2008-12-05

Views and Use of Theory by Practicing Instructional Designers

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THE VIEWS AND USE OF THEORY
BY PRACTICING INSTRUCTIONAL DESIGNERS

by

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A dissertation submitted to the faculty of

Brigham Young University

in partial fulfillment of the requirement for the degree of

Doctor of Philosophy

Department of Instructional Psychology and Technology

Brigham Young University

December 2008

BRIGHAM YOUNG UNIVERSITY

GRADUATE COMMITTEE APPROVAL

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This dissertation has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

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As chair of the candidate's graduate committee, I have read the dissertation of Joseph Brodil South in its final form and have found that (1) its format, citations, and bibliographical styles are consistent and acceptable and fulfill university and department style requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

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ABSTRACT

THE VIEWS AND USE OF THEORY BY PRACTICING INSTRUCTIONAL DESIGNERS

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Formal instructional design (ID) theories, intended to guide instructional designers' decision-making and design practices, have grown in abundance in recent years. These ID theories are based on learning theories that form the foundation for applied work in the field. However, researchers are concerned that these theories may not be applicable to the day-to-day practice of instructional designers. While some studies investigate the application of ID process models, studies of learning theory and ID theory in practice are rare. Consequently, there is little information about the nature and extent of the gap between our field's theory and its practice. This qualitative study investigated whether theory is actually being used by practicing instructional designers and why.

Researchers interviewed seven practitioners on three occasions and examined the artifacts of their work. Drawing upon hermeneutic, phenomenological, and ethnographic traditions of inquiry, results were analyzed, generating eight themes and four suggestions.

These themes highlighted that these practitioners generally valued learning and ID theory, but also found theoretical ideas from other disciplines applicable. Few referenced theory regularly and most did not spend much time updating themselves on the theory of the field. Most said they rely on intuition to make design decisions in their work, and that theory is one among several significant influences that impact their decisions. Most said that their training in theory would have been more useful if it was more practice oriented. The four suggestions were (a) to create reference implementations of new theories in multiple context via industry partnerships, (b) to create theories that adapt to practical pressures, (c) to allocate significant time for learners in ID training programs to apply theory in practical settings under expert theoretical guidance, and (d) to expand professional development opportunities for practitioners that focus on exemplary implementations of theory in practical settings.

The overarching implication of this study is that the relevance of theoretical work to practitioners is directly impacted by the practicality of the theory in the hands of typical practitioners and that more measures can be readily implemented by theorists and by those who train and mentor practitioners to bring this about.

ACKNOWLEDGEMENTS

I am grateful for the interest and support of my committee in this work. In particular, I want to thank Dr. Stephen Yanchar and Dr. David Williams for their unwavering commitment to my success. Dr. Yanchar showed great confidence in me by allowing me to play a central role in advancing a line of research that he had previously identified and in which he had already invested considerable effort and thought. In my estimation, Dr. Yanchar is an exemplary scholar and a worthy pattern for both professional and personal emulation.

Everything I know about qualitative research I have learned from Dr. Williams over the decade I have known him. Dr. Williams would have easily earned the distinction of “co-chair” of my committee, if such distinctions were given, having been present at nearly every meeting I held with Dr. Yanchar and having provided guidance and feedback every step of the way.

My wife, Diana Turnbow, paid the price of this effort as much as I did, and, quite unfairly, will not also be awarded the degree. This journey began with her encouragement and was sustained throughout by her sacrifice. To her I owe a debt that simply cannot be repaid. But I will try.

To my children, I want to say, “No, Daddy isn’t going to leave again tonight to work on his dissertation. Let’s play!”

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Introduction and Statement of the Problem

Formal instructional design theories, intended to guide instructional designers' decision-making processes and design practices, have grown in variety and abundance in recent years (Reigeluth, 1983, 1999). Within the last ten years, for example, Reigeluth has documented approximately 24 different instructional design theories and models, all intended to guide practitioners in their work. These instructional design theories are themselves based on well-documented learning theories that form a critical foundation for applied work in our field.

However, there is some concern among researchers that theory may not be applicable to practice. Yanchar, South, Williams, and Wilson (2007) summarize these concerns as follows:

> Given the importance of theory to research and practice, it is not surprising that many authors within the instructional design literature have called for a more developed theoretical base within the field (e.g., Seels, 1997).
>
> More thought-provoking and more troubling, however, is the view that practicing designers often find formal theory to be irrelevant, too difficult and abstract to apply, or only occasionally useful. Even leading theorists in the field have observed that theory in general—notwithstanding its inescapability—is often not recognized as important by practitioners. For example, Wilson observed that there is a "generalized contempt for theories and scholarship" (1997, p. 24). And Reigeluth wondered why "many people avoid and denigrate theories" (1997, p. 42) when theories, in some form or another (e.g., formal theories, personal theories, a background of theoretical assumptions), are used ubiquitously.
>
> Some have commented that academic researchers have not historically produced theories that are helpful to practicing designers. Rowland (1992) suggested that scholars in the field of instructional design "may be holding on to traditional views that no longer represent the requirements of practice" (p. 66) and that theories are often "impractical and unrealistic" (p. 67). Perez and Emery (1995, p. 62) concluded that much of what instructional designers need to know is "not currently reflected in theories of instruction." And Wedman and Tessmer (1993), who decried what they considered to be the inflexible nature of many instructional design models, argued that most of those models are based on a set of assumptions "which appear to be incompatible with practice" (p. 53). (p. 331)

Given these concerns, research into whether these theories are actually being used by practicing instructional designers and why and how these theories are used or why they are not used would be fundamental to understanding the nature and extent of this apparent disconnect. However, in contrast to the extensive documentation of learning theory and instructional design theories and models in our literature, the literature includes relatively few studies of practitioner practice in relation to theory use. While there are some studies that investigate the application of instructional design process models, the study of learning theory and instructional design theory in practice is rare. As a result of this omission, there is little information about the nature and extent of the gap between our field's theory and its practice. Moreover, there has been little rich qualitative inquiry into this topic to help provide a more in-depth account of practitioners' views and uses of conceptual tools. One way to better understand this gap would be to expand our understanding of the significance of the role that learning and instructional design theory plays in the day-to-day work of a designer. Is it the central organizing principle of their approach, merely a source of general inspiration among many influences, or perhaps considered to be so irrelevant that it is nothing more than an impractical annoyance? Another way of gaining insight into the gap between theory and practice would be to expand our understanding of how and why theories are chosen for use and what factors influence these choices. Additionally, when a theory is used by a designer, we would need to understand if the recommended practices that the theory might suggest are followed strictly, loosely, or not at all, and what factors drive the practitioner's chosen degree of implementation fidelity.

Enriching our literature with answers to these questions will allow us to begin to construct a more detailed account of practitioners' views and uses of formal theory in their work. In turn, this understanding could, over time, have significant practical and theoretical implications for our field. For example, we may be able to (a) provide insight that could help improve theory construction, articulation, and dissemination; (b) provide insight for instructional design professors that could help them best teach theory in ways that will increase the likelihood that students will find it useful and apply it in their subsequent professional work; (c) provide insight for the field about day-to-day constraints, challenges, and habits of practitioners that may impede the otherwise beneficial application of theory; and (d) provide insight for practitioners to help them best establish a working environment that is compatible with the practical application of theory in a way that the theory can contribute meaningfully to the goals of their organization.

Of course, any single study cannot accomplish all of these goals to the degree necessary to fully illuminate which course of action by theorists, professors, and practitioners will most fully bridge the theory-practice gap in our field. But research along these lines, cumulatively, has the potential of a positive impact over time.

Research Questions

As the review of the literature will demonstrate, almost all of the current literature that looks at theory in practice comes from the theorist's point of view. In general, researchers or theorists find a willing practitioner to work with them to apply a given theory and then study how the theory plays out in practice. While this insight is valuable, it does not document how a practitioner interacts with theory when there is no outside

impetus to do so. Therefore, this research focuses on three areas of investigation: practitioners' views of theory, practitioners' use of theory, and practitioners training in theory.

Question 1: How do practicing instructional designers view formal theory from a practical standpoint?

Related Sub-questions: How important is formal theory to practitioners' decision-making processes? Do they use it at all? If so, when and why? If not, why not? Is there a problem with the theory itself or their understanding of the theory?

Main Question 2: How do practicing instructional designers use formal theory in their day to day work?

Related Sub-questions: How often do they actually reference sources of formal theory and when? How closely do they adhere to a given theory's suggested action? How willing are they to deviate from formal theory and under what circumstances?

Main Question 3: How did the training of practicing instructional designers influence their views and use of theory in their work?

Related Sub-questions: How and where did they learn the theories in the first place? How well do they feel they learned the theories? What were the barriers to this?

Definitions

Key concepts in this dissertation will be defined as follows:

Theory – For this study, no particular definition or differentiation of theory was offered to the participants. Practitioners were free to choose to refer to learning theory, intended to describe how learning occurs; instructional design theory, intended to guide

practitioner decision-making and design practices (Reigeluth, 1999); or to theory from other fields, if they believed that it influences their work as an instructional designer.

Practitioner/ Instructional Designer – Practitioners are defined as professionals with several years of experience that are currently working in the ID field and who report that they spend the majority of their professional duties (75% or more) designing instruction.

Having said that, it is acknowledged that several studies, summarized by Kenny, Zhang, Schwier, and Campbell (2005), indicate that the amount of time instructional designers spend engaged directly in design activities, when scrutinized, may typically be significantly less than 75%. Other related activities can take up large portions of a designer's time such as editing and proofreading, marketing, project management, supervision of personnel, and so forth. In fact, many of the participants, upon reflection, reported that they actually spend less than 75% of their time designing instruction. However, the 75% criterion was still used as an initial rule of thumb to focus the research on those *who see themselves primarily as instructional designers*, even though they may spend time engaged in other activities that go, strictly speaking, beyond designing instruction.

Training Program – For this study, a training program refers to a formal degree program in instructional design, generally offered by a university as a Master's or PhD program.

Of course, alternative methods can be effective in training instructional designers. Practitioners trained via other methods were not excluded from the study.

Theorist – A person, generally a researcher or philosopher in the field of learning or instructional design, who generates a learning theory or instructional design theory. Theorists in other fields are also included in this definition, insofar as practitioners reported that their theories are relevant to the practitioners' work.

Review of the Literature

To lay the groundwork for this study, the word *theory* will first be discussed and categorized according Reigeluth's (1999) classification system. Next, two major research approaches to studying theory in practical settings will be discussed. The first approach requires that researchers select a single theory or set of theories and collaborate with practitioners to implement them so they can be studied in practice. The three primary variations of this approach that are currently being applied in our field will be discussed, namely, formative research, design-based research, and design and development research. The second major approach to studying theory in practical settings, which does not specify any particular theoretical approach and, rather, attempts to document what practitioners do typically with theory, will then be discussed. It will first be shown that little of this kind of research exists and, of the research that does exist, most of it is focused on ID process model application, not on learning theory or instructional design theory application. A brief summary of the findings of these studies in regard to ID process models will be provided. Finally, what little has been published about practitioners' views and uses of learning and instructional design theories will be discussed.

Learning Theory, Instructional-Design Theory, and Instructional-Design Processes

In order to study theory in relation to practice, the theory or theories that will be studied must be clearly described. While many taxonomies could be used to define and differentiate among the various theories, models, and processes relevant to the field of instructional design, for the purposes of this study, Reigeluth's (1999) classification system put forth in his highly-referenced work, *Instructional Design Theories and*

Models: Volume II, was used. It was chosen not only because it represents a careful delineation by one of the foremost theorists in our field, but also because the delineations themselves are practice-oriented, making it particularly useful for a practice-oriented study such as this. Having said this, is also true that other practice oriented approaches to categorizing theories, models, and processes in the field could also have been used (e.g., Gibbons and Rogers, in press). Because most of the studies of practice in the literature to date use Reigeluth's classification system either explicitly or implicitly, this study adopted Reigeluth's approach to facilitate comparisons among them and to compare and contrast them with the focus of this study.

Reigeluth divides theories, models, and processes in the field into four major categories:

1. Learning Theory
2. Instructional-Design Theory
3. Instructional Design Processes
4. Curriculum Theory

Of the four, the three that are most relevant to the decisions that instructional designers typically make are learning theory, instructional design theory, and instructional design processes (usually curriculum decisions have been made long before the instructional designer arrives on the scene, so curriculum theory will not be discussed here).

While closely related in practice, each of these three areas plays a different role (for a comparison of each area that Reigeluth identifies, see Table 1). Learning theory is descriptive and provides a rationale for how learning occurs. It can tell us why a

particular design theory does or doesn't work. Instructional-design theory is prescriptive, providing guidance about which methods should be used and under what conditions to best achieve a given instructional goal. Instructional design processes (such as the so called ADDIE model) are development-oriented, describing how to best plan and organize to design instruction.

Not every theory, model, or process offered for use by instructional designers will fit nicely in a single category and some models span two or more categories; however, in most instances, enough of the attributes of a given model fall into a single category to justify a general classification. Instructional designers who attend to theory in their practice may draw from each of these areas to varying degrees to guide their processes.

Research on Selected Theories in Practice

While it can be difficult to classify and differentiate among the various kinds of theories from a semantic perspective, it is even more difficult to sort them out when considering actual practice. Two major approaches have been used by researchers to attempt to make sense of the role of theory in the often oblique activities of practice. The first of those two is characterized by focusing on the practical implementation of a selected theory or set of theories, and the three primary ways that this is being done will be discussed in this section of the literature review along with some of their limitations. The second major approach is to focus on what practitioners do day-to-day, without any particular theory in mind, and this approach will be discussed later in the review.

Table 1
Categorization of Theories, Models, and Processes

	Learning Theory	Instructional-Design Theory	Instructional Design Process Models	Curriculum Theory
Orientation	Description-oriented	Design-oriented	Development-oriented	Content-oriented
Used for	Provides prediction of when and how or explanation of why learning occurs	Provides means for attaining goals for human learning and development	Provides guidance for planning and organizing instructional design projects	Provides guidance on what subjects to teach
Tells us	How learning occurs	What instructional methods should be used to achieve a goal	What processes to follow when planning and organizing instructional design projects	What to teach
Scope tends to be	Broad	Specific to the instructional goal and situation	Applicable to many instructional goals and situations	Applicable to a well-defined body of knowledge
Helps us understand	Why an instructional-design theory works	Which methods work best in particular instructional situations	How to best organize project timelines, tasks, and teams	The priority of and useful organization of a body of knowledge
Major Concern	Validity	Preferability (i.e., Is this the best known method for the situation and goal?)	Optimization of development processes	Importance of and organization of content
Examples	Schema theory	Elaboration Theory, Instructional Transaction Theory, Collaborative Problem Solving Theory	ADDIE model, IPISD, rapid prototyping	Cultural Literacy, Scholar Academic, Social Efficiency
Synonyms or related terms		Instructional theory, instructional model, instructional strategy	Instructional development (ID) model, instructional systems development (ISD) process	

Note. Based on Reigeluth (1999), pp. 5-29; the information in some cells in this table had to be extrapolated by the author because Reigeluth's discussion did not provide the needed detail and, thus, portions of the table may not exactly reflect Reigeluth's thinking.

