the lab or in a meeting. I'm all over the place, so more staff would help because it would allow us, maybe, more time, more uninterrupted time to do that. Not that we don't do a good job, because we do, but we could take our time more.You know, be a little bit more leisurely about it. Not always putting out the fire.You know? So. Well, and they're working on it. They see the need, but you know, just about everything is always restricted by finance. So, you know, until

then, you know, we don't, we don't really complain. We just breathe deeply and loudly sometimes…

NM: And retreat to your Bat Cave.

JANE: [laughs] Retreat to the Bat Cave. Okay. Our little scream session, get it out, vent, then we're good.

NM: Then you're good?

JANE: Yeah, it is good therapy. And we listen to each other patiently, like, okay, if somebody's fussing that day. Okay, they're in a fussy mood. Okay, they're, they, you know, we recognize, okay, they've probably got a deadline or somebody's stressing them out. They're stressed out.

NM: Mm-hmm.

JANE: And you know, it's nothing that's personal. It's what we're there for. I mean, we're colleagues, but we also have a strong professional friendship, so, you know.

NM: Yeah.

JANE: You know, I, I couldn't ask for better. I really couldn't.

NM: Perfect. Well, we are actually done the interview part.

JANE: We're done? Oh! Okay.

APPENDIX J: JOHNSON'S TRANSCRIPT

INTERVIEW WITH JOHNSON

NM: Johnson, As you know, the purpose of this research is to help in understanding how instructional designers perceive their preparedness to practice specifically in health care environments. Today's session will take about one and a half hours and it will have two parts. The first part of the session will consist of a one on one interview with myself, and that will be guided by questions that I ask you. The interview will focus on your ID experience, methods of preparation and recommendations to others in the field. Afterwards you're going to have the opportunity to share with me two completed instructional design projects in which you participated. You can take a break at any time, feel free to let me know. Also, if there's any questions that you don't feel comfortable in answering you can feel free to decline, and you're also more than welcome to withdraw at any time that you need. As agreed upon by you by signing the consent form, this session will be tape recorded for purposes of accuracy. The tapes will be kept under lock and key for purposes of confidentiality and you will be de-identified as will your place of employment. So please answer the questions as completely as you possibly can. If you have any questions let me know. But prior to starting do you have any questions about the informed consent?

JOHNSON: No.

NM: Or your time commitments or the research study at all?

JOHNSON: No, I do not.

NM: Okay. So we're going to kind of start off by understanding a little bit more about what you do.

JOHNSON: Okay.

NM: Can you tell me your current job title?

JOHNSON: My official title is training analyst.

NM: Okay. In terms of that, do you have any educational background in instructional design or instructional technology?

JOHNSON: I do not.

NM: And prior to working here, or have you always worked at this hospital?

JOHNSON: No.

NM: So prior to working here in this specific role as a training analyst, did you have any prior work experience related to this?

JOHNSON: Yes, I did.

NM: Okay. And was it of a similar nature?

JOHNSON: It was. Well, I did more—I started out facilitating technical training. Well, not necessarily technical, facilitating training. And then I segwayed into creating courses, or the instructional design, first in standup training courses and then more online courses.

NM: What are your current job roles and responsibilities as a training analyst?

JOHNSON: I provide standup training for some specific HR applications in technical nature. I work on the team that provides leadership development opportunities to new and midlevel employees, midlevel leaders. So we work with a new leader academy, as I worked with a team to develop that curriculum and then also I facilitate certain aspects of it. And then also the Leadership Academy, which is a four year academy, I work with them on that. In addition to that we have project requests that come into the team for most of the time online courses. So we design and develop online courses. Occasionally we get to do the full gamut. And we're brought in typically we're brought in at the development phase, and so the decision's already been made. [laughs] Once in a while we're lucky enough to be able to use—we typically follow the ADDIE model. So once in a while we'll be able to do a true analysis, make a recommendation in the most appropriate media, online classroom combination blended and then work from there.

NM: Are you the head of your group then?

JOHNSON: No.

NM: Okay.

JOHNSON: I'm probably the most senior member. But I don't have an official reporting relationship.

NM: And so when these projects come in you have some where it requires you and your team to participate in all aspects like you said of the (ADDIE) model, working on the analysis and providing a recommendation for design and development, implementation, evaluation. And at other times, you will focus then on the development phase.

JOHNSON: Correct.

NM: Okay. Let's look at examples of (work) that when you look at just the development phase.

JOHNSON: Mm-hmm.

NM: Are you using specific instructional design strategies or models when you're pursuing that?

JOHNSON: Not specific model—well, yes and no. My—I don't have—I'm not able to place names on the models that I use, but I know what works and what doesn't. [laughs] And so and I call on my experience for what works and what won't. Typically what we get is a PowerPoint presentation. So we look at does it have strong instructional content? Is there a set of goals and objectives, are the goals and objectives written specifically? Are they behavior based? Are we looking at what do we want people to do when they leave the course? Does the material support and the material they give us, does it support that, those goals and objectives, or not? And if it doesn't then how can we enhance the material sot hat it does. Typically there's an interview with their subject matter experts, if we're able to do that, where we can kind of glean that information out and then move on from there.

NM: And that's the process that you'd normally take for both types of projects where you have the development phase involvement as well as when you're involved in the whole?

JOHNSON: Yes.

NM: Okay.

JOHNSON: Unless it—sometimes we have some time sensitive stuff where basically we're given the content, say we need this out yesterday.

JOHNSON: So caution goes to the wind, all of our knowledge [laughs] and we just make it work the best we can with the timeframe we've got. But ideally we're able to sit down with the subject matter expert and then do as thorough analysis as we can, what kind of outcomes they really want to get from the training.

NM: And do you get then regular feedback from these subject matter experts so that you can, you know, keep on revising your materials as needed?

JOHNSON: Yeah, as we move through the process, we'll have questions during the development phase or we need clarification or at the end of the development phase we've got a rough draft of a product, then they'll evaluate that product, make appropriate changes and added some proofs to it and then probably go through two, three iterations before we get the final.

NM: And how does it normally work when you are going to do your analysis for a type of project, is there a certain framework that you use? I know you mentioned that you kind of rely on your own experience about what works and what doesn't. But is there a general framework that you use when you're doing analysis?

JOHNSON: Yes and no. What I really like, I try to get inside of people—inside their project, put myself in their shoes, and really ask them what do you really want here, to boil it

down to—what kind—what do you want people thinking, seeing, doing, hearing, saying, what kind of behavior change are you looking at? What's the real purpose of all of this? Sometimes we have things where people really have some sort of behavior change and we're able to work with them. A lot of times they don't know what it is they want, and so we can work with them to determine, okay, really what is your goals? Almost coach them into it. Other times it's a regulatory thing, it's just like we've got to get this out. So and so requires that this is done and we need to check the boxes. And we feel, this really isn't learning. And they say, "Yeah, I know it's not, we've got to get it out there." [laughs] But I'm always looking for where the learning aspects are for folks.

NM: Does that kind of happen also with evaluation where sometimes you know do you find that for evaluation some things might come from an accrediting agency, so you have to follow those particular evaluation mechanisms? Or are there times when you also get to develop your own instruments?

JOHNSON: Both, both. Frequently we do our own evaluation instruments with courses—you know we've got some standard ones we use more in our standup training. Standup course we've got pretty much a standard evaluation that we use. Not all of the other courses—frankly we don't do the best in post training evaluation that we should be doing. Distance awareness and so we've been able to do some second and third level evaluations. Are we really affecting behavior, has it made some change, real effective change for folks?

NM: Do you think it's just a matter of lack of resources or time or =

JOHNSON: Yes. Yeah, it's one of those things everybody says yeah we should be doing, and we're going to do, and sometimes it happens, sometimes it doesn't. Most often it does not.

NM: How many projects do you normally work on at a given time?

JOHNSON: Oh, half a dozen at least. I probably have—well that's most—I haven't updated my board. But when I read the board that was everything that was active at the time. So…

JOHNSON: = anywhere between half a dozen and a dozen projects I've got.

NM: And do you normally work on them as a team or do you do a lot of these individually?

JOHNSON: These are just individually that I've set aside. Other members of the team have their own projects.

JOHNSON: Now many of those I've completed, I haven't updated my board [laughs] so some of those are completed now. But I'd say I've got just swirling around in my head at the moment I've got one, two, three, four, probably five or six that I'm thinking of or working on at any point in time. If I'm not actively working on a project I'm thinking about it as I'm walking from here to there or driving or wake up in the middle of the night. [laughs]

NM: Do you find it difficult, because do all of them refer to different topics or are they very similar in nature?

JOHNSON: Oh they're all different.

NM: They're all different.

JOHNSON: Yeah..

NM: And let's say for the development phase, let's say when someone's bringing you in for development, is there a specific mode of learning that you will be able to develop? Like is it online learning, is it Web-based initiative, is there specific …

JOHNSON: Probably my two strongest suits is online learning and in-classroom settings. That's where I really learned how to do instructional design in the field was taking what I learned from other people's material and what I saw best in those, and then applying it to courses I created myself.

NM: So if you were to do online learning, what kind of programs or tools do you normally use when you …

JOHNSON: just the technology tools we use the Adobe suite. So, right now we're using the e-learning suite which includes Captivate, Dreamweaver, I've drawn a blank now. It has PhotoShop came with it but I use Fireworks, I'm more familiar with Fireworks than PhotoShop as a graphics editing tool. Soundbooth is the sound tool. I do some video editing, so I've got the Adobe (pro) for video editing. We also use (Electora), is an authoring software that we just picked up in the last few months, we're just learning how to use that.

NM: So it can really vary.

JOHNSON: Yes. Basically we handle all aspects of the online. If you're looking at an online course development team you probably have an instructional designer who does the analysis and development, scripts out what the course looks like, maybe a tech writer who actually writes the words, a graphics artist who creates the images, a programmer who does the Flash and all the cool programming stuff, and then the instructional designer kind of acts as a project manager and moves all the things in. But we will put all those hats.

NM: Okay so you're going to try to—you're saying that that would be like an ideal circumstance is that people have these punched out roles.

JOHNSON: Right, you have these—and if I were, if we were to set up an online production lab, you know, if we were going to produce this as a vendor for sale we would have those

different elements…typically. You wouldn't have the same person doing all those things. Because they're not as good at it.

NM: Right, so let's say you're working on a project and you're only brought in for that development phase. Do you think it would be more beneficial for your client if you were involved with the other phases?

JOHNSON: Well I think the instructional designer in any learning project is the project manager. And so yes, I think it would be beneficial if they were as involved as they could be. Especially if you're working with a client, they would be the face of the organization for the client. They'd be the person the client is interfacing with. And even internally here, we try to do that sometimes. I have colleagues that I might turn to to help design or develop different portions of the course, or we all maybe have volunteers or interns who are working on stuff for us. So we end up being the project manager and say this is what I want, have them create the real material.

NM: When you're working on a given project what would you think are like the main instructional methods or strategies that you gravitate towards?

JOHNSON: Okay. All right, I think I'm know what you're saying. I like to use a three step approach to learning where we present the material, practice it in a structured setting and then give the student the opportunity to practice on their own if you will, with direction. And I think if you're able to do those three you're going to get the best transference of knowledge and probably have the more likelihood that they'll be up to speed on whatever task it is, especially when it's task oriented, that you're trying to (retain) or trying to implement.

NM: And you said that some of the mechanisms that you use is based on what you've experienced, like going to another session and kind of looking at how things are done and taking kind of the good pieces out there. Is there specifically things you look for then that you like to use?

JOHNSON: Well, I look for those …

JOHNSON: I look for those three elements. If there's any material presented is it clean, does it make sense. Analyzing material, frankly I can take a quick glance at it and gauge by the amount of white space, for me, whatever it's good or bad material. If there's—and if I quantified it off the top of my head, probably if it's about 40% to 60% white space it's good material. Not too much, not too little on each page, not too overwhelming for the person, not too underwhelming. A lot of my experience came from not only observing other people, you know I tried to do that as much as I could, or when I could. It's also observing myself and what worked and what didn't in day to day classroom sessions. I ran classroom sessions every day for a long time. I started out doing individual training of people in different applications, so they would do some online stuff and then they'd have some structured exercises where they would practice the skills they learned there online. And I might have seven people on seven different applications. So I was

working with each person one on one. So learning from that, translating that into a classroom setting and trying to structure that in classroom I think is where I learned a lot.

NM: Did you have like feedback mechanisms in place, for example after your session was done, to get that information so that you can kind of revise …

JOHNSON: Mm-hmm, exactly, yeah.

