

Survey and Case Study Analyses of the Professional Preparation of
Instructional Design and Technology (IDT) Graduates for Different Career Environments

Miriam Bender Larson

Virginia Polytechnic Institute and State University

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Dr. Barbara Lockee, Chair
Dr. John Burton
Dr. Kathy Cennamo
Dr. Kenneth Potter
Dr. Peter Doolittle
Dr. Elizabeth Creamer

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ABSTRACT

Instructional Design and Technology (IDT) professionals practice their skills in a broad range of career environments and job roles. Each career environment has lists of competencies and unique knowledge and skill requirements that may or may not be communicated to students, since IDT programs do not typically distinguish themselves as preparing students for specific career environments. Not much has been written concerning how, and how well, IDT programs are preparing students for professional practice in different career or work environments. This study utilized a mixed method approach to carry out a two phase study. In Phase I, current IDT practitioners were surveyed concerning the match between their preparation program and their IDT work experience, and their opinions of exemplary programs for preparing students for their career environment.

Respondents to the survey indicated that they felt *somewhat* to *fully prepared* for general instructional design practices, but over 25% felt that their program was not adequate for preparing them for the cultural aspects of their career environment. Survey respondents identified Indiana University (Bloomington) and Florida State University (Tallahassee) as top exemplary programs for preparing graduates for practicing instructional design for a variety of career environments. Phase I results informed Phase II of the research, which consisted of a case study of the Instructional Systems program at Florida State University.

The case study identified the philosophies of educators at an exemplary program, the experiences those philosophies were based on, and specific ways the program instantiated those philosophies. Educators at Florida State use a pragmatic combination of situated methods and strategies that enable students to develop expertise through participation in communities of practice relevant to their career goals. The study concluded that, with respect to career environment preparation, the best approach to IDT preparation is a generalist approach that provides flexibility in coursework selection so that students can obtain coursework and authentic experiences to prepare them for the career environment of their choice.

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CHAPTER 1 - INTRODUCTION

Instructional Design and Technology (IDT) students enter a broad range of career environments and positions following graduation, including higher education, K-12 education, business and industry, the government or military, and other entities such as non-profit organizations and the health professions. Within each of these career environments, the position possibilities range from instructor, trainer, curriculum designer, and instructional designer, to human performance technologist (Stolovitch & Keeps, 1992). A wide range of practices, requirements, and competency lists exist for these career environments and the positions and roles within them (AECT, 2000; Richey, Fields, & Foxon, 2001).

A survey of IDT academic program descriptions reveals that despite the range of career possibilities in the field, there is no standard for how programs address these differences in their curriculum offerings (Fitzgerald, Orey, & Branch, 2002; Johnson, 1995). While many institutions offer IDT program options designed to meet the needs of students with differing career goals, a prospective student would have to do additional research, beyond the general resources that list IDT programs, to determine how this is accomplished at specific institutions (Fitzgerald, et al., 2002; Johnson, 1995).

For the past twenty years, a large portion of “instructional design (ID) practice has occurred within the private sector, primarily in business and industrial settings” (Richey & Morrison, 2002, p. 198). The content, culture, and value systems of such settings differ significantly from that of higher education where IDT students receive their formal training (Tasker & Packham, 1993). Outside of competency lists, which indicate some of the differences that might be reflected in course requirements, a review of the literature yields very little

concerning how IDT students should be prepared to enter different career environments. There are few guidelines and no established differential models available to guide concerned faculty wishing to prepare their IDT students to be successful in career environments other than academia.

A few institutions describe their IDT programs as preparing students to practice in a variety of work environments (Fitzgerald, et al., 2002). Is differentiation between career environments or goals needed in IDT preparation programs, and if so, how is it or should it be addressed?

Approach and Purpose of Study

This study proposes a mixed methods approach to gather information from two sources – current IDT practitioners and IDT programs – to identify how, and how well, IDT programs are preparing students for professional practice in different career environments. The researcher will survey IDT practitioners to identify issues of preparation program content, context, and methods that were well-matched to the career environment of their professional practice, as well as to solicit their opinions on programs that provide exemplary IDT preparation for their particular career environment. The researcher will then use the exemplary ratings from the practitioner survey to select IDT programs for further case study research. The case studies will be designed to identify – through in-depth interviews, focus group sessions, and document analyses – what exemplary IDT programs are doing to prepare students for different career environments, the philosophies of IDT educators regarding preparation for specific career environments, and the experiences upon which they base their philosophies. The intent of this research is to lay the

foundation for future research that could potentially culminate in a model of IDT preparation for different career environments.

The following review of literature will attempt to frame the study by identifying competency standards and practices for the different IDT career environments, the existing literature on academic IDT preparation programs, and any studies relating to the preparation of IDT professionals for specific career environments.

Definitions

Career environment. The public or private sector work setting that employs IDT graduates, including higher education, business and industry/corporate, K-12 education, government, military, health care, non-profit, and others.

Competency. The set of behavior patterns which are needed to allow a person to perform a task and functions with superior performance (Woodruffe, 1993). Also, a knowledge, skill or attitude that enables one to effectively perform the activities of a given occupation or function to the standards expected in employment (Richey, et al., 2000).

Educational/Instructional Technology. The theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning (Seels & Richey, 1994). The terms ‘educational’ and ‘instructional’ will be used interchangeably in this document.

Human Performance Technology (HPT). “The science and art of improving people, process, and performance...a set of methods and procedures, and a strategy for solving problems, or realizing opportunities related to the performance of people. It can be applied to individuals, small groups, and large organizations” (Van Tiem, Moseley, & Dessinger, 2001, p. 2-3).

Human Resources. “The *people* part of organizations” (Van Tiem, et al., 2001, p. 350).

Human Resources Development (HRD) involves the integrated use of training and development, organization development, and career development to improve individual, group, and organizational effectiveness” (ASTD, 2003).

Instructional Design and Technology (IDT). The field that encompasses (a) the analysis of learning and performance problems, and (b) the design, development, implementation, evaluation, and management of instructional and non-instructional processes and resources intended to improve learning and performance in a variety of settings, including educational institutions and the workplace. Professionals in the field often use systematic instructional design procedures and employ a variety of instructional media to accomplish their goals (Reiser, 2002a).

CHAPTER 2 – REVIEW OF LITERATURE

A literature review was undertaken on the following topics to provide the information necessary to inform the study:

1. *IDT practice*, including the career environments where professionals are employed, their job roles and the competencies required for successful IDT practice.
2. *IDT change*, including major changes that are occurring in the IDT field in epistemology, learning theory, and design practice, and changes in IDT practice due to changes in the work world and society as a whole.
3. *IDT professional preparation*, including a brief history of professional preparation, and the content, context, and methods of current professional preparation.

The review concludes with a synthesis, statement of the problem, and the study research questions.

IDT Practice

The professional practice of IDT is carried out in a variety of career environments. Within each environment, an IDT professional has a choice of job roles from which to choose. Finally, for each job role within an environment, there are specific competencies defined for effective IDT practice.

The literature is full of references to competencies, tasks, functions, roles and jobs that relate to the IDT practitioner. For the purposes of this study, the relationship between these concepts is defined as follows:

1. *tasks* are actions that involve data, people and things;
2. several tasks go together to form a *competency*;

3. clusters of competencies form a *function* or *role*; and a set of interrelated functions is referred to as a *job* (Chisholm & Ely, 1976; McLagen, 1997).

Career Environments

IDT is practiced in a variety of career environments including business and industry, higher education, K-12 education, government, military, health care, and non-profit environments. In a recent update on the field of educational technology, Ely (2000) reported that instructional or educational technologists are employed:

...in schools and colleges as directors of resource centers and developers of curriculum materials...by training agencies in business, industry, government, the military, and the health professions...,” and in colleges and universities where they are “...involved in instructional improvement programs that use a variety of technologies (p. 24).

Rasmussen (2002) also reported a variety of positions, as well as team roles, that IDT professionals can fill depending on their training and expertise.

There have been a few studies whose focus was primarily to compare IDT practice or competencies by career environment (Barnum, 1979; Byun, 2000; Branch, Moore, and Sherman, 1988; Moallem, 1995). In addition, researchers have frequently looked at whether other factors in their studies correlate to the career environment or setting.

These researchers have used many different categorizations of IDT jobs, such as (a) business and industry, (b) government and military, and (c) university/college/school district (Moallem, 1995); or (a) corporate, (b) education, and (c) non-profit/government/ military (Byun, 2000). Still others categorize career environment as (a) education, (b) business and industry, and

(c) government and military, or some combination of those categories within the catch-all category *other* (Barnum, 1979; Heideman, 1991; Moallem, 1995).

The present study makes use of four categorizations commonly identified in the literature, but will consider K-12 education separately due to recent questions concerning the use of IDT in K-12 settings (Kemp, 2003, G. Morrison, personal communication, February 20, 2002):

1. Business and Industry
2. Higher Education
3. K-12 Education
4. Government/Military

The percentage of IDT professionals reported as working in each career environment varies by the source cited. Unfortunately, it appears that this information is not currently being officially collected from recent graduates by any organization or individual (M. P. Driscoll, J. Harriman, P. Harris, M. Molenda, D. Neuman, C. Stoddard, personal communication, March 31, 2003-April 3, 2003). Some institutions do attempt to at least be aware of the percentages. For example, Florida State University educators estimate that from 80 to 90% of their masters graduates take positions in business and industry and the majority of their doctoral students go into academic settings (M. P. Driscoll, personal communication, April 3, 2003).

Other sources claim that the majority of instructional design positions are in business and industry (Reiser, 2002b). Kemp (2003) writes “It is interesting to note that the majority of graduates from our IT college programs are employed in other than educational organizations” (p. 58). In Byun’s (2000) study of five year’s of job announcements emailed to the instructional technology department of a large research university, the breakdown by career environment was

more balanced. He reported that 50% of the job announcements analyzed were in education, 44% were for corporate positions, and 6% were for jobs in non-profit/government and military settings.

A 1999 membership survey of the Association for Educational Communications and Technology (AECT) indicated that 83.5% of respondents reported working in K-12 schools, K-12 support agencies, and post-secondary schools, while only 9.1% reported working in business/industry (Pershing & Lee, 1999). The same study listed percentages of 1.6 % for non-profit career environments, 0.7 % for government, 0.2 % for military, and 4.7 % for other (Pershing & Lee, 1999). These figures, of course, reflect AECT's total membership and not just recent graduates. The data illustrates that AECT's membership is primarily in education.

Consequently, the discrepancy in figures between sources is often a result of the population and sample selected. The nature of AECT's membership was a major factor in the figures their survey reported. Two other popular IDT professional organizations, ISPI and ASTD, are geared toward professionals in business and industry. If they were to collect figures on career environment, the percentages would probably support Reiser's (2002b) contention that the majority of IDT positions are in business and industry.

In a review of the job roles and positions represented by the membership of several professional organizations, Heideman (1991) reported that the primary focus of American Society of Training and Development (ASTD) members' activities was management development and organizational training and development. For the National Society of Performance and Instruction (NSPI), he found that the membership focus was principally on performance technology as applied within industrial training environments. Figure 1 provides a listing of the most common professional organizations joined by IDT professionals, with a

description of their membership as stated on the organization's website. A closer look at the mission statements in this list indicates that AECT is the only professional organization that does not indicate the work environment of its members in its mission statement.

IDT practice varies across career environments and within career environments. Usually, the variation within career environments is due to the different job roles or positions available to the IDT professional.

	Organization	Mission/Purpose
AASL	American Association of School Librarians www.ala.org/	A national organization whose mission is to advocate excellence, facilitate change, and develop leaders in the school library media field.
ASTD	American Society for Training and Development www.astd.org/	A national organization of training and development professionals concerned with workplace learning and performance, whose mission is to provide leadership to individuals, organizations, and society to achieve work-related competence, performance, and fulfillment
AECT	Association for Educational Communications and Technology www.aect.org	A professional organization whose mission is to provide leadership in educational communications and technology by linking professionals holding a common interest in the use of educational technology and its application to the learning process.
ibstpi	International Board of Standards for Training, Performance and Instruction www.ibstpi.org	A professional service organization for the instructional design, training, and performance improvement communities. The Board of 15 professionals from universities, government, large business and consulting firms & serves these communities through research, publications and conferences. It is an outgrowth of the Joint Certification Task Force formed by AECT and ISPI.
ISPI	International Society for Performance Improvement www.ispi.org	An international society dedicated to improving productivity and performance in the workplace, whose mission is to develop and recognize the proficiency of members and advocate the use of Human Performance Technology.
ISTE	International Society for Technology in Education www.iste.org/about	A nonprofit, international professional organization for professionals in the field of educational technology, dedicated to promoting appropriate uses of information technology to support and improve learning, teaching, and administration in K–12 education and teacher education.
NCATE	National Council for the Accreditation of Teacher Education www.ncate.org	A national coalition of 33 specialty professional associations of teachers, teacher educators, content specialists, and local and state policy makers committed to quality teaching through the improvement of teachers, educational leaders, other professional specialists, and teacher preparation programs.
NSPI	National Society for Performance and Instruction www.ispi.org	A national organization founded in 1962 as the National Society for Programmed Instruction, this society changed names and focus first to the National Society for Performance and Instruction, and finally to the International Society for Performance Improvement (see ISPI in this chart).
SITE	Society for Information Technology and Teacher Education www.aace.org/site/default.htm	An international association of individual teacher educators, and affiliated organizations of teacher educators in all disciplines, interested in the creation and dissemination of knowledge about the use of information technology in teacher education and faculty/staff development.

Figure 1. Organizations related to IDT professions.

Job Roles

The literature refers to many different positions that IDT professionals can take when they enter professional practice. Many of these job roles are similar across career environments. Richey and Morrison (2002) wrote that there are three broad categories of roles that an instructional designer may take in a corporate setting: sole designer, team member/leader, and consultant (working with subject matter experts and clients to develop solutions).

Within higher education, two broad categories of positions are available: the traditional IDT faculty position and service positions (Surrey & Robinson, 2001). Academic positions include instructors, professors and deans. The most common service positions in Higher Education were identified in a taxonomy of these positions by Surrey and Robinson (2001), including instructional technologist, instructional designer, distance learning coordinator, instructional technology manager/administrator, technical support specialist, WWW specialist, and instructional technology librarian.

In determining a career direction, IDT students will have to decide what type of career environment and job roles best suits their values, goals and competencies. The relationship of job roles to three career environments is illustrated in Figure 2. For each IDT career environment and often for each job role, acceptable and exemplary performance is defined through the use of competencies. These competencies have been developed and refined over the years by professional organizations that serve to advance the field through competency studies and sponsorship of research. Certain core competencies are common to the field as a whole, while others are specific to career environment or job role.

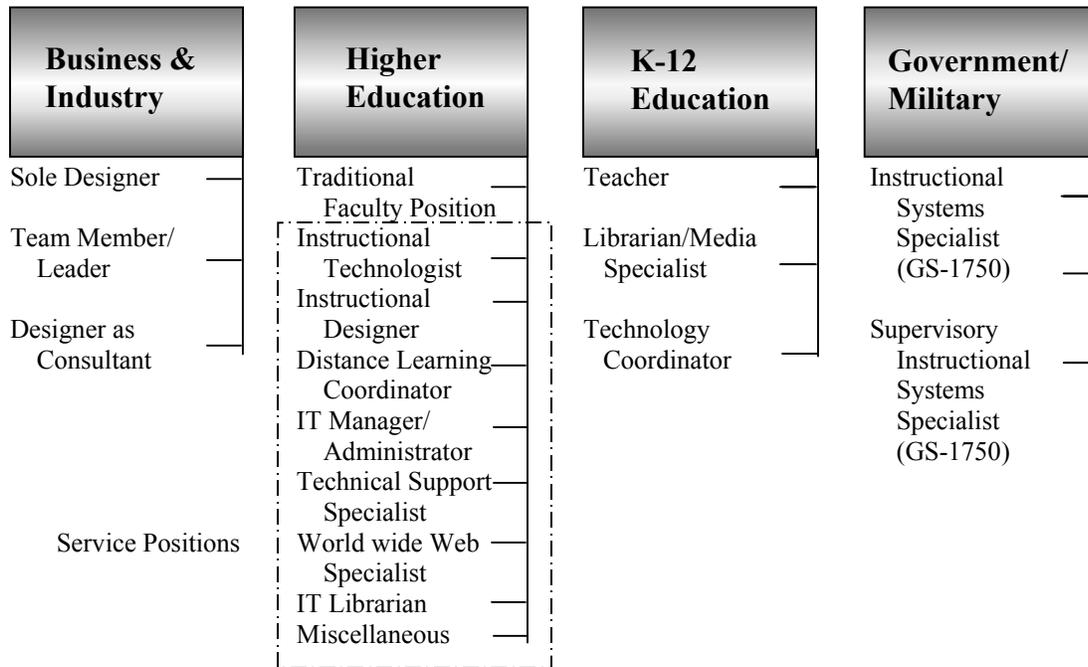


Figure 2. Job roles within four career environments. (Richey & Morrison, 2002; Surry & Robinson, 2001; United States, 2003; Waterhouse, 2001)

Competency Defined

Competency modeling is the analysis or documentation of capabilities. The practice was begun in the 1960s and 1970s by Harvard psychologist David McClelland for the purpose of identifying and predicting successful job performance (Byun, 2000). Since the 1980s, the word “competency” has been used to define almost anything that might directly or indirectly affect job performance (Woodruffe, 1993). Competencies are often confused with actual job roles; however, they are more closely associated with the way in which the activities in those roles are performed. IBSPTI (International Board of Standards for Training and Performance Improvement), in their latest edition of instructional design standards, defines competency as “...a knowledge, skill, or attitude that enables one to effectively perform the activities of a given occupation or function to the standards expected in employment” (Richey, et al., 2001, p. 31).

Woodruffe (1993) emphasized that competencies should indicate “superior....ways of behaving that some people carry out better than others...,” (p. 32) and as being “...oriented to the future – as conditions change, so do the competencies” (p. 36). Finally, Berge, de Verneil, Berge, Davis, and Smith (2002) define a competency as “a cluster of related knowledge, skills, and attitudes that correlates with effective job performance, can be measured and evaluated, and that can be improved through training and development” (p. 45).

Why are competencies important to IDT practice? Rasmussen (2002) stated that “...one of the most important components in the development of a profession is a common, standard set of competencies for the profession” (p. 376). She also identified the purposes for such competencies, including:

1. to provide the basis for a common language to discuss instructional technology
2. to permit a definition of the field and a structure by which to view it
3. to provide IDT professionals with a standard for evaluating products, performance, professional development, and position descriptions
4. to provide educators with guidelines for educating future IDT professionals. Moallem (1995) concurs with this, indicating that competency studies are needed to provide the conceptual framework for program development.
5. to provide IDT students with a “big picture of the tasks” they might accomplish as professionals, a structure by which to interpret the field, and a guide for designing their program of study to insure that they have the skills that align with their career goals (p.381, 383).

One final purpose for which competencies are used is as “...a means of explaining to consumers of ID[T] services and development team members what ‘value added’ an ID[T] practitioner can

bring to a project” (Richey, et al., 2001, p. xix). The literature illustrates that competencies serve many purposes. Obtaining a common set of competencies for the profession is a matter of surveying the competency lists.

Core IDT Competencies

Obtaining Rasmussen’s “common, standard set of competencies for the profession” (2002, p. 376) is a challenge, however, due to the number of different competency lists available. Most of the professional organizations listed in Figure 1 have published their own list of competencies that reflects the job responsibilities, work environment and education of their membership (see competency lists developed by various organizations in appendices A through G). However, certain core IDT competencies common to all the organizations can be identified. Rasmussen (2002) reports that “typical IDT professionals have a broad skill bank on which to draw,” (p. 377), and while most professionals do not use *all* of the skills that their academic training prepares them for, this “general knowledge provides IDT professionals with broad field knowledge and skills that ... permit them to meet individual job requirements” (p. 376).