Three Emerging Approaches to Studying Theory in Practice

In recent years, research methods have been proposed that are intended to illuminate how a particular theory or set of theories plays out in practice (see Table 2 for a summary of the major new approaches in our field). Researchers classify these in different ways. For example, Wang and Hannifin (2005) consider all of the approaches listed in Table 2 to be variations of design-based research. Common among all these approaches is the selection of a particular theory or set of theories to investigate in practice, a research team that includes practitioners (usually instructional designers or teachers or both) as well as researchers, a practical setting, and an iterative cycle of analysis, design, implementation, and revision with implications for both theory and practice. Despite these similarities, Richey and Klein (2007) depart from Wang and Hannifin by describing design-based research and formative research as closely-related "alternative approaches" to design and development research (p. 146). Richey and Klein point out that while each approach uses similar methods, each tends to have a different focus. Table 2 combines Reigeluth's categories with those offered by Richey and Klein to map the focus of each research approach across a broad spectrum of investigation, from a learning theory focus to a product improvement focus.

Formative research. Reigeluth (1999) defines formative research as "a kind of developmental research or action research that is intended to improve design theory for designing instructional practices or processes" (p. 633). The most common method is to use a "designed case" in which the "theory is intentionally instantiated (usually by the researcher)" (p. 637) and the "design instance is based as exclusively as possible on the guidelines from [the] theory [being studied]" (p. 636). Because formative research is

focused on improving a theory by researching its instantiation, the improvement of the design theory is the primary focus.

Design-based research. Design-based research is defined by Wang and Hannifin as "a systematic but flexible methodology aimed to improve educational practices through iterative analysis, design, development, and implementation, based on collaboration among researchers and practitioners in real-world settings, and leading to contextually-sensitive design principles and theories" (pp. 6-7). Its goal, according to Barab (2002), is to advance "theory-in-context" (p. 156). He elaborates,

> The phrase 'theory-in-context' communicates the conviction that the theory is always situated in terms of local particulars. Drawing on Gibson's (1986) ecological psychology terminology, the phrase includes both a relatively invariant aspect, the theory, and a variant aspect, the context. Accounts of DBR [design-based research] should describe both the theory and the particulars in a way that allows others to understand how to recontextualize the theory-in-context with respect to their local particulars. (p. 156)

Design-based research, then, shares an equal focus on improving a particular learning program that is part of an ongoing curriculum of some kind within a school or other learning organization and on improving the underlying theory that is being applied by providing contextual accounts of its application in ways that the theory can be revised for better application in practical settings. Its theoretical focus can extend to both instructional-design theory and learning theory, depending on the approach of the researcher. Typically, the researcher and the practitioner identify a learning situation or curriculum in need of improvement and collaborate to determine which theory or set of theories might offer the most benefit to the situation. A theoretically-aligned approach is then implemented and both the theory and its instantiation may be adjusted through multiple iterations until a satisfactory outcome is achieved.

Table 2
Research Methodologies Focused on a Selected Theory or Theories in Practice

Research Method	*Research Focus*[a]			
	Learning Theory	Instructional Design Theory	Instructional Design Process Models	Products, Tools, Learning Environments
Formative Research (See Reigeluth and Frick, 1999)		Primary Focus (e.g., English & Reigeluth, 1996; Lee & Reigeluth, 2003)	Enacted, but not a focus	Typically enacted as a means to the end of design theory improvement
Design-based Research (formerly Design Experiments) (See Barab, 2006; Barab & Squire, 2004; Brown, 1992; Collins, 1992; Design-based Research Collective, 2003; Wang & Hannafin, 2005)	Shared Focus (e.g., Hakkarainen, in press; Wang & Reeves, 2006)	Shared Focus (e.g., Hakkarainen, in press; Wang & Reeves, 2006)	Enacted, but not a focus	Shared Focus (e.g., Hakkarainen, in press; Wang & Reeves, 2006)
Design & Development Research (formerly Developmental Research) (See Richey & Klein, 2007; Richey, Klein, & Nelson, 2004)		Primary Focus (Type 2) (e.g., Tracey & Ritchey, 2006)	Primary Focus (Type 2) (e.g., Jones & Ritchey, 2000)	Primary Focus (Type 1) (e.g., McKenney & van den Akker, 2005)

[a]These categories are not necessarily distinguished by the proponents of each research method, so the areas of focus were extrapolated by the author based on his readings of the various approaches and comparing them with Reigeluth's and Richey and Klein's categories.

Design and development research. Design and development research is defined by Richey and Klein (2007) as "the systematic study of design, development and evaluation processes with the aim of establishing an empirical basis for the creation of instructional and non-instructional products and tools and new or enhanced models that govern their development" (p. xv). It is divided into Type 1 and Type 2 research (Richey, Klein, & Nelson, 2004). Type 1 research, also called "Product and Tool Research," focuses on "the study of specific product or tool design, development, or use projects leading primarily to context-specific conclusions" (Richey and Klein, p. 159). Type 2 research, also called "Model Research," focuses on "the study of the development, validation, and use of design and development models, leading primarily to generalized conclusions" (Richey and Klein, p. 158). So design and development research, then, focuses either on product and tool improvement or on more theoretical model improvement, but not necessarily at the same time. In each case, a single product or tool or a single model is selected for study and improvement through iterative implementation.

Emphasis of Approaches to Studying Theory in Practice on a Particular Theory

While the focus across these three approaches may vary, the general approach towards the role of practitioners in the research is similar. In each case, a researcher initiates the study of a particular theory or model or set of theories or models and enlists the help of practitioners to collaborate with the researcher to achieve the research goals and to share in the knowledge gained in the process in hopes of improving their practice.

The overall result of these approaches to research is that much more is being learned than in the past about some theoretically-aligned interventions in practice. One

example of this is found in the work of Barab (2006) who used a design-based research approach in the *Quest Atlantis* project. He was able to evolve his theoretical notions of "learning engagement theory" from a design orientation to a much more powerful, integrated experience orientation. This was done through an iterative process of applying the theory to design a learning environment, learning from its implementation, reworking the theory and applying it to revise the learning environment, and reimplementing to see if he had better met the needs of the learners and the goals of the theoretical approach (p. 163). This kind of research is beginning to provide much needed insight into the challenges and issues faced when theory is applied in a practical setting and represents a significant step forward in bridging the theory-practice gap.

However, this kind of research does not illuminate how theories are perceived and implemented by instructional designers on a day-to-day basis in their normal work settings. The premise of all three approaches considered above requires that practitioner-collaborators be chosen who agree to implement the theory or set of theories that the researcher is studying, or at least that the two come to an agreement upon the theoretical approach that will be studied and implemented. In this way, the researcher's agenda significantly impacts the theoretical thrust of the implementation. Using these research methods, it is very difficult, if not impossible, to understand how a practitioner might select and implement theory if the researcher were not present.

Research on Instructional Designers in Practice

In the previous section of this literature review, the literature discussed has been from the point of view of a single theory or model or set of theories and models playing out in practice. This is an important and fruitful approach to studying theory in practice.

Of course, there is another way to consider theory in practice and that is from the point of view of the practitioners making decisions on a day-to-day basis about how to go about their work. This section of the literature review will discuss this kind of research and how much of it exists in the literature. It will also consider how much of the focus of these kinds of studies has been on understanding how learning theory and instructional design theory play out in practice as opposed to a focus on understanding how instructional process models play out in practice. Findings in this regard will be summarized as well as possible omissions.

Little Empirical Research on ID Practitioners

Presumably, instructional designers regularly select among the various theories and models of which they are aware and choose one or more to apply to a given context. Once a selection is made, they then, presumably, implement their theory or model of choice in a way that is most practically feasible within the constraints under which they are working. Whether and how and why practitioners chose to use or not to use theory in their day-to-day work has significant implications on the practical value of theorizing itself. Those that construct, articulate, and disseminate theory for use by practitioners need empirical research about the actual practice of instructional designers in relation to theory to best orient their theoretical work towards ready practice. The recognition of the need for empirical research regarding what instructional designers actually do on a day-to-day basis in their work goes back at least twenty years, when Kerr (1983) sought to illuminate the “black box” of how design decisions are made in practice. Kerr criticized the algorithmic flow diagrams represented in the models of the day, asserting the following:

> They tend not to provide a clear picture of just how the designer operates during those few crucial minutes or seconds when the heart of an instructional solution first appears. The process, in other words, is made to appear overly mechanistic. Although there are a few caveats, the process is made to appear one of filling out the right tables and identifying all the constraints, rather than one of making decisions that may ultimately be personal and based on some ineffable sense of 'what's right' in a given context. (pp. 47-48)

Ten years later, Wedman and Tessmer (1993) reported that little had changed in the literature, stating, "Other than an occasional personal observation (e.g., Streibel, 1989), there is virtually no literature that *reflects* on ID practice and bases this reflection on empirical data from ID practitioners" (p. 44). They acknowledged that a survey by Zemke (1985) was an exception. However, while Zemke's survey did document broad omissions by practitioners of standard steps in the ISD process model, Wedman and Tessmer also critique his work by highlighting the following:

> Zemke did not attempt to determine the factors that influence the decision to include some activities but not others. Understanding why a designer includes or excludes an ID activity in a given project is fundamental to the development of an ID model grounded in reflective practice. (p. 45)

Rowland (1992), writing at approximately the same time, also noted that there were more opinions than observations in the literature.

> It has become increasingly apparent that in our literature we have abundant information on what authors/designers say they do, or say others should do, but little idea of what expert designers actually do themselves. That is, we have recollections and opinions but little systematically-gathered evidence regarding the nature of instructional designing. (pp. 65-66)

Similar sentiments are echoed in contemporary publications by Allen (1996), Pieters and Bergman (1995), and Wilson and Jonassen (1991).

Now, twenty-five years after the issue was discussed by Kerr, the lack of empirical data regarding design practice in the literature continues to be a problem that has not been adequately addressed. A review of the literature by Kenny, Zhang, Schwier,

and Campbell (2005) located only ten articles related to the topic. Visscher-Voerman and Gustafson (2004) stated that "empirical information about what designers actually do is still scarce." And, sounding very much like Wedman and Tessmer eleven years earlier, they added, "Moreover, the reasons that designers conduct or do not conduct specific activities remain largely unexamined" (p. 69). Similar concerns about this lack of published research are also raised by others (e.g., Christensen & Osguthorpe, 2004; Cox & Osguthorpe, 2003). For example, Cox and Osguthorpe report that "there seems to be a dearth of ethnographic research on the practice of instructional design" (p. 47).

Most Practitioner Research Not Focused on ID Theory or Learning Theory

Of the empirical research that does exist, very little is focused on how instructional designers view and use instructional design theory and learning theory in their work. Studies have been conducted that attempt to understand and describe what characterizes expert instructional design practice (Kirschner, Carr, van Merrienboer, & Sloep, 2002; LeMaistre, 1998; Perez & Emery, 1995; Rowland, 1992) or that have attempted to determine how instructional designers spend their time (Cox & Osguthorpe, 2003; Kenny, Zhang, Schwier, & Campbell, 2005) and the professional challenges they face (Liu, Gibby, Quiros, & Demps, 2002) (see Table 3 for a summary of studies about practitioners that do not focus on theory). Those studies that come closest to our focus are those that investigate the degree of adherence (or lack thereof) by practicing designers to common ID process models, most prominently the ADDIE model, and why (e.g., Pieters & Bergman, 1995; Visscher-Voerman & Gustafson, 2004; Wedman & Tessmer, 1993; Winer & Vazquez-Abad, 1995; Kenny, Zhang, Schwier, & Campbell, 2005) (see Table 4 for a summary of studies about practitioners that focus on ID process models).

Some Findings of Practitioner Research in Relation to ID Process Models

Instruction design process models are not a focus of the study reported in this dissertation. Part of the reason for this is that, among the three major areas identified by Reigeluth (1999) in which theorists attempt to influence the practice of instructional designers (i.e., learning theory, instructional theory, and instructional design models), instructional design models have been the most researched in practice. As such, a review of the findings in relation to them seems appropriate.

The consensus findings regarding ID process models in practice is that they are not a very good description of what instructional designers actually do. Christensen and Osguthorpe (2004), in discussing a review of the literature by Kirschner, Carr, van Merrienboer, and Sloep (2002), conclude that the studies reviewed "revealed that practitioners selectively complete traditional instructional design tasks according to the needs and circumstances of the context in which they work, frequently deviating from traditional ISD process models and practices" (p. 46). These findings appears to confirm Zemke's (1985) survey of the readers of *Training* magazine that showed that most respondents surveyed typically complete only 50% of 14 common elements of a systems approach to ID and that only 11% of respondents surveyed complete eight key steps all of the time (that would, according to the authors, make their approach "textbook").

Table 3
ID Practitioner Research, Not Focused on Theory

Article	*Research Method*	*Research Focus*				
		Learning Theory	Instructional Design Theory	Instructional Design Process Models	Products, Tools, Learning Environments	Other
LeMaistre, 1998	One more experienced ID and one less experienced ID were given the same formative evaluation task	Not a focus	Not a focus	Incidental	Contrived for the purpose of the study	Gather empirical data to understand and describe ID expertise according to a problem solving model
Perez & Emery, 1995	Five expert and four novice IDs given the same design task	Not a focus	Not a focus	Incidental	Contrived for the purpose of the study	Gather empirical data to understand and describe ID expertise according to a problem solving model
Rowland, 1992	Four expert and four novice IDs given the same design task	Not a focus	Not a focus	Considered	Contrived for the purpose of the study	Gather empirical data to understand ID expertise
Kirschner, Carr, van Merrienboer, & Sloep, 2002	Fifteen university and six corporate IDs were given the same design task	Not a focus	Not a focus	Considered	Contrived for the purpose of the study	Gather empirical data to understand and describe how expert IDs design competency-based learning environments
Cox & Osguthorpe, 2003	Surveyed 142 alumni of ID programs at two universities	Not a focus	Not a focus	Not a focus	Not a focus	Gather empirical data to understand and describe how IDs spend their time
Kenny, Zhang, Schwier, & Campbell, 2005	Literature review discusses ten articles found about ID practice	Not a focus	A stated focus, but no data could be found on theory-based models	A focus of the review (see Table 4)	Not a focus	Review empirical data in the literature to understand and describe how IDs spend their time
Liu, Gibby, Quiros, & Demps, 2002	Interview 11 practicing IDs	Not a focus	Not a focus	Not a focus	Considered	Gather empirical data to understand practicing IDs responsibilities, challenges, and skills

Table 4
ID Practitioner Research, Focused on ID Process Models

Article	*Research Method*	*Research Focus*				
		Learning Theory	Instructional Design Theory	Instructional Design Process Models	Products, Tools, Learning Environments	Other
Pieters & Bergman, 1995	Thirty-five alumni from ID program given two hypothetical problems and asked to select from a list of 69 ID activities those they would use to solve the problem; asked to describe a typical problem and how they would solve it using activities from the list; asked how problems were usually solved in their work, which models they used, and their "personal models"	Not a focus	Not a focus	Differentiate between how experts practice design and the theoretical ID process models provided to novices	Partly contrived for the purposes of the study, partly described by the practitioners. Not directly studied.	
Visscher-Voerman & Gustafson, 2004	Case study of 24 practicing, expert IDs	Not a focus	Not a focus	Compare how experts practice design against the ADDIE model	Studied to gain insight into the designers' approach	Because the ADDIE model was found to be inadequate, four new design paradigms for understanding expert practice are proposed
Wedman & Tessmer, 1993	Survey of 73 course developers asked them to indicate how often they used eleven instructional design activities and, if not, why not	Not a focus	Not a focus	Determine if course developers include instructional design activities from common ID models in their projects and if not, why not	Not a focus	
Winer & Vazquez-Abad, 1995	Sixty-six course instructional designers were surveyed using the Wedman & Tessmer (1993) survey with two additional questions added about their introduction to the field and their preferred references; three respondents were later interviewed	Not a focus	Not a focus	Discover if Wedman & Tessmer's results regarding use of ID models would be replicated	Not a focus	
Kenny, Zhang, Schwier, & Campbell, 2005	Literature review discusses ten articles found about ID practice	Not a focus	A stated focus, but no data could be found	Determine what evidence there is that IDs apply ID process models	Not a focus	Reviewed empirical data in the literature to describe how IDs spend their time