NM: Do you also get that opportunity with the completed projects that you do? Even when you're doing the evaluation for the project do you get feedback from your client?

JOHNSON: Sometimes yes, sometimes no. The big projects we do because it's a large scope so you have more people likely to speak up about it. One good example that is our annual mandatory training, we get lots of feedback on the annual mandatory training. [laughs] That's effectively with that one we're looking at really making some changes in that, try and make the boring regulatory stuff a little bit more engaging.

NM: sounds good. [laughs] I Look forward to it.

JOHNSON: I know but every year you've got to tell people how to pick up a box. And actually that's a real challenge I see is how do you take these regulated things that people have to do and make it engaging? And very often they've seen it so many times they ignore it and they forget it because they've seen it so many times. So, there's stuff in it, it's all very important. You know these reg—how to pick up a box so you don't hurt yourself, how to, you know, electrical safety, general safety. What happens with a color code in the hospital? What are all the different colors—you know there's 15 different color codes. Frankly I don't think anybody has them all memorized. They call a code gray, what do you do? Do I run out of the building, do I not, do I, yeah, do I have something, some tool for me to use for that? But we all heard the codes, we've done the training for years and years and years, but we don't know—so why doesn't that information get transferred, why isn't it, you know, important to know? The other thing that I learned very early was to use—and I think I did it more intuitively—is to use an adult learning model. And then I read about it specifically and I went okay, that's what I do. [laughs]

JOHNSON: Where with adults you need to make things very specific to what their needs are and very focused, and they need to know why, which I think is part of our American culture. I saw.. I was reading a biography of George Washington. And he had a Prussian general come in to teach his army how to be an army. The American Revolutionary soldiers did not know how to soldier. They were farmers. They were craftsmen. They were just (joining us). And the Prussian general made an observation that in Europe he told a soldier what to do and they did it. In America you told a soldier what to do and why they were doing it. And that, so that was 200 or 300 years ago that our culture was being established. We need to know why here in America. And it's still true today, most adults need to know why they're doing it.

NM: Very interesting. So you try and kind of keep that in the back of your mind as whenever you …

JOHNSON: Yeah I always try to build that in as why, you know, how is this relevant to me, what's the value to it for me, why should I be doing it, what do I get out of this, what's the importance for me and for the larger organization. I try to tie it into that.

NM: And kind of keeping it in the same lines, if you were to look at what you've learned on the job in terms of your skills and knowledge, what do you think would be some of the key points that you've learned on the job?

JOHNSON: Human behavior.

NM: In what sense?

JOHNSON: Well, in how, how people learn, how people react, being able to read people. I think one thing I'm able to do, and this helps me in the standup training, but it also helps me when I'm working with other people, subject matter experts, is the ability to quickly get inside their heads. A: if I'm teaching them figure out what pushes their buttons. I call it what pushes their buttons, but basically what motivates them and how to present the material in a way that's motivating for them. And then if I'm working with a subject matter expert, how within minutes for them to feel comfortable enough with me to be able to share everything that they know, which is a real challenge sometimes. When you're working with someone who doesn't know you, don't trust you, and so if you wanted to take their ideas and bring them to fruition, you need to see things as they see it. So the ability to do that. Something else I think I learned very early is if they don't get it I have to change the way that I'm presenting it. And I think with online learning we're not quite there yet. But what I'd really like to be able to do is create a flexible media where the student chooses their method of learning. So having three or four different avenues for them. For example one thing we're kicking around for an annual mandatory (next year). Some people like really engaging cool flashy stuff with cartoons and imagery and movement and all that kind of stuff. Other folks think that's silly, childlike and would rather just read it. "Give me the words, that's how I've learned all my life, just read it." So do we produce a course that has two modalities, two paths, same content. You've got one flashy, cool, fun, and one (eight) words. And they can travel down either path and switch paths if they change their minds. Okay, I'm bored with the words now, here's some cool stuff. Or the flashy it's getting bothersome, let me just read it. So, you know, looking at how do we hit a broad audience and satisfy all their learning needs with one tool. Which you can do in a classroom situation a little bit. You can develop relationships with people individually. But online you can't do that.

NM: So how do you, how do you think or what do you feel helped you gain the knowledge that you need in order to understand, for example have a better understanding of human behavior or the need for possibly multiple modalities. What kind of was the impetus behind it, what gave you that knowledge?

JOHNSON: Well, some of it I don't know, some of it I think was intuitive. When I was in the ninth grade and taking first year algebra we had to as part of the course go up to the board and do a problem on the board. And we had to explain what it was we were doing as we walked through that. And after a few sessions of doing that my instructor pulled me aside and said, "[name], you should be a teacher. You have a knack for taking complex concepts and making them concrete for people and putting it into a framework that they can understand." That's only what 14 or 15. He recognized it, and I didn't even realize I was doing it, that was just explaining the problem. And to me it just seemed—didn't seem like that big a deal. But, he recognized it. So I think part of it maybe was an intuitiveness of seeing things there. My mother always says, "[name], you're the tender one. You see things in other people." So I think that helped a lot. I think something else, I've always been intensely curious all my life. Drove my folks nuts when I was five years old because I asked why on everything, and I still ask why. And so it's neat in this job, I'm able to learn lots of things. I mean I'm as interested in the material that I'm creating as the student. You know, I'm learning new stuff as I go. And so like I love working with SMEs because I can gain their knowledge and give it to them. So having that intense curiosity I think helps me. And then I'm able to take that and explain to other people. Something else that helped, years ago in a previous life, [laughs] I was working with developmentally disabled population in the community and managing group homes for the developmentally disabled. And the psychology that was used with that group was behavioral psychology. And so I learned to use a behavior-based psychology model, which was—which all seemed to make sense to me. I mean you know about the Freudian model, stuff like that, but the behavior-based model. And so that really taught me about taking complex things and braking them into learnable steps, which is where we apply (right now learning) we have learning, we're taking the complex and breaking it into these small steps. We had to do it with life skills. So we were teaching people how to make themselves breakfast, or even simpler than that, teach them how to make themselves cold cereals with a bowl and milk. We had to come up with instructions, step by step instructions on how to do that because you had to teach them each one of these steps. They didn't have the knowledge. Well it might boil down to they don't know how to open a door. All right, so you had to teach them how to open a door or open the fridge, you know. So, I learned very early on with that on how to break things down into the most minute steps and then build it back from there.

NM: So some of that experience is real, it's real life experience …

JOHNSON: Exactly.

NM: = that helped gain that knowledge.

JOHNSON: Mm-hmm.

NM: Do you think that you could have gained these skills and this type of knowledge in any other way?

JOHNSON: Well, I never say never so I probably could have. I don't know if I would have internalized it to the extent I have. I think I wouldn't have been able to give names to things. I had a colleague once tell me, "[Name]," she said, "You do intuitively everything that we learned in school." And she was a teacher, or she had a teaching degree. And so maybe my on the job learning has come from that. Plus my desire to always teach, that's always I drive my kids nuts because I'm always telling them how everything works. [laughs]

NM: And you said that you had not taken any kind of academic programs or anything like that.

JOHNSON: Very, very little. I went through—I did have some college, I was a math major. I probably would have gone into teaching but at the time teaching was about like it is now, you couldn't find a job, couldn't find a job teaching. And so I should have gone—hindsight I probably would have gone into that. I did have some other formalized learning. When I was working in the group homes I was asked to—there was a standardized curriculum for group home staff. And I was asked to attend a train the trainer on that so I could train that for other folks. So I had some formalized learning there, and some other, you know, sessions along the way. But nothing really..

NM: Have you participated in any workshops or continuing education opportunities or Webinars or..

JOHNSON: Yes, yes. Actually as much as I can I try to catch any of those. We had a class here on instructional design that I use, I pull a lot of stuff out of that.

NM: That was like an in-person class?

JOHNSON: We had an in-person, we brought in an expert on instructional design.

NM: So you have attended like workshops and …

JOHNSON: Yeah.

NM: And what other types of .. they don't have to be academic, like what other kind of activities have you participated in that have kind of widened your scope of instructional design?

JOHNSON: Raising children.

NM: [laughs]

JOHNSON: [laughs] Really. And frankly a lot of things I learned from that, from raising children, I apply to learning. Mostly in human development and behavior modification, in those particular areas, and setting things up for folks and relating to people as people. Not that it's you treat people as children, but learned a lot of things from that. I learned a lot from my mother, frankly, who has.. she has some formal training but she has the

ability to—I think a lot of the skills that I've got I've gotten from my mom, and learned from her that she did intuitively. On just managing people and managing projects and (that) things effectively. I think one thing that really helped, very early in my life I did a lot of public speaking. And so I feel very comfortable doing that, through our church, frankly. Kids stand up doing skits in front of the class and in front of church and speaking from the podium and what not. And I had a lot of opportunity to do that. I think it really helped.

NM: And do you still do a lot of the teaching right now? I know you said that you did it before.

JOHNSON: Not as much.

NM: Not as much now, okay.

JOHNSON: Not as much. I mean I used to do it almost 20—almost solely stand-up training. Now …

NM: That was while you were here?

JOHNSON: = four or five sessions. Yes. Well, here and other places.

NM: Oh, okay.

JOHNSON: I actually set up the technical training here for [Name of hospital], about 15, 18 years ago, '93.

NM: So you've been here for how long?

JOHNSON: Well I've been an employee for five years, and then on a contractual basis back to '93. And it was, it was I wasn't a contractor. [laughs] For some reason contractors at [Name of hospital] (have just don't). Henry Ford contracted with the company I worked for, for training services.

NM: So you were kind of like a consultant?

JOHNSON: In effect.

NM: But in-house.

JOHNSON: Exactly. I was an in consultant. And then did that for 15, 18, and had different roles, and I made—and they wanted me to be a manager, so I went back and managed. And then this account was falling apart, so they brought me back. [laughs]

NM: Do you think that helped, do you think that you getting the experience with management and with the teaching kind of helped you do what you're doing today in your current role?

JOHNSON: Yes. Yeah. Especially the experience of management. Early in life I had management opportunities, professionally and personally. And even earlier than that, back in Boy Scouts I had leadership roles. So I've had leadership roles most of my life. So, and not always wanted them, but was asked to do them. [laughs] And so yeah that has helped. It helps when I'm—it helps when I'm talking to someone, you know, interviewing them trying to pull out of what they need. It helps me to focus. It's helping in project management to manage my time as effectively as can be.

NM: And things like that, like the management, the project management specifically, the multitasking that you need to be doing because of all the projects, do you think there's any other way that you could have learned those skills? I know you have a lot of real life experience, on the job experience. Do you think that you could have learned that in a different way?

JOHNSON: I think I could have learned it. I don't know if I could have practiced it well. I think that's able to be learned. But I don't think, I don't think you can master those skills in an academic setting. You just don't have time, I don't think, to do them, in a real life basis.

NM: And do you think like instructional design and health care, then in this environment do you think it's really unique then compared to, for example, corporate cultures or..?

JOHNSON: No, it's no different. [laughs] That's one thing I've always discovered is that everybody thinks that whatever they're doing is unique. But having had the opportunity to see many different organizations—prior to working at [Name of hospital] I was with the staffing company as a trainer, and so I got to see many different industries, automotive, healthcare, etc., etc.—everybody thought that everything they did was unique. It really wasn't that many things that were unique. You had different names for stuff. But you know designing courses is designing courses is designing courses. And it doesn't really matter what the content is, it's the process.

NM: And do you think that the cycle time to complete a project would have been similar in some of those industries compared to this?

JOHNSON: That's a good question. I'm not sure if they would be or not. Cycle times on projects typically are dependent on the scope of the project and the availability of your SMEs or people you're interfacing with to respond quickly. That to me seems to affect cycle times as much, and your own internal resources when you can get to stuff, project backup and that kind of thing. But just looking at, you know, taking out the.. you know, assuming you have all of your time to work on a single project, that cycle time is as dependent on the scope and the magnitude of it and the resources you have and the resources that your folks you're creating the project for, your customers, have. For example, run into it very often where we'll create something, we'll say all right, time to proof it. "Take a look at it, see what you think." You don't hear anything for three

months or six months, you know. Then finally you do hear something from them and they want it done in two weeks.

NM: Do you get those projects where it's absolutely critical to release, let's say there's some new standard and something has to be implemented throughout the system. Do you ever get those kinds of requests where it's really time restricted?

JOHNSON: Yes, yep. And if that's the case then we drop everything and we slap something together that really isn't very good, but it's the best we can do in the time we had. But I've turned stuff around in two or three days. Sometimes even less than that if we really have to. Fortunately with the rapid—or everybody calls it rapid e-learning tools—but fortunately we have some tools where we can quickly take decent content and make an online course out of it ..