Definitions of the IDT field, standards, and lists of competencies have been in development since the 1970s (Rasmussen, 2002). Organizations such as the Association for Educational Communications and Technology (AECT), the National Council for the Accreditation of Teacher Education (NCATE), and the International Board of Standards for Training, Performance, and Instruction (note that the correct abbreviation is lowercase, *ibstpi*), have supported the practice and development of the IDT profession by publishing standards for the field that list core competencies for IDT professionals (e.g., AECT, 2000; Richey, et al., 2001). Other professional IDT organizations that contribute to the literature concerning IDT

competencies include the International Society for Performance Improvement (ISPI), the American Society for Training and Development (ASTD), International Society for Technology in Education (ISTE), Society for Information Technology and Teacher Education (SITE), and the Society for Applied Learning Technology (SALT) (Klein, 2002). Figure 1 gives a description of these organizations.

After reviewing early competency lists and the current lists published by the AECT/NCATE and ibstpi, Rasmussen (2002) identified seven interrelated domains of IDT tasks: (a) professional foundations (including research and theory), (b) planning and analysis, (c) design, (d) development, (e) utilization, (f) evaluation, and (g) management (p. 377).

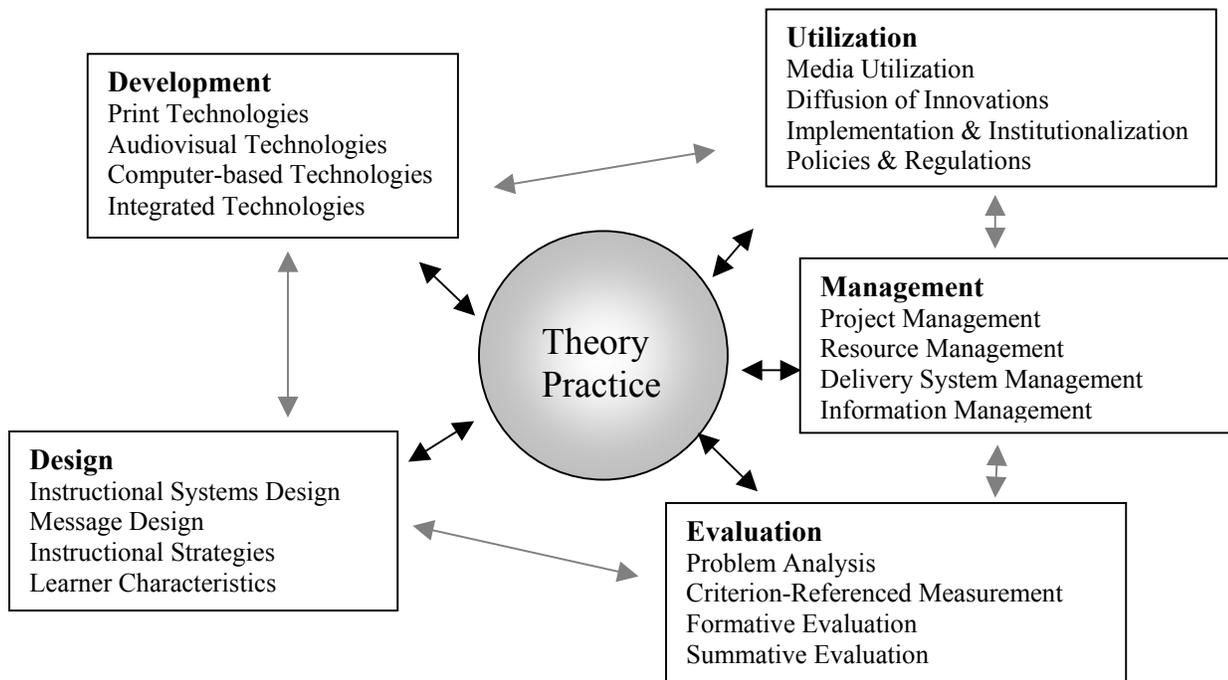


Figure 3. AECT Domains & Sub-domains of the IDT Field, from the NCATE Program Standards for Initial & Advanced Educational Communications & Technology Programs. (AECT, ©2000)

The AECT/NCATE domains of competencies model, shown in Figure 3, was developed to provide standards for academic programs preparing IDT professionals. The model has five

domains and 20 sub-domains, and allows programs to be composed of “those competencies most appropriate to the intended roles of the degree candidates” (AECT, 2000, p. 19). The model illustrates five of Rasmussen’s seven domains and is an accepted model in the IDT field. The other two domains that Rasmussen identified are included under other AECT domains in the model (Rasmussen, 2002).

Figure 4 places the AECT/NCATE and ibstpi competencies side by side to illustrate the range of core competencies for the field (AECT, 2000; Richey, et al., 2001). In both sets of standards, competencies are identified by level of experience. The AECT/NCATE standards list competencies for students completing “initial” or “advanced” IDT programs of study. The division of competencies by experience level parallels a distinction that Woodruffe (1993) made between threshold and performance competencies. *Threshold* competencies are the basic requirements for carrying out a job, while *performance* competencies differentiate between high and low performers. Similarly, in the ibstpi standards, competencies are identified as essential or advanced. *Essential* competencies are specific skills and knowledge that every instructional designer is expected to master, and *advanced* competencies are skills and knowledge that only the most experienced and expert designers would be expected to master (Richey, et al., 2001).

Competencies that are specifically emphasized in each career environment are highlighted in the section of this literature review entitled “IDT Professional Preparation – Content.”

ibstpi Competency Areas	AECT/NCATE Competency Domains
<p><i>Planning & Analysis</i></p> <ul style="list-style-type: none"> • Conduct needs assessments • Design programs/curricula • Use a variety of techniques to determine instructional content • Identify & describe target population characteristics • Analyze characteristics of the environment • Analyze characteristics of existing & emerging technologies & their instructional functions • Reflect on situation prior to finalizing design 	
<p><i>Design & Development</i></p> <ul style="list-style-type: none"> • Select, modify or create ID models for projects • Use a variety of techniques to define & sequence instructional content & strategies • Select/modify existing instructional materials • Develop instructional materials • Design instruction reflecting an understanding of the diversity of learners & groups of learners • Evaluate & assess instruction & its impact 	<p><i>Design</i></p> <p>Candidates demonstrate the knowledge, skills, & dispositions to design conditions for learning by applying principles, theories, & research associated with...</p> <ul style="list-style-type: none"> • Instructional Systems Design (ISD) • Message Design • Instructional strategies • Learner characteristics
	<p><i>Development</i></p> <p>Candidates demonstrate the knowledge, skills, & dispositions to develop instructional materials & experiences by applying principles, theories, & research related to...</p> <ul style="list-style-type: none"> • Print technologies • Audiovisual (A/V) technologies • Computer-based technologies • Integrated technologies
<p><i>Implementation & Management</i></p> <ul style="list-style-type: none"> • Plan & manage ID projects • Promote design team collaboration, partnerships, & relationships • Apply business skills to manage ID • Design instructional management systems • Provide for effective implementation of instructional products/programs 	<p><i>Utilization</i></p> <p>Candidates demonstrate the knowledge, skills, & dispositions to use processes & resources for learning by applying principles, theories, & research related to...</p> <ul style="list-style-type: none"> • Media utilization • Diffusion of innovations • Implementation & institutionalism • Policies & regulations <p><i>Management</i></p> <p>Candidates demonstrate the knowledge, skills, & dispositions to plan, organize, coordinate, and supervise instructional technology by applying principles of ...</p> <ul style="list-style-type: none"> • Project management • Resource management • Delivery system management • Information management
	<p><i>Evaluation</i></p> <p>Candidates demonstrate the knowledge, skills, & dispositions to evaluate the adequacy of instruction & learning by applying principles, theories, & research related to...</p> <ul style="list-style-type: none"> • Problem analysis • Criterion-referenced measurement • Formative & summative evaluation • Long-range planning
<p><i>Professional Foundations</i></p> <ul style="list-style-type: none"> • Communicate effectively in visual/oral/written form • Apply current research & theory to ID practice • Update & improve ID knowledge, skills & attitudes • Apply research skills to ID projects • Identify & resolve ethical & legal implications of ID in the workplace 	

Figure 4. Comparison of ibstpi and AECT/NCATE Competencies. (AECT, 2000; Richey, et al., 2001)

IDT Change

“Like the technology a designer learns to manipulate, the requirements of an instructional designer are also evolving to encompass new possibilities, both tangible and theoretical” (Liu, Gibby, Quiros, & Demps, 2002). Change has characterized the IDT field from its genesis. Due to the nature of technology and the number of disciplines that affect IDT practice, IDT has continually sought to establish its identity. This problem extends beyond the field, however, and research has noted the difficulty practitioners and students have in articulating what they do for a living (Sugar & Betrus, 2002). Over the past decade, change has touched the very foundations of the field (Hannafin & Hill, 2002).

To illustrate, recent alternatives to the traditional epistemological and theoretical foundations, to the practice of ID, and to the broader field of education and training have had implications for design practice and, consequently, for IDT preparation programs (Hannafin & Hill, 2002). That there are challenges related to change, however, is not a new phenomenon.

Over twenty years ago, Spitzer (1981) wrote that the training field was evolving rapidly, and professional preparation and continuing development programs were not adequately meeting the needs of the profession. A few of the problems he encountered in attempts to educate future training professionals still apply today: (a) the field is ill-defined – there is a true identity crisis in the profession reflected in educational programs that are trying to educate everybody and teach everything; (b) there is no unifying philosophy in the field – even the idea of systematic instructional design is being challenged today; and (c) educational programs are not designed to teach the skills needed by the performance technologist (a closely related job role). He went on to identify some of the causes for difficulty in addressing these problems, including difficulties

over resolving key philosophical issues, the amount of time it takes to make changes in academic settings, and lack of consultation between institutions and departments (Spitzer, 1981).

Changes in Epistemology, Learning Theory and Design Practice

Epistemology and learning theory. Agreement on key philosophical issues, as identified by Spitzer (1981), continues to be a problem today (Liu, et al., 2002). In recent years, new challenges have been leveled at the epistemological and theoretical foundations of the field. The *epistemology* of a field deals with the nature of knowledge, beliefs, and understandings and how knowledge is acquired. *Epistemology* can be defined as the study of knowledge and the relation between the one who knows and the object known. In the literature, epistemology is often referred to as one's "world view." Beliefs about knowledge and how one learns ultimately impacts educational practice.

Beliefs about the nature of truth and reality (ontology) and how the learner comes to know (epistemology), are the foundation of all learning theories. When selecting these learning theories, then, instructional designers should consider their own epistemological perspective, as well as the perspectives of the target learners. The choice of theory should, in turn, influence the choice of instructional design model.

This topic is extremely complex, however, due to the variety of epistemologies and learning theories available. In an attempt at simplification, some claim that the main epistemological perspectives of the IDT field are positivist and relativist epistemologies. (Note that some educators use the terms *subjectivism* and *relativism* interchangeably even though they represent different epistemologies.) These same theorists claim that the field of instructional design and technology originally grew out of the *positivist* epistemologies popular during the

beginning and middle of the twentieth century (Hannafin & Hill, 2002; Hakkinen, 2002). They further claim that early instructional designers chose design methods and strategies that emphasize the transmission of knowledge from a knowledge-giver (typically an instructor) to a learner. According to Hannafin and Hill (2002), two of the major categories of learning theories commonly used in IDT, behaviorism and cognitivism, reflect early objectivist epistemologies.

However, other authors in the instructional design literature disagree and their arguments are well presented and backed by convincing documentation. Hannafin and Hill's (2002) claims can be contrasted with claims that behavioral learning theories originated in functionalist, structuralist, or empirical epistemologies (Burton, Moore, & Magliaro, 1996).

The variety of viewpoints on the subject can confuse the issue for instructional design students, who must sort out their own beliefs concerning the nature and process of knowledge acquisition. Students should be counseled to make a habit of going to the original writings of a theorist for clarification. For example, students should read behavioral theorist B.F. Skinner's books prior to quoting contemporary authors who claim that Skinner did not account for the effects of social interaction in his theory (Skinner, 1974).

New theories continue to be introduced for the use of instructional designers. The last few decades have seen the emergence of constructivist theoretical ideas based on a more relativist perspective (Driscoll, 2000). *Relativists* believe that knowledge is not absolute, but rather consists of what an individual constructs. Relativist designers use methods that foster and assist the learner in constructing and refining individual representations and personal understandings (Hannafin & Hill, 2002).

Situated learning theory is yet another newcomer to the field that represents a significant shift in how a designer views and develops instruction (Brown, Collins, Duguid, 1989). Situated

learning places greater emphasis on the social and cultural determinants of learning than it does on individual psychology, which is a key feature of behaviorist and cognitivist theories. Situated theorists view learning as occurring through participation in the practices of a community, and they emphasize that the strength of the theory is in the integration of knowing with doing (Driscoll, 2000).

Situated learning theory is often described as falling under the umbrella of constructivist theory. This view is controversial, however, since the concepts behind situated theory are not new and can be traced back at least as far as ideas promoted by John Dewey (1933), the famous educational theorist who is claimed by both social behaviorists and social constructivists.

Instructional designers may subscribe to any of a wide variety of epistemologies, but during the course of their career they may be called upon to design instruction using a theory that is in direct opposition to their own epistemological beliefs. Therefore, Hannafin and Hill (2002) contend that it is important for IDT students to “recognize the utility of various approaches and perspectives and understand key foundations and assumptions” (p. 74), so that they can produce instruction that is “grounded”. What is grounded design? It “is not the specific epistemological perspective or design framework employed, but the correspondence between the perspectives and frameworks and the design practices that link them” (Hannafin & Hill, 2002, p. 75). In other words, the theory used and the strategies employed should reflect the epistemological foundations of that theory.

Students of IDT must, therefore, investigate their own beliefs and design accordingly. Many educators believe that students of IDT should also be encouraged to study and experiment designing with different learning theories, claiming that a repertoire of several theories enhances the tools at a designer’s disposal (Hakkinen, 2002). Furthermore, IDT students are wise to take

advantage of opportunities to dialogue with senior members of their community of practice (their professors) while they have direct access to them. If students of instructional design know the theories, are fluent in their application, and are aware of their philosophical origins (and disagreements concerning those origins) they will be less likely to violate foundational assumptions in their design.

Changes in design practice. The core of the field of instructional design and technology is formed by two practices: the use of systematic instructional design procedures and the use of media for instructional purposes (Reiser, 2002a). The first practice, systematic design procedures, has traditionally been accomplished using systematic design models like the ADDIE model which features the stages of Analysis, Design, Development, Implementation, and Evaluation (Thomas, Mitchell, & Joseph, 2002).

Recently, critics of the traditional design models have questioned whether they are practical for the quick turn-around demanded by the faster pace of today's design world (Tessmer & Wedman, 1990). In response to this concern, the field has turned to alternatives to streamline the design process (Piskurich, 2000). Rapid prototyping is a design and development model that decreases the time required for needs and task analysis up front by shifting those critical tasks to repeated cycles of assessment, evaluation and revision throughout the design process (Piskurich, 2000).

Electronic performance support systems (EPSS) are another alternative that provide online job aids, support tools and information systems designed to assist users with workplace performance (Sherry, 1996). Performance support systems are network-based knowledge systems designed to deliver just-in-time interventions (just when the support is needed) to individuals or groups (Julian, 2001; Piskurich, 2000; Rossett, 1990; Rossett, 1999).

Others have made adjustments to the traditional models to increase their utility, flexibility, and adaptability to situations where time and resource constraints are a concern. Wedman and Tessmer (1993) developed the *Layers of Necessity model* that “proposes that designers create one or more layers of instructional design activities to fit the necessities (resources and constraints) of their design situation” and describes “pressure, load and payoff factors that influence instructional design decisions” (p. 54). The *Layers of Necessity model* was developed to address the concerns of critics who claimed that the traditional models were based on three faulty assumptions:

- 1) all activities prescribed by the model will be completed,
- 2) each activity will be completed before proceeding to a subsequent activity, and
- 3) each activity will be completed to the same degree of precision regardless of time constraints or the necessity to complete the activity (Wedman & Tessmer, 1993, pp. 53-54).

Wedman and Tessmer (1993) indicated that the key to using their model lies in a realistic assessment of the time and resource constraints for a particular instructional design and development (IDD) project. They underscore that the adage “Better-Cheaper-Faster – Pick two” (p. 85) is an accurate one for those producing instructional design projects within time and resource constraints.

Additional critics have challenged the basic effectiveness of the traditional models and procedures (Rowland, 1995). They point out that the process does nothing to facilitate deep rather than surface learning, that the methods and products developed tend to be convergent and reductionist in nature, and that the models are externally directed and content-driven and therefore instruction-centered rather than student-centered (Hakkinen, 2002). Critics also feel

that the process is inadequate for more complex cognitive tasks and treatment of ill-defined problems (Hakkinen, 2002).

Those leveling these criticisms recommended adopting entirely new theoretical stances and models, representing different views on learning and instruction. They called for a move from the traditional linear processes to a non-linear, cyclical, and iterative process of design (Hakkinen, 2002). For example, elaboration theorists emphasize contextualizing knowledge elements within their holistic topical structures, and constructivists emphasize the use of authentic problem-solving (Hakkinen, 2002). Reigeluth (1996, 1998) advocates emphasizing the affective domain in addition to the cognitive domain, and has called for a new paradigm of instructional theory that focuses on customizing learning to empower and promote initiative, responsibility, teamwork, thinking skills, metacognitive skills, and diversity in learning.

The more recent socio-constructivist and situated theories of learning and design focus on co-construction of knowledge and co-design of learning environments. The resulting emphasis on the social collaborative dimension of learning and designing for interactions poses a problem for the traditional processes that have not typically considered the social contexts of use in their design (Hakkinen, 2002).

Changes in the Scope of IDT

Along with changes in epistemological foundations, theory, and design practice, the Human Performance Technology (HPT) movement in business and industry settings has profound implications for IDT professional preparation. What is performance improvement and how does it relate to IDT? How should IDT students be prepared to deal with the implications of

HPT in a corporate environment? To answer these questions requires a brief survey of the climate in the corporate world today.

A climate of change. Bartell (2001) wrote that current trends such as globalization, the advent of the knowledge era, and advances in information technology are creating a climate of dramatic change in workplace learning. She described a new form of regenerative organizations that are popularly referred to as *learning organizations*. The term describes organizations that adapt to environmental changes in a quick, flexible, and comprehensive fashion. These are organizations that have transformed their work spaces into learning spaces “where knowledge is created, exchanged, and subsequently used for competitive advantage in the global marketplace” (p. 356).

Learning organizations exhibit a culture of learning that is characterized by:

1. *systems thinking* (understanding the whole, not just the parts),
2. *personal mastery* (having a genuine commitment to fostering individuals’ ongoing journeys of self-discovery),
3. *shared vision* (having a common cause producing a collective will to learn),
4. *mental models* (a willingness to challenge assumptions and views of current reality),
and
5. *team learning* (members who co-operate, suspend assumptions and engage in dialogue).

“In a learning organization, learning is everyone’s responsibility all the time” (Bartell, 2001, p. 356).

In a study on effective methods for preparing IDT students for professional practice, Julian (2001) also characterized the changing climate in business and industry today:

With the shift in business and industry to a focus on the performance of the individual, employees are finding themselves in positions where their tasks and responsibilities are in a constant state of flux. Technologies render some disciplines obsolete while spawning demands for new skills or even careers overnight....Needless to say, it is not uncommon that individuals must learn new skills to perform their jobs or change career tracks. Learning is therefore becoming a lifelong process and retraining has become a constant in work environments. Businesses that respond to this need by providing learning and information support are more likely to keep their organization up to speed. This can secure a competitive advantage and improve the day-to-day practices of working smarter and serving customers more efficiently (McMurrer, VanBuren, & Woodwell, as cited by Julian, 2001, p. 14).