Visscher-Voerman and Gustafson (2004), in a study of 12 high-reputation, professional instructional designers, found that the actual practice of design deviated so consistently from the ADDIE model among their participants that the following occurred:

> It became clear that the ADDIE activities were very useful in pointing out the unique *differences* between designers, but were not sufficient to highlight *similarities*. That is, the variety of the activity level was so great that 12 different descriptions resulted, and it was likely that reconstructions of 12 new design processes would add 12 additional unique descriptions as well. (p. 73, emphasis in the original)

This divergence of design activity has been attributed to many factors. Wedman and Tessmer (1993) found that the most frequent reasons for the omission of a step in common ID process models reported by the course developers they surveyed are, respectively, that (a) the decision had already been made, (b) there was not enough time, or (c) it was considered unnecessary (p. 50). The last reason cited—that a step or steps in the model may be unnecessary—points to another concern about ID process models which may explain the apparent widespread deviation from them by practitioners. This concern is that the most common ones, such as the ADDIE model, may actually hinder practice if implemented as designed. Bichelmeyer; in Bichelmeyer, Boling, and Gibbons (2006); summarizes the weaknesses of the ADDIE model:

> Despite its hallowed place in IDT, various members of the field over the years have pointed out a number of compelling criticisms of the ADDIE model. Chief among these criticisms are that the ADDIE model is ineffective and inefficient (Gordon and Zemke, 2000), meaning that it does not necessarily lead to the best instructional solutions, nor does it provide solutions in a timely or efficient manner. In recent years, the ADDIE model has been criticized because it doesn't take advantage of digital technologies that allow for less-linear approaches to instructional design such as rapid prototyping (Tripp & Bichelmeyer, 1991). Perhaps most important, Rowland (1992) has pointed out that the ADDIE model is not really the way instructional designers do their work. Furthermore, Molenda, Pershing, and Reigeluth (1996) warn, "in no case that we know of has an instructional design model been promulgated as a *description* of what expert practitioners do" (p. 268, emphasis in the original).

> In summary, these criticisms assert that the primary model of instructional design in the field of IDT does not guarantee quality, is not efficient, is out of date, and doesn't reflect the real work of instructional design. (p. 36)

In response to such withering criticism, Molenda, Pershing, and Reigeluth (1996), in the same article cited by Bichelmeyer above, defend traditional ISD models as general outlines of idealized practice, and claim that much of the disparagement they receive is because people misinterpret their proper role in practice.

> Interestingly, in no case that we know of has an instructional design model been promulgated as a *description* of what expert practitioners do. Rather, it is an idealized guide that suggests what to do and when to do it, usually without being very specific about *how* to do it. Unfortunately, critics have often set up a "straw man," implying that instructional design models are, or ought to be, descriptions of expert practice. They then observe or interview experts and discover—*voila!*—that experts do the job very differently from the step-by-step logic specified in the model. Critics then treat this finding as proof that the model is invalid. In the design of instruction, as in other lines of work, there is a good deal of craft and art. The intuitive shortcuts developed with experience inevitably lead the expert away from the "cookbook" and toward improvisation. But for the apprentice chef (not to mention the manager of the restaurant), the cookbook is the vital link to maintaining quality and consistency from day to day and project to project. (p. 268)

Wherever one stands regarding the usefulness of instructional design process models, the focus of studies on these models alone leaves other possible areas of focus unattended. While these kinds of studies are highly relevant to the practice of instructional design and their conclusions insightful, they also, intentionally or not, allow instructional design process models to largely fill the role of the theory against which practice is compared. By comparing practice only to ID process models, researchers omit other important theoretical influences that are worthy of investigation in the practice of instructional designers. As Christensen and Osguthorpe (2004) found, "most previous studies of ID practice . . . have focused on the degree to which ID practitioners apply tasks described by ID process models, not whether or how much practitioners use

instructional-design or learning theories to support instructional-strategy decisions" (p. 46). In fact, a review of the literature by Kenny, Zhang, Schwier, and Campbell (2005) set out to review ID practice in light of both ID process models and theory-based models; however, they discovered that the articles they found "pertained to process-based ID models. None were found that considered the use of theory-based models" (¶ 3).

In summary, of the three areas discussed by Reigeluth that could be compared to practice, namely, (a) learning theory, (b) instructional design theory, and (c) ID process models, the one that has received the most attention in the literature is overwhelmingly the third area, ID process models. The relatively exclusive focus of studies of practice upon ID process models leaves the other two areas relatively unexplored in practice among instructional designers. It is, thus, the purpose of this study to begin to illuminate the relationship, if any, of these two areas of theory to the daily practice of instructional designers. In this way, perhaps we can discover whether or not learning and instructional design theory is suffering the same dismal fate in practice that ID process models appear to be or if they receive a greater degree of attention and adherence by practitioners and why.

Research on Instructional Designers Views and Use of Theory in Practice

One exception to the general lack of practitioner research regarding learning and instructional design theory does exist. Christensen and Osguthorpe (2004), noting a lack of research on theory in relation to practice, conducted a survey of 113 ID practitioners that was designed to investigate several theory-related factors that may affect how instructional designers make instructional-strategy decisions. They asked respondents to, among other things, "rate how frequently they used learning or ID theories as well as 10

other design strategies, to help make instructional-strategy decisions" (p. 45). Some of their key findings in relation to learning and instructional-design theory appear below:

1. When asked to "list examples of specific instructional-design theories, learning theories, or instructional templates that they found especially useful when making instructional strategy decisions," 52% of respondents listed one or more instructional-design theories, 50% listed one or more learning theories, and 28% listed one or more instructional templates. (pp. 56-57)
2. When deciding which instructional strategies to use, the most frequently reported strategy reported was "I brainstorm with other people involved with the project," cited by 86% of respondents. The next most cited was to consult their own experience (79%), then to adapt strategies they have seen others use (74%), and then to brainstorm by themselves (69%). Using learning or specific instructional design theory ranked eighth (54%) and tenth (51%) of the 12 strategies cited. (pp. 54-55)
3. When asked "which information sources ID practitioners most frequently used to learn about new instructional theories, trends or strategies" the researchers found that "the most frequently used source of information was interaction with peers, as 81% of the respondents reported regularly using this information source. Using instructional design textbooks or trade books was a distant second at 51% . . .." Professional journals and magazines and internet sites were tied as the next most frequent source at 48%. (pp. 58-59)

4. They also included questions in the survey that attempted to reveal the underlying assumptions of instructional designers as they made decisions. From the responses, Christensen and Osguthorpe concluded, “ID practitioners are not philosophical purists; they are somewhat eclectic in their philosophical underpinnings, subscribing to both objectivist and constructivist philosophical stances depending on the situation” (p. 62).

If one were to generalize these findings, they would seem to indicate that (a) possibly only about half of practitioners consider learning theory or instructional theory when designing, (b) that instructional strategy decisions are most likely to be made by consulting with peers or oneself or by adapting previous experience to the situation rather than by consulting learning or instructional theory, (c) that peers are a more frequently consulted source to find out about new theories and trends than professional textbook, trade books, journals, magazines, or conferences, (d) and that practitioners tend to be eclectic in their philosophical approach to their work.

This survey has provided ground breaking insight into how practicing instructional designers report that they view and use theory in their work. However a single survey can only begin the discussion of this important area of research and needs to be followed upon by other studies to confirm and expand its results. Additionally, the survey format limits the amount of depth that researchers can achieve in understanding why the respondents gave their answers or how they interpreted the questions. It also distances the researchers from the working environment of the practitioners, preventing them from seeking conformational data via design documents or products produced by

the respondents. One of the goals of the study reported in this dissertation was to expand upon the findings of this survey while addressing some of its limitations.

Methods

This study was part of a larger faculty research project led by Dr. Stephen Yanchar to investigate this topic. A research team was formed that consisted primarily of two BYU IPT faculty members, one faculty member from another university, and myself. As part of this team, I conducted a pilot study to refine our instruments, test our procedures, finalize our sampling criteria, and generate preliminary data. The preliminary results of the pilot study were presented at the annual AECT convention and included in the proceedings of the conference (see Yanchar, South, Williams, & Wilson, 2007). The results of that study heavily informed the design and approach of this study. For example, the interview protocol was tested and reworked to employ better strategies for easing the participant into a discussion of theory in a natural and unmanipulative way. Sampling criteria was reviewed by colleagues and reworked to better reflect the diversity of the field. Additionally, several analysis techniques were applied to the pilot data to discover those that would provide the most illuminating account of the participants' practical involvement with theory.

Approach

A hermeneutic phenomenological approach was applied to this study as developed in the social sciences by theorists such as Kvale (1996), Packer (1985), van Manen (1990), and Westerman (2005). Packer states that, in hermeneutic inquiry, "the primary origin of knowledge is taken to be practical activity: direct, everyday practical involvement with tools, artifacts, and people. Such activity exists prior to any theorizing and has a character distinct from the latter" (p. 1083). In light of this highly practical orientation, the approach of this study was to conduct three semi-structured, qualitative

interviews with practitioners in their natural work settings about their day-to-day work habits. The interviewing approach drew upon phenomenological and ethnographic traditions. From the phenomenological tradition, the interviewer endeavored to capture a sense of the "lived experience" of the participants (van Manen, 1990, p. 36), how they subjectively experience their work as instructional designers and make meaning of it in relation to theory. From the ethnographic tradition, the interviewer attempted to investigate the participants' immediate context from an "insider's point of view," so to speak, allowing them to speak in their own specialized vocabulary and discuss theoretical ideas in their own terms, rather than imposing the accepted terms and taxonomies from the field upon them (see Spradley, 1979, pp. 8, 10, 25).

However, hermeneutic inquiry also cautions against most interview methods of data collection. From a hermeneutical perspective, the ideal object of study is "what people actually do when they are engaged in the everyday practical tasks of life rather than in the detached contemplation that characterizes pencil-and-paper tasks and most interview situations" (Packer, 1985, p. 1086). Mindful of this concern, where possible, an exploration of the artifacts of the participants' work was conducted (e.g., courses, plans for courses, practical internal design guides) as a way to concretize and provide evidence for reflective assertions that participants made about their practice. The inclusion of artifact analysis is an approach supported by Spradley (1979, p. 8). The three interviews were combined with the artifact explorations and analyzed to create the primary outcome of this study: an interpretive account of the views about and practical use of theory in the instructional designer's everyday practice.

In creating this interpretive account, the researcher collaborates with the participants, working with them in the meaning making process. Hermeneutic inquiry refers to this process as the "fusion of horizons," where a shared understanding is achieved through dialogue and shared involvement (Gadamer, 1989, p. 302). As Gadamer puts it, the fusion of the horizons "does not allow the interpreter to speak of an original meaning of the work without acknowledging that, in understanding it, the interpreter's own meaning enters in as well" (p. 576).

Participants

Seven practicing instructional designers were the focus of this study, four men and three women. Practitioners were selected that are professionals currently working in the ID field and who reported that they spend the majority of their professional duties (75% or more) designing instruction or working on related tasks such as talking to SMEs, evaluating instruction, and so forth. Having said that, it is acknowledged that several studies, summarized by Kenny, Zhang, Schwier, and Campbell (2005), indicate that the amount of time instructional designers spend engaged directly in design activities, when scrutinized, may typically be significantly less than 75%. Other related activities can take up large portions of a designer's time such as editing and proofreading, marketing, project management, supervision of personnel, and so forth. Many of the participants, upon reflection, reported that they actually spend less than 75% of their time designing instruction. However, the 75% criterion was used as an initial rule of thumb to focus the research on those *who see themselves primarily as instructional designers*, even though they may spend time engaged in other activities that go, strictly speaking, beyond designing instruction. Participants were located in three different western states and

worked at five different entities. To protect their privacy, the participants will be referred to by pseudonyms in this dissertation and the names of their employers will not be disclosed.

In addition to the criterion that participants be practicing instructional designers, four additional dimensions were considered when selecting participants. Those were (a) the instructional designers' training in the field, (b) their experience in the field, (c) what kind of organization they worked for, and (d) what type of products they designed. The selection strategy for each dimension will be discussed here.

Training

Because a practitioner's training likely has a significant impact on their views and use of theory in their work, participants were included that have formal training in instructional design (i.e., an MS, PhD, or formal certification) and those who do not. Of the seven participants, four were considered formally trained in ID because they each had master's degrees in instructional design. Three were considered informally trained. Two of these three had business or corporate education degrees with on-the-job ID training, and one had a master's degree in organizational development with on-the-job ID training.

Experience

It is possible that experience-related sub-groups could be discovered within instructional designers where those with the least experience rely heavily on theory for guidance, for example, and those with the most experience rely on their own experience instead. Future studies may be able to tease out these nuances. The approach for this study was to avoid the extremes of experience. Designers newly in the work place and those with the most experience were avoided. A middle level (5 to 15 years) was

targeted, but allowances were made based on who was available to be interviewed. The years of experience of the formally trained participants were 5, 8, 10, and 15. For those informally trained, their professional careers were longer (between 20 to 30 years) but their time focused on instructional design ranged from 10 to 15 years.

Organization

Instructional designers from as many types of organizations as possible were interviewed in order to reflect some of the diversity of the field and to tap into as many different kinds of work cultures as possible. Instructional designers were interviewed from educational, corporate, government, and military settings.

Type of Products Produced

Instructional designers' views and uses of theory may be influenced by the type of products they produce. As such, a sampling was taken to represent different points on the spectrum of product types. For example, participants' experiences included those producing soft skills training as well as those producing highly technical training; those producing stand alone training as well as those producing classroom training; and those producing products for a large and broad audience as well as those producing for small and specialized audience.

Data Gathering Procedures

Participants were interviewed at their places of employment for one hour each visit, approximately three times. The interviews were audio recorded and transcribed. Because interviews tend to put people in a detached, reflective mode, this method of self-reporting can introduce inaccuracies into their accounts, possibly leading to a less-nuanced and somewhat idealized view of their work performance. To attempt to

counteract that possibility, the interviewer requested that participants provide examples of the product of their design work. In one of the interviews, the interviewer and the participant reviewed their product together and discussed how their stated accounts of their views and use of theory in their work were or were not instantiated in the product being reviewed. By asking them to reflect on a specific, recent example of their work, it was hoped that the distance between the participants' reflection and their work was lessened. I conducted the interviews with five of the participants. Dr. Yanchar conducted the interviews with two participants.

It could be argued that data collection approaches such as an extended *in situ* observation of actual practice would be a more direct and reliable way to collect information about participants' daily work. The immediacy of such approaches, it could be argued, would lead to more accurate data than asking participants to reflect upon the past. However, these approaches have their own drawbacks. First, it would typically take many, many hours across weeks or months and a great deal of access to the participants, their colleagues, and the workplace to conduct these kinds of observations. Obtaining permission from the participants' organizations, their colleagues, and the participants themselves as well as obtaining funding for the researcher to conduct this kind of extended study would be unlikely. Additionally, it is very difficult to know what participants may be thinking about at the time a decision is made or a particular strategy is followed, even if the moment of action can be observed. Because this investigation is focused on the use of conceptual tools, the researcher would ultimately need to interview the participants about the observed behavior later to allow them to articulate their thought processes at the time. In light of these drawbacks, the interview/artifact analysis approach

represents an efficient and credible way to elicit participants' thinking. This is not to say that direct observation shouldn't be done. Indeed, it is anticipated that future studies will use this and other methods where more natural conditions can be maintained.