NM: Would that be like Lectora that you mentioned?

JOHNSON: Lectora, another one is Articulate, I didn't mention that one.

NM: Okay.

JOHNSON: Articulate's the one I probably would use for the quickest turnaround. I can take a PowerPoint and in an hour make an online class out of it with Articulate.

NM: So that reduces your development time.

JOHNSON: Right, yeah, assuming that they—assuming that, there's a (chance), the PowerPoint usually needs to be cleaned up. It's not instructionally sound, it's, you know, it's not grammatically correct. You know, there's a lot of problems with it. So you spend more time doing that, but you can turn stuff around pretty quick with those tools. Not the best stuff, but…

NM: And because you're using products like that and things like Dreamweaver and Captivate, do you feel that in this current role that you need to have a lot of technological background or technological savvy?

JOHNSON: It helps a lot, yes. It helps a lot. Well if we're producing technological content we need to be technologically savvy. And I think that the more you are, the more success you're going to have with things. You don't have to cut up into little things. For example I've seen some of our interns and folks coming in who struggle with that, just keeping the filing system straight. Because you work with lots of assets and you have lots of files and folders and things to put things. Just keeping that all straight is, "Where's 'my good copy, where's my bad copy, where's the—what happened to it, it's gone. I deleted the wrong thing. How can I organize my technical files?" Just something as simple as that. And then being able to quickly understand things. Someone who's technologically savvy and is a good learner—I find that most teachers, the best teachers are the best learners—can pick stuff up quickly, can generalize, can take a concept and generalize it out, don't need

rote by rote steps. They can take those steps and then apply them to other things where the steps may be different. I think that's very helpful. Now, face it, if we're creating online content you need to know online and understand that. And how the computer world kind of works, to demystify it.

NM: So when you look at your job role right now, what do you think would be like the biggest challenges that you face?

JOHNSON: One is just staying on top of all the projects, I'm really overwhelmed with that. But other than that, really following the design models that are out there that I know work well, where we tend to cut corners, and so I think some of the biggest challenges are the end result measurements. Are we getting—is the organization getting the ROI that they should be and (return on investment) they should be? Are we really changing behavior in a positive way that's integrated and aligned with the organization, with the system goals, you know, strategic goals, is it really contributing or not? And I don't think we do a good job of measuring that. I think we're doing that anecdotally, intuitively it feels like we are in most cases. But I don't know if we're actually measuring that. I had a couple of opportunities where I actually could measure that.

NM: What would your feeling be about why, not just you, but why generally we don't do as much of the measurement. Do you think that's just unique to our health care industry? Do you think it's due to other reasons?

JOHNSON: I think—well a couple things come in play. I don't think it's unique. I think every organization does that. I've got some friends in engineering and they tend to do that more often just because engineering requires that and engineers do that. I've seen the automotive engineers, they always look at output. But even there you don't see it as much as it could be. I think it's a resource. You have to—you gotta have the resources to do that. And then what are you going to do with that information when it's done with it. Are you just gathering it or how are you going to share that, what kind of value is having that feedback? Are you going to turn it back around and improve the process and circle back, you know, following the whole thing continuous improvement? I think another reason we don't do it is the basic fear..the fear of failure. What if we don't get the results that we want. We promised everybody, we spent a lot of money on this, it's a big deal, what if the numbers show it doesn't really work all that well? Is our organization at a point where they'll accept that? And I don't know if we're there yet, it's a place we're going. I think we need to go there in healthcare, it ties into just culture, and a lot of other initiatives for it to work effectively, but I don't know if we're there yet across the board as an organization.

NM: You mentioned a couple things about the cycle, that iteration you're referring to, the ADDIE model and how you need that continuous improvement. Have you been exposed to any professional organizations that have kind of helped you understand like that whole instructional design area?

JOHNSON: Well I was a member of ASTD for a little bit, ten or 15 years ago, before really even the online world took off. No, I haven't really.

NM: Did ASTD help you?

JOHNSON: Not really. That's why I'm not longer a member. It was more socially. It was more social and I saw it more as people looking for jobs. It wasn't—they were looking—a lot of agendas were there. At that particular local organization at the time.

NM: Okay. So where would you normally go if you had questions about instructional design?

JOHNSON: Right now I usually either my colleagues and peers or our wonderful Library. [laughs] I do a lot of research on the Internet. So also I look up things on the Internet.

NM: Like articles?

JOHNSON: I look for articles, look for—always keep my eye open for stuff.

NM: Are there opportunities within the organization to send you to workshops or attend some of these Webinars and things like that?

JOHNSON: The free stuff, yes. The not so free stuff occasionally I'm able to go to things like that. Another good resource we've been able to partner with Wayne State University, and so we've had interns come in who have helped me a lot with what's going on in the academic world and showing some best practices and what they're seeing out there. So I've learned a lot from that ..

NM: That's really interesting.

JOHNSON: Ask them a lot of questions and see where things are going with stuff.

NM: This is going to be the last section that we're going to cover, which is really your recommendations and your own personal reflections.

JOHNSON: Okay. I haven't been doing that? [laughs]

NM: [laughs] You're doing a great job. What would your recommendations be for academic programs? And this kind of ties in with the partnership that you're talking about with Wayne State. What would your recommendations for academic programs be for preparing instructional designers to practice specifically in the health care environment?

JOHNSON: Um, I think as much, as much as you can do in an academic setting is using real life situations, and putting people in real life situations. Also, focusing not on the little pieces, but how all the different elements fit together. I've heard some folks come back and talk about classes and just say “I didn't see why that class even related to what we're doing here out here in the real world”. So I don't see a lot of relations—there's a lot of

theoretical knowledge that many people find difficult to generalize, and how do I apply the theoretical knowledge that we're getting. And especially when you go with technology there's a lot of theoretical knowledge out there, just in Web page design, and just how to set that up. But what makes a good effective Web page, how do you apply the learning that you're using there? How do you tie things together? And I'm not too sure in academic settings if individual professors tie that together anywhere. I learned how to do X, I learned how do to Y, I learned how to do Z, but how do I pull all those together when I'm in an environment where I need those three pieces. I need to pull them together. So more integration.

NM: So kind of bridging that gap….

JOHNSON: Exactly.

NM: Between theory and actual practice.

JOHNSON: Yeah, theory and actual practice and then the various aspects that you're learning about instructional design. You might learn how to do design stuff, you need to learn some of the technology. Well how do I tie the two together? How do I use things that I learned in class A in class B? How do I pull those together.

NM: Okay, that's great. Now recommendations for structural designers.

JOHNSON: Okay.

NM: So what would you say to someone who was entering an ID position in healthcare. What kind of content areas or programs or affiliations do you think that individual should be aware of or would be helpful to them?

JOHNSON: Okay. A knowledge of health care if they're not really familiar with health care. Just a knowledge of the health care environment. Problem solving skills. A focus on problem solving skills, time management, project management, and not necessarily full blown, but just how to effectively manage projects and work them through from beginning to end. Technology base, have to know the tools, tools change all the time. So, rather than that.. be a good learner of tools and really focus on your learning skills and how you can adapt.

NM: Do you feel that an individual who does not have an academic or any type of formalized training in instructional design could perform well in an ID position here?

JOHNSON: Yes.

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JOHNSON: Oh in this economic climate, without an academic credentials, I find typically most people won't even get an interview. That's a bare minimum requirement is to have a

Bachelor's degree or Master's, something in that field. So I guess that would be a condition also for someone.

NM: And what would your recommendations be to health care administrators to help prepare instructional designers such as yourself to be able to perform effectively and efficiently?

JOHNSON: Give us the resources we need and the people and the resources.

NM: And by resources, like the actual tools that you need?

JOHNSON: Yeah, the capital spending and the (FTD)s, you know, the people resources and the capital spending and the computer tools, the technology tools, to work effectively. I think the other thing too is to be very clear. One thing they could do is to promote a culture of development or a culture of learning. Frankly instructional design dies when an organization doesn't see the value in learning. And basically the structural design will be—is not seen as value-added. In a continuous improvement culture, continuous learning culture, you need to have instructional design. Without it they'll just cut the funding and cut, you know. So I think from administrators is that vision, and that development is key to growth of any organization. Development. I think the other thing too, from senior leaders especially, is a good idea of where the organization is going, where they want to take them, and more so than just the strategic plan which tends to be cut and dry and stuff. What do they really see, where do they want people—what do they want this company to be, this organization to be in five to ten years. What's their vision for the future? And I think that helps from an instructional design point if you start to build those elements into every course that you create. And you can give it that flavor that the organization is looking for. I think that would really help tie and integrate strategies to practices for the entire organization.

NM: Okay, thank you.

JOHNSON: Mm-hmm.

NM: The last question is, when you reflect on your ability to practice instructional design as a training analyst right now, how prepared do you feel you are to practice?

JOHNSON: How prepared do I feel? I'll say most day fairly prepared. [laughs] some days not so much [laughs], I think I've got a good grounding on what I need to do. I can always learn, always look at new methods, and new methodologies that are coming out there. Trying to get a handle on the social learning and social, you know, the Web 2.0, the social networking and how that applies to learning I think would be very beneficial—how that can be best used. It's the big buzz right now, everybody's talking about some way to use it. But is it effective or not? Is it just the cool thing of the moment and is it going to be like CB radios and just come and go? I don't know if it is or not. The other thing with that is how do you—if you need to measure learning how do you do that? Because you can do a lot of cool things with learning, and especially the tools are getting much cheaper and you can do video or you can do lots of thing with it. But how do you

effectively measure learning. And I almost see us really starting to learn from the marketers and the sales people. Everybody wants a video right now. Why do you want video, why is video a good way of learning? Well look at who's the most effective at changing behavior? Commercial TV. In 30 seconds, one minute commercials they're affecting behavior. Now sometimes they can do it (over and over). So what are they doing and how can we use those things in instructional design, how can you build those components into courses? And if you're really trying to change behavior, we'll change behavior. I mean if you really watch those, you watch the commercials for phones, they're really changing behavior, you know, to get people to buy their phones, to buy cell phones and to buy all kinds of stuff. But it's really it's fascinating to see how they do that. I think we can use that a lot in our instructional design.

NM: And so if you wanted to focus on that in the future…do you think you would be prepared to be able to do that or to handle that kind of challenge?

JOHNSON: I think I would. I would have to do some research. You know, probably partner up with folks in our organization who are experts at that, or outside organizations. I think there's probably research out there, academic research. But I don't think at this point in time I could do it effectively. But I think I know where I need to go to be prepared. And if it was a strong enough passion that I would be given—actually I would do it whether I was—do it on my own time [laughs] and then start to integrate it.

NM: That's perfect. That's actually the conclusion of the interview part, unless there's anything else that you'd like to add?

JOHNSON: Nope, that's, I pontificated enough. [laughs]

NM: [laughs] You've done a great job. Thank you.

APEENDIX K: TYLER'S TRANSCRIPT

INTERVIEW WITH TYLER

NM: Tyler, as you know, the purpose of this research is to help in understanding how instructional designers perceive their preparedness to practice in healthcare environments. Today's session will take about one and a half hours. It'll have two parts. So, the first part of the session will consist of a one on one interview with me that will guided by questions that I ask you. The interview will focus on your ID experience, methods of preparation, and recommendations to others in the field that are going to be taking on a similar role such as yourself. Afterwards, you're going to have the opportunity to share two completed ID projects with me in which you participated. If you want to take a break at any time, feel free to let me know. Also, if there's any questions that you prefer not to answer, you can feel free to decline. As agreed upon by you signing the consent form, this session will be tape recorded for purposes of accuracy and the tapes will be kept under lock and key for purposes of confidentiality. You will be de-identified with the pseudonym that you generated as well as your place of employment. So, please answer each question completely as time permits and include any kind of information that you believe is pertinent. There's going to be approximately 16 questions that I'll be asking, but before I start, do you have any questions about the informed consent?

TYLER: No.

NM: Okay. Great. What is your current job title?

TYLER: I'm considered a senior instructional technologist.

NM: And what kind of roles and responsibilities are required of you?

TYLER: A lot of my roles are oriented towards online learning. I think first and foremost, that's probably one of the things that I'm, I focus on is data collection, analysis, delivery of content online.

NM: Okay.

TYLER: I mean, the content could come in the form of streaming video, media. It could be web pages. It could be interactive learning.

NM: And this content is normally just provided to you or it's something that you have to develop in conjunction with, for example, a subject matter expert?