Kalman (2001) wrote that in business and industry, intellectual capital is now considered a company's most valuable asset. The shift to performance improvement, knowledge management, and the central role of learning places training/IDT professionals in a strategic role in their organizations. They are considered a key element in the effort to foster learning throughout the entire organization (Bartell, 2001). Their actions have the potential to impact significantly the profitability of their entire organization. Ultimately, they are considered integral to providing the *competitive edge* that industry experts cite as the ability to provide learning resources to counter the effects of a constantly changing market (Liu, et al, 2002).

Performance Improvement and IDT. Human Performance Technology (HPT) is defined as a set of methods, procedures, and strategies (often referred to as *interventions*) for solving problems and realizing opportunities related to the performance of people (ISPI, 2001). The

professional organization ISPI refers to the concept as *human performance technology*, while the ASTD uses the term *performance improvement*. Both terms refer to the same concept. HPT involves three fundamental processes:

1. *performance analysis*, which examines an organization's performance requirements, identifies the gap between the desired state and the actual state, and characterizes that gap as either a performance problem to be solved or an opportunity for performance improvement,
2. *cause analysis*, which identifies the factors that contribute to the performance gap, and
3. *intervention selection*, which involves a systematic, comprehensive, and integrated response to performance problems and opportunities (ISPI, 2001).

The ultimate goal of HPT is closing this performance gap in the most cost-effective manner. The key here is delivering not just results, but *value-added* results (Brethower, 2003), and a key tool in the practice of HPT is the return-on-investment (ROI) calculation (Piskurich, 2000). HPT is characterized by a realization that training or education may not be the best solution to a performance problem or, if it is an effective solution, it may not be *cost-effective* (Brethower, 2003).

HPT and IDT have common roots in the behavioral sciences and work of behavioral theorists. Thomas Gilbert, considered the founder of the human performance technology movement, was a student of the noted behaviorist, B. F. Skinner (Rosenberg, Coscarelli, & Hutchison, 1999). Gilbert was the first to characterize the job of the HPT professional, 95% of which consists of the three I's: "information, incentives, and instructional design" (Gilbert, 1999, p. xxxiii). He is also credited with having laid the foundations for what was to develop into the

field of instructional technology through his 1960s writings in the two-volume *Journal of Mathetics* (*mathetics* refers to learning) (Rosenberg, et al., 1999).

HPT is often described as an offshoot of the programmed instruction movement (Rosenberg, Coscarelli, & Hutchison, 1999). The National Society for Programmed Instruction (NSPI), now known as the International Society for Performance Improvement (ISPI), was founded in 1962 to provide professional support for practitioners designing and delivering programmed instruction. The society is closely linked to HPT and has made the concept central to its mission statement (ISPI, 2003). While HPT draws heavily from the behavioral sciences, it also embraces much from “the fields of cognitive and other learning psychologies, instructional systems, analytical systems, information technology, cognitive engineering, ergonomics and human factors, feedback systems, organizational development, and change [management]” (Rosenberg, Coscarelli, & Hutchison, 1999, pp. 24-25).

In the ISPI-sponsored handbook on performance improvement, Van Tiem, Moseley, and Dessinger (2001) provide a table of the theoretical foundations of performance technology. Figure 5 reproduces that information.

There are notable similarities and differences between IDT and HPT. In 1990, Hutchison pointed out that 83% of all HPT interventions were still largely related to IT-type tactics, “although more divergent forms of HPT interventions, such as organizational design, strategic alignment, culture change, and work redesign appear to be increasing in salience and frequency” (p.1). Carr (1997) distinguished between ID (instructional design) and PT (performance technology) by stating “ID focuses on the creation of effective instructional moments where PT may include non-instructional interventions such as incentive systems, organizational development, motivation systems, and strategic alignment” (Carr, 1997, p. 5).

Discipline	Focus	Contribution
Behaviorism	Predicting behavior	<ul style="list-style-type: none"> • Small steps of instruction and feedback • Learn to manipulate and control the environment by the individual's responses to it
Diagnostic and Analytical Systems	Data as basis for understanding behavior	<ul style="list-style-type: none"> • Practitioners use comprehensive analytical tools • Diagnosis is based on gap (difference between desired and actual situation) • Causes of situation are defined before intervention is selected and implemented
Instructional Systems Design and Organizational Learning	ADDIE (analysis, design, development, implementation, and evaluation) model, forerunner of HPT model	<ul style="list-style-type: none"> • Developed in 1940s and 1950s, responding to need to train thousands of military personnel during World War II • Various instructional methods were found to be valuable, such as role play, video, case study, and lecture
Organizational Design (OD) and Change Management	Changing performance at organizational and individual levels	<ul style="list-style-type: none"> • OD interventions improve culture, group dynamics, and structure of the organization • Change management helps individuals and groups adapt to change through timely information, appropriate resources, and strategies for resistance, and turmoil that accompanies change • Theoretical basis includes systems dynamics, human motivation, group and team dynamics, competency modeling, organizational learning systems, and feedback systems
Evaluation	Determining value and impact of interventions	<ul style="list-style-type: none"> • Produces credibility that practitioners need • Real costs against real savings attained by organization, return on investment (ROI)
Management Sciences	Dividing "thinkers" and "doers" and analyzing and describing jobs and tasks	<ul style="list-style-type: none"> • Theories led to standardized production system, such as Henry Ford's assembly line • Emphasis evolved to physical and psychological issues, such as motivation, job satisfaction, professional growth, and empowerment

Figure 5. Theoretical Foundation of Performance Technology. (Based on Sanders & Ruggles, 2000, 26-36. Reproduced from Van Tiem, Moseley, & Dessinger, 2001; reprinted with the permission of the International Society for Performance Improvement.)

Both IDT (usually referred to as ISD in the HPT literature) and HPT both take a systems approach; conduct systematic analyses; have a common base in systems theory, communications and psychology; focus on the causes of performance deficiencies; and attempt to anticipate the obstacles that inhibit the introduction of innovations (Rossett, 1990). In terms of the differences, the work of human performance technologists is more directly linked to business results, with measurement and marketing issues playing a key role (Greer, 1999). Table 1 summarizes the similarities and differences between IDT and HPT.

Table 1. IDT and HPT similarities and differences.

Similarities between IDT and HPT	Differences between IDT and HPT
<ul style="list-style-type: none"> • Based on general systems theory; both are beginning to emphasize the importance of the systemic (holistic design), as well. • Both use the systematic ISD phases of analysis, design, development, implementation and evaluation if instruction is the intervention chosen • Focus on measurable impact • Antecedents in systems theory, psychology, anthropology, communications theory, and more. • Reliance upon empiricism • Dependent upon analysis • Addresses causes of problems • Requires both technical and people skills 	<ul style="list-style-type: none"> • Skill sets similar; HPT - more emphasis and elaboration on analysis, observation and evaluation, with both organizational and project management skills required • IDT analysis leads to instruction; HPT analysis leads to variety of recommendations regarding job redesign, policies, incentives • IDT professional designs, develops and implements instructional interventions; HPT professional implements a wide array of interventions, including instructional ones • IDT tactical contribution to individual/group; HPT strategic contribution to organization • Solution decisions: IDT based on best instructional solution; HPT based on best return on investment (value-driven, best impact for dollar spent) • Focus: IDT focuses on individual's skills/knowledge; HPT focuses on individual AND organizational goals • Goal: IDT goal is learning; HPT goal is accomplishment/performance improvement
IDT Definition, Purpose & Scope/Application:	HPT Definition, Purpose & Scope/Application:
<ul style="list-style-type: none"> • The science/practice of designing effective training and information support systems, products, and programs. • Purpose: Provide effective instructional interventions/solutions • Addresses gaps in knowledge/skills 	<ul style="list-style-type: none"> • Science/practice of analyzing performance of organizations, processes and individuals to identify opportunities for improvement. • Purpose: Accurate diagnosis of performance and prescription of various interventions • Addresses any situation where human performance varies from individual/group expectations

(Greer, 1999; Hybert, 2003; Rossett, 1990; Stolovitch, Keeps, & Rodrigue, 1995)

Many characterize HPT as having evolved from the IDT professional's realization that "organizational instruction and training systems were ineffective or inappropriate if other organizational factors were not also attended to" (Stolovitch & Keeps, 1999, p. 12-13). However, while both fields have similar procedures and roots, they rest on fundamentally different assumptions: HPT assumes a performance problem that requires an intervention relating to organizational, process, or individual solutions (solutions that may or may not be instructional), whereas IDT assumes an instructional problem that necessitates an instructional solution (Stolovitch & Keeps, 1999). From this, it can be seen that HPT is actually a broader concept of which IDT is a subset. The HPT model is similar to the ISD model in many ways. It has five phases: performance analysis, cause analysis, intervention selection and design, intervention implementation and change, and evaluation (VanTiem, Moseley, & Dessinger, 2001). The HPT model is illustrated in Figure 6.

Professional preparation for IDT and HPT. The impact of the HPT movement is substantial in the IDT field. Reports vary, but it is clear that the majority of today's IDT graduates are hired into positions in the business and industry career environment (Liang & Schwen, 1997; Reiser, 2002b). The trend of hiring instructional designers and developers into business and industry positions was first noted in 1976-77 by Sink (1979), who had been compiling AECT's annual employment trends for media graduates. In 1980, Sink reported that one-fifth of all IT graduates were taking jobs in business and industry.

In the 1990s, instructional designers became increasingly involved in the performance technology movement, which broadened the scope of their IDT activities (Reiser, 2002b). Today, the impact of HPT is seen in the fact that "many instructional designers are now calling themselves performance technologists or performance consultants" (Rossett, 2002, p. 123) or are

emphasizing the importance of adopting performance technology methods (Mager, 1996; Reiser & Dempsey, 2002).

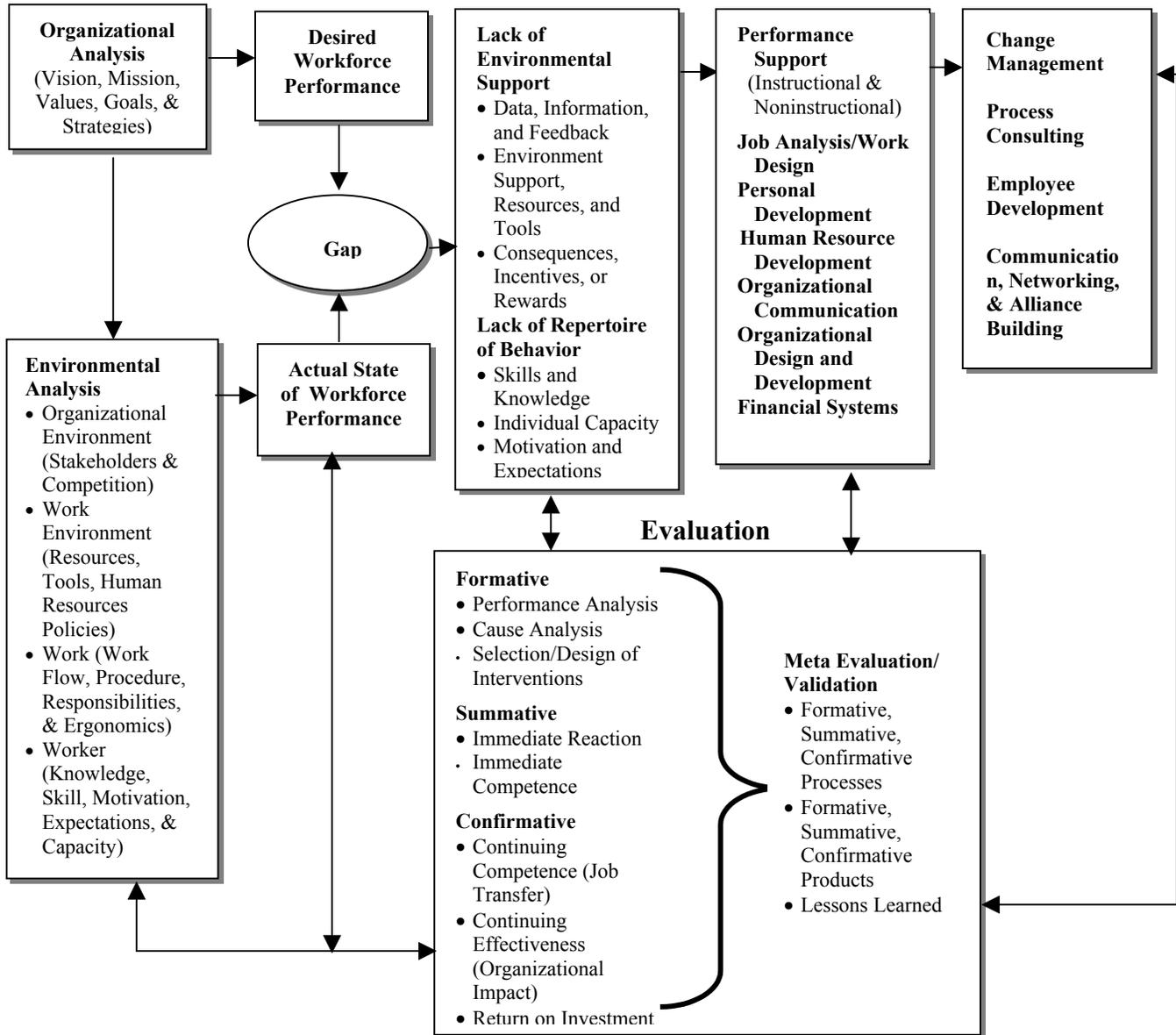


Figure 6. Human Performance Technology (HPT) Model. (Based on Van Tiem, Moseley, & Dessinger, 2000, as reproduced in Van Tiem, Moseley, & Dessinger, 2001; reprinted with the permission of the International Society for Performance Improvement.)

Finally, it is important to note that both professional organizations based in business and industry that claim the membership of instructional designers, ISPI (representing over 10,000 members) and ASTD (representing 70,000 members), include a commitment to performance in their mission statements (ASTD, 2003; ISPI, 2003). (AECT, whose membership also includes many professionals employed as instructional designers in business and industry, claims a membership that has a broader base than merely business and industry environments.)

The market for IDT students' skills has broadened and IDT graduates continue to be in demand for more influential positions in business and industry (Rossett, 2000). The challenge, however, is that professional preparation programs must find a way to ensure that graduates entering business and industry work environments are familiar with the knowledge, skills, and attitudes they will need to practice effective IDT and HPT in those environments (Rossett, 2002).

How should IDT students be prepared for the world of HPT? Many students are interested in IDT and HPT but few know "what instructional designers do, the challenges they face, and the skills they need... Such practical information is difficult to find in traditional textbooks" (Liu, et al, 2002, p. 198). The familiarity with HPT needed by an IDT professional depends both upon which role they assume and the emphasis on HPT in their organization. An example can be formulated using Richey and Morrison's (2003) categories of corporate instructional designer roles: sole designer, team member/leader, and consultant.

A sole designer in a company where the management endorses an HPT approach will need to have a deep understanding and working knowledge of performance improvement concepts and methods. He or she will most likely be expected to do detailed front-end analyses, have knowledge of a wide repertoire of possible interventions, and be expected to communicate a sound business case for the solutions they suggest. On the other hand, an instructional designer

in a large organization using HPT methods may collaborate on a team with an HPT specialist and may need only enough knowledge of HPT to communicate with the specialist and discuss the relative merits of training solutions versus other interventions. Finally, a consultant would need to know enough about HPT to satisfy the needs of his or her client, and if the client wanted a performance solution approach, the designer would have to know enough to conduct a performance analysis, or know enough to either outsource the work or suggest that the client hire a performance technologist (Stolovitch, Keeps, & Rodrigue, 1999).

In many cases, a shallow familiarity may not be enough. With an HPT approach, knowledge of the analysis and evaluation stages of instructional technology are very important for business and industry; however, research shows that these are often the stages of the ID model that are skipped when there are shortages of time or money (King, 1998).

IDT students entering the corporate world may desire to concentrate on training, and may not wish to become immersed in detailed analysis and evaluation activities and interventions that often have less to do with learning issues. These students may need guidance, both in determining their specific career goals and conducting a job search that will land a position aligned to those goals. Walter Dick wrote from the perspective of many years of experience when he expressed it this way:

What I saw as an instructor who taught both instructional design and performance analysis was that some students were strongly attracted to, and talented in, one or the other of the areas, but not both. Other students were about equally competent in both areas but had a preference for one or the other. Clearly, what graduates do depends on the work environment that they go into. Large organizations have more room for specialization, while smaller ones require designers who can do all

the skills from front end analysis to evaluation, and all the management skills as well.... I think the major difference is the relative emphasis on analysis (HPT) or design (IDT). Some prefer one to the other. WD (W. Dick, personal communication, March 18 & 21, 2003).

One other consideration on the issue of preparing for a business and industry environment involves certification. The field of IDT has yet to come to a consensus on certification. However, as of April, 2002, the International Society for Performance Improvement (ISPI) and the American Society for Training & Development's (ASTD) Certification Institute affiliated to provide a Certified Performance Technologist (CPT) certification program. The CPT certification was created in response to requests from public and private organizations for criteria to better distinguish proficient practitioners of human performance technology. The certification requires "three years of experience in performance improvement work, demonstration of proficiency in 10 standards, commitment to a Code of Ethics, and re-certification every three years" (press release, ISPI/ASTD, Nov. 8, 2002). (Refer to CPT standards in the Appendix G.)

Although the certification is performance-based and not tied to specific education requirements, the move represents another possible career goal that preparation programs will need to address in their curricula. Hale (2003) claims that "clients want and deserve a way to distinguish those of us for whom improving human performance is a career choice from the wannabes, transients, and dabblers" (p. 31). If professional IDT preparation programs do not officially claim to prepare professionals for HPT and adjust their curriculum to reflect that, it is possible that the corporate market will look elsewhere for graduates they feel are prepared to meet their needs (Byun, 2000).

Rossett (1990) wrote that there are several options for institutions wishing to prepare graduates for corporate IDT careers that may involve HPT. Institutions can pre-select students for their programs who already have the additional skills needed for HPT. These might be students with majors in organizational behavior, information systems, or industrial psychology, or students who have been in the work world for a while and have picked up the skills through job experience. Another option is to place limits on what career goals the program will support, sticking to instruction and suggesting that students either go elsewhere for their degrees or take interdisciplinary courses to round out their preparation. This may also necessitate adjusting current curriculum to make the basic links between IDT and HPT clear to students; adjusting analysis, management, and evaluation courses to include the HPT perspectives; and introducing students to the array of interventions used in HPT. Finally, Rossett (1990) suggests the creation of an HPT specialization in IDT programs; an option that Florida State University and other institutions are currently pursuing (Dick & Wager, 1995; Fitzgerald, et al., 2002).

Summary

The scope of the field of IDT has broadened and continues to change, especially in the business and industry career environment. The challenge of how to handle the corporate environment's move toward human performance technology persists as an issue for professional preparation programs. The options that IDT departments choose will depend on their orientation to instructional design and performance improvement, and whether they see themselves as preparing students for specific career environments or are pursuing a generalist program (Dick & Wager, 1995; Rossett, 1990). Regardless, if the career goals of students involve either working

within a corporate environment, or educating future IDT students to work in a business and industry environment, the program they attend must provide instruction on HPT (Rossett, 1990).

IDT Professional Preparation

It is difficult to keep preparation curriculum current and responsive to the needs of the marketplace in a field that is constantly adjusting to the explosion of information and rapid change that characterizes the world today (Julian, 2001). As mentioned previously, recent changes both internal and external to the IDT field have made it difficult to keep IDT curricula updated to prepare graduates to take their place as effective practitioners. In light of this, how should IDT professionals be prepared for practice?