Instruments

The research team developed and refined a research interview protocol that was followed for each interview. An overview of that protocol follows (see Appendix for the full interview protocol).

The first interview began with broad introductory questioning to obtain a general sense of the participant's lived experience as an instructional designer. The intent was to establish a conversational tone where the participants were comfortable telling their own stories in their own words. The interviewer then moved on to try to get a clear sense of the participant's present job context and responsibilities. The interviewer then focused in on a specific experience with the intent to better understand the participants' decision-making processes, general procedural approach, how they address instructional problems that emerge, what might hinder their work or lead to inferior products, and how they evaluate their work. This provided an overall picture of their work and how they generally function. It allowed for the exploration of issues that may have theoretical implications (e.g., how they make decisions, how they overcome obstacles, how they evaluate their work) without explicitly broaching the topic of formal theory. This was intentional. It was important that the participants didn't feel like they were being quizzed or, by the interviewer's prompting, overstate their use of theory in an effort to demonstrate their professionalism or to please the interviewer because the interviewer may have been viewed by them as privileging academic answers over practical ones. At

the end of the interview, the interviewer asked for a recent sample of their work to review before the next meeting, and informed the participant that part of the next meeting would be devoted to going over the product together.

The second interview was designed to elicit more information about the participants' practical involvement with theory. The interviewer asked the participants to show the interviewer the product, giving an overview of its purpose and structure. The interviewer then turned the conversation to more theoretical issues by asking why the product was made in the particular way that it was created. If the participant mentioned theory, the interviewer asked additional questions about it. If the participant didn't mention theory, the interviewer brought up the topic and asked whether it had a role in the development of the product or not. The interviewer then went on to ask more questions about the participant's attitudes in relation to theory in general, whether they find it useful, whether they subscribe to one or many theories, and whether they feel that theory could be improved. The interviewer also inquired as to whether the participant had developed their own theoretical notions and also asked them about their own training in the field, how much formal theory was a part of it, and whether their theoretical training could have been improved. They also were asked about any ongoing professional development activities in which they might participate and what role theory may play in those.

The third interview was designed to allow time to follow up on any interesting topics that warranted further exploration from the first two interviews, cover any aspects of the interview protocol that were not adequately addressed, and to give the participants an opportunity to react to the interviewer's summary of their understanding of the

participants' views. As time permitted, the interviewer also presented the participants with some of the emerging themes from other interviews and allowed the participants to respond.

Data Analysis

The goal of the data analysis was to yield several themes supported by a rich description of key beliefs, practices, and relationships that can be used to answer preliminary questions about the views and use of theory by practicing instructional designers. As such, the approach to data analysis drew upon hermeneutic, phenomenological, and ethnographic traditions of inquiry. Hermeneutic aspects included careful attention to themes that emerged that provided insight into the participants' practical involvement with theory. Phenomenological aspects included an emphasis on seeking out narrative accounts of participants' experience and using them as a basis for analysis and reporting. Ethnographic aspects included creating a thick description of the participants' responses so the reader can draw their own conclusions about the data.

Across the three traditions, there is similarity in how themes are discovered and articulated. During the pilot phase of this study, the research team, led by Dr. Stephen Yanchar, took up the task of synthesizing the research techniques of prominent hermeneutic, phenomenological, and ethnographic social science theorists (e.g., Kvale, 1996; Packer, 1985; Spradley, 1979; van Manen, 1990) into an approach to qualitative analysis that combined the common elements of the various theorists' work into a coherent whole. Across the work of these theorists, there is an emphasis upon a process of forming a tentative interpretation of the whole, investigating and characterizing the parts in relation to the researcher's understanding of the whole, discovering in that

process new insights and contradictions, applying this new understanding to the interpretation of the whole, and repeating this process until the meaning of the whole matches the evidence of the parts in a coherent way (see Kvale (1996), pp. 188-196; Packer (1985), p. 1091; Spradley (1979), pp. 92-94; van Manen (1990), pp. 78-79, 87-88, 92-95). The research team documented the results of this work in "Main Study Framework and Strategy," an unpublished document used to guide the work of the research team (S. C. Yanchar, personal communication, January 18, 2008). This document lists the seven main steps of analysis as follows:

1. Holistic Reading: Read overall text (all transcripts) for a general sense of the whole.

2. Meaning Condensation: "Condense" text by identifying "meaning units" based on turns in the conversation, topic shifts, etc., across all transcripts.

3. Thematization: Group "meaning units" into themes or categories of activity and experience, guided by the purpose of the study. Extract illustrative quotes to clarify the meaning of themes. Themes do not exhaustively map the phenomena being studied, but "point to" certain aspects of experience and practical involvement, understood against the backdrop of our eventual readers' tacit understanding of the subject matter.

4. Inter-Theme Exploration: Compare and contrast themes to better understand the meaning of each and to look for connections among them. This can offer a sense of how themes create a context for one another. Meta-themes, which group and organize themes that are highly related, might be created through this process.

5. Thematic Amplification: Based on what is understood about the "whole," what is suggested about each theme (or meta-theme)? What new insights and understandings regarding each theme are achieved through this process?

6. Holistic Amplification: Based on what is understood about each theme, what is suggested about the whole? What new insights and understandings regarding the whole are achieved through this process? (There is a back and forth or synchronous interplay between all of these steps, but particularly between steps 5 and 6.)

7. Coherence Assessment: Are these results more or less coherent? Do they tell an intelligible story about the topic of interest? Are contradictions in participants' accounts discussed and incorporated into a meaningful and coherent conclusion? (p. 7)

This procedure was followed in this study to develop the themes of the findings. I started with a holistic reading of all of the interview transcripts. I then reviewed the themes that resulted from the pilot study and that were discussed in the AECT Proceedings publication cited earlier in this dissertation. I kept these in mind as potentially fruitful directions to follow, but did not limit myself to them. I then worked through the transcripts of five of the seven participants, identifying "meaning units" by (a) assigning a general proto-theme (e.g. "Theory Use," "Criteria of Success," "What ID Training Was or Should Be Like") and (b) annotating meaningful passages in each script with my own summation and reflection. Two participants' transcripts were held back in order to conduct progressive subjectivity checks (this will be discussed later in this section). As a result of this process, I selected 328 passages from the interviews to group into 19 preliminary themes.

To ensure that the themetization process would be guided by the purpose of the study, I then used the three research questions of the study as a framework to organize and compare the various preliminary themes. This process helped me identify those themes that were most relevant to the purposes of the study. I then looked for instances where individual participants converged and diverged on various themes, which helped me to further refine and elaborate my themes. This process led me though the steps of inter-theme exploration, thematic amplification, holistic amplification, and coherence assessment many times and narrowed my list down to eight themes and three sub-themes. I then drafted a description of each theme along with supporting quotations from

participants that I planned to use in the dissertation. The process of writing caused me yet further reflection, leading to an additional revision of the eight themes and the absorption or elimination of the sub-themes.

The review of artifacts that was undertaken as part of this study helped to contextualize, enrich, and substantiate accounts. When possible, artifacts were reviewed in advance of interviews to allow for a more focused inquiry. They also played an important role during the second interview, when the interviewer and the participant reviewed them together, allowing the participants to provided examples of processes and approaches they had discussed in the previous interview. This led participants, in some instances, to correct assertions made in the first interview that were not reflected in the artifacts, providing an important check on their reflection.

To increase the trustworthiness of the findings, this study drew upon Chapter 5 of Dr. David Williams' online book, *Educators as Inquirers: Using Qualitative Inquiry*. Williams (2008) endorses the truthworthiness criteria outlined by Lincoln and Guba (1989). Their work suggests several standards for judging naturalistic inquiry and divides them under the headings of credibility, transferability, dependability, and confirmability. Williams then provides a checklist for assessing each one of these areas. As many trustworthiness strategies as feasible were employed in the course of the study, such as progressive subjectivity checks, negative case analysis, triangulation, peer debriefing, maintaining an audit trail, member checking, and confirmability and dependability audits. The confirmability and dependability audits were carried out by Dr. Stephanie Allen.

A progressive subjectivity check is intended to ensure that researchers doesn't become too entrenched in their tentative findings too early, which can close them off to

considering new information that might require them to revise their conclusions. This check was conducted during the writing phase by taking a fresh look at the transcripts from the other two participants that I had not yet analyzed to see if my themes held up in light of this “new” information. Themes were then refined and elaborated to account for the views of these two participants. Each theme was also subjected to a negative case analysis in which cases were identified that appeared to contradict the themes. In some instances, the themes were modified to account for the negative case; in other instances, the negative case was added to the theme discussion as a contrasting view for the reader to consider.

To triangulate my research, I used peer-reviewed literature to frame the study and to provide a valid basis for the inquiry. The information learned in the interviews, which were the primary method of data collection, was also triangulated and confirmed by reviewing design documents and products provided by the interviewees. These were used to verify previous assertions participants had made and to clarify their responses to interview questions. In addition, another researcher also served as an interviewer of two of the participants, providing independent observations. Peer debriefing was provided by Dr. Yanchar and Dr. Williams, both of whom have extensive experience in research design and who met periodically with me over the course of nearly two years during every stage of this study. They have guided me, questioned me, critiqued me, and reviewed my processes and emerging findings. Additionally, before the study commenced, the research proposal was sent to an experienced qualitative researcher in a related academic field for feedback. This researcher provided a few minor suggestions and affirmed the trustworthiness of the research design and the plan for data analysis. An

audit trail has been maintained of all relevant data including interview recordings and transcripts, participants' artifacts, and research team fieldnotes, emails and meeting notes.

All participants were invited to participate in a member check in which they received a full draft of the Results, Discussion, and Conclusion sections of this dissertation for review. They were asked to verify the accuracy of the quotes attributed to them as well as to comment regarding their agreement or disagreement with the findings of the study. Five of the seven participants responded. All felt accurately represented, and those who commented on the findings were generally positive. A few minor changes were made to the Results and Conclusion sections below to more clearly reflect their opinions.

A confirmability and dependability audit carried out by Dr. Allen concluded that there was "ample evidence that [the] study conceptualization, data collection and interpretation, and reporting has been done in a very systematic and thorough manner" and that the study is "both confirmable and dependable" (S. Allen, personal communication, October 7, 2008). A flowchart of this process can be reviewed in Appendix B.

These trustworthiness activities not only help to provide evidence of a rigorous and thorough study, but also reflect core values of the study. For example, member checking allows the participants to confirm that the information a researcher has gleaned from them is accurate. But it also draws the participants into the data analysis, giving them a voice to reflect their stake in the final conclusions of the study and allowing them influence over how they will be characterized by the researchers. This kind of participation reflects and supports the values of the study in terms of allowing

practitioners to tell their own stories about theory use and stating for themselves whether or not theory is useful. If participants were interviewed and then the analysis of those interviews completely excluded them, it would essentially be imposing a researcher's perspective upon their work without their input or consent. In a way, the study is designed to reverse the traditional power structures where abstract academic knowledge is privileged over the implicit, daily knowledge and experience of a practitioner. It is important that the same imbalance did not appear in the analysis methods of the study, and the trustworthiness steps were, in part, designed to help prevent that from happening.

Results

Because of the richness of the data set generated by the research design of this study, a multitude of potential themes emerged. In determining which themes to focus upon, several guiding principles were used. Themes that related most directly to the research questions of the study received first priority. Of these, themes that appeared to have the greatest potential to throw new light on existing research were selected. Ultimately, eight major themes were identified that are described here. Together, they address core issues from the practitioner's point of view regarding their views of, uses of, and training in theory. Brief summary comments are provided, but a full discussion of the themes is reserved for the Discussion and Conclusion sections of this dissertation. This is intentional, allowing readers the opportunity to consider their own reaction to the information before an interpretation is provided.

Theme 1: Learning Theory and Instructional Design Theory are Generally Valued by These Practitioners

Practitioners expressed a wide range of responses relative to the use of formal learning and instructional design theory. Some were strong advocates of particular theoretical approaches. Others were skeptical of the quality of research that supports theoretical assertions in the field of education. Some felt that theory could actually interfere with good instructional design. But even the most critical among those interviewed said that it was a useful endeavor to be generating and testing theory in the field and to study it while training as a practitioner.

The advocates of theory included Yvette, who, in discussing her design approach, referred to the prominent role that Merrill's Component Display Theory plays in her work as well as her use of Gagne's Nine Events of Instruction.

> YVETTE: So I thought, I need to write objectives in a way that I can, in my assessment, I can actually address them. I can measure them; they should be measurable . . ..So that was one thing, I thought, "Okay the theories will help me to come up with those." How to write [objectives], how adults learn, you know. Usually I use Gagne's nine events of instruction. Then Dr. Merrill's Component Display Theory helped me a lot—a lot. When he talks about knowledge objects, okay, depending on what you teach, then you can choose your strategies. For example, you have facts, you have concepts, you have principles, procedures, and your skills, attitudes, and so forth. So how do I teach concepts: What is a concept? So it's a generality, you show the generality, you show the instance, but then how do you . . . again, you have to come up with a verb, [like] compare, classify, choose, select. So, if I show examples and non-examples and provide the description and portrayal of that concept, and they understand the general idea of that, and then if you show them more examples from that same class, they will be able to differentiate and say this belongs to this class, this doesn't. So, again, using those theories helped me come up with strategies because it is so important to come up with strategies and not only just strategies but also with conditions. I have the knowledge here, I have my strategies, how do I put this together? What are my conditions here? And so everything is tied together.

Camille, also an advocate of theory, says that she uses it every day.

> INTERVIEWER: So what do you think of theory in general? Do you find it useful?
>
> CAMILLE: Oh, incredibly, yeah, absolutely, yeah.
>
> INTERVIEWER: Do you feel like you use it every day?
>
> CAMILLE: Absolutely, everyday. Yeah, incredibly important. I mean, you may intuitively know some things. Like, if you're a teacher, you may have some natural skills or abilities and things, but that's only going to get you so far. In fact I was just telling my daughter the other day, "If you want to get good at something, you really have to have some talent, but you also have to back it up with hard work and knowledge." And so both of those together will get you to where you want to go. But you need both. And so, absolutely, I couldn't do this without the theory stuff, and even though I can't always name the theories, I know at one point I had a name for them. (Laughs) But the idea is in my head, and so, I absolutely make decisions with—theory-based decisions.

While Camille appears to fully embrace theory as a daily tool even though she may not reference it directly, she also clarified in later interviews that when she refers to theory, she is really talking about theory-driven design principles.

> CAMILLE: I do think it's so important to have the theory. And it's not really—these aren't really theories, just design principles. I'm just kind of referring to it as theory, but—
>
> INTERVIEWER: Tell me, how do you differentiate those?
>
> CAMILLE: I don't know, theory is—I don't know, my understanding is that theories are—I don't know. (Laughs) That's a good question. Theories are bigger and more theoretical. (Laughs) They're more ethereal, and principles are something . . . more practical, and not as—I think, for something to become a theory, I know there's a theory about this (laughs), for something to become a theory, there's steps that it has to go through, a more formal process, but like, if you—design principles are more pragmatic, and so when I say "theory," I don't really mean theory, but [instead, I am] talking about something that's been tested and thought about a lot and written about from different angles.
>
> INTERVIEWER: So that's design principles.
>
> CAMILLE: Yeah.
>
> INTERVIEWER: So, in your day-to-day work, you think you use more theory or design principles?
>
> CAMILLE: Design principles. I guess—I see the theories as sort of overarching, bigger picture things. But design principles as more specific—the tools, more than the main ideas. Using the tools to apply those principles, I guess.