TYLER: Well, if it's a live event, for example, it's already existing content and I would simply record it and prep it for the web and, and web delivery. Or other media. For example, like on DVD or CD. If it's, in many cases, the content already exists. I mean, it's rare that I actually have to develop content. They may have an idea for intervention. For example, with this new application I was talking about, the (directed reading) application where for many years, this process was done through emails or various forms that weren't very well organized. And we developed, or I helped the physicians to organize, and to develop a, a tool that would facilitate

the process easier for everyone. So, and those are the kinds of things that, it's not necessarily I developed the curriculum, instructional content; It was I developed a tool that facilitated a process. So, along those lines, I, you know, every day, there's something new. So, I mean, a lot of what I do is fill gaps. So, as we identify them, I, I'm there to fill them, so. And a lot of them, often, it's filled with technology.

NM: And then do you normally work with one person in particular or do you work with a wide range of people from various departments?

TYLER: In this role, in this department, I work more with just our people, just our internal medicine group. In the past, I was, when I worked in nursing development and then I also worked with HR at one point, or in HR, HR was definitely more of a global perspective. I, I helped wherever the help, or need was, was at. And nursing development was more centralized in nursing development, but internal medicine is the same. It's what we need first. It's such a large department and such an educational needs throughout that it occupies most of my time, but at the same time, I'm there to help whenever someone needs it, so.

NM: So, and correct me if I'm wrong, so, from, from what you get from people, whether it's the subject matter expert who already has the content ..

TYLER: Mm-hmm.

NM: ..you do a lot of the design…

TYLER: Yes.

NM: = in terms of, you know, maybe..

TYLER: Aesthetic or look.

NM: Yeah, the design, the development of modules, perhaps, in terms of putting it online or like you said, streaming video.

TYLER: Right.

NM: And then do you help with the implementation of these types of modules or instructional units?

TYLER: Yeah. I mean, I, basically, a lot of times the content (could) come in the form of a Power Point, for example. It's pre-laid out in the sense of it's generally linear from point A to point Z. But it's generally, I have a lot of written content, no images, maybe a graph if there's supporting research or something along those lines, maybe a link to external content. And then from there, I basically develop it into a form that I can put on the web that becomes usable for the user. And you know, it focuses on usability, functionality for the users' ease of use. And the data collection, if there's any to take place. Whether it's a pre/post test or an ongoing questionnaire that maybe pops up periodically throughout the content.

NM: So, you're involved, then, with a lot of the evaluation?

TYLER: Yeah. Well, a lot of the, you know, we were just talking a few minutes ago. You know, a lot of my meetings this morning are all oriented towards surveying, data collection, finding the needs. Needs assessment type things. And then from there, we'll just kind of figure out what we need to, if there is a need, to figure out what the next steps are. So, right now, a lot of that is, and we do a lot of it sometimes through the web, again. We find that, you know, handing out paper is great, in a sense, but with our population at least, they, they don't have any interest in turning it back in.

NM: Okay.

TYLER: Keeping track of it.

TYLER: And so, and then, and then it becomes difficult for us to track. So, we end up putting a lot of things to the web, so ease of use and again, trackability. And then at the same time, if it's already plugged in, we can run real time analysis. We can actually look right off the bat where things stand. So, item analysis, things along those lines if we were going to get into any kind of item response theory, things like that.

NM: So, when you do, let's say you're doing the front end, you're doing the analysis first. So, you're involved in both phases, really. The analysis to determine the needs as well as the evaluation to look at outcomes, like learning outcomes.

TYLER: Sure. Yeah.

NM: So, let's say you're doing your analysis. Do you follow a specific model when you're doing your analysis? Are you doing it normally on your own or in conjunction with the subject matter expert or the person who is requesting the content?

TYLER: We generally work as a team to determine, a lot of times, they come up with the ideas already of what they want to accomplish and we look at the variables that are going to be used and they kind of determine what analysis will be used, in a sense. If it's, and the scales that might be used to determine what analysis we'll use. Ultimately, it gets down to what do we want to answer? I mean, I mean, we go through the process of identifying our objectives and developing measures for each of those objectives. And then, you know, go about measuring whether we did or did not meet the objective and to what degree, sometimes. But there's no algorithm, in a sense. I mean, there, there is one that exists, they kind of exist loosely, but like in a sense, if you're going to measure discrete variables and discrete data, you have to follow certain analysis. You can't use certain, you know, so you're kind of on that pathway). I mean, it's, I don't necessarily pull out a chart or anything. [laughs]

NM: Right, right. Okay.

TYLER: Technically, I do. I have one I built.

NM: So, you basically are going to be kind of grabbing from different (depths) of what you need..

TYLER: Sure

NM: and that's how you're going about the analysis. And in terms of the evaluation piece, do you typically work towards development of surveys? Are they more, are there specific types of evaluation tools that you're using or that you work on? Or does it vary depending on the instructional need?

TYLER: It depends on the need again. I mean, it could be a test. It could be a knowledge based cognitive type test where you're looking at knowledge, comprehension, application, evaluation, all those things. We look at interpersonal communication skills, for example, and that's more of an attribute, difficult to measure. It's a qualitative type measure. I've developed, well, I've worked with an existing, adapted an existing communication survey that we, we just recently put together. And I submitted for publication. But you know, it all, it all depends. I mean, we work with different things. Myers Briggs and we use that instrument, which is preexisting. I mean, there's an in-training exam which is technically a self assessment of knowledge. There's various tools that we use that do exist and don't exist. We develop them. We do have a, like when I have this meeting, I will have a meeting with Dr. [doctor's name] that will kind of discuss an internal project. We'll end up having to build our own instrument to collect the data that we need.

NM: Okay. And so when you were talking about how you were doing some of the more qualitative measurements, you've kind of grabbed from various theories or instruments that already exist sometimes.

TYLER: Oh, yeah.

NM: As well as developing on your own and things like that.

TYLER: Yeah. It's, I think it's a lot easier when you're talking quantitative because you're talking numbers, things that are measurable. When you get into qualitative analysis and research, there's a lot of, there's a lot of research on top of that that really kind of points to the difficulties (of the), each one of us has an internal standard, in a sense, and then it's hard to get that, the consistent measures of how we look at things without having some kind of external standard that everyone can use equally.

NM: Let's backtrack just a little bit.

TYLER: Sure.

NM: In terms of instructional design, in terms of all the things that you've talked about that you do..

TYLER: Mm-hmm.

NM: what is your educational background or your educational experience with instructional design? And if you don't have it, that's absolutely fine, but it would be really nice to know what your educational experience is.

TYLER: Sure. Well, I mean, as an undergrad, I double majored, double minored, but one of my majors was in Psychology. I was interested in cognitive psychology, intelligence, and perception. I also got introduced to some psychometric research at that point. My masters degree is in education, instructional background and for years, have worked, you know, my other bachelor major was in art. And so I got into graphic designing and web, later progressed into web design and interactive media, like working with flash and things like that. And the whole time, I kept seeing how we could make our educational material more visible, use more multimedia, in the sense of incorporating more learning styles rather than just, "here's a piece of paper or a book." - make that book interactive. And so I kept thinking along those lines, thinking down the road of how this could be used and so I kind of, you know, (me and, me and the) future are kind of on this .. [laughter]…we're trying to stay on the same path and so that's my education background. I also was working on another masters degree in mechanical engineering with, it was focused in human-computer interaction. Again, I wanted to study the usability, functionality of the user so that I could understand, .. I believe in technology being a facilitator of potentially training and education and evaluation. So, I'm kind of still on that path and that's where I kind of saw that fitting in and future-wise, you know, I'm looking at other programs as well.

NM: Yeah, that's very interesting. So, these different educational paths kind of helped you =

TYLER: Sure.

NM: ..in your current situation, from what it sounds like, you've been able to grab from all of these different disciplines.

TYLER: Mm-hmm.

NM: And you'd mentioned that prior to working in this particular department, you also were in nursing development?

TYLER: Yes.

NM: .. and HR. So, if you were to look at your ID experience, like your work experience, can you kind of describe a little bit of that, in terms of what kind of ID experience you had before in the work environment and how that has helped you, perhaps?

TYLER: Sure. I know here inside internal medicine itself, a lot of the curriculum is preexisting. It already exists. And it's, I rarely see new things and when the new things do come along, a lot of it is post development. They bring me in, I should say, when they want to incorporate technology, not necessarily any educational content. Only if the content or the

educational material will incorporate technology. If that makes..I mean, otherwise, they kind of approach it on their own. Now, one of the things that I'm getting more and more used for is the analysis, the data collection and analysis, whether it's in the computer or not. My background is statistics and it's [laughs] getting stronger all the time and we're starting to use some of that more for the future analysis and things like that. Alright. In nursing development, though, they were more approachable and they wanted, they approached it more in a team environment. It wasn't, here, it's more independent. They will develop a whole module, in a sense, independently and only approach you if necessary. [laughs]

NM: Okay..

TYLER: But nursing development was always a 360 type perspective where they were more open to gathering all ideas up front and, and then approaching things in a systematic manner. They were often objective based, criterion referenced type training content. They would often, a lot of their, I mean, they had a whole series of things, but a lot of them were oriented towards quality. And, and you had national quality, Joint, Joint Commission, for example, would initiate a quality standard. That standard was the external force that was driving us to implement education. And so the education would go in place, so, I mean, it was this whole series of, chain of events and, but when nursing did it, because of their population, I don't know. I mean, I remember hearing numbers of in the thousands. You're talking all the, throughout the whole system. How do you deliver to that many people? And so they really were developing more things towards using technology all the time. So, again, that's where I kind of fit in. But when it came down to the actual internal pieces of the curriculum development, it's still a team type approach. The objectives were often, I mean, I'm not a subject matter expert in that area, so a lot of times, you know, obviously they would be identifying the objectives because the objectives would also relate to the, the external Joint Commission type driving forces. But when we got into the actual, how are we going to teach this particular piece, that's, if that's the layer that, we'd all kind of approach that and come up with ideas through a brainstorming type session. And kind of narrow it down. Can that be done? And yes or no.

NM: Okay..

TYLER: And then we'd attempt to deliver. And then you never knew if you were successful until the end, you know what I mean?

NM: Right.

TYLER: A lot of times, it was rolling the dice, especially if you were going to try something new.

NM: Okay.

TYLER: I mean, (that) always was, a lot of times, putting the upfront research, but you may find models of things that already exist. Like, we've seen an example that might have been used for, I don't know, I'm just going to make up something. Let's say like a hand washing type course for healthcare. And maybe everyone liked the way it was delivered, the time it was

delivered, the media it was delivered in, all the things that went into it. Well, we could use that as an example or a model going fort.h They rarely used the ADDIE model or one of those type of educational models. A lot of the people, especially, I find, in healthcare, they're coming from, they're nurses and they often, not always, but they periodically do not have the education background. Even if they have a master's degree, it might have been in a clinical area. I, you know, over in our department, at least, for example, like (doctors name), she, her PhD is in instructional technology. So, she had some of that background and would often, you know, bring in a whole bunch of, a whole series of the education (on the) foundations of what's needed. So, you had that balance there. Here in the internal medicine department, their approach is, they were taught, therefore they can teach. And then they will say that they have, they understand, they know, but they make common mistakes that are pretty visible, but they don't hear them.

NM: Right.[laughter]

NM: Well, since you brought up ADDIE model, are you familiar with the ADDIE model?

TYLER: A little bit, yeah.

NM: Okay. It's essentially systematic in nature, consisting of analysis, design, development, implementation, evaluation.

TYLER: Yeah.

NM: All of which, it's interesting, that you've mentioned that you've participated in either, it seems more, perhaps, with your experience with nursing development..

TYLER: Yes.

NM: than working in this particular department.

TYLER: Yes, definitely.

NM: But when you compare the two experiences and if you were to look at the different five phases, do you feel that it would be more of a benefit, especially in the current environment that you're in, to involve you throughout these various phases rather than just getting you more towards the development and implementation or sporadically during evaluation?

TYLER: Yes. I try. It's just there's like, this resistance to it. And yeah, no, I keep trying. [laughs] No, I do. I mean, I try. It's, it's just, they know, it's, in other words, it is true in the sense you can't, I'm not a subject matter expert in medicine. They are. It's just that sometimes they have also the layer of everything else they believe is needed and so they and plus, it's a cultural thing. They are taught to be independent. I mean, they are, they want to, generally, they're on a floor dealing with an individual patient and whatever is going wrong is for them to resolve. It's a cultural thing. It really isn't something they intentionally go out of their way to do, you know. [laughs]

NM: Right.