Professional preparation programs reflect the wide variation of viewpoints in the field. In his study of nine graduate IDT programs, Silber (1982) found that institutions have differing views of the field. For example:

1. some consider ID a systematic/replicable/scientific process, while others regard it as a holistic/systemic process
2. some believe in using one ID model, while others synthesize models
3. some believe in teaching a specific model, while others introduce students to many models and encourage them to select or create their own model

Against this backdrop of change and differing opinions, IDT preparation programs must continue to evolve as the field evolves, making changes that will align the curriculum with the career goals of the students enrolled. When programs align with student career goals, the “personal utility” of the instruction is apparent to learners and the resulting program is perceived by them as relevant (Driscoll, 2000, p. 328). This section of the literature review will focus on

three aspects of professional preparation programs that influence relevance: content, context, and methods. After briefly reviewing the history of professional preparation, each area will be addressed.

History of Professional Preparation

Professional IDT preparation has paralleled the practice of IDT. Prior to the 1960s, practitioners in the field were referred to as *audiovisual technologists*, and the emphasis was on using hardware as teaching aids that were merely supplemental to the instruction (Kennedy, M., 1982). In the early 1960s, B. F. Skinner laid the foundation for the systematic design of instruction (Holland & Skinner, 1961; Skinner, 1974). Preparation programs continued to concentrate on the use of materials and machines to improve the quality of education and taught to the competencies identified for teacher preparation (Snow, 1969). However, the influence of behavioral science (broadly defined as the philosophy and values associated with the measurement and study of human behavior; Burton, Moore, & Magliaro, 2004), and a communications orientation in the field shifted the focus to a systems approach. The emphasis was now on systematic curriculum planning rather than on classroom implementation (Kennedy, M., 1982).

A new title was needed to convey this paradigm shift and the field became known as *instructional technology* (Kennedy, M., 1982). The period was characterized by an integration of curriculum and materials that were designed based on objectives, an emphasis on process, the advent of individualized and programmed instruction, criterion-referenced testing, Gagne's conditions of learning and events of instruction, and the development of the first instructional design models (Reiser, 2002a; Driscoll, 2000). Preparation programs emphasized the use of the

models and methods for developing and using instructional materials, and competencies beyond those required for educational settings were not considered for instruction (Kennedy, M., 1982).

Instructional Systems Design (ISD) is believed to have its origins in the systems theory work of Silvern (1964), who was particularly interested in how systems theory might be used to create effective and efficient aerospace and military training (Gustafson & Branch, 2002). By the early 1970s, the use of ISD methods and models had become common in all branches of the military and was beginning to be applied in business and industry settings. These early ID models were based on behaviorism (Gustafson & Branch, 2002).

The 1970s were characterized by the introduction of cognitive information processing theory (Driscoll, 2000) and an increasing interest in instructional design and design models. Many graduate programs in instructional design were created. The practice of instructional design became firmly established in the military and was also adopted into business and industry (Reiser, 2002a).

By the 1980s, there was more emphasis on instructional design in business and industry, the military, and in the international arena than in public education and higher education (Reiser, 2002a). Research on the academic preparation of IDT professionals in the 1980s and 1990s focused initially on the ID skills needed and expert use of ID models, emphasizing the core elements of the process (analysis, objectives, design, development, evaluation and revision) (Julian, 2001).

The establishment of professional organizations enriched the field greatly. Such organizations as ASTD, AECT, and NSPI (now ISPI) sponsored competency studies to identify the skills, knowledge and abilities required for professional practice (Julian, 2001). These studies revealed that the nature of ID practice was complex, especially in the business and industry

career environment (ASTD, 1983). The organizations also sponsored conferences and publications to encourage and distribute research and development of the field. They established discounted memberships for students and in this way, encouraged their entry into professional practice (Julian, 2001). Table 2 lists major IDT preparation program studies and Table 3 lists the major competency studies carried out by individual researchers and organizations.

This period was also marked by more inquiry into what expert designers actually did and what best prepared them for practice (Quinn, 1995; Rowland, 1992; Rowland, Fixl, & Yung, 1992; Tripp, 1994). Gradually, it began to dawn on the academic community that there was a need for learning experiences that transitioned students from learning to professional practice. New methods of providing authentic learning situations were introduced, including the use of case studies, apprenticeships, and design studio experiences (Julian, 2001).

At the same time, many questioned the utility of the basic instructional systems development models. “[These] researchers began to question the validity of systems design and explore solutions that could support the real-world environments where designers practice” (Julian, 2001, p. 70). Some of this criticism was focused at the popular Dick and Carey model (Dick, Carey, & Carey, 2001), commonly taught in preparation programs (Julian, 2001). The Dick and Carey model was an elaboration of the basic major phases of ISD (analysis, design, development, implementation, and evaluation) and was used in a range of practical environments including K-12, business, military, and government (Dick, Carey & Carey, 2001). Walter Dick, one of the developers of the model, answered those criticisms by emphasizing that the model is a template – a structure for learners to base their action on until they gain expertise and can draw from prior experiences to analyze and design instruction (Dick, 1995; Rowland, 1995).

Beginning in the 1990s and continuing today, researchers are looking at whether and how the ID process can accommodate design for constructivist learning experiences (Dick, 1995). Researchers are experimenting with this process, but note that additional skills will be required of designers to accomplish the task (Hakkinen, 2002). Julian (2001) reports, “open-ended learning experiences, learner control technologies, and problem-based learning are just a few examples of the increased diversity of skills required to design in constructivist-based environments” (p. 73).

This research on ID practice has led to ongoing debates concerning the relevance of academic preparation for actual practice (Dick, 1995; Quinn, 1995; Tripp, 1994; Rowland, 1992; Rowland, Fixl, & Yung, 1992). The literature has much to say concerning the content, context, and methods that should be used to prepare IDT students for professional practice.

Table 2. IDT Professional Preparation Studies.

IDT preparation study	Title and findings
Holcomb (1993)	<i>The effects of project situational factors on the implementation of instructional design activities in a corporate training setting.</i> PhD study on the relationship of instructional designer’s perceived project success to 10 situational factors (time, money, student expectations, target population size & characteristics, task complexity, designer payoff, personnel available, material resources and organizational payoff) in a corporate setting. Holcomb used Tessmer & Wedman’s (1990) Layers of Necessity Model as a theoretical basis. Found a mismatch between traditional ID theory and practice. Noted that inclusion of 3 ID activities had a significant relationship to perceived success: objectives development, strategy selection, and pilot testing. Recommended academic programs emphasize addressing situational factors surrounding projects. Limits: interviewed 40 instructional designers in a single corporate setting.
Julian (2001)	<i>Learning in action: The professional preparation of instructional designers.</i> PhD study exploring the relationship between academic preparation and professional ID practice. Case studies of 7 instructional designers were cross analyzed to identify 3 ID practice profiles that correlate to the expert-novice continuum: Innovator, Traditionalist, and Practitioner. Identified instructional designers’ perceptions of effective graduate preparation and recommendations for IT programs.
Julian, et al. (2000)	<i>Compelling case experiences: Performance, practice and application for emerging instructional designers.</i> Article reporting on the case study method used with University of VA’s web-based ID Case Competition, open to student teams from other IDT programs nation-wide. Recommends this method for developing ID expertise and professional preparation through collaboration and presentation of multiple environments to increase the novice designer’s set of design tools.
Kennedy (1982)	<i>Guidelines for graduate educational technology programs with an emphasis in training in the business and industry milieu.</i> PhD study using the Delphi technique to identify curriculum for IT programs with an emphasis in business & industry. Found that business and industry values curriculum content with practical worth.
Milheim (1992)	<i>A comprehensive approach to preparing multimedia designers: A faculty perspective.</i> Article describes multimedia design curriculum including coursework, and options for final projects and practical experience. Recommendations: course of study be tailored to student’s specific goals, and courses relevant for IDT students headed to corporate environments: human resources development, corporate communications, and interpersonal communications.
Seels (1993)	<i>The view looking back: Curriculum theory and instructional technology programs.</i> Historical look at IDT preparation programs and the challenges ahead.
Silber (1982)	<i>An analysis of university training programs for instructional developers.</i> Curriculum study of 9 IT graduate programs in three categories: residential PhD, Commuter PhD, and MA only. Using a competency-based instrument, Silber studied course syllabi and conducted on-site interviews. Found that there is little preparation in areas with which the literature recommends IDT student familiarity: faculty development, organizational development, and performance analysis.

Snow (1969)

An analysis of the doctoral level preparation programs in the field of instructional technology at selected institutions. Early PhD study on the doctoral programs at Syracuse Univ., Indiana Univ., Univ. of So. California, and Michigan State Univ. Collected information on program content, and perceptions of students, graduates and staff. Also collected suggestions from identified scholars, innovators and philosophers in the field. Resulting guidelines for doctoral programs: 1) assess competency of students entering programs to facilitate faculty guidance on curriculum matched to their needs/desires, 2) offer a common core of learning experiences, 3) provide overlapping experiences for different levels of study and allow students to determine depth of study in areas based on career goals, 4) & 5) use team approach to provide an interdisciplinary preparation, 6) consider field's constant change when designing programs to allow for program completion in reasonable time, 7) provide program flexibility to adjust to needs of professional personnel.

Stolovitch, et al. (1995)

Skill sets for the human performance technologist. Article recommending HPT skill guidelines be gleaned from sources such as current practice observation, the literature, professional societies, recognized practitioners, and knowledgeable clients. Presents suggested basic and advanced skills, future skill needs and suggestions for academic programs.

Content

Over the years, IDT educators have attempted to answer two questions: *What content (skills, knowledge, and attitudes) should be taught?* and *How should an instructional designer be educated?* The first question deals with content and context, the focus of this section and the next. The second question deals with methods and will be treated in the third topic of this section.

The content of professional preparation is still, in large measure, determined by the established competencies that have been identified for the field (Rasmussen, 2002). This review of literature has already discussed the core competencies common to all career environments. In this section, consideration will be given to the competencies that are emphasized in different career environments.

Types of content. Competencies are the most common, but not the only, way to define the content for professional preparation. Other organizational structures have been suggested in the past and are also possibilities as guidelines for preparation programs. To illustrate, King (1998) conducted a study to determine which data items practitioners perceive to be most critical for analysis of three types of training. She developed a list of 30 items and surveyed members of an ISPI chapter, who were asked to rank the importance of each item based on its usefulness for analysis of regulatory training, technical skills training, or management training. Her findings indicated that there were, indeed, specific types of data that were critical to these categories of training. A professional program could, in this case, base its content on the skills, knowledge and abilities required to develop regulatory training, technical training, and management development training. However, this review of literature will concentrate on competencies

because they are the most widely-accepted structure. Core competencies, considered previously, exist for the profession as a whole. There are also competencies for each career environment.

IDT Competencies Emphasized in Specific Career Environments. Beyond the core competencies commonly acknowledged by the overall IDT community, a review of the literature identifies certain practices and competencies unique to or emphasized in specific career environments. Woodruffe (1993) refers to this distinction as one between generic and organization-specific competencies.

Moallem's (1995) study used frequencies and cross tabulations to determine the competencies required for different types of organizations (business and industry, government and military, and university/college/school district) and different types of degrees (IDT masters versus doctorate). This study found that different electives and internship courses may be required for IDT students with different career goals, which supports the notion that different career environments have different competency priorities. Moallem (1995) also found that job requirements for masters graduates were different from those for doctoral graduates, and that the majority of business and industry positions required a master's degree as opposed to a doctoral degree. It seems reasonable that this might reflect a correlation between work environment and type of degree required; however, Moallem made no attempt to correlate these items.

Branch, Moore, and Sherman (1988) surveyed IDT professionals in both the business and industry and higher education environments. They reported that a frequent implication in the IDT profession is that different skills and abilities are needed to be successful in business than in academia, but that candidates for positions in both sectors are drawn from the same academic IDT preparation programs. In an attempt to determine the extent to which academic and business employers sought different qualifications, the researchers surveyed a random sample of over 200

members of AECT (to represent the academic community) and NSPI (to represent the business community) concerning employment criteria. The researchers found that AECT members reported using criteria emphasizing academic credentials with a focus on teaching and research skills, while NSPI members used criteria that emphasized practical abilities and communication skills. The authors concluded that distinct business and academic markets exist for IDT graduates and that it may be necessary to design curricula and coordinate experiences that specifically prepare students for each market. This study was one of the first of its kind to be conducted and Moore indicated that it should be replicated to obtain more current data on the subject (D. M. Moore, personal communication, February 19, 2003).

A better understanding of competencies unique to specific career environments can be gained by returning to the comparison of the latest version of the ibstpi Instructional Design Competencies (Richey, et al., 2001) and the AECT/NCATE (2000) Standards for Initial and Advanced Programs for Educational Communications and Technology (see Appendices A and B). Both sets of competencies have evolved over time and their compilers claim they can be applied to IDT practitioners in a variety of positions and career environments; however, the statements and assumptions of these standards indicate that they were primarily aimed toward IDT practitioners employed in specific environments (AECT, 2000; Richey, et al., 2001).

To illustrate, the AECT standards were originally compiled for purposes of “accrediting teacher education and advanced professional preparation programs” (p. 4) and were developed in conjunction with the National Council for the Accreditation of Teacher Education (AECT, 2000). The target audiences for the standards were teachers, teacher educators, and educational support professionals. In fact, there are four sets of NCATE-approved specialty association standards dealing with technology, each geared toward programs preparing educators for

entering different educational environments. Copies or links to these standards are included in Appendices A through G of this study:

1. The International Technology Education Association (ITEA) standards, which are to be used for programs preparing teachers for technology education (formerly known as vocational education),
2. The International Society for Technology in Education (ISTE) standards, which are to be used for programs preparing computer literacy and computer science teachers,
3. The American Association of School Librarians (AASL) standards, which are to be used for programs preparing school library media specialists,
and
4. The Association for Educational Communications and Technology (AECT) standards, which are to be used for programs preparing educational personnel for positions in K-12 education, higher education, business, military services, government, and health/community services (AECT, 2000).

Additionally, the descriptive text that accompanied these competency standards included references to specific positions or environments to which they are best applied (AECT, 2000; ISTE, 2001; ITEA, 2003; Piskurich & Sanders, 1998; Richey, et al., 2001). A March 2003 meeting provided an opportunity for these four organizations and NCATE representatives to discuss the standards. NCATE desired to simplify and combine the standards, but it was the position of the four organizations that each set of standards is specific and exists for a good reason. There were no decisions made at the March meeting and NCATE intends to publish a white paper on the subject in August of 2003. (P. Harris, personal communication, March 27, 2003).

The ibstpi standards also have a primary audience. Ten key assumptions are included in the ibstpi standards document, and the following statement is made under assumption two:

ID competencies pertain to persons working in a wide range of job settings. Not only do practicing designers have many job titles, but also they work in many settings.... While the ibstpi ID competencies are not specifically designated as applying only to business applications of instructional design, *there is an emphasis on issues and processes more unique to a business environment than those of elementary or secondary education, or of higher education or community-based education* (italics added) (Richey, et al., 2001, p. 37).

Consideration of an earlier version of these standards (ibstpi, 1986), contained in the appendices of this study, illustrates that the ibstpi standards were at one time very similar to the AECT standards but have evolved over time to emphasize business and industry work environments.

Competency standards from various organizations are not the only source of information on required IDT competencies and common practices. Several research studies have been carried out to determine the competencies and practices for IDT in general as well as for specific career environments. Table 3 summarizes these studies and their findings. Due to the rapid change in this field, however, such studies are usually repeated every few years to keep pace with the latest developments, needs, and trends in the field.

Berge, et al.(2002) conducted an extensive literature review on competencies, specifically in the area of training and development, or Human Resources Development (HRD). The literature review covered the competency movement from its start in the 1980s to 2002. This study found that the shift in focus from training to performance improvement had resulted in two basic areas in which training and development professionals would “need to continue increasing

their competence: using technology and aligning performance goals with the business needs of the organization” (p. 57).

Table 3. Competency Studies by Career Environment.

Competency study	Title and findings
Atchison (1996)	<i>Roles and competencies of instructional design as identified by expert instructional designers.</i> This PhD study utilized the critical incident technique in a case study and interviewed 15 expert instructional designers in an effort to gain new understanding about the nature of ID work. Atchison identified nine role themes of reflector, ethicist, humanist, collaborator, advocate, evaluator, manager, marketer, and entrepreneur, and hypothesized that the role of context may provide an initial understanding of how environment shapes expert performance. Limitations: small sample size, & selection of experts based on professional organization membership rather than through evaluation of expert status.
Barnum (1979)	<i>An analysis of instructional systems design as reflected in formal education, industry, and military institutions: Theory vs. application.</i> PhD study comparing the theoretical design model construct used in academia with the applied ISD model used in training or industrial environments. Found that minor differences between education and military were due to the military’s task and skill-oriented approach, and that the academic model could be improved through exchange with the pragmatic training model.
Berge, et al. (2002)	<i>The increasing scope of training and development competency.</i> An extensive review of the literature on competencies aimed at showing trends in training & development over the last three decades. Most apparent changes: shift to performance improvement and use of technology.
Branch, Moore, & Sherman (1988)	<i>Evaluating potential instructional technology and design professionals for academic and business settings: Criteria for decision-making.</i> An article reporting the results of a survey of members of AECT and NSPI to determine whether business and academic employers used different criteria when hiring. Concluded that distinct business and academic markets exist for IDT graduates and it may be necessary to design curricula and coordinate experiences that specifically prepare students for each market.
Byun (2000)	<i>Identifying job types and competencies for instructional technologists: A five-year analysis.</i> PhD study that analyzed emailed job postings sent to an IT department over a 5-year period. Prominent skills for business settings: IDD skills, communications, management, computer application skills; for educational settings: media skills and teaching/delivery skills; for non-profit/government/military settings: evaluation skills. Trends noted: increased demand for web/online experience, media application skills as opposed to computer application skills, and communication and interpersonal skills.
Cecere (1983)	<i>A comparative study of media production practices in higher education and business/industry.</i> PhD study comparing exemplary practices in media production facilities in business & industry with those in academia. Using an alpha-type external needs assessment, his comparison determined significance for planning academic program curricula.
Heideman (1991)	<i>A forecast of the competencies required for effective performance by instructional technology practitioners in the year 2000.</i> PhD study that surveyed IT practitioners from business and academia to forecast potential competencies required in the year 2000. Found no significant difference in the perceptions of the two groups and recommended that IT educators emphasize competency selection and application in the curriculum in addition to IDT task performance.

Kapp (1997)	<i>Measuring training competencies using the analytic hierarchy process.</i> PhD study which developed a hierarchy instrument to measure competencies and supporting behavioral skills needed to “excellently” deliver a training message in a corporate setting; can be used to develop a trainer curriculum.
Moyer (1993)	<i>A comparative study of entry-level competencies for educational communications and technology personnel.</i> A PhD study that surveyed faculty and practitioners on the competency requirements across settings found no significant difference between the perceptions of academics and practitioners. Limitations: lack of diversity in population of his questionnaire review panel, & questionable suitability of sample used in the alpha needs assessment.
Piskurich & Sanders (1998)	<i>ASTD models for learning technologies: Roles, competencies, and outputs.</i> An ASTD manual resulting from competency studies in business and industry. Contains a self-assessment instrument.
Stolovitch, et al. (1995)	<i>Skill sets for the human performance technologist.</i> Article recommending HPT skill guidelines be gleaned from sources such as current practice observation, the literature, professional societies, recognized practitioners, and knowledgeable clients. Presents suggested basic and advanced skills, future skill needs and suggestions for academic programs.
Trimby (1982)	<i>Entry level competencies for team members and supervisors/managers on instructional development teams in business and industry.</i> PhD study to identify IDT competencies for business and industry. Surveyed supervisors/managers and found that highest-ranking competencies dealt with interpersonal communication skills (effective listening, attitude formation, adapting to change, establishing credibility with a group); includes recommendations for preparation programs including the study of competency areas rather than individual competencies.