A negative case analysis revealed that others were more guarded about the usefulness of theory. Yet even these practitioners found value in some theories or at least in the way that theory-building can push the field forward. Eric was one of those who had some reservations about theory. First, he said he felt comfortable with some aspects of learning theory.

> ERIC: And so that—when I went to instructional design school, I was introduced to the whole notion of constructivism and zones of proximal development and all these basic aspects of learning theory and how we apply them and it all seemed very obvious; it all seemed very intuitive that in order for the instruction to be

> effective, that you need to not only provide this little bit of conceptual material, but you also have to provide this case example and let them get their hands dirty.
>
> ERIC: So the big answer to, "How do I try to apply these [theories]?" I try to apply the idea that if we don't make it relevant to what they're doing, then they're going to get almost nothing out of it.

But Eric also said that he questions much of the research from which educational theory is derived.

> ERIC: Quite frankly, this—showing my biases here—it was hard getting [advanced] degrees in [geology]. It was easy getting a [Master's] degree in [instructional design], right? What you're trying to do, getting a PhD, demonstratively having to prove something. That's really, really difficult . . .. So, a lot of the research you see coming out [of the field of education] on a monthly basis, you look at it and you could look at it and [say,] "You know, I don't think they really proved anything there." So I'm very skeptical of a lot of education research, and they'll come up with some correlation and I'll go, "Gosh, you know, but they didn't really design that in a way that their comparing apples to apples." There's some study that showed collaborative learning is better. Well, they took software that was designed for collaboration and then they gave it to people to use individually as well or something like that. Because you couldn't have two different kinds of software teaching the same stuff, because then [they have] introduced too many degrees of freedom, right? And so, to use the same software, it's like, "Well, wait a minute, some software works really well with collaboration and some does not. And it doesn't mean it's the fault of the software, so how are you getting to that conclusion?"

In a parallel vein, Matt expressed an affinity toward some of the theory he studied, but was skeptical of its practicality.

> INTERVIEWER: What did you think of that? The theory—what do you think of the theory that you learned? Is it useful to you?
>
> MATT: It's nice in theory. (Laughs) Yeah, I don't know. Some of it is. I said I gravitated towards more of the constructivists, or scenario-oriented learning type theories, and there's a lot of problems in trying to implement that aside from just resistance from management.

In fact, Matt said that theory can sometimes actually interfere with good instructional design.

> MATT: [Theory] can also get in the way of good instructional design. It can also get in the way of effective learning products . . ..

INTERVIEWER: Tell me how it can get in the way.

MATT: Well, I think there's a certain amount of just doing what's appropriate for the content and being flexible. And I don't think that—taking the content and molding it around a theory often doesn't work that well. The content—the needs of the content, the needs of the learners—should drive the design.

He says that academic goals may be in conflict with the construction of practical theory.

INTERVIEWER: So, do you feel like the—your lack of seeing places to apply the theory is a weakness of the theory itself? Do you think the theory didn't anticipate the practicalities of the world enough? Or what's the issue?

MATT: Um, somewhat, I guess—I mean, I think a lot of theories kind of go off into Never-Neverland and [are] just totally unrelated to the real world. But hopefully they test them out and then they refine them. But, yeah, when I read ID theory now, it's like, "Ok, that's kind of interesting, but it really just exists in its own abstract universe."

INTERVIEWER: Why do you think that is?

MATT: It's something about academics in general, I don't know. (Laughs) I think—because you want clean, theoretical arguments that you can discuss.

However, Matt, like the others interviewed who struggled with troublesome aspects of theory, didn't dismiss it completely despite his frustration.

MATT: But, in fact, when you're [designing] something, it helps to have theory as a background, as a bunch of tools—a bunch of things to be aware of, to think about. But it takes practice to apply it, I guess.

And, at another point in the interview, Matt also acknowledged some benefit to studying theory.

INTERVIEWER: So do you think it's—was it worthwhile to learn the theory for you?

MATT: Sure . . .. I don't know—yeah, I'd say it's probably worthwhile having some background in theory, sure. Because, otherwise, you would just be doing kind of blindly what other people have done without ever thinking about stretching it to something different, so it's good to have the awareness.

Echoing some of Matt's critique of the effective application of theory, Richard only considers theories that he deems to be practical.

> RICHARD: I like theory. It might be a personal preference. I like to hear about theory, and I like to study theory. But I won't accept a theory unless you can show me that it has application that delivers. I'll spend a little time on a theory and if I don't see how it can deliver, then I'm ready to move on to something else. That's how I look at it.

In fact, everyone interviewed, as one might expect, showed a strong practical orientation toward theory and generally thought of it much like Camille did—as a tool to accomplish practical goals.

> INTERVIEWER: How do you view theories? Like, do you sort of stick to one theory?
>
> CAMILLE: No, no, no. It's a toolbox. You know? Just like if you're—whatever you're doing, you use the tool that works. And so, yeah, I use different theories for this [course designed for children] than I did for other courses. So, yeah, I definitely think it's like a toolbox. I mean, I definitely think there are some generalities that apply, no matter what you're doing. But, I think, you just take the tool out that works best for that job and use it to get the ideas across.

In summary, while a range of positive and negative attitudes toward theory were expressed, all of the participants found at least some practical value in some theories and said that theory either played a significant role in their work or had the potential to do so if properly conceived of, researched, selected, and executed.

Theme 2: Practitioners Found Theoretical Ideas from Disciplines Outside of Instructional and Learning Theory Also Useful and Applicable

All of the participants made at least some reference to learning or instructional design theory. Additionally, some spoke of the benefit of theory, models, and design principles from other fields that also benefited their work as instructional designers. In general, these practitioners didn't privilege useful ideas from within instructional design over useful ideas from other fields. Wherever they were able to find something

practically useful to accomplish their design goals, they appeared to use it without hesitation.

Camille said that her background in marketing and technical writing help her significantly as an instructional designer, as do principles from related fields.

> CAMILLE: . . . We do draw from different areas, different fields. Like, you can do the learning theories, socio-cultural—kind of—constructivists, but there's also gaming theories and graphic design, web-design. There's basic writing and English. You're using voice, and there's writing. So there's a variety of fields you take from to make things interesting, palatable, and meaningful, so they sink in.

Matt said that he uses message design as well as instructional design to accomplish his work.

> INTERVIEWER: Day-to-day, do you draw more upon your ID [theory] or upon your message design and your technical skills?
>
> MATT: Um, for me it's been more day-to-day in message design, technical skills. But also, I mean, also [it has been] ID in the context of—again, like I said, a lot of this is just good technical writing. I mean, the whole [process of instructional] conceptual design doesn't happen very often.

Chris, an advocate of action learning because of is background in organizational development, also draws on theories from elsewhere as needed.

> CHRIS: Appreciative inquiry is a field—it's one of those where it can be really fluffy. But there are ways to apply it, so—let me think of some others. I mean, game theory as well is something that is a little bit fluffy, but it's applicable, you can find ways to apply it. I can't think of anything right off that isn't applicable, for that matter, that I couldn't turn to application. But I think there are people who haven't been able to, you know, take theory and apply it very well.

Practitioners' willingness to bring in theories, principles, and design concepts from other fields appears to be related to their need for and focus upon practical solutions. Each designer tended to focus on ideas that work for him or her, regardless of the ideas' origins.

Theme 3: Several Practitioners Suggested that the Application of Theory Was Inescapable, Even if They Were Unaware of the Theories Being Applied

At least three participants expressed a view of theory in which theory took on an a priori status. From this vantage point, thoughtful, systematic work could not be done without invoking good theory. Yvette said that even when she hadn't specifically referenced a theory to generate a successful learning approach, she still believes that that approach must have been based on some theory. For example, Yvette applied a learning strategy that she found useful in her own learning to a course that she was designing for a client. In discussing this, Yvette said the following:

> YVETTE**: . . .** And, if it works for me, it should be some kind of a theory, right? It's something that is working; it's a science, kind of a scientific approach. So if I learn that way or sometimes when I was designing I would take it to my family and ask them to basically try it out and see how, whether they learn something that (indecipherable) works for them or whether it is intuitive enough for them. So you kind of see, you try it out, you place yourself in your audience's shoes and see whether that works or not. If it is not working, then something is wrong. If it is working then, I would think, it is some kind of a theory. It exists somewhere.

So, in this view, that which works must be based on theory, whether the theory is known to the designer or not. And Yvette appears to believe that the idea of theory underlying all good practice extends beyond instructional design. For example, she mentions video production as being theory-based as well:

> YVETTE**:** There are so many aspects of instructional design, and I am sure there is a theory—I don't know, but there is some kind of a theory behind like how you even script for video, you know, how people talk, how you—I don't know, just – I know the main theories and I use them as much as I can.

In Yvette's view, it appears, those unaware of theory may still use it to be successful:

> INTERVIEWER**:** Have you ever met an instructional designer that was just fabulous who didn't use theory?

> YVETTE**:** They thought that they didn't, but they did. They didn't have, like they didn't know the names of those, you know . . . they couldn't even, you know, just talk about it, "This is such and such theory," but I know that they use the theory. You can look at their instruction and tell this is what [theory] it is, basically.

Matt, in discussing how theory may hinder good design, finds himself unable to escape the concept that even ideas that run counter to theory may themselves also be theory. In an expansion of a quote that appears earlier in this dissertation, this line of reasoning can be seen unfolding.

> MATT: [Theory] can also get in the way of good instructional design. It can also get in the way of effective learning products . . ..
>
> INTERVIEWER: Tell me how it can get in the way.
>
> MATT: Well, I think there's a certain amount of just doing what's appropriate for the content and being flexible. And taking the content and molding it around a theory often doesn't work that well. The content—the needs of the content, the needs of the learners—should drive the design. *I guess that is theory in itself*, but sometimes, you know, if you—yeah, I don't know. Sometimes the theory is—yeah, it's complicated, I guess. So, theory—good theory [may always] underlie good instructional design but knowing which theory to apply [and] when should be driven by knowledge of the content and the needs of the learner. (Emphasis added)

From this excerpt, it appears that Matt attempts to reconcile the dilemma by reframing the argument from "using theory vs. not using theory" to "using the right theory at the right time driven by the right factors." He seems to be bound by the notion that practical alternatives must also be, somehow, someway, theory-based.

Camille expresses a similar kind of inescapability from theory when asked if she had ever developed her own theories.

> INTERVIEWER: Do you have any of your own personal theories that you've sort of developed?
>
> CAMILLE: Um, you know, I might claim that it's my own theory, but it's probably not, because I'm pretty sure I've never had an original thought. (Laughs) So, maybe the things I think that are intuitive are really theories that I've learned.

In summary, several practitioners expressed a view that seemed to equate theory with any systematic approach to their work and even felt that theory could be used by a person who was entirely unaware of it.

Theme 4: Few Practitioners Interviewed Referenced Theory Directly on a Regular Basis

Very few practitioners referenced formal theory as they made design decisions. In fact, it appeared that several practitioners referenced formal theory directly only when defending design decisions they had previously made.

> INTERVIEWER: . . . Do you ever pull out your theory books and review . . . ?
>
> ERIC: You know, the one theory book that I really, really like, I can't find. (Laughs) I know I loaned it out somewhere, and it is off my shelf. And it [has] some principles of instructional design; it's all guided by real—it's research-based stuff that's been shown to work . . ..
>
> INTERVIEWER: So that's the one book where if you had it—
>
> ERIC: Well, yeah. (Laughs) Because I keep wanting to go back to defend decisions I've made, "Look at this," Somebody calls me on something, "Well look, this says that."

Matt, in discussing how those not trained in theory perform in the workplace, makes the following contrast between those people and himself.

> MATT: . . . People I've worked with who've not been trained as instructional designers sometimes feel a little insecure about their inabilities or don't know how to back up their reasons with theory. I think theory comes in handy as sort of a credential, (laughs) like if you have a feeling that this should be done this way, but if you have trouble convincing people, then you bring up the theory and it sounds more valid and you can convince them.

Yvette, who was more inclined to use theory explicitly in her day-to-day work compared to most others, also highlighted justifying or explaining her decisions as a time when she references theory.

> YVETTE: I use a lot of my intuition, of course, but when I want to explain something or justify or understand why I made this decision, how I would do this—I always refer to one of the theories.

Not every practitioner had the experience of needing to justify their decisions with theory. For example, a negative case analysis revealed that Michelle and Camille didn't feel like they were ever challenged on their design decisions and did not mention referring to theory to defend their choices.

> INTERVIEWER: . . . Do you ever have a situation where being able to refer back to theory or design principles of one sort or another help you defend what you've done or justify it to people? Is that ever a problem? Does that ever come up?
>
> MICHELLE: I guess—I don't know that anybody's ever questioned—
>
> INTERVIEWER: It just never came up that way?
>
> MICHELLE: I don't think so. Although we are trying to follow concepts from different people and we're trying to do some human performance improvement here, too. So we're trying to follow like, Gilbert's model [and] Mager's learning objectives, his learning philosophies and his systematic approach to training, you know, using the ADDIE principle or model. So we do try to follow different learning experts in the field. But I don't know that we've ever defended the learning product by saying, "Well, we followed Gilbert." Or "We followed Mager." Or "We followed Drucker." Or any of these people . . ..

In summary, many of these practitioners rarely reference theory directly unless their design decisions are being challenged. This is not to say that they don't use theory in their work. Rather, it is to say that they rarely feel the need to go back to the source of the theory and review it.

Theme 5: These Practitioners Did Not Spend Very Much Time Updating Themselves on the Theory of the Field

For a variety of reasons, the practitioners interviewed didn't tend to spend much time or effort staying current with new learning or instructional design theory or engaging in professional development in general. Some didn't feel like they had time, some didn't feel like the conferences they attended had much to offer, some felt that they

had, in a sense, outgrown theory. As Matt stated above, he doesn't find theory compelling anymore.

> MATT: I think a lot of theories kind of go off into Never-Neverland and [are] just totally unrelated to the real world. But hopefully they test them out and then they refine them. But, yeah, when I read ID theory now, it's like, "Ok, that's kind of interesting, but it really just exists in its own abstract universe."

Eric is largely disengaged from the academic world.

> INTERVIEWER: Um, do you—are you part of any professional organizations?
>
> ERIC: You know, I'm not. I haven't kept up with that stuff. So I don't read a lot of literature in either science or instructional design.

Eric said he would rather review the work of other designers than the theory or research of the field.

> INTERVIEWER: . . . Do you ever feel the need to update your training or to stay current with what the field of instructional design is doing?
>
> ERIC: Um, not terribly strongly. I mean, it's always good to see what other people do more than seeing how people's perceptions of theory change through time. You can draw a lot of inspiration from what other people do and you can incorporate parts of it with your learning [product] . . ..
>
> INTERVIEWER: So if you had the choice of reading five additional theory articles or reviewing five instructional products that someone else had actually built?
>
> ERIC: I'd probably rather look over instructional products that people have built. The best is if you can—if there is some sort of a write-up, justification for why I tried this. And the notion of whether or not it works better than something else that you've tried in the past is always—you know, the lesson's learned—is always nice. But given five articles on theory—five articles on theory or review five modules, I'd rather go review five modules . . ..

Camille says that she is too busy to go to conferences.