TYLER: This is, I'm not venting.

NM: No, no, no, no. That's okay.

TYLER: No, it is kind of, it's an interesting thing to observe because I do watch it. I try to participate. I, throw out things. And actually, my meeting this afternoon is about a research protocol that somebody had me review and I pointed out a whole series of things that could potentially go wrong with it that they didn't see. And, and part of it is they, and some of the things, they were aware of, but the thing is, they don't like that. [laughs] And so there's a good chance a lot of times they may not come back. If, if you're going to do that, not just accept it, I'm going to have to, because it, it often, what it does is, if you point out some problems, it gets back to the research or design of that product and that takes time and they're ready to move on things sooner than you might want them to, in a sense.

NM: And what you're kind of describing is kind of formative evaluation? Like, constantly evaluating while you're designing or developing..

TYLER: Sure.

NM: ..something, whether it's the research protocol. Do you find that when you're doing the actual, when you're looking at design projects that you're working with people and you were involved, let's say, with the evaluation piece, are they specifically wanting you to deal with the summative evaluation, which is totally the end of the training, let's just look at the outcome? Or are they also wanting you to be involved throughout the process, to look at things that are, you know, needing to be adjusted..

TYLER: Sure.

NM: .. like that whole formative process?

TYLER: Well, there's a couple of examples. One, we use a, an externally developed assessment (called the) Berlin questionnaire. It's for evidence based medicine training. And I'm not sure what, what the content and how it relates. I put the exam online. People take it. But at the same time, I get an item analysis. I can see that 30% of the people get a particular question wrong, which may point to either we may need more content in that area or more teaching around that particular subject. There's obviously confusion still. This is the post test. It doesn't seem to really change. I'll feed that back in and they don't do anything. [laughs] You know, their general response is, I know, that's a tough question.

NM: Okay, so you try and participate in formative evaluation as much as you can?

TYLER: Yeah. Yeah, and, and, but there is no 360 loop or anything along those lines. I, do feed it back. I'll print that out. I'll even kind of, like, for example, if people are scoring high initially and they eventually dropped, well, then now you probably caused a series of confusion

inside your testing. I point those things out, but I, I can't say whether anything is done about it. There is, there is an end to the, it's a linear path, so It's not, you know, it's not a cycle. Yeah.

NM: Do you get to work with anyone else in terms of the, the components that you're supposed to work on, do you ever get to partner with anyone to work on that part? Like, with the evaluation, do you get to partner with someone else to assist you?

TYLER: Yeah, for the most part, it's myself. I know there is a general querian language type person that is working for our department now as part of biostatistics. And he pulls patient data out. Again, that patient data may point to certain educational interventions, for example. Patients that, a lot of it is, did the patient, say, say a particular test comes back with a certain result that required a follow up type thing. He can ask, did the follow up take place? And then if they say no and there's a need for that, then there's an educational intervention that can potentially take place.

NM: Okay.

TYLER: And so we do work with identifying potential needs with another person. Again, what's going to be done once you've identified this is up to a whole different group.

NM: Okay.

TYLER: I mean, it really seems that, it, as needs arise, the needs are then passed onto individuals and those individuals are for the most part, developers of that individually. And it, only if it, there's a, a need, for the most part, do they actually go on to, pull in other people.

NM: So when there is a need for you, for example, to work on something, in terms of looking at the instructional design, like whether it's the theories or the models or other practices, like instructional strategies, or anything like that, is there anything specifically from the instructional design literature that you find yourself gravitating towards or trying to use on your projects?

TYLER: I =

NM: Like for example, even, like smart goals) or certain evaluation methods. There's many out there, but is there something specifically from the instructional design literature or the theory base that you might use?

TYLER: Not really. The only thing that, I mean, there's a series of things that I use, well, there's an (instructional) developer's workshop manual over there. [laughs]

NM: Okay. [laughs]

TYLER: I don't know if it's a particular theory, though. I mean, I'm sure it is. I'm sure throughout, I think there are references in certain places. I kind of just follow a series of steps and they seem kind of generic in the sense of needs assessment, identifying the needs, and

developing objectives. Goals, objectives. And then the one thing that I like, that I really like to use is the Bloom's Taxonomy ..

NM: Mm-hmm.

TYLER: and the other taxonomies that exist for the different areas of, there's cognitive domain, the affective)domain, interpersonal domains. I like to use those. And then what I've found is the verbs that line up underneath those, to use those in my objectives to make them measurable objectives. I find that's one thing I definitely gravitate towards. And I share that as much as possible.

NM: Okay.

TYLER: I print that out. I share it. I don't know if people quite get it.

NM: [laughs]

TYLER: It's, you know, it's one of those pet peeves where I, don't like when, there's complete lack of system design to the way we do things, but I don't, I like to have every objective measurable. [laughs]. And then to have all these things align into this ontology of data flowing. And, and there really isn't this here. Now, I know with Dr. [doctor's name], he's working on a milestones project where they're going to identify where, in a sense, where a resident should be, given a certain amount of experiences in relationship to all the other residents of their peers. And some of it is just simply frequency, frequency of experiences and it's not like your typical, it's experiential. And it's not going to be your typical, I haven't, at least I haven't seen a lot of these design type models that fit. It seems like they're almost creating one.

NM: Okay. In terms of professional affiliations, are you involved with any kind of professional organization that's focused towards instructional technology or educational technology or do you attend workshops or anything like that?

TYLER: Well, I, I don't know if – I'm certified as a Meyers Briggs screener. [laughs]

NM: Okay.

TYLER: But I don't use it too often, but it is something that kind of gives me an idea towards learning styles. But I also use it towards other personality, behavioral type insights. I mean, I can use it as a mirror to look at people and to understand and things like that. Just take things into consideration. But the other things is, I'm a certified quality engineer through the American Society for Quality, the ASQ.

NM: Okay.

TYLER: Yeah, again, I mean, I got a lot of training there in regards to, what do you think about quality? I mean, alright, let's think about education. Well, first of all, quality, where you measure something in your environment where you've identified a need and now what do you

do? Generally, a lot of times, you implement training. I mean, it makes sense and that's why, again, I was so interested in it. And when I started studying, it really came down to, you can prove techniques, in a sense. You can buy new equipment. You just got to train someone on the new equipment. There's, it always came back to, really, improved quality comes down to training.

NM: Okay.

TYLER: The quality improvement is the reflection of education. It really is. And instead of looking at individuals, though, like the trees in the forest, they look at the forest in quality, how individuals sum to equal environments. And so there, and then there's a layer there that we don't do very well here at [hospital name], is, for example, hand washing compliancy again. We take this test. We all get 100%. And in fact, it was something like that. The problem is the measure of transfer. We don't measure, okay, everyone took that, but did they actually do it after the training? We often leave off that gap. We focus on that everyone got 100% and not whether the transfer took place. Did we learn, did we use what we learned in the workplace? And if we did, then when people measure through the quality, which is, you know, just another form of evaluation, but at that higher level, they would see that quality has increased. Or infection rates would drop, something along those lines.

NM: So, American Society of Quality, because I'm not familiar with the organization..

TYLER: Mm-hmm.

NM: So, they focus on quality and do they focus on evaluation mechanisms or …

TYLER: Yes. Well…

NM: ..how to implement training?

TYLER: ..their evaluation methods, if anything, it's tilted unevenly in the sense of, it's going to be extremely oriented towards qualitative, quantitative measurements.

NM: Okay.

TYLER: In the evaluation of everything. I mean, but they measure things from temperature to everything and how it can potentially influence the environment. But for just the sake of education, there's not, again, a strict model. I mean, I don't remember seeing anything that specifically came up, but a lot of their follow is pre/post. And the, like a control chart, almost, like, we're maintaining a certain level of consistency and people vary from that. Again, human behavior. You know, like, the expected value of anything is that ultimately it becomes somewhat of the average becomes the relative or predictive value of whatever is going on. And a lot of times what we all want to do is move people from that current state to a higher state and that's difficult to maintain because people have a tendency to shift back towards that mean or expected value. I mean, and in quality, you kind of study some of those types of things. You look at permanent change. [laughs]

NM: So would you think, in terms of the impact that that's had on you or in terms of its relevance to your work, do you think that that's the type of society that's really helped you?

TYLER: Yeah. Oh, you know what it really helped me with is, and one thing I learned through that is, a lot of quality according to background, is in manufacturing and airlines, for example. And when you look at what our quality in healthcare, our quality departments in healthcare, when they're looking to develop their models, they look to the airlines. They look to these other companies for their service models because, I mean, I learn this periodically throughout, healthcare, quality in healthcare is actually in its infancy, to a degree, in the sense that we're just now starting to identify measures in the environments that make or change, have influence on what's considered quality. A lot of times, they'll come up with an attribute, like communication skills, but they won't identify how you measure it and so it goes back into the, to the healthcare professionals, in a sense, to figure out those types of things out. But what I liked and what I learned when I was going through that and I knew this was going to be the case, especially in our area, being an auto industry, everyone's, very auto oriented, but it was finding out how they, how they actually do these things. I sat through a whole class on metrology, the study of measurements. And it was one of the most fascinating things, the components that have to be in place to measure anything accurately. And then there's always this bias that's built in and how to take those things out. I mean, it really became an interesting thing and then I started seeing it and how it could be applied to education in our workplace. And, and for example, the (ACGME), which is the residency overseer, in a sense, a program - they put out competencies that physicians must have and they loosely identify what they are, but they don't tell you how to measure them. Again, communication skills, professionalism. What is professionalism? How do you measure that? And so I started looking towards what, how they would measure such things in, in quality, for example. And I started getting a little bit more of a feel for that performance measure. That's really what it was kind of focused on and that's the association with quality. And then, you know, I mean, you have Six Sigma Black Belt, those types of things and it really comes down to identifying the right things in a sense you can, you know, temperature, does it really have an influence? I mean, I'm just saying.

NM: Right.

TYLER: Or, or is it the fact that we don't have lights on? [laughs] You know what I mean? I mean, there are some, some issues are going to definitely be greater than others. I mean, yeah. And what you kind did in the quality is try to identify the, the factors that had the most influence. Not just have influence, but have the most influence. And there's certain, like, principles that are in there that, the Pareto principle, for example. If you identify your problems and list them all out and put them in order of what, if you concentrate on 20%, you'll actually fix 80% of your problems. There's this principle, it's kind of been studied throughout history and its 20% of the population has 80% of the wealth. I mean, it's this constant reuse of these numbers and it's interesting just to, to apply. That's an actual economic principle because that's the Pareto study. Like, it carried over into other areas, so.

NM: So, when you look at the different kind of experiences you've had with the American Society of Quality, the Meyers Briggs, your different accreditations that you've received, what

other kind of curricula or programs, they can be academic or non-academic, do you feel have prepared you to be able to practice instructional design effectively on the job?

TYLER: I mean, I'd almost say more than anything, it's along the lines of statistics. And, and understanding how numbers, not so much being manipulated, but how they are meaningful and how you can draw out, for example, there's this in-training exam and we're doing, we did a research project and, and there's been research projects done. There's this, we have, for the medical board pass rate and that's you know, when physicians get their license to continue practicing medicine, we have a high pass rate, but there's also still that percent of failure.

NM: Mm-hmm.

TYLER: If we can identify who potentially could fail, we could intervene now. So, what we're trying to do is use predictive pieces, mathematically based upon past collected data, to help identify who could potentially be at risk so we could, I mean, it's already, I think, in the 90%. You know, when you're looking at it, you're looking at one or two people, so it's really hard to pick them out of only 100 people. That's where I find that, you know, a lot of times, the statistics comes in handy. Or even when you're looking at response, internal consistency or reliability type testing of your instruments that you develop. I mean, everything else is, I don't want to say everything's garbage, but [laughs], but if you don't have good instruments to go along with your content, you really can't say what you have in the end. I mean, there are so many things that go into the importance of the evaluation. I don't want to put it like, more than content. But it, they're all integral to the whole. It's not, they shouldn't be divided, but they are. [laughs]

NM: Okay, so that kind of addresses the evaluation piece. What about when you're working on the development and implementation? Have you taken specific, like, instructional design focused workshops or CE opportunities or courses that you think that have helped you? And if not, what has enabled you to be able to do the different ..

TYLER: Right.

NM: types of development that you do?

TYLER: I think a lot of it, I mean, I definitely, like my master's program, I got a lot of exposure. A lot of times when you're getting exposure as a student, you're not actually applying it yet. And it's not until you apply it that you actually learn the lesson. [laughs]

NM: Right.