Further study of the current and past applicable literature identifies the IDT competencies and practices that might be emphasized more in specific career environments. The paragraphs that follow discuss the career environments of business and industry, higher education, K-12 education, and government and military.

Business and Industry. IDT professionals are employed in business and industry career environments in a variety of departments with names as varied as training and development, performance and organizational support services, performance improvement, learning consultants, strategic requirements group, and human resources development (Bassi, Benson & Cheney, 1996). To prepare instructional technology professionals or trainers with the necessary knowledge, skills, and competencies to be successful in this environment, IDT academic program faculty need to have an accurate picture of the current requirements in business and industry (Morlan & Lu, 1994).

Rossett (2000) reported that business leaders in the field desire the practical and accessible. They consider the *basics* to be the "...ability to think, write, and communicate orally and to make wise and wide use of instructional design and technologies" (p. 33).

The literature provides a large number of competencies for business and industry environments. To avoid redundancy and to show the relationships between competencies, these business and industry competencies have been grouped, as follows:

1. *Communication Competence*, excelling in the areas of writing (especially technical writing), and public speaking and presentation skills, as well as the ability to communicate a sound business case for training solutions (Cartlidge, Gerity, & Eastmond, 1999; Liang, 1999; Morlan & Lu, 1993; Rossett, 2000)
2. *Interpersonal Relationship Competence*, excelling in the areas of motivation, coaching, persuasion, leadership, negotiation, team skills, and cross-cultural awareness (Bassi, et al., 1996; Cartlidge, et al., 1999; Liang, 1999; Morlan & Lu, 1993; Valkeavaara, 1998)
3. *Analytic Competence*, excelling in critical thinking skills, problem definition and problem solving skills, performance gap analysis and strategy application, and business research skills (Bassi, et al., 1996; Cartlidge, et al., 1999; Liang, 1999; Valkeavaara, 1998)
4. *Project Management Competence*, excelling in IDT project and resource management, contracting skills, outsource decision skills, and consultant management skills, and possessing a customer-oriented outlook (Bassi, et al., 1996; Cartlidge, et al., 1999; Rossett, 2000)
5. *Business Competence*, excelling in systems thinking, organizational and industry knowledge and understanding, change management and coping, global solutions, cost-benefit analysis, and return on investment studies, and knowledge of business and

training trends (such as performance technology/performance improvement, knowledge management, and emotional intelligence competencies) (Bassi, et al., 1996; Goleman, 1998; Liang, 1999; Rossett, 2000; Ruckdeschel, Yarter, Riveccio, Cortes, & Cookson, 1998; Salopek, 1998)

6. *New Technology Literacy and Competence*, excelling in knowledge of recent technological innovations, ability to evaluate new technologies, and online teaching/designing and distance education abilities (Bassi, et al., 1996; Furst-Bowe, 1996; Spector & de la Teja, 2001)

In contrast to the broad range of skills required for a business and industry environment, those needed in higher education career environments are often easier to define.

Higher Education. In the career environment of higher education, IDT professionals are employed in traditional faculty roles (instructors, professors, and deans), as well as the emerging area of service positions. These positions fall into the eight categories of instructional technologist, instructional designer, distance learning coordinator, instructional technology manager/administrator, technical support specialist, world wide web specialist, instructional technology librarian, and miscellaneous (Surry & Robinson, 2001, p. 232). These service positions often emphasize different competencies than traditional faculty positions, partly because the instructional designer is acting as a consultant rather than as the primary subject matter expert (the role more commonly assumed by IDT professionals in traditional faculty positions) (Surry & Robinson, 2001).

Surrey and Robinson (2001) recommended that IDT professionals wishing to enter higher education develop a broad array of professional skills including interpersonal skills, and that academic departments in instructional technology should offer a wide variety of both technical

and non-technical courses to prepare graduates for the growing higher education job market. Surrey and Robinson (2001) characterized a strong candidate for a large number of jobs in a variety of settings as someone who has “basic skills in instructional design, computer hardware, application software, Web development, training, project management, change agency, and human relations” (p. 237).

In Moallem’s 1995 study of IDT job announcements, the competency most frequently cited for university, college, and school district work environments was teaching experience. This requirement was more prevalent for those positions requiring a doctorate than those requiring a master’s degree. This distinction could be explained by noting that job openings requiring a doctoral degree were usually for assistant professor or teaching positions, while those IDT positions requiring a master’s degree were usually for non-teaching positions such as research assistants, instructional designers, or media specialists. Moallem also identified the following higher education competencies: knowledge or ability to teach courses in multimedia or advanced technology, knowledge and experience in computer-based instruction and product development, a record of research, grant proposal production, knowledge and/or experience in telecommunications or distance education, and the ability to teach and apply instructional design theories and instructional computing (1995).

The traditional areas of responsibility of faculty work life are research, service, and teaching. Of these, research and the associated push to publish have the greatest impact on issues of tenure and promotion. Rossett (1990) stated that,

“scholarly productivity is of special importance for anyone pursuing a career in academia, but...[it is especially important for]...those who wish to teach at the university level. Although one may argue the relative merits of research versus

teaching, it is apparent that publications and conference presentations will continue to play a major role in the hiring and promotion of university faculty” (p. 49).

Looking to the future, Duderstadt (2001) wrote that the current, research-dominated graduate education may not meet the future needs of both students and society. He cited evidence to suggest that during the next decade, most colleges and universities will experience significant faculty turnover, during a period of unprecedented change brought on by powerful economic, technological, and social forces. As a result, Duderstadt warns of a probable restructuring of higher education to align it with what he describes as “...a global knowledge and learning industry, in which the activities of traditional academic institutions converge with other knowledge intensive organizations such as telecommunications, entertainment, and information service companies” (Duderstadt, 2001, p. 30). If this is the case, the skills and knowledge of IDT specialists will place them in a unique position to aid in this restructuring, and graduate IDT programs must make changes now to prepare future IDT faculty and IT service professionals in higher education to make a significant contribution in that effort (Surry & Robinson, 2001).

Duderstadt (2001) also reports a growing effort in academic institutions that stress teaching over research to better align graduate programs with faculty roles. The need for this realignment is backed up by a recent study by Austin (2002). Austin found that graduate students aspiring to faculty positions have interests in research, teaching, advising, and service, but their training primarily emphasized research and publishing. Additionally, she found that aspiring professors received little guidance about academic careers in different types of institutions, and did not receive focused, regular feedback or mentoring. Consequently, Austin (2002) recommended including information and guidance about the full array of faculty responsibilities.

The all-too-common disconnect between student interests and academic training prompted McCabe and McCabe (2000) to give this advice to aspiring academics regarding feedback and promotion:

Never assume that superb teaching is ‘enough’ for promotion.... know the practical aspects of this process [promotion] for your series (e.g., tenure, research, or clinical track). If research productivity is required in your series, then you must be aware of the operational requirements (e.g., publications and grants).... In many institutions, teaching is necessary, but not sufficient, for promotion. You need to know the requirements for your institution and develop a disciplined plan of action for meeting them, utilizing a timeline to achieve intermediate goals (p. 9-10).

On a macro-level, it should be noted that IDT professionals employed as educators in academia must also have knowledge of the competencies required of those they educate. This is particularly true for the education of students entering a K-12 environment where teacher certification is an issue (ITEA, 2003).

K-12 Education. While “the influence of IDT in K-12 education has been more limited than its influence in other career environments” (Reiser & Dempsey, 2002, p. 196), the issue of technology competency is becoming increasingly important for K-12 educators (Braun, Walker, Simonds, Wenning, Thomas, Rich, Wojcik, 2002). IDT professionals who work with or train K-12 teachers may be called upon to aid in their professional development, providing the background information and skills to enable educators and teacher candidates to meet NCATE standards (NCATE, 2000), ISTE (ISTE, 2001), and state standards (ISBE, 1999) concerning the effective and ethical use of instructional technology.

Recently, however, some have expressed concern over whether K-12 educators actually use instructional design in their preparation for instruction (Carr-Chellman, 2002; Young, Reiser, & Dick, 1998). Morrison recently verbalized this question when he wrote:

You are making the assumption that teachers use instructional design--that is probably a fatal assumption. We have not seen any evidence they use a design model, they might use a few design skills, but very, very limited. I would suggest that it is not even fair to compare designers and teachers as it is comparing apples and oranges. Both work under completely different assumptions and constraints. It is almost impossible to follow a traditional ID model in a K-12 classroom. Take a look at some of the ID models for teachers--most are quite different than the traditional ID model. For example, the ASSURE model in the Heinich et al book. Also, see our NTeQ model at www.nteq.com. Both of these models are more representative of the design teachers do than the Morrison, Ross, & Kemp or Dick & Carey models (G. Morrison, personal communication, February 20, 2002).

Consequently, because of this concern Kemp (2003) recently called on AECT to step forward and explicitly support the systematic design of instruction for educators.

Library Media Specialists and other technology specialists in K-12 education must also meet competency requirements in their work. A recent analysis by Downs, Jenkins, Repman, and Carlson (2002) indicated a need for a strong foundation in instructional design, as well as the unique competencies of effective information specialist skills, resource selection skills, and skills for cooperative planning with teachers (AASL & AECT, 1998). The authors noted that there was a disconnect between the theory of instructional design and the “real-world applications

practiced by library media specialists,” (p. 949), and cautioned that this should influence the approach used for training library media specialists in instructional design.

The ability to access current information is understandably a critical area of competency for library media and technology specialists. This need for information is often a life-and-death matter for those working in a military environment.

Military. Since World War II, the field of IDT has had a significant impact on training in the military. Military training is an expensive enterprise due to the need to train forces on current complex technology and weaponry. Training is only a portion of the budget, and policy-makers are often anxious to see methods that can reduce the bottom line of the defense budget, which in fiscal year 2000 was \$267 billion (Kennedy, H., 1999). Due to recent global conflicts and issues, interest in military training has risen to a higher profile both for purposes of defense readiness and peace-keeping and peace-enforcing operations (Andrews, Moses, & Duke, 2002). Furthermore, the push to create a “meaner, leaner” force (Beall, 2000, p. 56-57), has demanded reliance on a high level of training and familiarity with technologically advanced systems. Technology has had an impact on all aspects of military training and educational changes. This can be seen in the educational technology models and methodologies currently in use in the military (Roseman, 2001).

An area of IDT competency that appears to be in great demand in military training is knowledge of technological simulation systems. In the military, simulation is used to anticipate critical events as realistically as possible. “...Simulation can provide a surprisingly true-to-life experience, without endangering either life or equipment. In the field of military training, where weapons are deadly and equipment can cost many millions of dollars apiece, these are attractive attributes” (Kennedy, H., 1999, p. 1). Additionally, because today’s military forces are

distributed world-wide, knowledge and experience in designing distance learning environments is another IDT competency that is critical to such career environments. This emphasis is justified by the military's emphasis on the need for "anytime – anywhere instruction" (Andrews, Moses, & Duke, 2002, p. 214). As a recent example from just one branch of the military services, the Chief of Naval Education and Training oversees a network of training and education programs throughout the United States and on ships at sea with a "daily average of more than 43,000 officers and enlisted learners training at 30 bases in more than 4,000 different courses" (Roseman, 2001, p. 60).

Other competencies for military environments identified by Andrews, Moses, and Duke (2002) include the need for IDT research on training for digitized tasks and environments, and developing effective mission training (as opposed to procedures training) that requires the use of higher-order problem-solving skills in rapidly changing task environments. An area of IDT that appears to meld simulation, distance learning, and problem-solving instruction is distributed mission training (DMT). DMT links humans and simulators at multiple, geographically dispersed, sites via wide area computer networks. These combinations of live, virtual, and constructive simulation increase training realism (Alluisi, 1991).

Government. Today's government requires a highly educated workforce, however, the Merit Systems Protection Board reported in 2000 that the educational level is declining among federal new hires – "only 40 % had four-year college degrees in fiscal year 1998, down from 50 % in fiscal year 1994" (Lewis & Frank, 2002, p. 401). This presents a challenge for IDT professionals in government to design training for learners who have less formal educational preparation. Another area of competency for IDT professionals deals with the workings of government itself. Knowledge of federal and state codes and regulations as well as success in

applying for federal- and state-funded grants are important in both the public sector, and in private sector positions that interface with government agencies (Paetsch, 1991).

In the mid-1990s, the government began outsourcing many training programs, preferring to provide information and financial assistance to personnel to seek appropriate training on their own. It remains for another study to determine whether IDT practice for government agencies will continue this trend from in-house training operations to out-sourcing (Bassi, et al., 1996). If so, IDT competencies that will become critical for those involved in government training will include effective project management, oversight and evaluation of training consultants and services, and knowledge of how to provide quality IDT services through a contractual agreement.

Finally, Moallem's (1995) study of IDT job announcements identified 'knowledge of adult learning' as a competency listed in government and military job advertisements. The study also identified this as a competency desired for business and industry, but it was not cited in those advertisements for university, college, and school district jobs.

Summary

Table 4 presents the competencies emphasized in specific career environments. Results of this portion of the review of the literature concur with the study by Branch, et al. (1988): distinct business and academic markets for IDT professionals *do* exist. If IDT students are to be adequately prepared to pursue their professional goals, it may be necessary to design curricula and experiences which specifically prepare them for their career environment of choice (Branch, et al., 1988).

Table 4. Unique or emphasized areas of competency for specific career environments.

Career Environment	Area of Competency and Specific Skills
Business & Industry	<ul style="list-style-type: none"> ▪ The Basics: ability to think, write, and communicate orally and to make wise and wide use of instructional design and technologies ▪ Communication Competence (writing and technical writing, public speaking and presentation skills, ability to justify and communicate a sound business case for training solutions) ▪ Interpersonal Relationship Competence (motivation, coaching, persuasion, leadership, negotiation, team skills, cross-cultural awareness) ▪ Analytic Competence (critical thinking, problem definition and problem solving, performance gap analysis and strategy/intervention application, business research skills) ▪ Project Management Competence (project/resource management, contracting and outsourcing skills, customer-oriented outlook) ▪ Business Competence (systems thinking, organizational and industry knowledge, change management and coping, global solutions, cost-benefit analysis and return on investment studies, knowledge of business trends like performance improvement and emotional intelligence) ▪ New Technology Literacy and Competence (knowledge of recent technologies, evaluation of new technologies, online teaching/designing and distance education abilities)
Higher Education	<ul style="list-style-type: none"> ▪ Teaching experience ▪ Interpersonal skills ▪ Knowledge and/or experience in advanced multimedia technologies and computer-based instruction ▪ Expertise and track record in research ▪ Knowledge of and experience in applying learning theories to instructional designs ▪ Production of grant proposals ▪ Knowledge and/or experience in telecommunications and distance learning
K-12 Education	<ul style="list-style-type: none"> ▪ Knowledge and skills to meet federal and state standards ▪ Library media specialists require information specialist skills, resource selection skills, cooperative planning skills

Continued...

Table 4. Unique or emphasized areas of competency for specific career environments. (Cont.)

Career Environment	Area of Competency and Specific Skills
Military	<ul style="list-style-type: none"> ▪ High level of training and familiarity with technologically advanced systems ▪ Knowledge of technological simulation systems ▪ Training methods for digitized tasks ▪ Knowledge of Distributed Mission Training (DMT), combining live, virtual, and constructive simulation ▪ Knowledge or experience in program evaluation and needs assessment ▪ Knowledge of adult learning
Government	<ul style="list-style-type: none"> ▪ Training for learners with less formal education preparation ▪ Knowledge of federal and state codes and regulations ▪ Ability to apply for and obtain federal- and state-funded grants ▪ Project management, oversight and evaluation of training consultants and services ▪ Contracting IDT services ▪ Knowledge of adult learning

(Alluisi, 1991; Andrews, Moses, & Duke, 2002; Austin, 2002; AASL/AECT, 1998; AECT/NCATE 2000; Bassi, Benson & Cheney, 1996; Beall, 2000; Berge, et al., 2002; Braun, et al, 2002; Carlidge, Gerity, & Eastmond, 1999; Downs, Jenkins, Repman, & Carlson, 2002; Duderstadt, 2001; Furst-Bowe, 1996; ISTE, 2001; Kemp, 2003; Kennedy, H., 1999; Liang, 1999; McCabe & McCabe, 2000; Moallem, 1995; Morlan & Lu, 1993; Paetsch, 1991; Piskurich & Sanders, 1998; Reiser & Dempsey, 2002; Richey, et al., 2001; Roseman, 2001; Rossett, 1990; Rossett, 2000; Ruckdeschel, Yarter, Riveccio, Cortes, & Cookson, 1998; Salapek, 1998; Spector, 2001; Surrey & Robinson, 2001; Valkeavaara, 1998)

Context, Culture and Methods

In 1989, Brown, Collins, and Duguid introduced the educational community to the concept of situated learning. They submitted that many traditional teaching practices result in inert or unusable knowledge, or the inability of students to use what they know in relevant situations. Brown, et al., (1989) argued that learners are often unable to solve complex, real-world problems because they have learned rules and algorithms in school in a de-contextualized way. “To learn to use tools as practitioners use them, a student, like an apprentice, must enter

that community and its culture. Thus, in a significant way learning is...a process of enculturation” (Brown, et al., 1989, p. 33).

The essential element of situated learning, then, is context (Driscoll, 2002). Additionally, the theory emphasizes social interaction and the interaction of cultural factors (Driscoll, 2002). The specific methods used to situate learning within a relevant context include apprenticeship, role plays, simulations, and more. These context-based strategies and methods are discussed further in a subsequent section.

Situated learning had a big impact on the IDT community when it was introduced, and during the 1990s substantial research was devoted to testing the new theory (Driscoll, 2000). By 1997, Winn reported that a growing body of evidence supported the theory that what students actually learn is determined more by the situation in which learning takes place (the environment) than what the students brings to learning (prior knowledge and cognitive abilities). Situated learning is still characterized as an emerging theory, however, as it gains prominence, the importance of context is being given more attention.

Context. Context is defined as the “whole situation, background or environment that is relevant to a particular event,” (Tessmer & Richey, 1997, P. 87), and a learning system context consists of “those situational elements that affect both the acquisition and application of newly acquired knowledge, skills or attitudes” (Tessmer & Richey, 1997, p. 87). Learning and performance are embedded in contextual factors such as political or physical factors of the support environment. Furthermore, all these factors interact to influence learning (Tessmer & Richey, 1997).

Tessmer and Richey (1997) advanced the premise that context has a complex and powerful influence on successful learning, but is either ignored or deemphasized in most classic

ID models. ID models have traditionally been based on the premise that instructional solutions are “environmentally neutral” (p. 85) and applicable to all settings.

Contextual knowledge implies “knowing why, when, and where to employ specific concepts, rules, and principles” (Tennyson, 1992, p. 38), and it “represents a more complete understanding of human behavior, which is necessary for defining an educational learning theory” (p. 39). Knowing why, when and where to employ IDT concepts, rules, and principles is a characteristic of expert instructional designers. It is also a worthy goal for students planning to practice IDT. What does context consist of for the IDT student? Relevant IDT context refers both to the context of instructional design and the context of the career environment in which the student will practice.

Context of instructional design. Advanced study in any field implies a desire to emulate expert practice in that discipline. IDT graduate students are no exception. Their desire to develop the skills of an expert can be facilitated through immersion in the culture of practice (Cennamo & Holmes, 2001). Relevant IDT context, therefore, involves authentic experiences that immerse learners in the IDT community of practice. Immersion of this sort can be accomplished through internships and real-world design experiences, but it is also facilitated when IDT educators ‘practice what they preach’ and model the practices, thinking processes, and problem-solving strategies they promote. Cennamo and Holmes (2001) reported methods to accomplish this development of expertise include “modeling, coaching, scaffolding, articulation, reflection, and exploration” (p. 46).