> INTERVIEWER: . . . Do you participate in any professional organizations related to your work?
>
> CAMILLE: Occasionally. But not regularly. Um, oh, you know . . . (laughs) I [used to] become a student member and then go to the conference cheap. (Laughs) That's about it. I just don't have time, I don't have time. Because now I'm a PhD

> student, I've been doing that for a few years. And so I—I really, I have two little girls—school, and work, and it's just too busy.

Camille doesn't seek out new theory, either.

> INTERVIEWER: Do you think theory could be improved?
>
> CAMILLE: Sure. Well, I think we're always learning more about theory. And, the thing is, I don't actively seek out, "Ooh, what are these cool, instructional design theories that are new and out there?" It's—I'm kind of lazy about that because I'm kind of relying on what I've had and—well, I'll pick up some things from [my supervisor and mentor] because he does look at that stuff. And I have friends that bring me books that I never read but I try. (Laughs) But, I also have [my own] schooling going on [that takes up my time], I don't know, that factors in a lot. Although I am learning a lot through that as well.

Camille did indicate that her PhD work in education had helped inform her work, especially a digital storytelling class that she completed. But Camille also said that, in addition to the time constraint that keeps her from engaging in professional development, she doesn't feel like she finds what she needs at conferences.

> INTERVIEWER: Do you ever feel the need to update yourself in the field?
>
> CAMILLE: . . . I haven't had enough time—there's a budget here to go to seminars, and I haven't—there's two problems—I haven't gone in like a long time other than [one] little workshop to any conferences. One reason is that I've been so busy, but also, there's actually not a lot that fits to what I'm looking for.
>
> INTERVIEWER: That's interesting. Why do you think that is?
>
> CAMILLE: I don't know. I've gone to a training type of conference, but it was really heavy on people marketing their training products, you know? But it's kind of disappointing, because it's something that will look like a great session, and I'll go and it's disappointing. I could just go read some articles and get a lot more out of it. So I guess I've been a little disappointed, and . . . I'm looking more into writing, and there's not a lot on instructional design writing. There's technical writing, and I don't know if that's overlapping, but I have a hard time finding the right conferences that really hit on what I want to do, what I want to learn.

A negative case analysis revealed that Chris, in contrast, is highly engaged in professional development. He works with faculty experts to develop his courses, engages world-class subject matter experts, visits universities, reads articles and books, and

regularly associates with others involved in action learning. On the other hand, when it comes to theory, Chris feels like he is, in some areas, pushing the envelope.

> INTERVIEWER: So, you said that you felt like you were pushing the state of the art in scenario gaming. In what ways do you feel like you're doing that? What differentiates what you're doing from what's been done?
>
> CHRIS: I think it's because I'm very much a pragmatic—I'm a strategist, but a pragmatist. And I think I can do both. So far I've been able to do that. And a lot of people cannot do that. And what I've done, I believe, is taken two different categories of process I guess you would say. One is war game and one is scenario planning. And then merge those two together so they are practically usable and that it's a process that can be used to make real action—to take real strategy. And both of them—classic war gaming is great for certain situations. Scenario planning is so theoretical sometimes and so difficult and so out there that it is rarely applied. There's only a few companies who've done it really well—[a large petroleum company] and a few other companies who've done that well. But if you can merge the two together, then you get the power of scenario planning, and thinking in terms of scenarios, but you get the power of applying that right now to a strategic situation and making strategic decisions today rather than trying to think scenario planning, which is often a ten to twenty year horizon. And you're using the technology to make strategic decisions now.

One explanation for this deviation is that, because Chris designs programs for the strategic training of leaders of a Fortune 500 company, he may have more time allocated and more resources applied to designing his courses than most of the other participants. His accountability for outcomes may also be greater, and this may increase the intensity with which he seeks out the most powerful theory and the best expertise.

A negative case analysis also revealed that, in contrast to most of the other respondents, Richard says that his organization has a vigorous professional development program. His organization will pay full tuition for employees to seek advanced degrees in instructional design at local universities. They have also developed an internal professional development program. But that doesn't necessarily mean that this time is spent on learning about theory. Their program appears to have a focus on practical competencies.

> RICHARD: Well, what we're doing here is we've sent some people to conferences and to pre-conference workshops. We've sent people to ISPI—International Society for Performance Improvement—it helps, it gives some really good perspectives. ASTD, we have a local chapter, some people are members and they network that way. I don't. We have looked at the certified learning and performance practitioner—I wish I could tell you the exact title, but ASTD has a certified learning and performance certification . . .. We looked at their competencies, and we developed a continuing instructor training program that [covers the competencies]. We develop them internally and have developed all the instruction to cover all the competencies.

In summary, most of the practitioners interviewed did not invest much in professional development due to a lack of time, interest, or ability to find the kind of development they most need. Those who did tended to spend their time learning applied skills more than additional theory.

Theme 6: Most of These Practitioners Said They Rely on Their Intuition to Make the Design Decisions Required in Their Work

In the day-to-day unfolding of their work, these practitioners were much more inclined to rely on their personal intuition when faced with a design decision than to reference relevant theory. Each person seemed to have a slightly different take on the source of their intuition, whether they said it was informed by their theoretical training, their experience, or their natural abilities or some combination of the three.

Eric seems to relate his intuition to his previous teaching experience.

> INTERVIEWER: So what would you say guides your decision-making process? Your design and decision-making, what's your source—where are you coming from . . .?
>
> ERIC: Um, I hate to say it's really intuitive, where I just use my intuition, but that's what I do. (Laughs) . . .. You know, I like to think that my intuition is reasonably robust in that, um, you know, I did teach. And the teaching I did wasn't—well, most of it was not classroom-based. And so, until you get people to, um, look at the [same] charts [they use on the job] and start querying them about it—everybody can look at the conceptual explanations and go yeahyeahyeahyeah, that's all fine. Um, and then you put something in front of them and ask them to recognize it, it's a whole different world. And you know,

> taking people through a case is, you know, the equivalent of dragging students out into the field and making them look at rocks [if they are studying geology] . . ..

While Eric himself relies heavily on intuition, he is also suspect of the practice, because he feels that intuition tends to be based on people's previous, subjective experience.

> ERIC: I think people's intuition about instructional design is very self-centered; it's based on what worked for them when they were a learner. And the degree to which their teachers had consciously or unconsciously incorporated instructional design principles [or] theory in their instruction can really guide what you think works . . .. And whether the person who was [your] instructor was actually guided by theory . . .? Maybe he was, maybe he wasn't. Maybe he just developed this as something that helped him.

For Yvette, intuition also plays an important role in her work.

> YVETTE: . . . It is great if you know the theories and you know how to apply them, but the other thing is kind of the intuition that you have to have. It's kind of something that you can't—I don't know how to teach that to people because you have—you have to have that intuition. What to do in the situation . . . I know you have what we call the prescriptive theory of instructional design . . . but, at the same time, you need to have a feel, "Ok, what would work here? How can I design in a way that is, you know, [doesn't] forget about motivation here?"

However, the source of her intuition is somewhat unclear. Sometimes, Yvette seems to indicate that her intuition stems from an innate ability or talent.

> INTERVIEWER: . . . Is your intuition informed by your theory or is it separate from your theory—from your training—from your theoretical training?
>
> YVETTE: It's interesting. I think it is some kind of talent—you know, it's like if you are not a singer, then don't sing.
>
> INTERVIEWER: That would be me. (Interviewer laughs)
>
> YVETTE: Right, [both of us]. (Yvette laughs) But I don't know—I liked teaching and training and designing and helping people—I didn't even know I had that kind of talent. I'm not saying it's a real talent, but there's something that tells me what to do. Like I said, when it comes to me, during a meeting with the clients, you know, it just comes to me, "This is not going to work—what they're saying." At that moment I'm not thinking about the theory. I'm not thinking, "Oh, because the theory says that's why [it won't work]." No, I'm not thinking

about it, it's just—first it comes by intuition, why it's not working. Then, if I need to explain, then I can remember.

INTERVIEWER: Refer back to theory?

YVETTE: Right. But that first reaction—that first when I see it and I can tell "yes or no," that's what I kind of feel, that's my intuition.

At other times, it sounds like Yvette's intuition is based on her experience—experience that has been informed by her theoretical training.

YVETTE: Again it's coming from your experience. Because you have built so many courses and you try to tell [the client,] "I think this isn't going to work here and this is why." That "why" helped me . . . because you can't just tell them "no" . . .. So at that time [while talking to the client] I'm not thinking about "Oh, I'm using this theory, I'm using this." But I think it becomes natural for you to—again, that theory part helps me with my explanation. Maybe I'm not using, you know, the real terms or whatever, but [it's] the way I think now . . .

INTERVIEWER: [You've] kind of internalized it . . .

YVETTE: Right. So that's probably why I'm submerged with theory now in my practice.

Camille also makes a strong connection between her training in theory and her intuition.

INTERVIEWER: Are there some principles of instructional design that you use regularly?

CAMILLE: Yeah, just um, (sighs) gosh. You know, I can't name things off (laughs) anymore . . .. And it's kind of, I'm almost to the point where it's more in my head than— it's not as accessible, because it's more, you know, you're more, when you become more—I don't want to say I'm an expert, but, you know, when you become more expert than a novice, then you forget that—it becomes just an intuitive process versus a, um, I don't know, something you have to think about. I know there's a word for that. (Laughs)

INTERVIEWER: Yeah, maybe internalize?

CAMILLE: Yeah, it's much more internalized.

INTERVIEWER: Automatic.

CAMILLE: Yeah.

Matt also acknowledges the influence of theory on his intuition, but stresses that theory plays a limited role.

> MATT: You know, a lot of [design] is intuition. When I think about if I review a script, I go through it. I just get a feeling like, as I'm reading this, I'm wanting to see an illustration. I'm picturing in my mind, and I would like to see it there. So there is a certain intuitive, just experiential sense and, yeah, that's probably influenced by theory, too, but to *some* degree. (Emphasis in original)

In summary, whether intuition is based on natural ability, experience, training in theory, or some other source, it appears that, day-to-day, these designers rely on it to make decisions. Even strong advocates of theory say that intuition, not theory, is what guides their daily decision-making, with theory informing their intuition.

Theme 7: Theory is One Among Several Significant Influences that Impact These Practitioners' Design Decisions

Theory is one of several powerful influences that practitioners navigate day-to-day as they face the practicalities of their work environment. Constraints of time, money, limited access to subject matter experts and the target audience, requirements and expectations set by clients and supervisors, and limitations in the vision of their organizations all impact their work profoundly. These constraints, in turn, impact the amount of time and attention that practitioners can devote to the systematic implementation of theory and the amount of support that their organizations provide for such work.

Eric talks about the negative impact of a lack of timely access to the subject matter expert.

> INTERVIEWER: So what would you say hinders your work or might lead to an inferior product?
>
> ERIC: I think the biggest thing that hinders it is just not getting that immediate feedback when you need it sometimes [from the off-site subject matter expert],

> and so after a while, you start to, in a way, self-censor. “Are you going to send this to them or are you just going to plow ahead?” It’s because people are working at a distance, and so there really isn’t close collaboration that would happen on a lot of projects. If you’re in the same building working, you can appear at their door, ask them a question, get an answer, turn around and go back. Phone calls sometimes work better for that, not always . . .. So there’s a certain amount of time pressure, right? Try to get this out, it might not be the best but it’s done by a [deadline].

Camille would like to collaborate more with her peers, but doesn’t have the time.

> INTERVIEWER: . . . Do you feel like you get opportunities to reflect on your work and just sort of step back and say, “Am I doing this right? Are there ways I want to change it?”

> CAMILLE: Um, yes and no. And on one hand, there’s not enough of that because it’s a time push. You gotta get things done and get them out the door. And I do—I guess, I feel like I take longer on projects than I should. (laughs) It feels like they take me longer than they should, but [my supervisor] hasn’t said anything about it, but I do do a lot of thinking about it, and so I guess I reflect as I’m in the middle of it, and there are definitely times where I think—I’ll look at a course that I did a year or two ago and I’ll think, “Wow, I’d change that,” just as things come up, I kind of look at it and think if I could have done it better or differently. Um, but no . . . in fact there’s one thing I wish we had more time [for, it would be] creative time to sit together. If I could, with a new project, sit down with the team members and say, “What can we do with this that’s cool?” And talk about it. We had a guy come in and talk to us about gaming and how gaming can be applied in many different ways, not just big huge 3-D first-person shooter things. But you can apply some of those principles, like the non-linear ways of thinking or identity, you know, taking on an identity, in training and stuff. But, I think it’d be cool to explore that a little more but we never sit down as a group and just brainstorm . . ..

Eric and Chris talk about the lack of time that their target audience has to actually undergo the training they create for them. Chris works with high level executives whose time is valuable to the company and very expensive. Eric designs for an audience that is so busy on its work shift that many of them do the training at home on their own time.

> ERIC: . . . But all the usability studies that we’ve done around here—surveys and things like that—the number one complaint is that the [learners] don’t have time. So, they come in, they do their shift, it’s really busy, it’s not like someone’s giving them an hour each shift, you know, to devote to training. Some offices are way better than others, some offices make training a priority . . .. Some of them are very involved, others, not really, they, for whatever reason, they might say,

> "Well you know, it's fall, it's time to get ready for winter, so I'd like you to review X, Y and Z modules over the next month." And that's training. So there's a real range from office to office. And when the [learners] don't have a given time to do training, then you're asking them to do it at home. Which we have use statistics that say that that happens a lot.

Matt works in an organization that claims to have a lack of time, but, from Matt's point of view, it may also be a lack of vision or an unwillingness to try new things. When he was first hired, for example, there was a lot of enthusiasm for designing in new ways, but that soon subsided.

> MATT: . . . My focus [as a student] at [a top-ranked ID university] was a lot in constructivist education . . . and [at another university] . . . was a lot on scenario-oriented learning, and project-based learning, etcetera, etcetera. And when I interviewed here, oh, they were very excited about that, and they very interested, and had me show them some stuff . . .. And so when I got my first project . . .. I had proposed doing something a little more project-based, where the cases would be [in an] authentic context, which would lead people into uh, researching information needed to complete the projects. And, they kind of nodded their heads and said, "Uh-huh, ok, hmm, that sounds good." And then, um, it took us—we started looking at the cases and realized, well it doesn't make sense to make the case until you first do the reference material—the foundation topics that are just the core information. So we did those and that turned out to take about three years. So (laughs) by the time we got back to the cases, we said, "Ok, so now remember we were gonna do this case-based, remember? We were gonna do the case, and then shoot people over to the foundation topics?" And management brought up some concerns about this at that point. And it was like, "Well, we could maybe do this at this point, but now it's really late. And we'd have to do a lot of testing" and they had a lot of concerns about disorientation for people to start a new case and then jump into references, even though we said "Well, if they know it, they don't need to jump in the references.'" Or if they wanted to do the references first, they can.
>
> INTERVIEWER: Right.
>
> MATT: We just would hang it around the structure of it, but it didn't really work and we would have had to do a lot of testing and—and I admit that the problems [they] brought up, the concerns [they] brought up [were] valid. Basically what happened was like, "Ok, forget it, it's late, it's way past deadline. We just gotta do our standard thing."

Chris regards a lack of vision as more of a constraint on his work than a lack of money.

> INTERVIEWER: What tends to hinder your work or lead to inferior products or outcomes?
>
> CHRIS: I'd say, you know, the bureaucracy. Leaders who are key decision-makers, who aren't visionary and strategic in their thinking. See, I don't tend to see money and that kind of thing as limiters, as much as maybe other people would. I'd say that most limitations are, sort of, our own.

In Richard's case, he says a lack of money for evaluation reveals how the project sponsors feel about the value of evaluation.