TYLER: Like, you might be able to retain and repeat what you learned, but you know, that's where you have that knowledge and comprehension, the Bloom's Taxonomy, but you don't have the application yet and the stages beyond. So, I mean, I want to say that it wasn't the education so much as the work experience that, given projects and what you learn from those, even through the trial and error process. Now, attending additional workshops, I can't say that

I've, not well, I mean, I did kind of. Instructional developer's workshop, they brought in a speaker. His name was Harold Sink. He's a PhD. That was interesting. It was only for [hospital name]. It was exclusive and it was, I think there was roughly 30, 40 people in the room and we all went through that. And to this day, I still pull out that binder whenever I have questions and I use it kind of as my model or map. But I don't think it's based on, I think it's based loosely on his experiences in years of what he found as the best practices. That's probably the most beneficial workshop. Going forward, I don't, if anything, like, even, I take classes now. I still wouldn't go back for, for that in particular. If anything, I'm looking at a program at Wayne State. I'm looking at a program at Michigan State. And they're both oriented towards, like, Michigan State's is measurements and quantitative methods.

NM: Okay.

TYLER: And the Wayne State program is education, evaluation, and research. So, I do have interests, but I'm losing interest on the content end [laughs] much more that the evaluation part.

TYLER: And a lot of what I know through, like, web development and program, interactive media, video, incorporating all these things was self taught.

NM: Okay.

TYLER: It wasn't, I never sat through a class on any of that. It's more of a hobby type thing that I use. I mean, I use here. I can. It's just one of those things that it's not one of those things that I, I went out of my way to, to necessarily learn about. I just, I apply it when I need it, so.

NM: So, in terms of skills and knowledge, what kind of skills and knowledge do you feel that you kind of learned on the job? Because I know you said a lot of it is work experience. So, if you could tell me a little bit more about the skills and knowledge that you've learned on the job and other ways that you could learn those similar types of skills, that would be helpful.

TYLER: Sure. I know applying things, given a task, any task, is really a task. It's a self evaluation [laughs], to a degree. You know what I mean? There are so many layers of what, you know, the expectation, I think, you have of yourself and what they're going to be expecting. Like, each is kind of independent. The one thing that.. it's frequency of the task in the sense that it isn't so much step one, step two, step three. It's like teaching someone to paint. You can't teach it, really. It's something that has to be experienced. I mean, you can teach certain techniques. You can teach, but it's internalized. There's a saying, like, it comes from Zen and the Art of Archery, where they say that, the archer is aiming at a target, you know. And he's, is he really aiming at the target or is he aiming at himself? Because the target's not moving. The bow, string, everything's about the same each time. If he, when he's aiming, is he really, all the things that have to be right for him to hit that bulls eye are in him. And so it's like this, this internalizing that has to take place that I don't think can necessarily be taught. I think it has to be, I mean, in a sense, it has to be experienced and through that experience, you're forced back

down to lower levels of, say, cognitive development. I have experiences with this. You know, this might be a little off subject, but..

NM: It's okay.

TYLER: I was taking a wheel throwing class. You know, the pewabic downtown studio and I was doing the wheel throwing thing and playing with the clay, you know, making my things. And one thing that I realized is I had missed some instruction and I could continue to attempt to apply without having that instruction, but what forced me every time I attempted to apply something without the previous knowledge, I was forced back down to these lower levels of cognition. I was forced back down to knowledge, then comprehension, then back to application. And I would try it and you know what? It wouldn't work. It could fall. Something would happen. I was forced back down into a new learning lesson of knowledge, comprehension, and then application again. And if it worked, it was a trial and error series. And that's how I see a lot of my experience in the work environment is that I often can be given a task and I may go down one path and then see the product in the end and may not like it and may even go back and do it again. Or maybe even do it again. And then at that point, I still have to bounce it out to other people to review and then they're going to provide feedback, which is also learning experience. You know, so one thing is for me to internalize it. The other thing is to take in the feedback of others, which is, again, feedback as to whether I'm doing it right or wrong, things I didn't consider, which are then learning experiences if I retain them, if I consider them worthy of retaining. [laughs] Just kidding. But you know, those kinds of things. So, there's a lot that goes into that experiential learning.

NM: Okay. (Thank you).

TYLER: I mean, I don't know if that answers the question, but..

NM: Oh, it does. So, given the fact that in your role, you take from so many different disciplines, the traditional thought of instructional design being, you know, that ADDIE model that we talked about do you think that that really is something realistic in the healthcare environment?

TYLER: Not at all levels, but yes. I mean, and if anything, it needs, they need a model. But it doesn't seem like, I think there's as much resistance as there would be acceptance to something. Maybe not always true. You know what's funny about that? I brought up those cognitive models earlier, those little sheets, I told you, with the objectives, measurable verbs and objectives. I have passed these out and what is funny is, almost a week later, no one gave it much credence at that point. It was like, ah. (Bill) and this junk. [laughs] No, not junk. A week later, Dr. [doctor's name] from nephrology passes out almost the exact same list and everyone liked it. [laughs] So, you got, I have that resistance. But nursing, pathology, probably, I think you have various groups that could potentially probably need a model and then they may, they're going to rely on what they think is right, more intuition than protocol type structure. I think.. I like structure. Now, not everyone does. I mean, I definitely learned that in my Meyers Briggs thing. It's, you've got half your population that's spontaneous and wants to create, learn trial and error wise. We'll see what happens. [laughs] They believe they're right. They're making

things based on intuition. The other people are like me, that I like structure. I like to know what works. And I like to know the components. Did I meet this component? Did I meet this component? Did I meet this component? It becomes like a nice shopping list that I can actually use to keep me on track and focused. I use it for everything, like from the needs assessment. I have a like, a form that I use with all the components of it and I just have to fill it in, more or less. But do they need it? Yeah. Will they use it? No. Okay. I mean, it's not, you, you have, you have, like Dr. [doctor's name] who oversees basically all of the residency programs, he puts it in there. Their program director is the last to, to figure it out. And because we are all students, like I was saying, there's just this sense that they know what they're doing. And it shows up sometimes when they don't and then they still don't care. [laughter]… No, they, they just can't be proven wrong a lot of times. And I, I don't think I'm really good at the fight, either. I'm not willing to, you know, back it up. I mean, you can, a lot of times you can look at research and say, I've seen research that points to things that can't be done. Now, how can you do that? At first, you have to prove it can be done, right? I mean, it's easy to, well, I can't fly. You know, I mean, I'm just …It's easier to point to things that can't be done than it is to focus on what can be done.

TYLER: You really need to rule out, I don't know. Maybe that's not the best, good scenario, but there is a situation where, especially when it comes to psychometrics and some of the things was they were saying physicians can't self evaluate. That was some of the research. And so we, we're putting through, what they end up doing is rating themselves higher on everything. And so areas of weakness can't be identified if they're self rating. That's, this is what I'm relating to. Well, how, you really need to be able to have an instrument that can first rate before you can say it can't because how do you know it's not the instrument? You know what I mean? That's where I'm at, you know. And I'm not sure, I don't know how many times I've brought this up and they continue to say, not, not buying it. You know, that they simply can't rate themselves. I can understand some of that. You first have to have the instrument that can.

NM: So, you still face a lot of resistance…

TYLER: Oh, yeah, yeah. I mean, because some people write research, publish papers on these things and they go through. They get published. But that doesn't necessarily make it flawless or ..or (anyway), we get a lot of that. And the more, more energy and you know, effort people put into things, it's kind of a enertia buildup that they go about and they become resistant to change. That's a lot of it, too.

NM: Onto the last part of the interview, which is really focusing on your recommendations and your reflection. What would your recommendations be for academic programs preparing instructional designers for practice?

TYLER: Well, I mean, I don't know if I have a bias towards it or not, but I, I think technology. It doesn't matter whether it's in education or not. I mean, look at Facebook. You look at all these things that are being used by whatever generations are younger. I mean, we all technically kind of can use it, but it's being absorbed and used by more people that are younger. We have to implore more technology, but you know - even at Wayne State, the medical program,

from my understanding, from what I've heard from both people that come and, and from some of the faculty over there is that they no longer, they don't have anyone showing up to the lectures because they're all on downloads from iTunes or we call that podcasts. I'm sorry. No one shows up. So, now you've got a faculty person talking to three people. Obviously, and as long as people are passing and doing well, is there a need for that person to be there? But do they still have a need, you know, we don't really know the, I don't know the answer, at least. What needs are not being met? Because technology isn't the answer for everything, but in that particular situation, they're, they're saying I would rather learn it (in my own pace) asynchronously and those are the kinds of things I think we're going to need to address in the future.

NM: Are there certain types of curricula that you think that academic programs should include for someone who is taking an instructional technology degree?

TYLER: I think more, well, obviously there's different levels, but from like, an undergraduate to a graduate, I mean, obviously on the graduate levels, you're going to get more research oriented. [laughs] But that's what I think are really comes in, what, what people need. Even, even like a high school type teacher, I think it's good for them to understand why things are the way to they are, to go through a research project. And I don't know if that's required of undergraduate education. Yeah, I don't know offhand. I mean, I don't really, again, I wasn't a student teacher or a, a teacher at those levels and I've never been a faculty member up in front of a classroom. And so those types of situations, I think, would still be important to an instructional designer to have some of that. I mean, I have some, but not, I'm more of small group type things.

NM: Mm-hmm.

TYLER: And see, again, I feel like a lot of mine is biased towards research and evaluation. I mean, I really believe strongly you can't prove what you can't or don't measure. So, I mean, it almost doesn't matter what the content is if you aren't evaluating it. [laughs]

NM: Okay.

TYLER: I mean, technically. I mean, did it work or didn't it work? If you can't answer the question at the end, why do it?

NM: Okay. So, which kind of brings me to the recommendations that you would have to instructional designers. So, let's say someone either is hoping to be an instructional designer or is in the field currently. What would your recommendations be to those entering an ID position in the healthcare environment, and what kind of content areas or programs or affiliations would you recommend for that individual?

TYLER: I'm not sure about affiliations offhand. I really like the quality one.

NM: Mm-hmm.

TYLER: And I don't know if it's necessarily an instructional design oriented type thing. A lot of math, a lot of things that just don't pertain to instructional design that you have to learn about. [laughs] So, I mean, I like to learn about stuff, but yeah, I guess if I were talking to someone, again, well, one of things, I'm, towards this education thing, I almost, one of the biggest needs that I find that we have is the data collection. It's one thing to put it all on paper, but it's another thing to have to take it all back in and potential human error of somebody hand tallying it into, let's say, Excel or something along those lines. Still, you put it into technology. You're not going to hand calculate it, in other words. Even if you hand calculate it, it's more likely you're going to use a calculator. No matter what, there's going to be some kind of technology involved which literally you're doing. So, I, I still see a lot of experience towards the technology. You can't escape it. But the other thing would be and the big need that we have a need for is to do some programming, to fill gaps when you don't have an existing tool. And there's a lot of really basic, simple programs, programming languages that you can, and I'm thinking, again, along the lines of data collection. Putting tests out there, surveying. Because a lot of that data can flow right into a database and conduct analysis right there. Not only in storage, I mean, everything else, you're doing the same thing anyway. You're just having to do it twice. Somebody had to collect it. Now, you have to take that same information for someone else. That's more efficiency than anything, but I find programming to be, I use it for so many different things. And they seem to all be helpful. [laughs]

NM: So, if someone were to, let's say, apply for a job that was similar to yours, what are the main skills you think are required if someone were to be able to effectively do this job?

TYLER: I would say, again, if you're looking at senior instructional technologists, the job title type thing..

NM: Mm-hmm.

TYLER: Well, you, I mean, you have to, it's a very diverse, I don't know if it's because I'm diverse. [laughs] Or if it's, I feel it, because my role is kind of like, there's an issue here, a gap, fill it. Okay. I have that. What I find that they want and need most is around the analysis and evaluation. It's constant.

NM: Okay.

TYLER: I mean, I have two or three meetings all today that are all oriented towards data collection and analysis. But that, in order for me.. okay, let's say I have these things. Unless I'm using something like Survey Monkey, I now need to be able to program. I also now need to be able to put it onto a server, which means either I either maintain and run a server or I have to find a server. So, I mean, there's this ongoing series of chain reactions, in a sense. I'll just go with Survey Monkey, right? You know, I'll just use that. But sometimes, what if it's confidential? I mean, there's surveys that we use that, regarding patient data. You saw this patient, here's their MRN, on this date for this. Why didn't you follow up? So, there's no way I can put that in a Survey Monkey type thing. And not only that, the information is very specifically oriented to your patient. So, when you log in, you only see yours. So, that's where the programming came into streamline some of the process. Seeing only the data that relates to you and if there's 100

residents, each resident seeing their own group. And that's not easy to do. You can't, that would be difficult to do on paper. That would be difficult to do in so many different little, which people might say, oh, that's easier to do it this way, paper-wise, or something along those lines, but it wouldn't be. [laughs] You would still have to be able to aggregate all that out by hand and sometimes that programming skill can save me a ton of time. I just said, Here's your ID. And only show this person's information that relates to that ID.