In a study to assess the affect of ten situational factors on the use of the steps in the ISD model, Holcomb (1993) found that these factors did have a significant effect on the subjects’ design practices. She recommended that courses designed to develop students’ ID skills should

include consideration of such situational factors as time and money limitations, student expectations, target population size and characteristics, and organizational payoff (Holcombe, 1993).

Rowland, Fixl, and Yung (1992) outlined three important elements necessary to move the novice IDT student more directly from everyday problem-solving processes to skilled design processes: “learning in context, modeling of expert thought processes, and reflection” (p. 37). He linked these practices to develop an apprenticeship model of learning.

Context of the career environment. Tessmer and Richey (1997) stated that “successful instructional designs must be, to some extent, situation-specific. Effective instruction is context-rich,” (p. 89) accounting for the learners’ immediate and future work environments and organizational structures. Contextualizing the instruction to the future work environment “makes abstract concepts more concrete, promotes understanding and retention, as well as facilitates reinforcement and transfer of training” (p. 90).

When instruction is situated in either the target work environment or an approximation of that environment, students perceive the utility of the instruction to their future career goals. Clark, Dobbins, and Ladd (1993) found that the perceived career value of a particular training program was directly linked to learning motivation. In other words, when learners consider the material they are learning to be relevant to their career goals, they are motivated to learn.

Bohlin and Milheim (1994) write, “the instruction must have perceived relevance to the immediate or long-range personal needs of the learner. These personal needs can be met by matching the instruction to learners’ goals, [and] making the benefits clear” (p. 71).

Finally, in a study designed to explore the relationship between academic preparation and professional ID practice in business and industry, Julian (2001) stated that “because the field of

ID has become so rich and varied in terms of settings in which it is practiced, we can no longer discuss the profession without consideration of the environment of practice” (p. 16).

Consequently, the study of IDT should be situated in the environment of practice, both the instructional design environment and the career environment as matched to the students’ career goals.

Culture. Culture is an aspect of context (Tessmer & Richey, 1997) and the terms are sometimes used interchangeably. A culture consists of shared beliefs that are reflected in organizational policies and actions. For example, an organization with a learning culture will be committed to supporting the transfer of learning and continuous learning is recognized at the organizational level (Tessmer & Richey, 1997).

What is culture? King (1998) defined culture as “those behaviors and beliefs that guide an organization’s actions and can be described as its values, heroes, rites and rituals, and communication” (p. 33). She goes on to give examples of items that can describe the culture of an organization, including its system of reward and recognition, the leaders’ expectations and support for training, and the formal structures and policies which guide the activities of the organization. For example, some environments value individual creativity while others stress conformity; some are decentralized while others are centralized; and some stress employee empowerment while others adhere to a strict approval cycle. Powell (1997) defined culture as “the sum total of ways of living, including values, beliefs, aesthetic standards, linguistic expression, patterns of thinking, behavioral norms, and styles of communication, which a group of people has developed to assure its survival in a particular physical and human environment” (p. 15).

There are cultures and values in each of the possible IDT career environments. “For training settings, the organizational environment is typically a company culture” (Tessmer & Richey, 1997, p. 102). The company culture is often referred to as *corporate culture*. McBer and Company, a Boston-based organizational consultant, developed a list of six key cultural factors about which companies typically have a written or unwritten statement: conformity, responsibility, standards, rewards, clarity, and team spirit (Heritage & Davidson, 2002). Consequently, Cabral-Cardoso (2001) indicates that individuals with different values are attracted to different organizations.

The culture frames all activities that occur. Meaning and purpose are socially constructed through negotiations among present and past members (Brown, et al., 1989). When students do not consider differences in culture prior to graduation, they may end up in an environment that is inconsistent with their own values, beliefs, and principles. Trimby (1982) cautioned that the IDT graduate should be aware of potential differences between academia (or *formal education*) and business and industry (*training situations*). She strongly recommended that the factors on which the two environments differ be considered and weighed prior to making a decision on career environment. Bartell (2001) stated that it is at the level of culture that problems should be addressed for culture is the “origin of the most fundamental, underlying beliefs that guide human behavior in an organization” (p. 357).

Most aspects of culture deal with the affective domain. Tennyson (1992) reports that traditional ID models and practices have de-emphasized the affective domain while more recent research has indicated that the affective domain may actually dominate the cognitive domain. Affective variables include such items as motivation, feelings, attitudes, emotions, anxiety, and values. As an illustration of this domination: values or anxiety may determine whether or not an

individual learns the information presented in a gun safety course. Tennyson stresses that the affective component needs to be considered as part of the knowledge base.

Thomas, et al. (2002) argued that “culture is central to meaning making and cognition in general and that instructional designers must, therefore, incorporate culture into the systemic [integrated, holistic, and multidirectional] design of instruction” (p. 42). Thomas, et al. (2002) emphasized that culture is so much a part of the construction of knowledge that it should “underpin not only the analysis phase but all phases of the design process” (p. 41). Summers, Lohr, and O’Neil (2002) claim that “the cues in the corporate world look very different to the novice designer than the cues they received in their academic preparation” (p. 27). Summers, et al. (2002) emphasized that if at all possible, training cues need to match closely to the cues in the work setting.

Thomas, et al. (2002) discussed that others had proposed adding an iterative approach to the traditional ADDIE (Analyze, Design, Develop, Implement, and Evaluate) instructional design model. They proposed that a cultural dimension also be added. This cultural dimension would have three parameters: intention, interaction, and introspection. The *intentional* attribute of learning would be encouraged through reflection to make sure the designer is considering and making their cultural bias explicit. The *interaction* parameter would involve the collaboration of designer, subject matter expert (SME), and end user throughout the model phases to facilitate the melding of culture into the end product. Finally, *introspection* on the part of designer ensures that he or she is considering his or her own thoughts, beliefs, attitudes, desires and feelings toward the cultures represented in the instruction.

The researchers recommend use of this model to enable learners to grasp how reflection, interaction and introspection work together to enhance the design process (Thomas, et al., 2002). “The designer’s world view cannot be divorced from his societal context; therefore, it becomes critically important that the designer becomes introspective in his approach when designing instruction” (p. 44). The core of this *societal context* and *world view* that the researchers speak of refers to the individual’s (and the organization’s) value system (Tasker & Packham).

The differences in value systems between career environments are substantial. Tasker and Packham (1993) defined value as something with “personal meaning which is derived from what is of value and gives purpose to individuals or groups” (p. 128). To further consider the differences in culture and value systems between career environments, refer to the comparative list in Figure 7, which illustrates that many of the values are incompatible. Tasker and Packham (1993) used the term “incommensurable” (p. 135) to describe them, and warned that these differences must be acknowledged, respected, and made explicit to avoid destructive conflict where the interests of industry and universities meet. The differences in cultures is further support by Barnum’s (1979) study. Barnum (1979) compared an academic theoretical model of ID with an applied, pragmatic design from business and industry. He found that the models resulted from “two radically different environments, an idealistic, academic approach and a heavily pragmatic, training product marketing approach” (p. 269).

The point is that differences in cultural factors between career environments may have a significant impact on the ability of IDT students to transfer their skills from the academic environment to many other career environments (Summers, et al, 2002). In the case of business and industry, Leveson (2000) stated, “because of the differences in the cultural contexts of academia and work, an automatic transference of skills cannot be assumed” (p. 161). The

research suggests, however, that IDT educators may be able to provide limited acculturation through situated methods and learning experiences (Summers, et al, 2002).

The challenge to be met is the design of learning environments that allow students to develop their own interests, yet provide students with comprehensive skills that can be applied in a wide range of potential contexts (Carver, Lehrer, Connell, & Erickson, 1992, p. 402). Tessmer and Richey (1997) reported that the instructional design literature contains very little information on how to identify and accommodate context. However, the literature also reports success in preparation attempts when instructors include practice using ill-defined problems in authentic settings using such strategies as case studies, real-world experiences, studio experiences, and more (Julian, 1999). Such methods are the topic of the next section.

	Higher Education	Business & Industry	Military	Government
Purpose & goals	<ul style="list-style-type: none"> • To generate knowledge through collaboration between scholars, not competition, and in such a way that society as a whole benefits • To educate learners & expand the boundaries of knowledge through disciplined inquiry 	<ul style="list-style-type: none"> • To generate profit for private gain, usually in competition with other companies • To increase productivity and maximize the financial position of organizations 	<ul style="list-style-type: none"> • To protect, defend & preserve the country 	<ul style="list-style-type: none"> • Deriving its just powers from the people, governments are instituted to protect the rights of the people; to secure the “unalienable rights” of Life, Liberty, and the pursuit of Happiness
Contextual Features	<ul style="list-style-type: none"> • Resist change • Authority diffused to individual faculty members and committees for decisions • Highly traditional 	<ul style="list-style-type: none"> • Definite & precise deadlines 	<ul style="list-style-type: none"> • When not at war, in training • Strong hierarchical structure 	<ul style="list-style-type: none"> • Pervasive influence of politics • Frequent change in political leadership & policy direction • Absence of well-defined measures of success • Democratic accountability • Rules of procedures
Basic Values	<ul style="list-style-type: none"> • Academic freedom of scholars & the institution • Academic rigor • Disinterested pursuit of knowledge • Intellectual integrity & freedom of expression in teaching & research • Intellectual integrity • Freedom of expression in teaching & research • Take the time to do it right • Inquiry-oriented culture 	<ul style="list-style-type: none"> • Capitalist values • Pragmatism • Time is money • Transferable intellectual and social skills • Outcomes-based culture 	<ul style="list-style-type: none"> • Duty, honor, country • Discipline & integrity • Competence, physical courage, moral courage, teamwork, confidence, trust, delegation, cooperation 	<ul style="list-style-type: none"> • Public service • Security • Respect for the law & democratic institutions • Political neutrality & provision of impartial advice • Integrity & pride in work • Fair, honest & impartial treatment of people • Public accountability & probity • Commitment to the principles of equity & merit • Ethical behavior • Work place free from harassment
Stereotype others have of them	<ul style="list-style-type: none"> • Researchers aren’t doers • Can’t meet deadlines • Too theoretical & don’t have any practical experience • Don’t know how to communicate (speak or write) in plain English 	<ul style="list-style-type: none"> • Not creative • Only interested in the bottom line • Work environment is boring with no opportunity for creativity 	<ul style="list-style-type: none"> • War “hawks” • Rigid; unwilling to compromise - “my way or the highway”-types • All brawn and no brains • Trapped in bureaucracy 	<ul style="list-style-type: none"> • Potentially ineffective/inefficient because personnel policies insulate them from dismissal • Mired in bureaucratic red tape • Always go for the low bid/low quality

(Clark, 2001; Davidson-Shivers, 2002; Durzo, 1981; Jefferson, Adams, Franklin, Livingston, & Sherman, 1776); Knowles, 1977; Leveson, 2000; Stolovitch, 1981; Tasker & Packham, 1993)

Figure 7. Comparison of cultural aspects of different career environments.

Methods. A more traditional or classic approach to IDT professional preparation has featured showing students how to carry out a set of procedures, providing them with simple examples, and possibly requiring them to carry out a short project (Rowland, Fixl, & Yung, 1992). However, in the recent literature, IDT educators have emphasized that the “how” of IDT preparation should reflect professional practice.

Early evidence of this movement can be seen in the early writings of Rossett (1981) who generated a list of authentic learning experiences for IDT students for purposes of strengthening the link between the academic world and the community. The methods she suggested included training students in problem-solving by engaging them in authentic opportunities to meet community needs on real-world projects, internships, and other occasions for collaboration between the community and the universities. These methods were re-emphasized in the early- to mid-1990s by IDT educators who emphasized that these experiences would provide students with opportunities to learn problem-solving in authentic contexts under the guidance of experts (Ertmer & Cennamo, 1995; Quinn, 1995; Rowland, 1994; Tripp, 1994).

Tripp (1994) made two suggestions concerning the “how” of professional IDT preparation:

1. provide students with opportunities to study the product and process “masterpieces” of the field (excellently designed and developed instructional products and master teachers in action),
2. provide a “design studio” to incorporate an apprenticeship experience into student’s education, featuring real-world problem-solving without the associated risks or pressures, a studio teacher/mentor to guide students and share experiences, a jury of experts who would share knowledge and criticism and would judge the final projects, and an actual

dedicated workplace/studio which would provide the hands-on bridge between theory and practice.

Rowland, Parra, and Basnet (1994) and Quinn (1995) extended and added to Tripp's ideas to come up with a larger list of authentic, situated experiences. Some of these ideas (listed below) grew from constructivist theory and situated learning, which emphasized new approaches for conveying problem-solving skills for ill-defined problems, complex problems and learning tasks (Driscoll, 2000).

By the end of the 1980s, many graduate schools had begun to experiment with these practical hands-on experiences, and they are still being implemented, tested and modified in IDT programs today (Julian, 2000). They include:

1. *Public presentations* – Students work either individually or as a team on a project and then present them when complete to their professor, class, university, or panel of experts. Benefits include: open discussion regarding design, input from multiple perspectives, and practice verbalizing design rationale (Rowland, 1994).
2. *Real projects from visiting experts* – Professional design practitioner presents a real problem to the class, the class carries out analysis and design activities as a team and presents and defends their resulting design to the professional. Benefits include: comparison to expert practice, practice verbalizing and defending design rationale; real-world experiences strengthen and add to students' skills repertoire (Rowland, 1994; Cennamo & Holmes, 2001).
3. *Competitions* – Students work individually or as teams to complete a design project for the same problem in a competitive situation. Benefits include: autonomy in design

activities, instructor gradually decreases guidance and scaffolding until team is working on its own, competition increases the challenge (Rowland, 1994).

4. *Study of masterworks* – Provide students with the opportunity to view and study both exemplary and non-exemplary IDT products, designs, and performances. Benefits include: sharing multiple perspectives on interpretations and criticisms, exposure to masterworks of design (Rowland, 1994; Tripp, 1994)
5. *Case studies* – Provide students with text, video or web-based case studies to solve, allowing them to experience authentic design situations vicariously or as pseudo-participants. Benefits include: experience with how concepts are used and processes occur in authentic contexts, practice in problem-solving skills, possibility of expert modeling from the instructor, and opportunity for reflection before, during and after the learning process (Ertmer & Quinn, 2003; Julian, 1999; Kinzie, Hrabe, & Larsen, 1998; Rowland, 1994)
6. *Design studios* – Development of an instructional design studio encourages interaction between the instructor and students and between students to examine and evaluate products, jointly explore design processes and the factors influencing design decisions and their consequences. Projects assigned would become increasingly complex. Benefits include: multiple perspectives, opportunity to work collaboratively on projects, and to interact with the expert instructor and peers (Rowland, 1994).
7. *Internships and apprenticeships* – Internships and apprenticeships provide the ultimate authentic experience for students to work on real problems in real settings. Benefits include: authentic complex problem-solving, interaction as a professional with managers,

subject matter experts, and clients, practice of interpersonal skills and working under a mentor (Rowland, 1994).

8. *Community/University Collaborative Projects* – In cooperation with community partners, students are assigned actual design projects and complete all or a portion of the design project and present the results and business justification formally to the client (Cennamo & Holmes, 2001; Ertmer & Cennamo, 1995; Kapp & Phillips, 2003; Quinn, 1994; Rossett, 1981).

These methods support the concept of authentic environments, providing relevance for students in their preparation for professional practice (Rowland, 1994). Further theoretical justification for these methods concerns the concept of reflection, or the process of engaging in reflective conversation with oneself and others to make sense of learning experiences and deepen understanding (Rowland, 1992). Reflection is not a new idea. John Dewey (1933) emphasized the importance of reflective thinking in the 1930s, claiming that if students do not reflectively think about the content they are studying, the knowledge cannot be useful. Schon (1983, 1987) elaborated on the idea, developing a Theory of Reflective Practice, which prompted one of the most significant shifts in IDT professional preparation.

Schon (1987) emphasized that systematic rules or technical knowledge of a profession and their application was not enough. Students must also build practical competencies such as problem-solving, reflection and application of prior experiences that professionals employ in unique situations. Soon after, others advocated the concept (Winn, 1997; Quinn, 1994) and began to incorporate the three elements of Schon's reflective practice (1983, 1987) into their programs:

- *knowing in action* (spontaneous, non-logical thinking processes or behaviors during an event),
- *reflection in action* (making sense of a unique situation as it evolves, the professional's intuitive understanding of the situation and the process they are using to resolve the situation; on-the-spot analysis and evaluation), and
- *reflection on action* (when the professional stops to reflect on an event to plan a strategy for resolution; used only when pausing to think does not result in serious consequences)

To accomplish this type of reflection, Schon (1987) recommended using a practicum studio experience. The studio experience provides an environment that promotes reflection under the guidance of an expert practitioner who coaches students as they solve problems and generate solutions. The expert-instructor would model the problem-solving thought processes to enable learners to develop an awareness of quality and the interrelationships in the process.

Another technique that is often carried out in conjunction with the above methods is the cognitive apprenticeship. It was Collins, Brown and Holum (1991) who first introduced the concept of cognitive apprenticeships, emphasizing that "teaching methods should be designed to give students the opportunity to observe, engage in, and invent or discover expert strategies in context" (p. 43). These conditions facilitate the use of cognitive apprenticeships to make thinking visible. A cognitive apprenticeship is an instructional paradigm for teaching that is best suited for teaching complex tasks. For cognitive apprenticeships, Collins, et al. (1991) recommend using six teaching methods that can be clustered into three groups:

1. *Modeling, coaching, and scaffolding* (the core of cognitive apprenticeship, designed to help students acquire an integrated set of skills through observation and guided practice)

2. *Articulation and reflection* (methods designed to help students both to focus their observations of expert problem solving and gain conscious access to and control of their own problem-solving strategies)
3. *Exploration* (aimed at encouraging learner autonomy in carrying out expert problem-solving and in defining and formulating the problems to be solved).

More recently, researchers have expanded efforts to integrate meaningful problem-solving experiences in authentic contexts with cognitive apprenticeships and other instructional techniques. For example, in a study designed to investigate the factors contributing to powerful learning experiences, Rowland and DiVasto (2001) found both learners and expert IDT professionals agreed that those activities carried out in authentic situations were primary. Learners indicated they felt that the presence of a good mentor and time for reflection were also important factors contributing to powerful learning experiences. In a follow up study, Rowland, Hetherington, and Raasch (2002) tested these factors with a less diverse group and found that the factors especially important in making a learning experience powerful include “relevance to one’s work and/or life, active learning, and positive relationship with an instructor” (p. 29).

Cennamo and Holmes (2001) developed an IDT clinical course to address the needs of students for immersion in the practice of instructional design. They used elements of cognitive apprenticeship, a method using explicitness and practice and expert modeling by the instructor to expose students to the thought processes and problem-solving involved in instructional design. The students tackled real-world problems on projects with clients from outside the university, providing them with an authentic design experience.

Julian (2001) interviewed IDT practitioners to collect information on the skills they used and what skills from their academic program were most helpful to them in transitioning from the

university to the work world. Her participants felt that applied skills and knowledge should directly reflect actual practice and they identified four instructional methods they considered appropriate for developing their skills and knowledge for professional practice: “discussions with expert instructional designers and business owners, explorations of real-world examples, real-world projects, and case-studies” (p. 359). They also expressed an appreciation for those instructors who coached them through their projects and helped them reflect on their options and evaluate their decisions.

This coaching is a part of the whole mentoring process, one aspect of which is helping students discover the career environment that will be the best fit for them (Summers, et al., 2002). Educators Sugar and Betrus (2002) do this through the use of an instructional card game that introduces students to five instructional designer *archetypes*, each of which has a different set of competencies. The archetypes include (a) designer as problem-solver, (b) designer as artist, (c) designer as user, (d) designer as counselor, and (e) designer as performer. By playing the game, the students’ understanding of these archetypes and ultimately their understanding of the field is enhanced (Sugar & Betrus, 2002).