> RICHARD: . . . Evaluation, we don't do a lot of evaluation, and it's because the owners of the training don't see the value to evaluating. And we've all been trained on the value of evaluating, but when it comes down to the value of dollars and cents, they say, "Well, you gave me the training, and if I don't see a serious problem then I guess I got the value I paid for, and let's not spend any more money to evaluate." And if I—which, that's traditionally how it goes. We've had great ideas and designs and thought we would do a bunch of evaluation at times, but I've given it up . . ..

Not everyone found money to be a major constraint. Eric said it played a minor role.

> INTERVIEWER: Is budget ever an issue for you here?
>
> ERIC: Not that I've encountered. There's a certain productivity expected, six to eight hours of interactive instruction per year, per team, depending on how much of the content development I'm picking up, I think they cut me some slack for that, because I'm sort of doing more content development than the other ID's . . ..

Yet, as Eric indicates at the beginning of this section, even though money may not be a constraint, time is. None of the designers had all of the time, money, access to resources, and institutional buy-in that they would like to have had to do their job.

In summary, constraints that impact the design process of these practitioners arise from the culture of and relationships within their workplace and the practical considerations of limited time, budget, and resources that are part of most professional environments. These limitations impact the degree to which practitioners can implement theoretical ideals.

Theme 8: Most of These Practitioners Said that Their Training in Theory Would Have Been More Useful if It Was More Practice Oriented

While practitioners generally valued their theoretical training, transferring that training successfully into the workplace was a significant barrier for many of them. When asked to reflect on their training and how it could be improved, many practitioners suggested that their training or the theorists they were studying could have better bridged the theory-practice gap.

Eric and Yvette both suggested that it would have been helpful if their instructors had provided more examples of theory application.

> ERIC: You know, the thing that I always thought was probably missing in my [university instructional design] education was we never spent a lot of time looking at examples of exemplary instructional design. We never spent a lot of time looking at how expert or master instructional designers applied theory in modules. And actually in a lot of ways, to me that's one of the faults of truly embracing constructivism, is this notion that "Somehow you are going to build this knowledge that somehow you're going to come up with this stuff on your own. I'm going to give you some ideas, and I'm going to turn you loose and you're going to figure it out." It's like, "Well, wouldn't it be a lot easier to show me twenty examples that we'll tear to pieces and analyze before we actually start building new ones?" We never did that. There's discussion of theory, there's discussion of really parsed out principles of instructional design. And you can see a lot people kind of doing the book learning thing where you would give them a principle of instructional design and they would apply blindly no matter what, never realizing that, you know, just because it's a principle doesn't mean you can't break the rule when you need to. You should just have a good reason to . . .. I think that [theory] is taught [adequately] but we're not necessarily taught or shown how people apply their theory in instructional design. We're just expected to figure that out.

Yvette said that professors tend to be too abstract in their presentations, under-representing or ignoring practical examples of the theory's use. In fairness to the professors, she also lays some responsibility with the theorists as well.

> INTERVIEWER: What would you say are the limitations of theory? Does it breakdown at some point?

YVETTE: They lack practical examples. They have these statements and descriptions and those diagrams and whatever, but they're so theoretical. They never provide any examples like . . . "In this situation you find this and in that situation you can find that." For some people that are not instructional designers, if I give them [a theory] . . . and ask them to read . . .. Its hard for them to understand. [They say,] "Yeah, that sounds good, but then how do I apply [it]?" They can't see the connection . . . even Bloom's taxonomy.

INTERVIEWER: . . . Students are like, "What is synthesis?"

YVETTE: "What is the synthesis?" So, [I may] understand what synthesis is, but how [does] it applies to what I am doing here? So the interpretation of the theory and what I said . . . examples—more examples to show that "Ok, this is how this theory is being applied here in this case." It would help a lot . . . during those classes I had, it was a strict theory. And you just don't see the connections.

INTERVIEWER: So do you think the solution to that would be to change the theory and the way it's structured or to change the class and the way it's structured or both?

YVETTE: A little bit of both because, you know—and I know that sometimes, you know, that some of the theories will provide some examples, simple examples— . . .. It's just if they explain something, you know, then just provide an example. "Okay, this is how it works, this is what it is"—even like visuals or—I don't know, because it's hard to [reference] just the theory book . . .. I understand them now because it's hard for me now to say what's not clear about them.

INTERVIEWER: Right.

YVETTE: But for someone, for one of my designers who does not have instructional design background, if I say [Gagne's] nine events, [they will say], "I understand this and this, but, how, what is this? How do I do this when [Yvette is] not here?" So . . . I don't know whether we need to change how the theory is presented or just when we teach theories, when we explain to people maybe that's how we need to talk about theory. This is what it is. This is when it can be applied. This is one of the best examples of using this theory in practice or something like that.

Richard faulted the theorists themselves for not applying themselves to bridging the theory-practice gap.

RICHARD: I love theories. I love to hear the theories. But then I always want—"Give me an application. Tell me how your theory is applied." Because that helps me because I have to take it all the way from the picture in your mind and the theory of what you think is happening all the way down to my training

> experience. I need to create a training— a learning experience. And if I can't figure out how to get your theory applied to my classroom or my lab or my on the job training, then it does me no good . . ..
>
> RICHARD: The owner of the theory—now this is my perspective—needs to create an application where I can understand it. It doesn't have to be complicated; it needs to be simple enough so I can transfer how that is different to my world, what I do. And I know that some theorists say, "That's not my job, that's not my interest. I just do the theory and you take the theory and do something with it." Well, I'll tell you, there's a lot of people at the application level that can't conceptualize converting the theory into application. And they aren't willing to—I don't have that much time for continuing education. So I've got to really focus where I can make the best bang for my buck . . ..

Camille said that her one class where she had to apply theory was worth four of her other classes.

> INTERVIEWER: And was there a respect for theory in your program?
>
> CAMILLE: Definitely. Yeah, when I think back about where I probably learned the most theories was my instructional design course, and the book was awful and the teacher claimed it was awful. But she had us, each week, re-designing things that we'd see. "Go home and get a ton of things that are instructional design in your home." And like, "Well, I don't have anything." But then, you do, you have the remote, you know, the instructions for the remote. And you have recipes and you have your car manual and you have all kinds of things that are instruction, really. And so, we looked at theories and applied those theories, and it was really intense. That was really the best class that really taught me the most. But it was rigorous.

Camille, however, also said that there are limitations to how much formal education can prepare a person for the day-to-day work of an instructional designer.

> CAMILLE: . . . I think education—I've always felt like with formal education just gets you a foundation and then you got to build it from there. And it depends on what you're doing. Because what I'm doing [in my current job] is very different from when I was meeting with faculty and having them build their online courses. And your education and courses can't prepare you for everything, but it can give you some ideas and teach you how to find them, find the answers. So I think, depending on what you do, you have to learn from that and say, "Hey I remember this from my class." But, I'll see things that somebody else does and I'm like, "Oh, that's a really good example. I should do that." I learn as I go, but you also have to be a little deliberate about finding more, or going back to stuff. Because you don't remember all this stuff anyway. (Laughs) You know, as learners, "How can I remember these things that we had six years ago? And I'm supposed to

> remember that theory and principle?" But, I think in your practice, you have to develop it.
>
> Eric expressed similar sentiments.
>
> INTERVIEWER: Were there things you needed to know to do your job that were missing from your training?
>
> ERIC: Sure, just in the sense that learning theory doesn't have a lot to do with interacting with SME's. Learning theory doesn't have a lot to do with sitting down and knocking out a prototype or applying a scripting language, like JavaScript or something that's reasonably complicated in flash. So, yeah, I think it's kind of a difference between becoming a schoolteacher and getting your degree.
>
> INTERVIEWER: Do you think that the training could be reasonably—what's the word, is that something it should be able to cover or is that just something you gotta pick up on the job anyway?
>
> ERIC: My guess is it's something you have to pick up on the job anyway. You know, how are you going to design a course where you simulate going through the instructional stages and running into roadblocks?

In summary, most practitioners interviewed felt that practical experience with theory and/or examples of theory in practice would have been helpful in their education. Some also expressed the opinion that education simply can't provide everything a person needs to know to fulfill a professional role and can only lay a foundation for future learning and growth.

Discussion

This discussion will relate the results reported above to each of the three major research questions identified at the outset of the study as well as to previous research findings. It is not the intention of this study to provide universal generalizations; rather, it is the intention of this study to help throw new light on existing research by providing a detailed account of how some practitioners view and use theory in their daily work and how their training in theory may influence their work. It is hoped that this account can facilitate a deeper understanding of the complex set of interactions and considerations that come to play in the lived experience of instructional design practitioners. It is also hoped that the findings of this study can help inform future research into related areas of study.

Reflection on Themes

Each of the themes identified in this study offers a way of viewing the experience of the instructional designers interviewed in this study, with particular attention paid to their views and uses of theory. Because different themes are more relevant to one research question than another, the themes have been grouped according to the research question they most directly address for discussion.

Research Question 1

The first two themes identified in the Results section of this dissertation provide insight into research question one which deals with how practicing instructional designers view formal theory from a practical standpoint. Below, each of these two themes is discussed individually in relation to this issue.

Theme 1. As theme one highlighted, most of the practitioners interviewed said they derived great value from the learning and instructional design theories that they applied. They seem to appreciate that theory can provide a grounding, a point of departure, a touchstone to return to, a shorthand of big ideas, a mental checklist to pause and consider as they work. This finding seems to run counter to previous observations that among practitioners there is a "generalized contempt for theories and scholarship" (Wilson, 1997, p. 24) among instructional designers and that "many people avoid and denigrate theories" (Reigeluth, 1997, p. 42). Perhaps the tendency among the practitioners interviewed for this study to quickly and emphatically reject theories that they do not deem as practical provides some insight into why this perception may exist. Or perhaps it is because a given practitioner may subscribe to a narrow range of theories, rejecting or ignoring many others, thus giving an overall impression of contempt for theory. While theory can have a significant impact on the design approach of practitioners, it is worth noting that the range of theories that they choose to apply are limited to the theories that practitioners (a) know about, (b) understand how to apply, and (c) find useful in the specific context of their work. The range of theories that these practitioners know about may be limited primarily to those to which they were exposed in their training, because of their general lack of time for or, in some cases, interest in professional development activities. The range of theories that these practitioners understand how to apply may be further restricted by shortcomings in their formal training in the field that limited exposure to examples of and opportunities to apply theory in practical contexts. With the pool of candidate theories thus restricted, it is not

surprising that practitioners may struggle to find a theory that fulfills the third criterion, and may express a general contempt towards the practicality of theory.

Yet, despite considerable frustration expressed by some practitioners in applying theory effectively, none of the practitioners interviewed were prepared to completely set theory aside and strike out on their own. Even Matt, who appeared to be fairly disillusioned regarding the successful application of theory, still respected the process of theory building and theory testing. His main concern was what he perceived as the limited scope and rigor of the testing process that a theory typically goes through before it is offered to practitioners as a beacon to follow. His desire for greater rigor in vetting a new theory is paralleled by Eric's disappointment with the quality of the experimental designs reported in the education literature and Richard's impatience with theories of which he cannot quickly determine the practical use. Together, they suggest that theory construction, theory testing, and theory explication need to be held to higher, and more practical, standards.

Theme 2. As theme two suggested, generally, these practitioners did not limit themselves to a particular field or paradigm. They drew from theory and design practice from fields as diverse as media design, message design, marketing, technical writing, human performance improvement, strategic gaming, qualitative research, neuroscience research, and systemic change. While all of these fields have been previously associated with instructional design, most research looking at instructional design practitioners in relation to theory has oriented survey and interview questions primarily towards learning theory, instructional design theory, or instructional design process models (e.g., Christensen & Osguthorpe, 2004; Wedman and Tessmer, 1993), potentially obscuring the

degree to which instructional designers may draw upon theories and principles from fields that may have a focus outside of learning or instructional design. These other fields, it appears, have practical ideas to offer practitioners that assist them in their work. Theorists in the field of instructional design may want to consider expanding their reading lists and research foci to systematically consider what these fields are offering to instructional designers that they are finding useful outside of the theory of our field.

Research Question 2

The next five themes identified in the Results section of this dissertation provide insight into research question two which deals with how practicing instructional designers use formal theory in their day-to-day work. Below, the third theme identified in the Results section of this dissertation is discussed individually, the fourth and fifth themes are discussed together because they are closely related, and the sixth and seventh themes are then discussed individually in relation to this issue.

Theme 3. As noted in theme three, several practitioners suggested that the application of theory was inescapable. This view implies that there are principles of design that are instantiated in theory and that design follows these principles whether or not a person is aware of them or has been exposed to theories that capture and express these principles. If practitioners have this a priori view of theory, they may believe that they are implementing theory, and report as much, even when they do not know what theory they are applying. In the future, researchers studying the practice of instructional designers would be wise to be skeptical of the self-reporting of participants regarding their implementation of theory unless an artifact can be identified that reflects their application of the theory's tenets.

Themes 4 and 5. Theme four drew attention to the fact that the instructional design practitioners interviewed generally didn't spend much time referencing theory in their work, and theme five expanded on this by recognizing that they also didn't invest much time updating themselves on theory after their departure from instructional design training programs. Some said they didn't because of time pressure; some said they didn't because of lack of interest. In both cases, ongoing engagement with theory was not enacted as a professional priority. This has some interesting implications on these practitioners' views of theory. First, it puts them in a position where they may retain only a static understanding of the theory of the field, holding in their minds a relatively unchanging view of the state of theory, frozen at the time of their training. Second, it opens up the possibility that, over time, they may remember less and less of the details and nuances of the theories they learned and recall only the broad strokes. The less specific a person's memory of theory, the easier it is to convince themselves that they are an adherent to a particular theory's principles whether their actual practice bears out the claim or not. Under these circumstances it is possible that, when asked about their allegiance to particular learning or instructional design theories in interviews and surveys, practitioners may be claiming to adhere to a particular theory's principles when a close inspection of their work may or may not bear this out.

In fact, an interesting and enlightening strain of research might be to chose a particular theory and then study the practices and artifacts of those practitioners who claim to follow that theory to see how much their practice adheres to or deviates from the theoretical ideas and why, and whether the practitioners recognize that they are, in fact, departing from critical aspects of the theory. If theory is rarely referenced and

practitioners spend little time updating themselves regarding it, what are the chances that they are instantiating theory as the theorist intended, even if they claim to be? Perhaps their practice is better for it; perhaps it is worse. Either way, it needs to be recognized for what it is and what it is not from a theoretical standpoint if we are to understand the true relationship between theory and practice in our field.