NM: Are there certain programming languages that you use?

TYLER: There's a lot of them out there. Well, there's a handful of them out there, but the one I rely on is kind of open source. I know some kind of use the PHP language. I use it only because it was easy to learn, self taught, and grab a book and you kind of just sit there and flip through pages and, and it'll walk you through it. And not only that, the, it's open source in the sense of I didn't have to buy anything. I can plug in the home computer and play around with it to learn it. But there's other programming languages, like Java Script. C would probably be another one of those fundamental programming languages that is very, it's used widely. In fact, that's the starting programming language that most people start with. I've even seen, going backwards from PHP to looking at C. I'm like, wow, they're almost the same. There are some differences, but you can see one definitely was related to the other. So, I mean, we're really, you know, I've taken, this, is a math program, but you have a program. I have to program the math. So, I mean, it's because of my program and I was into the math interest, I'm able to now visualize math models.

NM: And that's, is that then because you have such a variety of projects that you're working on because of the different needs? Like, you have some that are going to involve creating these surveys, these confidential ones, perhaps. Some of them are going to be creating these mathematical programs.

TYLER: It's, yeah. And part of it's, individually, I like to keep expanding my own paradigm, my own mean and finding what I want to, I mean, it's been somewhat of a hobby and interest as well. A lot of it still comes down to qualitative and quantitative measurements of, if it's an environment and you're looking at people as a group, you might be looking at the quality of an environment or something along those lines, but all those people, you still have to somehow measure them out. And if you identify a need anywhere in an environment, it seems like education. And what the whole, think of the outcome of education. The whole purpose of education is to increase quality. You know what I mean? I mean, so that's why I constantly go back to that.

NM: Would your recommendations to someone entering the field of healthcare be different from the vantage of working in nursing development? Because you previously worked in nursing development, so I'm just wondering, would your recommendations be the same to that individual if they were trying to find a position of instructional designer in the nursing development office?

TYLER: I would say it's, like, one of two things. If you're going to be, if you work in a structured environment where they're following models and, that's good to learn from because

you'll learn a foundation that you can grow from. You'll probably, building upon the experience you had in school, for example. If you come into a situation where there's no model, it may be somewhat frustrating to the individual. And that's what I kind of experienced is that it's so loose and I'm more of a strict person when it comes to certain, I would say models, but not necessarily. I don't have one in mind. I see things in somewhat of a linear, well, I actually see it more in a cycle because I constantly want to cycle back, end results back into content so I have this loop and feedback. The other thing is, it depends on the individual, whether they want to be just meeting the needs or being innovative and doing new things and pushing it. That's another aspect of an individual coming into this situation because I know people. For example, when I come in, I like innovation. I like trying new things. I like the fact that we were trying to deliver interactive content early on and pushing streaming video early on. I was doing, I'm doing live grand rounds. I'm the only one in the whole Institute that does that. No one watches. [laughs] Well, you know, but still, it's the fact that I had to go through the whole process of learning how to do it and getting it up. And now I have, like, an audience of, like, three people.

NM: Now, you learned all that basically on your own, though, right?

TYLER: Right. Yeah. But it still, it was based upon a need. The chair at the time, he goes, okay, you're recording them. We have archived material that people can watch whenever they want. What about those that want to watch it live as it's happening? You know, so that's the question that comes up. I go, "I'll get back to you on that". [laughs] And I go back and figure it out and then I come back and say, here it is. And then we send out emails, let everyone know. Again, they've got to have that same time block blocked off and then they've got to sit at a computer. So, there might be other things that we never really studied as to why it would or would not work. It's one of those things that we just continuously look at. But that's what I mean by this. Then again, when I was in nursing development or not so much even here, but even in other institutes, if you put a person in that's kind of a safe person, you almost never hear from them again. [laughs]

NM: Okay.

TYLER: It seems like if the person is thinking innovative and out of the box and trying to push things, they get more involved in more things because people see what they're trying to do.

NM: Would there be specific instructional design skills or knowledge that you think would be required of someone working in an environment, kind of like that 360 nursing development atmosphere that you described?

TYLER: I mean, just the understanding of all the components of instructional design, I guess. I mean, it would, it's helpful to have at least a guide, some kind of, I don't know if I'm assuming that the person already has this coming in. If… I wouldn't hire them otherwise. [laughs] No, I guess if I'm hiring, I would look for them to, that they already have this kind of knowledge and experience of the, of the path, in a sense. And then given certain situations or scenarios, how they would handle it. Skills? I, see, I mean, I don't know if education alone is the answer. I mean, it doesn't necessarily correlate or predict something. I mean, I don't know if someone straight out of high school and you have someone with a PhD, can they both

instructionally design, for example? Is it possible? Yeah, it probably is possible. Is one better? They should be. But if the one is strictly only an academic in a sense, hasn't had the work experience and neither has the other one? They might almost appear equal. [laughs]

NM: Okay. So, that's..

TYLER: I'm…

NM: ..work experience, like real hands on experience, would be important to you?

TYLER: I think so. Yeah. I know a PhD is definitely going to [laughs], be more – but then again, that, let's put it in a situation where the person is more of an undergrad and PhD. I mean, just, they both have background in education or some college behind them. You may not see this major difference without having the experience. I think experience is really, that's what you know, that's where you start to evaluate, did you, what did you learn? I don't know how many times I look back at, you know, one of my minors is in art history. I can't tell you a thing about it. I have my degree, but if you pull up a painting, am I going to name who it is or what era it's from? So, just because I have it doesn't mean it's meaningful going forward. But it's that work experience, what have you accomplished, and I mean, I don't know. I [laughs], I mean, it's, I, don't know how to explain it. I just, I'm constantly looking at, I have to incorporate innovation into everything.

NM: Okay.

TYLER: Because I see that as growth. And I think technology is going to be one of those domains that instructional technology, I mean, instructional design. I don't know how they can, I personally don't understand how they can design without incorporating it. I don't know. [laughs] I don't see it being, I mean, I don't care if it's PowerPoint. It's still technology. I mean, it still has everything you, I don't know. Technology is really the crux of = In my mind. Now, I can open up a book (and act like) my kids, for example. They're in elementary school. And they can open up books. They can read. They can learn. Right? Are you preparing them for the future? Because how many times do you do that at your job? You know, I'm just saying..

NM: Yeah.

TYLER: ..if it's about preparing and that's why it's situation specific to a degree is that, what is an instructional designer doing? What do they have to make improvements upon? It's obviously going to increase quality somewhere. You know, it's, it [laughs] constantly, you know, I got the iPad. I built this tool that they use up in the OR. It tracks admission times and rates and how long. Like for example, they get a request for a bed. So, we're taking all these measurements and when we're all done, we're going to be able to say we have a (model we wrote that predicts) certain things from that. I could tell you future things as well with a certain degree of accuracy, but in the end, we're going to have all this data that we can ultimately identify means for improvement. The data is a catalyst to this, otherwise they don't know what to fix. So, I mean, again, back to the evaluation, needs assessment, understanding your environments. Because that's the initiator behind what needs to be developed content-wise.

NM: What, then, would your recommendations be to healthcare administrators to help prepare instructional designers in the healthcare environment?

TYLER: Well, one of the things is particularly, is that we approach things individually and not as a collective peer type environment where we pool talent. Talent is isolated and (siloed) into individual departments. If I was an administrator, the one thing that I would want to do minimally is when it comes to system education that's, (and granted there might be departments. Obviously there are departments for system type research) but they, they only, they don't draw upon the shared experience of – I haven't seen it in a while, at least, where, you know, you've got to tear down the walls, in a sense. You pool your talent together when you've got global educational needs. That way you're getting, you're using the best from all the different departments. And then, because the departments, they have to develop something on their own. They're only going to be able to develop to the potential (of the person developing them). [laughs]. I mean, they can't exceed it. And so what happens in a group is you get that shared perspective, that 360 perspective, and then talent and all these other things that go into it and then you, there's research even with this. When you diversify things that you may arrive at a slower decision, but you have a better quality decision, more of a long term decision in the end because you're, you're less likely to make mistakes and things like that.

NM: And this is your last question. [laughs]

TYLER: I'm not sure if I'm answering any of them. Am I just rambling? I don't know.

NM: No, you're doing great. This is about your overall perception, okay? This is about yourself. When you reflect on your ability to practice instructional design, how prepared do you feel you are to practice instructional design in a healthcare setting?

TYLER: Well, I mean, the way I feel or approach it, at least, about myself, is that when I don't know the answer, I know where to go. And I'm not going to claim to be an expert and know everything. I prefer diversification. Know a little about everything, you know. But no, when I have questions, I'm not afraid to ask directions. You know, if I'm driving, I will pull over and get directions. [laughs] Now, I will revert, I got books. I mean, I will go to my books. I have, and I will lean on proven examples, things along those lines. As for myself and how I'm preparing, I don't know how much more [laughs] …

NM: So you do feel prepared, then?

TYLER: Yeah. No, I definitely feel prepared. I just, at the same time, I don't think there's, well, in any education, you know, I mean, we never stop learning. But I don't ever see me not being a student. I mean, there's going to be new things. There's always going to be, things are going to be changing constantly and one, to be aware of it, but the other thing is to be part of it. [laughs] Not just to let it go by. And I'm definitely one of those people that the only thing stopping me from doing everything [laughs] is time.

NM: [laughs]

TYLER: You know. I mean, I absolutely, like I said, I'm looking at continuing on with more education. I don't necessarily need the second master's, but I might finish it first. I might do both at the same time. I don't know yet. And then I'm looking at getting Six Sigma Black Belt. I mean, and then there's this master's level to this. It's master practitioner level. I'm doing (well). Just constantly keep working on it. At the same time, the company that owns this I've got ideas for developing one towards residents, how we can take the Meyers Briggs and apply it towards residency. And, and the, some of the things that already exist, like the sharing bad news, for example.

NM: Mm-hmm.

TYLER: And how to identify within the patient what kind of information, how they want their information received. So, I incorporate these diverse things all into still the same kind of – that's the funny thing about education. I could say, oh, I'm on this different paths, but no matter what, they all seem to come back. All come together. They all seem to come back and relate somehow, especially in education. I, don't know if you want to record it.

NM: That's okay. [laughs]

TYLER: I just took this class in computational perception, how a computer can see and how I can use that information. I can put a camera here and flow your image and everything into the computer and I can use that data. I can use sound. I can use all these things. How computer perceives and how I can use that data. That was one of the most eye opening experiences to have to build, in a sense, an interpreter or a brain to the perception. I learned so many things about how information is perceived, how it becomes used, and how it's valuable. And if you think about the computer, it sees in this giant matrix, right?

NM: Mm-hmm.

TYLER: It's just a series of numbers. I had, I wrote an algorithm that could count the number of red blood cells on a slide. And you could put it right there, hit the button, it would count. I could move them around. It would even kick out ones that weren't circular. It was, it was a series of perception, mathematics, and technically it's like an evaluation. I didn't have to, the content was the slide. I had to teach myself and the computer to be cognitive, to a degree, of what, of the situation. It was just an amazing experience.

NM: Do you kind of think that maybe that's where instructional design is sort of heading in the future in the healthcare environment?

TYLER: Well, through this class and other classes I've had, one of the weird things that's taking place in technology is we need to ask you less because we can get it other ways, just through your behavior. There's ways of measuring. They can profile you based upon where you've been on the web and actually get accurate, I mean, it's amazing how accurate Meyers Briggs is. I mean, you answer a series of questions and that can narrow it down to one of 16 personalities and they're pretty dead on.

NM: [laughs]

TYLER: But we're getting to the point where this is something, and there's examples of this using the same technology that I just talked about. And I've seen this, examples of this where you're in the aisle at Target. Average customer, how long do they wait in the aisle? How long do they stay in one place before they need help? They have cameras now that will measure people on an aisle and when they recognize that this person's been standing in one place too long, it can signal an associate in the store to come and help this person in this aisle. All I'm saying is, if I were a student and I said I had a learning disability, maybe there are behaviors within my interaction with my learning that could ultimately be detected by technology that would intervene and say, here get this person help sooner. The probability is increased, at least. It's never 100%, but you know, I mean, there's, at the same time, why can't you do that with certain tests? Testing. Right now we're talking and, and communication skills being one of those types of things. And I know mine are horrible. [laughs] (Oh, they are).