Summary

The literature recommends that academic preparation programs for IDT include practice using ill-defined problems in authentic settings, using case studies, studio experiences, and more (Ertmer & Cennamo, 1995; Julian, 2000; Quinn, 1995; Rowland, 1994; Thomas, et al, 2002; Tripp, 1994). Consequently, to provide authentic settings and problems for students entering different career environments requires that the learning experience be geared to the context of the

specific career environment. This supports the development of different learning experiences for students with different career goals.

Summary of Literature Review

From the literature cited in this document, the largest variation in IDT practice and competency requirements appears to occur in the business and industry career environment (Berge, et al., 2002; Furst-Bowe, 1996; Liang, 1999; Moallem, 1995; Morlan & Lu, 1994; Piskurich & Sanders, 1998; Reiser & Dempsey, 2002; Richey, et al., 2001). Several studies have been done concerning the content of preparation programs for students. However, most of these studies are dated, especially in light of the substantial changes occurring internally and externally in the IDT field today. Furthermore, there is little in the literature concerning the contextual and cultural aspects of professional preparation for different career environments.

Differences in other career environments are less involved. Again, there is very little in the literature to suggest how IDT students should prepare for professional practice in these environments. However, because of the limited nature of these differences, preparation for these environments may involve merely adding a few additional courses, recommending interdisciplinary coursework, or adjusting methods (e.g., include more courses on technological innovations for those entering military practice, recommend that students entering business and industry environments take business coursework on organizational development, or provide simplified design models for usage in K-12 practice). Additionally, the issue of how much K-12 educators actually use design procedures will need to be resolved (Kemp, 2003).

It is also possible that the differences in practice and competency requirements may be dependent on the specific IDT position or role (e.g., whether they are the SME or are acting as a

consultant, or if they are entering a service position in higher education as opposed to a teaching position). Preparation for these environments might therefore be accomplished through the adjustment of curriculum to reflect multiple perspectives, or through the addition of certain topics to the curriculum (for example, grant writing or interviewing skills).

Some IDT academic preparation programs do make special efforts to tailor programs to the career goal of the students. One example of this is Indiana University, Bloomington, Indiana. One of their three program emphasis areas, Implementation and Management, provides coursework that highlights skills needed for the business and industry career environment (Indiana University, 2003). This fact can only be ascertained by close study of the course descriptions published. Furthermore, Indiana has not published a philosophy of preparation by career environment.

Florida State University is another example of an institution that has made changes to their program to align it with the career goals of students. That institution is adjusting to accommodate students wishing to enter the market as human performance technologists (Ruckdeschel, et al., 1998; Dick and Wager, 1995). However, neither the specific program curriculum nor the philosophy has been fully described in the literature. In fact, in the 1995 directory of curriculum in educational technology (Johnson, 1995), only four universities indicated a masters major that was specific to performance improvement:

- University of Idaho, Boise offers an M.Sc. in instruction and performance technology
- Wayne State offers an M.Ed. in Business/Human Services training
- Governors' School in Illinois offers an M.Sc. in human performance and training
- University of New Mexico offered an MA in training and learning technology (Johnson, 1995).

The IDT field as a whole will continue to evolve and will eventually need to come to grips with the changes taking place in theory, education, and the workplace. IDT is not alone in the effort. The February 2003 issue of ISPI's on-line *Performance Improvement Journal* (ISPI, 2003) marked the start of a four-month invitation to readers to dialogue concerning the direction of the Society and the field of HPT. ISPI's Roger Kaufman, a professor in needs assessment and planning at Florida State University, articulated many of the issues facing not only ISPI and those practicing HPT, but also those in the field of IDT when he commented on the proposed on-line dialogue:

Arguments abound about whether or not instructional systems design (ISD), human performance technology (HPT), training, e-learning, learning objects, quality management, behaviorism, cognitivism, or constructivism is the way to go. Arguments are usually based on biases about means, not on research and the pragmatic feedback from sensible application.... This testing of ideas and the public discourse takes us out of a *secret society* and a *true believer's* posture and into modeling what it is we might do for our clients and our world (Kaufman, 2003, p. 6).

In addition to ISPI, ASTD is now also defining itself through a shift from training to performance (Rossett & Tobias, 1999). The task of deciding which way to go has very similar challenges for the field of IDT, and whatever directions the field takes, professional preparation programs will need to follow suit.

Borthwick, Handler, and McGrath (2001) reported that educators of tomorrow's professors have not yet found a way to clearly articulate and share what they are doing in their doctoral programs. They called for a discussion to enable different institutions to understand the

various missions and visions and help build a common vocabulary and understanding. That discussion took place at a round table session at the 2001 SITE conference. Unfortunately, Borthwick indicated in a recent personal communication that the round table session had never been written up and published (A. Borthwick, personal communication, March 5, 2003). The need still exists to communicate what different IDT programs are doing to prepare students to enter professional practice in a variety of career environments.

Problem and Research Questions

Instructional Design and Technology (IDT) students enter a broad range of career environments and positions following graduation. A wide range of competency requirements and design practices exist for these career environments and the job roles within them (AECT, 2000; Richey, Fields, & Foxon, 2001). In many of these career environments, the organizational culture (values, beliefs, assumptions, and attitudes) differs significantly from that of higher education where IDT students receive their formal training (Tasker & Packham, 1993).

This study was designed to determine what IDT programs are doing to prepare students for differing career environments, and how well they are doing it. The topic of preparation is complex and needs to be systematically and systemically explored since preparation programs are shaped by IDT practice, which is in turn shaped by a variety of changing and controversial topics in the field (Hannafin & Hill, 2002; Liu, et al., 2002).

Some elements of the topic, such as competencies for different career environments, are addressed in the literature (AECT, 2000; Richey, et al., 2001). Others (especially differences in organizational culture across career environments) are not thoroughly addressed in the literature. Consequently, there are no guidelines or established models available to guide IDT educators

wishing to prepare students for professional practice in different career environments. What *is* being written on the topic is spread across a variety of venues in journals read by a variety of audiences.

There is, therefore, a gap in the research concerning how, and how well, IDT students are prepared for professional practice in different career environments. Consequently, there is a need to present a detailed view of the topic so that the different audiences can begin to dialogue on what the phenomenon means to the IDT community as a whole. Such a dialogue could potentially culminate in a model of IDT preparation for different career environments. To that end, this study was designed to answer the following questions:

1. How do IDT programs prepare students for professional practice in different career environments? In general, can they be characterized as specific-environment programs (designed for a specific career environment), non-specific or generalist programs (designed to accommodate all career environments), or personally-tailored programs (providing a large degree of flexibility for students to plan to their own career goals)?
2. Are specific-environment programs more successful in preparing practitioners than non-specific or generalist programs, as evidenced by the receipt of an exemplary rating from practitioners?
3. According to practitioners, how and how well have they been prepared for practice, specifically with respect to design practices or cultural issues (values, beliefs, attitudes and assumptions) that may vary across career environments?
4. What are the philosophies of IDT educators in an exemplary program concerning IDT professional preparation for different career environments and the cultural aspects of those environments?

5. On what type of experiences do educators base their philosophies of IDT preparation?
6. How does an exemplary IDT preparation program instantiate the philosophies of its educators?

CHAPTER 3 – METHODOLOGY OVERVIEW & PHASE I METHODS

The primary purpose of this study was to identify how, and how well, IDT programs are preparing students for professional practice in different career or work environments.

Specifically, the study was designed to:

- identify how IDT preparation programs are preparing students for professional practice in different career environments: through specific career environment programs, generalist (non-specific) programs, or through flexible programs that can be customized by students to fit their career goals,
- identify programs that are rated as exemplary by practitioners for preparing them for professional practice in their career environment, and to
- identify what IDT educators in exemplary programs are doing to address issues that may differ across career environments.

This chapter outlines the approach that was used to answer the research questions in this study. It provides details on the research design, participants, instruments, implementation procedures and analyses employed.

Research Design

This study used a mixed methods approach. The mixed method research approach is so named because it combines elements of several other research approaches in an attempt to better understand a phenomenon. The mixed methods employed included a quantitative survey and a qualitative case study designed to provide a descriptive picture or “snapshot” of current IDT preparation practices. The study was implemented using a two-phase, sequential approach. Phase I consisted of the *survey* (both a mail and online implementation) which was used to determine

the match between preparation and practice as experienced by IDT practitioners, and to identify an exemplary IDT program to be studied further. The results of Phase I were used to inform Phase II, which consisted of a *case study* of the exemplary program identified from the survey analyses. In addition, data on the relevance of, and preparation for various aspects of organizational culture (values, beliefs, attitudes, assumptions and customs) were gathered from both phases of the study, and these data were compared to produce a final analysis of cultural preparation for career environments. As a result, the study contained descriptive, quantitative, and qualitative elements.

The research design, instruments used, and methods employed in the study were guided by the following research questions:

1. How do IDT programs prepare students for professional practice in different career environments? In general, can they be characterized as specific-environment programs (designed for a specific career environment), generalist programs (designed to accommodate all career environments), or flexible programs (that can be customized by students to fit their own career goals)?
2. Are specific-environment programs more successful in preparing practitioners than generalist programs, as evidenced by the receipt of an exemplary rating from practitioners?
3. According to practitioners, how and how well have they been prepared for practice, specifically with respect to design practices or cultural issues (values, beliefs, attitudes and assumptions) that may vary across career environments?

4. What are the philosophies of IDT educators in an exemplary program concerning IDT professional preparation for different career environments and the cultural aspects of those environments?
5. On what type of experiences do educators base their philosophies of IDT preparation?
6. How does an exemplary IDT preparation program instantiate the philosophies of its educators?

A visual model of the research design and strategy is presented in Figure 8, and the chapters of this document mirror this strategy.

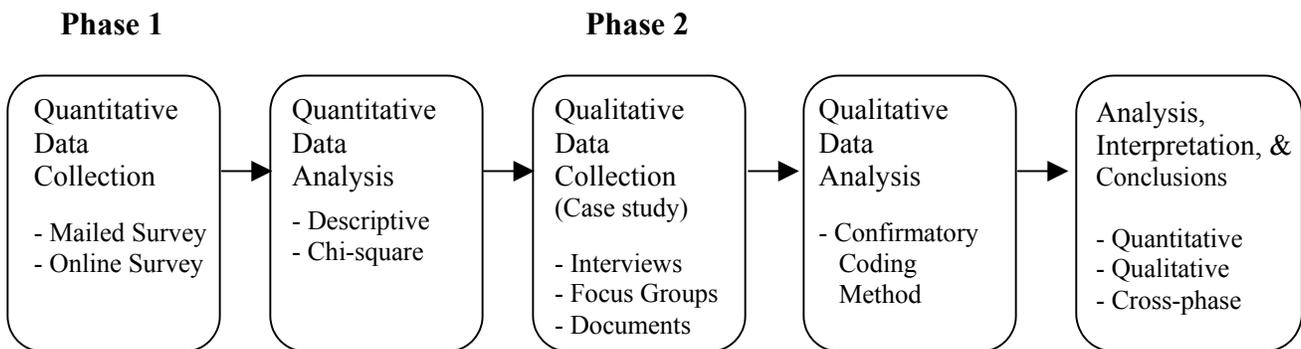


Figure 8. Sequential, mixed methods research design model.

Description and Basis of the Mixed Methods Research Approach

Creswell (2003) identifies three major elements that make up a research approach: knowledge claim, strategies of inquiry, and research methods. The mixed method approach is based on pragmatic assumptions or claims concerning knowledge, and is concerned with applications and solutions to problems (Creswell, 2003). A mixed methods approach focuses "attention on the research problem in social science research and then [uses] ... pluralistic approaches to derive knowledge about the problem" (Creswell, 2003, p. 11-12). Pragmatism is not committed to any one system of philosophy and reality, and therefore mixed methods studies

draw "liberally from both quantitative and qualitative assumptions" (p. 12) when used in research.

The mixed method approach is so-named because it advocates the use of a combination of inquiry strategies and methods. Furthermore, mixed methods are appropriately named because they collect diverse types of data to enable the best understanding of the research problem. The research methods used for data collection and analysis consist of both predetermined and emerging methods, open- and close-ended questions, and both statistical analysis (quantitative – in this study, descriptive statistics) and text analysis (qualitative – in this study, the text of interviews and documents) (Creswell, 1998; 2003).

The mixed method approach is also characterized as answering the need to both explore and explain (Creswell, 2003). The topic of IDT preparation for different career environments and goals is a problem that requires both exploration and explanation. To answer this need, the study collected both quantitative (explain) descriptive data and qualitative (explore) data, in a two-phase approach. Quantitative methods were used *to explain what* is currently being done to prepare students for practicing instructional design in different career environments, and a qualitative case study was used *to explore how* an exemplary program prepares students for professional practice in different career environments.

Phase I Quantitative Survey

Phase I of the study was quantitative in nature. Data was collected using both an online and a mail survey instrument to survey instructional design practitioners, and to provide:

1. a demographic picture of the instructional design population accessed through the study;
2. practitioners' descriptions and ratings of their academic preparation programs;

3. data on those aspects of organizational culture that became issues for practitioners and of those issues, which ones they had been prepared for during their academic studies; and
4. preparation program ratings and a list of exemplary preparation programs that informed the selection of an exemplary program for the case study portion of the research.

The survey was developed with questions to identify the current work environment and duties of practitioners, their academic preparation experiences, and how that preparation aligned with the challenges they experienced once they entered the workforce. The survey had four sections: a demographic section, a section on general instructional design preparation, a section on cultural aspects that were issues and the participant's preparation for those issues, and a section asking the participant to rate their own IDT program and to list other programs they felt were exemplary for preparing students to practice instructional design in their career environment. The mail version of the survey is included in Appendix H.

Rationale for Survey Research

Survey research is used for purposes of generalizing “from a sample to a population so that inferences can be made about some characteristic, attitude, or behavior of this population” (Creswell, 2003, p.154). The *Instructional Design Career Environments Survey* was designed specifically for this research study, and was designed to ascertain the match between IDT preparation and practice for specific career environments. Instructional design practitioners were surveyed to determine how IDT programs prepare students for professional practice in different career environments. This information could just as easily have been obtained by surveying IDT educators. The approach of going to practitioners, however, enabled the researcher to find out not only *what* is being done in preparation programs, but also to ascertain *what it is that is*

particularly successful in preparing students for practice in different career environments. In other words, it enabled the researcher to identify exemplary programs and to avoid the potential bias that could have been introduced by asking IDT educators to identify successful preparation programs and practices.

Survey Development and Pilot Testing

Efforts were made to standardize the presentation of the survey through pilot testing and revisions. However, due to a delay in revisions to the online survey, two questions and a section on workplace cultural aspects were substantially different between the first and second online versions of the survey. The initial online version of the survey asked participants to indicate whether any of a list of 47 cultural aspects had been an issue for them when they entered the workforce. “Issue” was defined as something that had required the respondent to expend more effort than desired to adjust. The respondent was then asked to rate their preparation for only the cultural aspects/issues they had marked by using a four-point Likert scale: 0 – *no preparation* on the cultural aspect, 1 – the participant was *made aware* of the cultural aspect by their program, 2 – their program provided *some preparation* on the cultural aspect, and 3 – program *fully prepared* the participant to handle the challenge of that cultural aspect. In contrast, the second online version of the survey merely asked participants to indicate whether or not each of the 47 aspects had been issues for them and which of the 47 they had been prepared for in their academic program. Adjustments in the analysis process were made to account for these differences. The second version of the online survey and the mail survey were identical in content.

Validity and reliability. The trustworthiness of the survey was established through provisions for validity and reliability. The external validity, or generalizability, of the survey findings to the larger population of IDT practitioners was accomplished through design features. Satmetrix (2001) states that one of the drawbacks to web-based surveys is that they can be generalized only to those respondents who have email or web access. Due to the nature of the occupations of the population surveyed (instructional design and technology professionals), email and web access limits were not a factor in this survey.

To improve reliability and validity, both the mail and online versions of the survey were pilot tested prior to their administration. The survey was pilot tested by a convenience sample of representatives from six different career environments: business and industry, higher education, K-12 education, government/military, health care, and non-profit. The suggestions of all pilot test participants were considered and incorporated in revisions to both versions of the survey.

In the design of the survey, an effort was made to provide a range of answers for each question that exhausted the possibilities and provided mutual exclusivity (Sapsford, 1999), however, the choice of “other” with a line or text box for a description were also supplied for those questions for which a complex or vast array of answers was anticipated. A final, open-ended question was included at the end of the survey to provide participants with the opportunity to add information they felt was important but was not solicited in the questions, or to clarify or qualify one of more of their answers. This question was included to “maximize the chance of capitalizing on individual variation” (p. 117) and to enable the participant to share ideas that may not have occurred to the researcher, thus increasing “the validity of the information by cutting down on the influence which a highly pre-structured question can have on the answers which are given” (p. 117).

The third section of the survey asked participants to indicate the extent to which their program prepared them for or addressed certain aspects of work place culture, which reflected the values, beliefs, attitudes and assumptions that may differ across career environments. These aspects were constructs gleaned from the literature and verified through the administration of the instrument. The findings section notes those aspects that at least 40% of the respondents indicated had become issues for them when they first entered professional practice. An “issue” was defined for participants as an aspect of the environment that that required them to expend more effort than desired to adjust.

Mail Survey Data Collection

The mail version of the survey was sent to a systematically-selected sample of practitioners from three special-interest divisions of the Association for Educational Communications and Technology (AECT). At the time that AECT provided the mailing lists, the three divisions had a combined membership of 774. The three divisions included the Instructional Design and Development Division (with 384 members), the Training and Performance Division (with 144 members), and the Distance Learning Division (with 246 members).

Participants. Participants in the mail version of the survey consisted of a systematic sample of the three divisions of AECT. In a personal communication on December 1, 2003, the AECT executive director indicated that AECT was in the process of updating their membership information and he provided an estimate of the makeup of the current membership. The director estimated that 60.0% of the membership consists of university faculty and graduate students in schools of education and programs for instructional design and technology and information

technologies. The remaining 40.0% of the membership is about evenly divided: 20.0% consisting of K-12 public school classroom teachers and technology administrators, and 20.0% consisting of private sector and military members involved in training functions (Philip Harris, personal communication, December 1, 2004).

Implementation. A total of 254 surveys were mailed, accompanied by a letter from the executive director of the organization (see Appendix I). The number of surveys was determined by consulting Leedy and Ormrod (2001), who provide guidance on the selection of an appropriate sample size. Citing Gay (1996), Leedy and Ormrod (2001) indicate that for small populations ($N < 100$), there is little point in sampling and the entire population should be surveyed; for populations of around 500, 50.0% of the population should be sampled (or 250); and if the population size is around 1,500, 20.0% should be sampled (or 300). Beyond a certain point (approximately $N = 5,000$), the population size is almost irrelevant and a sample size of 400 is adequate (or 8%) (p. 221). At the time of the survey, the membership of the three AECT divisions was 774. Using Leedy and Ormrod (2001) as a guideline, this would place the sample size between 250 and 300. A sample size chart developed by the National Education Association provides a more exact amount, placing the sample size number for a population of 774 at 254 (Krejcie & Morgan, 1970). The systematic sample was “selected by taking every n th case, where $1/n$ is the *sampling fraction* – the population size (774) divided by the sample size (254)” (Sapsford, 1999, p. 67). In this case, the mailing lists for all three divisions were combined alphabetically and every third case (774 divided by 254) was selected from the sampling frame of 774 names.