Theme 6. As theme six highlighted, regardless of whether practitioners were enthusiastic or not about applying theory, they reported that many, many decisions they make are based on their intuition. This finding resonates with observations by Rowland (1993) that "instructional design clearly involves rational and creative or intuitive thought processes" (p.88) and is supported by literature reviewed by Pieters and Bergman (1995) who found that expert instructional designers "rarely follow some specific pre-determined model, but instead design intuitively, reflectively, by considering alternative solutions in tandem" (p. 119). This approach to design is supremely practical for their work and supremely problematic for research about their work. What professional, steeped in the practices of their field and standing on a foundation of extensive experience, doesn't rely on the intuitive shortcut in the vast majority of their decisions to come to a practical and operational conclusion so they can act quickly and move on to the next issue at hand? And yet such practices render the basis of the decision-making process partially or entirely opaque to an outside observer and, in many cases, to the person making the decision him- or herself. It is then left to the observer to try to determine as best they can whether such decisions are theory-based, experience-based, rife with personal bias, indefensible, incisive, or any number of other possible descriptions. This makes it very difficult to know whether decisions made by intuition

shortchange theory, rise above it, or simply tacitly enact it. This is particularly problematic in that intuition-based decisions may very well describe the majority of design decisions made on a day-to-day basis by practitioners. In light of this, researchers studying practitioners' decision-making processes will need to strategize means beyond Likert scale survey items and even interviews in which practitioners are asked to reflect on the past, if they really want to understand the dynamics at play in the moment of decision. Observing a designer working through a contrived case (e.g., LeMaistre, 1998; Perez & Emery, 1995; Rowland, 1992) using methods like think-aloud protocols may create more immediacy in the observation, but this approach imposes an artificiality that can distort or exclude the powerful external influences and complex human relationships that operate in the practitioner's actual work environment. Extended participant observation or other naturalistic ethnographic methods may be required to account for the complex ecosystem in which design decisions are made. Additionally, those who train practitioners may want to consider whether their pedagogy is correctly calibrated to anticipate the intuitive decision-making that designers are likely to employ most of the time on the job.

Theme 7. As pointed out in theme seven, the systematic implementation of theory requires an investment of time, attention, and resources, as well as institutional buy-in; this investment is often in direct competition with other significant practical priorities. Limited time, money, limited access to subject matter experts and the target audience, incompatible requirements and expectations set by clients and supervisors, and limitations in the vision of their organization can constrain the amount of support that their organizations provide for such work and may limit the amount and quality of

information to which practitioners have access and upon which they must make design decisions. In fact, such circumstances could be reasonably regarded as a relatively hostile environment in which to implement most learning and design theory, as the successful implementation of theory tends to require significant amounts of the very things that are in scarce supply in a typical work environment. Each influence that pressures a practitioner to work faster, expend fewer resources, interact with fewer people, gather less information before design decisions are made, and engage in less evaluation after products are delivered, has the potential to undermine the necessary effort to implement theory in a systematic and thoughtful manner. To the degree that both theorists and those who train practitioners recognize, anticipate, and specifically account for these influences in their work, they have the potential of increasing the likelihood that theory will actually be applied despite these powerful, often competing factors.

Research Question 3

The last theme identified in the Results section of this dissertation provides insight into research question three which deals with how the training of practicing instructional designers influences their views and use of theory in their work.

Theme 8. While most of the practitioners interviewed held their training in the theory of the field in high regard, theme eight suggested that they also wished it had been more practice-oriented. Some of them genuinely wanted to apply theoretical principles correctly in their work, but struggled to do so. Those who struggled felt that their education either lacked sufficient exposure to examples of theory in practice or lacked opportunities for practical, first-hand experience in applying theory under the guidance of an instructor who understood how to bridge the theory-practice gap. It is not practical

experience alone (such as an internship doing instructional design work) that these practitioners wanted more of in their training, it was *experience applying theory*. With this in mind, those who design training programs may want to rethink their approach if they are offering theory classes separately from practice classes. Winn (1997) noted this weakness in the current structure of most academic programs.

> When theory is taught, it is often taught separately from course where it needs to be applied. Courses in educational psychology are certainly useful. However, if the exposure of instructional technology students to theory stops there, then the courses are largely wasted. Preparation to work in our field requires application in a direct manner. This may require the construction of new theory courses taught by instructional technologists for instructional technology students. (p. 36)

In addition to integrated theory-practice courses, instructors may also want to review their strategies and practices regarding internships or other practical assignments or experiences that are part of their programs to consider if these experiences have specific support built in to help the student bridge the theory-practice gap. To take it to another level, it would be interesting to learn how much a class called "Advanced Instructional Design: Bridging the Theory-Practice Gap" or "Getting Good Design Done: Applying ID Theory under Real World Constraints" might appeal to current instructional design students. It would also be interesting to know how many instructors among a typical training department's staff might be qualified to teach such classes.

Limitations

This study focused on extended interviews with practitioners that included referencing their artifacts to support their assertions about their views and use of theory in their work. As such, the entire account of the design and decision-making process came from a single perspective—that of the practitioner—after the fact. While the review of artifacts helped to verify the account, this approach is still limiting. In concert with the

suggestions for future research above, future research could attempt to provide a more immediate and holistic account of practitioner's practice of their craft. Direct observation and documentation of design activities and artifacts as they are created would be ideal. Interviews with other stakeholders, including clients, members of the target audience, peers, supervisors, and team members in non-instructional design roles could provide important insight and possible counter perspectives that do not appear in this study. Additionally, an intensive study of formal training environments and interviews with current instructional design students and their instructors could also provide important triangulation and insight regarding the impact of training on the views and use of theory by practitioners. Lastly, theorists also deserve a voice in this discussion and future research could review the accounts of their theories against practical criteria and/or attempt to interview the theorists themselves on the matter of the practical application of their theories and their view of the extent of their responsibility to make their work explicitly practical in the ways suggested by practitioners in this study.

Conclusions

The instructional designers interviewed, who represent some the diversity of the field, offered insight into the theory-practice split which, in turn, may provide some assistance to those seeking to move beyond this perennial problem. The experiences of these practitioners raise the possibility that once practitioners leave their training programs and start practicing their craft, their deep engagement with new research about theories may essentially end. Because of their practical orientation, they may only attempt to apply theories that were taught in such a way as to make their practical application explicit. Of these, only those that readily show practical impact in a relatively

short amount of time will become integrated into their practice. Once part of their practice, these theoretical ideas may face an onslaught of constraints that limit their implementation, including lack of time, budget, organizational vision, and limited access to the target audience and SMEs, which may lead to a truncation of the theoretical approaches applied to a given problem. With these powerful external pressures limiting a practitioner's use of theory, only the clearest, most agile, most ready-to-be-applied theories have a fighting chance. The time and effort it would take to unravel, interpret, and apply a theory that may be powerful, but inaccessible, and the resolve and the resources that would need to be committed to evaluate the outcomes to prove that the additional effort was justified may be virtually non-existent in most organizations.

If the theory-practice split in the field is indeed as significant as the study reported in this dissertation suggests, the following remedies may be appropriate:

1. Industry partnerships that create reference implementations of new theories in multiple contexts – Those government, educational, and private entities whose missions are to improve educational outcomes need to work in partnership with industry to create reference implementations of new theories in action in a variety of practical settings, with the accompanying evidence of improvement, that practitioners can consult and learn from.

2. Theories that adapt, rather than disintegrate, under practical pressures – Theories need to be constructed to be less brittle and more flexible under the pressures of the workplace. A theorist who develops a theory by testing it out in a single location or with a single type of subject matter while investing constant attention and intervention in the test location outside of the typical pressures of budget, time, and institutional buy-in

and then publishes it suggesting it has general application is simply being irresponsible. Theorists that seek impact and change need to provide guidance for how their theory plays out in multiple contexts and how, specifically, it can be adjusted to account for workplace constraints while still retaining its effectiveness. Wedman and Tessmer (1993) noted a similar weakness in most ID models. They report that they "do not allow for selective completion of ID activities and are not sensitive to the factors that influence designers' decisions to omit (or perhaps modify) some activities in a given design project" (p. 54).

3. ID training programs that allocate significant time for learners to apply theory in practical settings under expert theoretical guidance – A few ID training programs provide extensive experience for learners in practical settings under expert theoretical guidance, notably the ID master's programs at Indiana University, George Mason University (Bannan-Ritland, 2001), and the University of Twente in the Netherlands (Visscher-Voerman, Kuiper, & Verhagen, 2007). However, many programs lack an integrated, applied approach to theory and practice training. Increasing the attention and time allocated to this kind of experience could be a powerful way to reach across the theory-practice divide with a relatively small infusion of resources.

4. Professional development for practitioners that focuses on exemplary implementation of theory – Practitioners appear to be much more likely to implement that which they can see in action. Imagine an "examples only" conference where presentations were only accepted if they centered on examples of the successful implementation of theoretical ideas in a practical work setting.

It is these kinds of activities—activities that fully recognize and embrace the practical environment in which practitioners work—that appear to have the greatest potential for immediate impact and that can reduce the lag time between theory creation and the acceptance and application of those theories in the workplace. The overarching implication of this study is that the relevance of theoretical work to practitioners is directly impacted by the practicality of the theory in the hands of typical practitioners and that more measures, such as those listed above, can be readily implemented by theorists and by those who train and mentor practitioners to bring this about.

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Appendix

Interview Protocol

Session 1: Broad introductory questioning to obtain a general sense of the participant's lived experience as an instructional designer.

Start by trying to get a sense of the designer's professional background.

Why did you enter the field? How did you become trained as a designer? How long have you been doing instructional design and in what settings?

Try to obtain information on: age, education, years of experience in the field, employment history, and professional associations and organizations.

Now try to get a clear sense of their present job context and responsibilities.

Considering your recent work experiences, briefly describe your work activities in general—What do you do? What do you produce? For whom?

Now focus on a specific experience. Explain to them that you may interrupt them with questions and tell them why.

"Tell me about a recent project you worked on. Describe the experience from beginning to end. Please help me understand why you did it that way. As you talk, I'd like to interject questions about how you define terms, etc." **For descriptions provided by the participant, the interviewer might ask, "What is ___? Or "What does it mean to _____?" in order to clarify any aspect of the participant's description or explanation.**

4. Corollary Questions:

What guides your decision making in the design process? Do you follow any general procedures? If so, which ones? Why?

When you approach a new instructional problem, what helps you come up with a good solution?

What tends to hinder your work or lead to inferior products?

What are the main ways you evaluate your day to day work and your finished courses?

Discuss the primary ways that you involve technology in your work.

5. Anything the participant would like to add?

6. Ask the participant if we can see a course the next time we meet—the most recent

project they worked on. Ask for design documents also.

IMPORTANT: By the end of session 1, it should be clear whether or not the designer uses theory or templates (or both). If he uses theories, continue with this protocol. If he uses templates, switch to the template protocol for session 2 (see on p. 15). If the designer uses both, use whatever protocol (for session 2) is most appropriate.

Session 2: More specific questioning about practical involvement with theory. Try to get participants to *explicate* as much as possible—inquire into *how* they use theory (examples, particulars) and *why* (values, assumptions, tacit knowledge). If the designer doesn't use formal theory (explicitly), probe into why [tactfully].

1. Start by looking at a project they recently worked on.

a. Tell me about this course, including why it was made, audience, other stakeholders, situational constraints, etc.

b. How indicative is this of your work as a designer?

2. Try to connect this project with the participant's practical involvement with theory.

a. Tell me why you designed the artifact this way. What procedures, processes, strategies, theories, principles, etc. did you use? Why this combination of features? What guided your decision making? **[show us with artifacts]**

b. If the participant mentions theory or issues related to it, explore the issues with him or her. If theory doesn't come up, query into how the designer used theory (formal or personal) in designing the artifact.

3. Inquire into designer views and uses of theory more generally:

a. What do you think of theory in general? **Useful or not? How so? Examples?**

b. **Eclectic? Pragmatic?** If eclectic, probe further—why eclectic or pragmatic? What guides the selection of theories for certain tasks?

c. Could formal theory be improved in some way? **How?**

d. Does technology ever constrain how you design or use theory? **How so?**

4. Query into the designer's possible use of personal theories.

a. Have you developed any of your own personal theories, views, or principles about how to design instruction? If so, describe some? Why useful?

5. Training Questions:

Any training with theory—if so what was it like?

Continued professional development (including theory)?

Could the theory training have been made more helpful? **Why? How so?**

6. Possibly invite the participant to write about how he uses theories/models, based on the two prior interviews. **(See writing prompt)**

Session 3: Concluding session that allows us to have a more complete data set and discuss preliminary themes.

Follow-up issues to consider as we close:

1. Follow up on unresolved issues, interesting leads, and unanswered questions from prior sessions, etc.

2. Were there discrepancies between the participants' statements and the artifacts analyzed? Inquire further—why?

3. Do we have a rich sense of the participant's lived experience as a designer?

4. Do we have a clear sense of how the participant views and **uses** theory?

5. Do we have a clear sense of how technology may or may not facilitate the participant's work—and their application of theory in particular?

6. Do we have a sense of the participant's background and education, including training with theory?

7. Is there anything the participant would like to add?

Discuss Preliminary Themes with Participants:

1. With the participant, review the tentative themes that we identified through our preliminary data analysis. Does the participant agree with our themes? Does he or she suggest revisions, additions, or deletions?

2. Ask the participant to reflect on the interviews and, if possible, identify insights about tacit knowledge and implicit assumptions that came to them as they answered questions—for example: we might ask: “Did answering any of the questions help you understand more clearly what you often do without thinking much about it? What are some examples?” **(If needed, offer the participant a chance to write about this topic; see writing prompt.)**

Session 2 Protocol if Templates are Used

Session 2: More specific questioning about template use and its possible connection with theory.

1. Start by looking at a project they recently worked on.

a. Tell me about this course, including why it was made, audience, other stakeholders, situational constraints, etc.

2. Try to connect this project with the participant's use of templates.

a. Tell me why you designed the artifact this way. What procedures, processes, strategies, theories, principles, etc. did you use?

b. If the participant mentions templates, have him or her explain why particular templates were used. What strategies were involved in the selection and use of templates, etc.?

c. Also, ask the participant about the nature of the templates—who designed them, was theory involved in their design? For what purpose?

3. Inquire into designer views and uses of theory more generally:

a. What do you think of theory in general? **Useful or not? Examples?**

b. Are some theories particularly helpful in certain ways—examples? **How so?**

c. **Eclectic? Pragmatic?** If eclectic, probe further—why eclectic or pragmatic? What guides the selection of theories for certain tasks?

d. Could formal theory be improved in some way? **How?**

4. Query into the designer's possible use of personal theories and/or templates.

a. Have you developed any of your own personal theories, views, or principles about how to design instruction? Have you developed any of your own templates?

If so, describe some. Why useful?

5. Training Questions:

a. Any training with theory—if so what was it like?

b. Could the training have been made more helpful? **Why? How so?**

c. Should formal theory even be included in training? **Why, How so?**

6. Possibly invite the participant to write about how he uses theories/models or templates, based on the two prior interviews. (See writing prompt on the following page)

Session 2 Writing Prompt

Please describe your experience of using theory to design instruction as you have done so or lived it. Your description can involve the application of a formal theory, the mixing of various formal theories, or the use of your own personal theories and assumptions about learning, instruction, design, etc. Please provide details from one or more specific design situations, including constraints and problems you may have faced, the ways you applied a theory (or theories) to produce a product, the reasons for your choices, the steps involved in the process, and your assessment of the experience (what you liked and disliked about the experience, how practically useful the theory was, etc.).

Session 2 Writing Prompt (for TEMPLATE use)

Please describe your experience of using templates to design instruction as you have done so. Please provide details from one or more specific design situations, including the problems you faced, the process of choosing, modifying, and applying templates (as applicable to your situation), the reasons for your choices and modifications, other factors that influenced the design process (e.g., your assumptions, your training, organizational structure and expectations, theoretical preferences, etc.), and your assessment of the experience (what you liked and disliked about it, how practically useful the templates were, etc.).

Session 3 Writing Prompt

Sometimes, but not always, participants in interview-based research have new insights about their activities and views as they answer the questions. In our three interviews with you, did you arrive at any insights about how you approach instructional problems, design courses or other learning resources, use technology, evaluate your

work, etc.? That is, did you come to any realizations regarding the way you do things that you hadn’t thought about prior to the interviews? If so what were some of these realizations?

Appendix B

Audit Trail Flowchart