NM: Not at all.

TYLER: Well, maybe there are ways to, you know, there's other forms of communication. Body language, all these different things that go into communication. And maybe there's ways of measuring these things. That's why, and this is way thinking ahead, but these are all things that they're working on. I don't know if you've ever seen that computerized robot. A lady, she's a PhD out of MIT that's building that robot that interacts with people. It can talk to you. It actually recognizes, it's looking at you, but it's looking at your facial gestures and whether you're excited or happy and how you respond to it. And it's constantly, it will respond back to you. But if you're giving it a frown, it'll frown back at you. You know, I mean, it's one of those kinds of weird things. And it's interesting to see potentially how much we can actually learn and do without, here's a piece of paper, answer these questions.

NM: Right. I wonder if an instructional designer was behind that, too.

TYLER: Yeah. Well, maybe. I mean, [laughs] that's what I keep getting at is that it doesn't matter what road you go. We're cognitive people. And that's education. I mean, we can, we're just splitting hairs, really. But when you get into the instructional design, you're talking specifically models, I'm off. [laughs] I'm way out in left field], but, but that's why I kind of look at these kind of cool things and I mean, for example, we have menus that have these little cameras in them that this is, in this human computer interaction program I was looking at, they have a menu. It's like a McDonald's menu and it might have, like, eight things on this menu and it can actually order. It's just a test. And all it was is a research project. You're looking at the menu and how long you stared at a certain thing, it would predict how long, or what you were going to order. And all it was, was as a research study, as you (approached the) counter, did you order what you stared at the longest?

NM: Right.

TYLER: You know, success/fail kind of thing. And it was highly [laughs], so technically they could start making it before you even arrive at the counter.

NM: That's interesting.

TYLER: There's a lot of uses. I mean, it's incredible the number of things that – it's learning. Technically, it's not. But it's basing things on probability. It's watching, (so, observing). There's so many things that, that have the potential to be, you know, as an instructor, developer of education ..an assembly line. If we're working on the assembly line and we had to develop education for people who are injuring their backs, we have incident rates that are going through the roof with all these back injuries, we technically can, we can just sit there and watch them. Or we could build a computer piece that would kind of monitor some people and (their motions) throughout the day and detect who's the ones that are at risk. It's kind of education in the sense that's something is able to learn and detect something going on. What we do about it is a different form of education. That's your intervention. But I just, I see it all related. Again There's a lot of cool things out there. And I'm digressing.. but let me finish up what you got to do. I'm sorry.

NM: No problem. That kind of wraps up the interview questions anyway.

APPENDIX L: REFLEXIVE JOURNAL

Memo on Tyler (October, 2010)
Tyler was very open to discussing his experiences and viewpoints, even though he considered himself to be more of an introvert. His role in ID seems to really focus on "filling in the gaps" whatever they might be; but definitely there is more of an emphasis on evaluation and measurement. He seems to rely a great deal on his technological background and knowledge to push the limits with what he can do (i.e., programming in PHP, C, hosting servers to distribute content and store in-house made programs etc.). His knowledge of computer systems and programming helped him be able to address some of the unique needs of his dept. He doesn't have an ID background per say – he is more self taught and has learned on the job. His prior experience with Nursing Dev was more of an open system where feedback was encouraged, whereas, his current role restricts him to the confines of those for which he works. His current role does not integrate feedback as readily – perhaps due to the clinical knowledge held by those he is surrounded by. In Nursing Dev, there was more of a formative approach to ID where opinions and suggestions were taken into consideration.

His personal interests in evaluation, measurement, and statistics is prominent.

When asked about what one would need in order to take on a similar type of role as his, he mentioned the concept of being an Innovator - one willing to push the limits and fill in gaps when needed and that that was how he really learned..his learning was done on the job, and not by attending academic programming or extra-curricular programs or CE. He only attended one workshop on instructional development which he indicated did not follow a real model, and really focused on the main concept of "attaining and measuring quality".

His participation in the International Society of Quality seems to be the only professional organization which he has taken part and finds to be useful.

He uses some psychology (Myers Briggs) to help with assessment, but most assessments are provided in a top-down fashion for which he does not have much input. He indicated an interest in pursuing Six Sigma Black Belt – this is not required by his employer, but is something in which he is interested due to his personal interest in evaluation and measurement.

He is more involved with the Development, Implementation, and Evaluation phases of ADDIE. Although, his role in the Evaluation phase is more limited due to the fact that a great deal of content (and associated measurement instruments) comes from external agencies such as the ACGME or other accreditation agencies.

It appears that Tyler is a jack of all trades and that ID in a health care environment (from his perspective) is one that is constantly changing and is one where an individual MUST be an innovator if he/she wants to keep up. Learning on your own may be not be a requirement, but seeing as how Tyler does not attend ID programs or workshops, begs the question as to whether IDers in the health care environment need to be self-starters and work towards their own

development on their own time, or whether ones employer need to provide opportunities for growth.
I am hoping he addresses more about what he thinks ID in health care entails in his journal

Memo on Cat (October, 2010)

The interview with Cat was very intriguing as she provided a great depth of information regarding medical culture and the importance of understanding this type of culture when being a practicing IDer in a health care environment.

Her background in Neuro-psychology is also intriguing and it seems to be where she harnesses her knowledge of schema, cognitive load theory etc. She seems to refer to this material when designing ID projects, and not the typical ID theories/models/strategies.

She participates in all phases of ADDIE with great emphasis and sometimes obtains assistance for the development of online material (i.e. creation of video clips). Definitely has a lot on her plate with what she calls the 4 main buckets of activities that she has to manage all by herself. She does not have a staff reporting to her – she must carry out all these ID projects by herself.

She cites lack of resources as being something that health care administrators need to consider as well as understanding cost and time associated with the formulation of ID projects.

For those who look towards this field, she indicates technology is a must, knowing about new social networking, tools, software etc. Being able to multitask, see things through completion, and be open to feedback are all critical. Adapting to change is important in her role as is an understanding of change management. She does not think that she learned her skills/knowledge due to past curricula – she feels that actual work experience has taught her what she needs to know and "yes – I am prepared to practice".

She indicated that academic ID programs need to have a medical sub-specialty program built in that doesn't just have curricula, but also an internship opportunity so that students can see in real-life what ID projects entail in health care (as well as the challenges etc.). She also indicated that students may need to know some basic clinical information.

Cat was a wealth of information – she has a varied background (none in ID), but has been able to harness her strengths from neuro-psychology to pursue ID in health care.

Memo on Albert (October, 2010)
Albert has a lot to say as it pertains to the academic coursework he has taken and the different aspects that masters and doctoral programs could modify. He has a desire to use the IDT theory he has acquired in his doctoral program, but I think it sounds like there is not much opportunity to actually use his skills on the ID projects he is working with. From the sounds of it, the majority of time he will get PowerPoint slides and will have an opportunity to figure out how to deliver the material (type of media), but not get to perform much analysis of needs and evaluation.

Albert mentioned a lot about technology but I wonder if its really the technology that is key to know for a designer entering the field, or is it more important to know about various design tools, their pros and cons and how to adapt to changing situations.
Memo on Johnson

Johnson was great to listen to – he had so much to say about how even though he had no background in ID that he was able to use all his prior work experience to really do a good job in his current role. I found it interesting that he took his experience growing up and as a parent to see how people learn. He too really wants to contribute to his team and seems to really enjoy his work and the people he works with.

Memo on Tyler

My time with Tyler was really interesting, especially from a performance improvement standpoint- he really talked about measurement and the importance of evaluation – especially for residents and Sr. Staff physicians. He didn't just talk about the importance – he strove to always try his best to include evaluation components in everything he did – he essentially "walked the walk". His background was also interesting – statistics, computing, interactive technologies..he was unique in the fact that he did a lot of computer programming which he found to be critical in his role. I think his ability to pickup on technology and apply it as needed really helps him to achieve in his ID role and get the opportunity to do new projects. Tyler had a special situation I feel in terms of getting the buy-in to try new things…he did talk about how sometimes he didn't really have the clout compared to the SMEs who were most of the time doctors, but he still tried his best.

Memo on Jane
Jane had a lot of great information to offer – she was able to really delve into the types of projects she was involved in and I could tell that she really loved what she does. She mentioned a little bit about academic programs and how they shouldn't do as much team work related projects (which is really similar to what Albert said) but then focused more on the other ways people can get experience (internships, mentoring etc.)

Jane had a lot of respect for her ID team and the knowledge she gains from them – which she mentioned was a two way street. Her group seems to have a really good group dynamic which is ironic since she didn't really like the group work in academic courses..

She was a true believer in helping your peers out and not getting scared if you made a mistake. Also, she took feedback well from the sounds of it.
I think one of the biggest things I got from Jane is her desire to learn – actually it seems to be something I am seeing with all my participants – they all want to do more, want to apply ID skills, but I wonder if they have the ability to due so based on the people they are working with – it sounds like there are a lot of barriers in terms of resources and a general understanding from "above" as to what ID entails and how important it is to not only slap together some slides – but to really look at every given instructional situation as a unique learning opportunity where multiple methods can be used to enhance learning and transfer of skills; after all, that is what we

want in medical education---retention of info and transfer of skills to enhance the patient experience and patient satisfaction and care.

Review of work projects:
Well I was a little surprised to see that not a great deal of ID theory/strategies were being utilized within the ID projects participants were working on…they did seem to focus on identifying measurable objectives, and a little bit on chunking of information, but I am wondering if their limited use of ID is due to the nature of the projects that they are getting and the expectations from SMEs about participants' role in those projects. Cat and Tyler were more unique in this regard because I think they had more "say" in how things would progress and how they could bring in cognitive theory or measurement methods into various ID projects. Some participants mentioned using general ideas of adult learning, and I think what they meant by that was making the material relevant and trying not to overload participants. It sort of seemed like more time was spent on development rather than all aspects of the ADDIE process. This was especially true in terms of evaluation – most used a prescribed evaluation that asked general questions regardless of the course offered and not tailored questions based on the content – again – I don't think it was their fault – it just seems that they are limited in what they are able/allowed to do.

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ABSTRACT

INSTRUCTIONAL DESIGNERS' PERCEPTIONS REGARDING PREPARATION FOR PRACTICE IN A HEALTH CARE ENVIRONMENT

by

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May 2013

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This study utilized a multi-case, bounded case, single-site case study research design to examine how well instructional designers perceive themselves able to practice ID in health care industries. Questions central to this study focused on how instructional designers perceive their preparation to practice, usefulness of professional development organizations or affiliations in which they participated while practicing ID, both academic and non-academic curricula, and utilization of ID practices when designing and developing ID projects in health care environments.

The site selected for this study was a teaching hospital in Southeast Metropolitan Detroit, Michigan. Sampling size was limited to five instructional designers who had been working in the health care environment. Using a case study approach, convenient sampling was utilized to obtain detailed information about the experiences of instructional designers in the health care sector. Upon completion of interviews, participants had the opportunity to show completed work projects and were provided an opportunity to reflect on ID practice via journal entries over a two week time period. The constant comparative method was utilized for data analysis whereby a

within - case analysis was conducted followed by a cross case analysis. Findings of this research showed that participants felt well prepared to practice ID in their respective health care environment and offered a variety of ways in which an instructional designer can explore the field of health care, how academic program administrators can collaborate with health care organizations to provide ID opportunities for students, and ways in which health care administrators can explore additional learning opportunities for their ID employees.

AUTOBIOGRAPHICAL STATEMENT

Name: Nandita S. Mani

Nandita S. Mani currently works as a Liaison Librarian at the Taubman Health Sciences Library at the University of Michigan in Ann Arbor, Michigan, USA. She has primary responsibility in cultivating partnerships between the library and UM health sciences communities by providing education and research services to support the teaching, clinical, research, and outreach mission of the library. Prior to her position at the University of Michigan, Nandita worked as a Librarian for the Henry Ford Health System where she was Coordinator of Education at Sladen Library. In this position, she had the opportunity to hone in on both her instruction skills and knowledge she gained via her doctoral coursework in Instructional Technology, to design, develop, implement, and evaluate instruction for a variety of users from various disciplines within the health care environment. Nandita plans on conducting further instructional design research and practice with a focus on medical/health education on regional, national, and international levels.

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