The survey was mailed on February 27, 2004. A reminder postcard was sent out on March 22, 2004 to those who had not yet responded (see Appendix J). A response was requested

by March 31, 2004. Certain implementation measures were taken that have been proven to improve response rate, including the reminder postcard, the provision of a stamped and addressed return envelope, and a cover letter from the head of a professional organization, AECT (Dillman, 2000). Eight of the 254 surveys were returned to sender and were therefore not included in the response rate calculation. Out of the remaining 246 surveys, 79 surveys were returned, yielding an overall response rate of 32.0%. This is generally considered a medium to low response rate, although “there is no agreed upon standard for a minimum acceptable response rate” (Fowler, 2002, p.42).

Online Survey Data Collection

An online version of the survey was implemented in an effort to reduce non-response bias and to access a broader and more diverse portion of the instructional design population employed in career environments other than higher education (the career environment that accounted for the majority of the AECT membership). As a result of the membership career environment estimates provided by the AECT executive director (see above), the researcher had reason to suspect that the population sampled through the three special-interest divisions of AECT might not represent the full range of instructional design practitioners. It was hoped that this broader sampling would also access those working in instructional design who had obtained their ID degree from a non-traditional institution or who had obtained a degree that was not specifically in instructional design, instructional technology, or educational technology. An online version was also selected for the following reasons, as cited in the literature: the relatively low cost of such surveys, faster response, ease of data processing and analysis, the ability to design in branching patterns based on user responses, standardization of presentation, and the ability to use

drop-down boxes for answer options (Gunn, 2002; Sapsford, 1999). The online version of the survey was programmed using Macromedia Dreamweaver forms and Macromedia Cold Fusion programming to route the data to a server.

Participants. Participants in both versions of the online survey were self-selected. The online version of the survey was advertised to three organizations known to serve professionals in the field of instructional design and technology: AECT, ISPI, and ASTD. The survey was advertised to the *entire* AECT organization (as opposed to the mail survey that was only advertised to a sample of three divisions of the organization), through a link on the organization's website. A half-page advertisement was also featured in the organization's peer-reviewed publication, *TechTrends*, which is distributed to all AECT members in good standing. At the time of the survey, the mailing list for *TechTrends* consisted of 2,528 members (a combination of 2,477 domestic and international members in good standing, and 51 electronic access members of members of the Korean Society for Educational Technology) (personal communication with Larry Vernon, AECT Director of Electronic Services, August 6, 2004). The survey was advertised to the ISPI membership through their online and hard copy newsletter, *PerformanceXpress*, which has a distribution of approximately 15,000 (approximately 7,000 of which are ISPI members) (personal communication with April Davis of ISPI's *PerformanceXpress*, August 6, 2004). Finally, the survey was advertised on four ASTD discussion boards (Performance Improvement, Training Fundamentals, E-Learning, and Evaluation and ROI), and on the local chapter's website (the Valleys of Virginia chapter found at <http://www.roanokeastd.com>). ASTD estimates its membership at 70,000 worldwide (ASTD, 2004).

Implementation. As noted above, the online version of the survey was advertised to the AECT membership through a link on their website and through a half-page advertisement in the January/February, 2004 issue of *TechTrends* (Larson, 2004). It was advertised to the membership of ISPI in the January and February issues of their online and hard copy newsletter, *PerformanceXpress* (ISPI, 2004). Finally, the online survey was advertised to a portion of the membership of the ASTD through four of their discussion boards and on the local chapter website during the months of January and February, 2004.

The first version of the online survey was available from January 12, 2004 to February 9, 2004 and received 73 valid responses. A second, revised version was made available from February 10 to February 29, 2004 and received 65 valid responses. The differences between versions consisted of some wording changes, a new question, a change in how the cultural aspects were presented and rated, and changes to improve the technical performance of the online survey. No response rate could be calculated for either version of the online survey because there is no way to determine the population made aware of a web-based survey. Since the online survey was available prior to sending out the mail version of the survey, mail survey participants were given the opportunity to indicate that they had previously taken the online version. Only one mail respondent indicated having taken the online survey previously.

Survey Case Selection and Organization

The results of both versions of the online survey and the mail survey were combined for analysis purposes. Analyses were also run on the mail-only and online-only results to determine whether there were differences in the two populations. Results of these analyses are included in the chapter on survey findings.

Sample groups. The survey respondents were divided into two sample groups for analysis purposes, based on their answers to questions concerning current or past experience in instructional design, type of degree, and year of degree:

1994-2003 Graduates – This sample group was the target sample, and included respondents with some instructional design, development, and/or delivery experience, and with degrees conferred from 1994 through 2003 in instructional design or a related field. There were 95 respondents in this sample.

PRE-1994 Graduates – This sample group included respondents with some instructional design, development, and/or delivery experience, and with degrees conferred prior to 1994 in instructional design or a related field. There were 53 respondents in this sample.

Original plans involved selecting the target based on years of instructional design experience, however, this plan was abandoned since many respondents indicated they had worked several years as an instructional designer prior to obtaining an advanced degree.

Unusable cases. Cases were removed from the list of valid cases due to various reasons, including non-completion or demographic characteristics that were outside of the target sample of 1994-2003 graduates. After the unusable cases were removed, a total of 148 cases remained, 95 in the 1994-2003 Graduate sample and 53 in the PRE-1994 Graduate sample.

IRB Approval

The survey portion of this study qualified for “exempt” status and therefore, survey participants were not required to sign a consent form, as outlined in the Virginia Polytechnic Institute and State University’s IRB Protocol Submission Instructions. The IRB approval letters for both the survey and case study portions of this research are included in Appendix Q.

Data Analysis

Data analysis was carried out in several steps. First, the online and mail survey cases were entered into the statistical program, SPSS 12.0. Then, a response rate was calculated for the mail version of the survey. All cases were analyzed and unusable cases were removed. Next, the cases for the two online versions and the mail version of the survey were combined. In this stage, the data for those questions that differed between versions were separated for special analysis. The cases were then selected to determine the two sample groups for analysis purposes: the target group of 1994-2003 graduates and the comparison group of PRE-1994 graduates. Frequency data for both sample groups was calculated to determine the demographics of the groups and the two sample groups were compared. Finally, frequency and non-parametric analyses were run on the survey data for the target sample group. The results of these analyses were used to answer the first three research questions. In addition, the survey data on exemplary programs informed the selection of the IDT preparation program for the Phase II case study.

Summary

A summary of the methodology used for Phase I of the research study is presented in Table 5.

Table 5. A summary of the specific methods used to answer Phase I research questions.

Research Questions	Method of Data Collection & Analysis	Survey Questions/Data
1. How do IDT programs prepare students for professional practice in different career environments: through specific-environment programs, generalist programs, or through flexible programs that can be customized to student career goals?	<ul style="list-style-type: none"> - A mail survey sent to a systematic sample of practitioners from 3 special-interest divisions of AECT (a sample of 254 for N=774). - An online survey of practitioners from 3 professional IDT organizations (AECT, ASTD, & ISPI), self-selected to participate. - Descriptive (frequency) statistics provided the percentage of participants in different career environments who were prepared through generalist programs & the percentage prepared in career environment-specific or flexible design programs. These statistics also provided the percentage of program coursework hours students could select and the type of preparation experiences they had to prepare for their career goals and future career environment. 	<p>Answers to the demographic section of the survey were used to identify the target population (ID degree and ID experience, degree conferred between 1994 and 2003), the type of program they attended (generalist or specific), and their career environment. This section of the survey was also used to determine the flexibility of program requirements.</p>
2. Are specific environment programs more successful in preparing practitioners than non-specific programs, as evidenced by the receipt of an exemplary rating from practitioners?	<ul style="list-style-type: none"> - Mail survey and online survey (as described under question 1, above). - A chi-square analysis of respondents' program type and program ratings were used to determine whether there was a relationship between type of program and practitioner's rating of their preparation program. - Practitioner's program ratings and their listing of exemplary programs were used to identify an exemplary program for the case study portion of the research project. 	<p>Answers to demographic questions on program type were used with practitioners' program ratings to determine whether programs designed to prepare students for a specific career environment were more or less successful than programs designed to prepare students for all environments.</p>
3. According to practitioners, how & how well have they been prepared for practice, specifically with respect to design practices or cultural issues (values, beliefs, attitudes & assumptions) that vary across career environments?	<ul style="list-style-type: none"> - Mail survey and online survey (as described under question 1, above). - Chi-square analyses were used to determine whether there was a relationship between program type, career environment, and: <ul style="list-style-type: none"> ~ practitioners' reports of how well they were prepared for general instructional design tasks, and ~ practitioners' program ratings & reports of workplace cultural aspects that were issues for them and whether they were prepared for them. 	<p>Answers to demographic questions on program type and career environment were used with ratings of preparation for general design tasks and cultural preparation to assess how and how well practitioners believe they have been prepared.</p>

CHAPTER 4 – ANALYSIS OF SURVEY FINDINGS

This chapter contains a record of the findings from the mail and online surveys. The first section describes the survey respondents, followed by a section devoted to the findings as they relate to each of three research questions. The final section addresses the use of the survey data to select an exemplary program for the case study portion of this research project. The statistical software, SPSS 12.0, was used to sort and analyze the survey data.

There were four steps to the analysis of survey data: first, frequencies were run to determine the demographics and describe the respondents. Second, the frequency data for responses to certain questions were analyzed to answer the first research question concerning how students are prepared to practice instructional design in different career environments. Next, chi-square analysis of the demographic data along with the frequency data were used to answer the second and third research questions concerning the success of programs designed to prepare students for practice in specific career environments versus those that were designed to prepare students for all career environments. Finally, frequency data were used to determine those programs considered exemplary by both the overall survey respondents and by those in a business and industry environment. This latter information was used to select an exemplary program for the case study portion of this research project.

Description of Respondents

The survey results were analyzed in several different ways in order to determine the characteristics of the respondents. Tables 8 and 9 illustrate the characteristics of survey respondents when the results of both online surveys and the mail survey were combined. As illustrated in these tables, the respondents were practitioners who were designing, developing, or

delivering instruction, or had in the past. The respondents were divided into two sample groups for analysis purposes, based on their answers to questions concerning current or past experience in instructional design, type of degree, and year of degree:

1994-2003 Graduates – This sample group included respondents with some instructional design, development, and/or delivery experience, and with degrees conferred from 1994 through 2003 in instructional design or a related field. This sample had 95 respondents.

PRE-1994 Graduates – This sample group included respondents with some instructional design, development, and/or delivery experience, and with degrees conferred prior to 1994 in instructional design or a related field. There were 53 respondents in this sample.

Respondents were divided into these sample groups to highlight those who had obtained a degree in the last ten years, and to allow a comparison of their preparation experiences with those who received their degrees more than ten years ago.

Currently designing instruction. Overall, 85.3% of 1994-2003 Graduates and 71.7% of PRE-1994 Graduates were currently designing instruction. All those *not* currently designing instruction indicated that they had done so in the past (discrepancies in the percentages in Table 6 are due to a few mail survey respondents who marked *both* designing now and designed in the past). A slightly lower percentage of the PRE-1994 sample were currently designing instruction, and an analysis of the applicable cases indicated that they had moved into management or other administrative positions, were working in a related role as a human performance technologist, technology coordinator, or evaluator, were currently instructing, or had retired.

Level and type of degree. A greater percentage of the respondents with PRE-1994 degrees held doctoral degrees. For the PRE-1994 sample, 50.9% held doctorates as opposed to 45.3% who held masters. Almost the reverse was true for the 1994-2003 sample, where 42.7% held a

doctorate and 50.0% held a masters in instructional design or a related field. Approximately 70.0% of both samples indicated that their degree was in instructional design, or instructional/educational technology (1994-2003 sample at 70.0%;PRE-1994 sample at 70.4%).

For the PRE-1994 sample, the next most-common degrees were in curriculum design/development, library science/media center, and instructional systems. Responses from the 1994-2003 Graduate sample indicate a move toward degrees in human performance technology, training and development, and instructional systems degrees. In addition, 12% of the 1994-2003 respondents indicated that they also have some type of certification in the field, while none of the PRE-1994 Graduates indicated having a certification. These results appear to mirror the trends in the field, moving toward human performance technology and certifications (in many cases, a CPT, or Certified Performance Technologist, certification) (Reiser & Dempsey, 2002).

Year of degree and years of practice. The year of degree was one of the factors used to divide the respondents into the sample groups. For both sample groups, a greater portion of the response came from those with more recent degrees. For the 1994-2003 Graduate sample, 66.3% of respondents had received their degree in the last five years. For the PRE-1994 Graduate sample, 44% (a majority) had received their degree in the most recent category, between 1989 and 1993 (11 to 16 years ago). Originally included to help define the target sample, the question on years of professional ID practice reflected the fact that many designers go back for an advanced degree after several years of experience designing instruction. This question was not, therefore, a valid indicator of the recency of the respondent's entry into the workforce and was therefore dropped from the sample frame.

Table 6. Survey personal demographics.

Demographic	1994-2003 Graduates	Pre-1994 Graduates
Currently designing instruction?	(N=95)	(N=53)
Yes	85.3%	71.7%
No	14.7%	28.3%
Designed instruction in the past?	(N=95)	(N=53)
Yes	16.8%	30.2%
Missing (no answer) ^a	83.2%	69.8%
Level of degree ^b	(N=95)	(N=53)
Ed.D. or Ph.D.	42.7%	50.9%
Masters	50%	45.3%
Specialist	2.1%	1.9%
BA/BS	5.2%	1.9%
Type of degree	(N=95)	(N=53)
Instructional Design, Instructional or Educational Technology Training & Development	70%	70.4%
Human Performance Technology/Improvement	3%	0%
Curriculum Design/Development	7%	0%
Library Science/Media Center	1%	7.4%
Instructional Systems	2%	5.55%
Technical Writing	9%	5.55%
Other (combinations, other) ^c	2%	0%
Other (combinations, other) ^c	6%	11.1%
Year of degree	(N=95)	(N=53)
Before 1994	0%	100%
1967-1973	---	10%
1974-1978	---	16%
1979-1983	---	18%
1984-1988	---	12%
1989-1993	---	44%
1994-1998	33.7%	0%
1999-2003	66.3%	0%
Anticipated 2004-2005	(cases removed)	(cases removed)
Years of professional ID practice	(N=95)	(N=53)
0 to 5 years	26.3%	3.8%
6 to 10 years	36.8%	11.3%
11 to 15 years	13.7%	24.5%
16+ years	23.2%	60.4%
Institution where degree obtained ^d	(N=95)	(N=50)
Arizona State U, Tempe	2	1
Boise State U, ID	2	1
Brigham Young University	0	4
Florida State U	3	1
George Mason U	2	0
Indiana Bloomington	3	6
Louisiana State U, Baton Rouge	0	2
Pennsylvania State	2	0
So. Illinois U, Carbondale	2	1
Syracuse	2	1
U of Houston, TX	1	2
U of Memphis, TN	2	1
U of No. Colorado, Greeley	2	0
U of No. Iowa, Cedar Falls	4	2
U of Virginia	2	0
Wayne State U, Detroit, MI	4	2
Virginia Tech U	21	1
Number of institutes cited by only one respondent (less those already listed)	41	23

^a The survey was designed to ask this question only if the respondent indicated they were not currently designing instruction, therefore the category “missing” reflects those participants who did not have access to this question. Mail survey respondents had access to both questions, and, even though the survey instructed them not to, a few of them answered both questions (“currently designing?” & “designed in the past?”).

^b One respondent who indicated “all but dissertation” was included in the Masters degree category.

^c Most degrees in “other” category for the 1994-2003 group were some variant of the choices provided, an education degree, or a communications degree, and roughly 12% of all respondents also reported having some type of certification. For the Pre-1994 group, “other” degrees consisted mostly of education, psychology, and communication degrees, with no certifications reported.

^d These values are counts, not percentages. Institutions are listed that were cited by more than one respondent. Note that institutes with large numbers of respondents could skew the results of the survey’s exemplary program ratings.

Table 7. Survey career demographics.

Demographic	1994-2003 Graduates	Pre-1994 Graduates		
Career environment with majority experience ^c	(N=95)	(N=53)		
Business & Industry	27.3%	25.9%		
Higher Education	43.4%	46.6%		
K-12 Education	14.2%	10.3%		
Government/Military	11.3%	10.3%		
Health Care	1.9%	3.4%		
Non-Profit	1.9%	3.4%		
Career environment of first ID position (not asked on 1 st version of online survey)	(N=60)	(N=40)		
Higher Education	40.0%	51.2%		
K-12 Education	20.0%	17.1%		
Business & Industry	30.0%	12.2%		
Government/Military	6.6%	7.3%		
Health Care	1.7%	9.8%		
Non-profit	1.7%	2.4%		
Generalist vs Specific Program	(N=93)	(N=53)		
Generalist	64.0%	66.0%		
Specific ^f	36.0%	34.0%		
Higher Education		11.7%	11.8%	
K-12 Education		10.8%	7.4%	
Business & Industry		9.0%	4.4%	
Government/Military		1.8%	4.4%	
Health Care		0%	4.4%	
Non-Profit		0%	1.6%	
Other (did not provide description)		2.7%	0%	
Freedom to personalize program of study	(N=95)	(N=52)		
Able to select <10% of my program hours	14.7%	25.0%		
Able to select from 11-49% of program hrs	62.1%	61.5%		
Able to select ≥50% of program hrs	22.1%	9.6%		
Not applicable/Don't remember	1.1%	3.8%		
Career environment preparation experiences ^g	(N=95)	(N=53)		
Courses From Degree Department	86.3%	83.0%		
Other Academic Department Courses	52.6%	62.3%		
Internships/Independent Studies	60.0%	50.9%		
Environment-Specific Instruction After Coursework Completed	26.3%	26.4%		
Instruction From a Non-Academic Institute ^h	14.5%	9.4%		
Not Applicable	5.3%	5.7%		
Professional organization advertising survey ^{ij}	(N=84)	(N=47)		
ASTD	6.8%	6.2%		
ISPI	18.2%	14.3%		
AECT	53.4%	75.5%		
Other	2.3%	2.0%		
Virginia Tech University IT Listserv	19.3%	2.0%		
Job role of first ID position ^k	<u>Combined</u> ^l	<u>Adjusted</u>	<u>Combined</u>	<u>Adjusted</u>
Consultant	1.1%	7.8%	11.1%	7.1%
Sole Designer/Developer (or sole ID plus some other job duty)	20.2%	17.2%	18.5%	23.8%
ID Team Member	17.2%	21.9%	7.4%	4.8%
ID Team Leader/Manager	8.1%	6.2%	11.1%	4.8%
Instructor/Trainer	18.2%	26.6%	7.4%	7.1%
ID Faculty	6.1%	4.7%	14.8%	14.3%
Faculty Designing/Developing in Different Discipline	5.05%	7.8%	1.85%	2.4%
Human Performance Technologist	5.05%	1.6%	1.85%	2.4%
Technology Coordinator	4.0%	4.7%	13.0%	16.7%
Distance Education/eLearning Programs	2.0%	1.6%	1.85%	2.4%
Other Job Role or combination	3.0%	0%	11.1%	11.9%

^c Total number of responses exceeds sample size as some respondents indicated more than one category.

^f The percentages for the specific programs are listed below the "specific" percentage (as percentages of the specific category, 36% & 34% of the sample groups). The majority of specific programs for both samples were designed for educational environments (higher education or K-12). Note that *none* of the *mail* respondents for the Pre-1994 sample indicated a specific program designed for a business and industry environment.

^g Respondents could select multiple experiences.

^h "Instruction from a non-academic institute" was not an option for the first version of the online survey (N=46).

ⁱ American Society for Training & Development (ASTD), International Society for Performance Improvement (ISPI), Association for Educational Communications & Technology (AECT), & VA Tech Univ. Instructional Technology (IT) Listserv.

^j Some respondents selected more than 1 professional organization. "Other" included: co-worker, found while searching the web, & EDUCAUSE.

^k Adjustment reflects removal of counts from 1st online survey, since 1st online survey did not specify job role of respondent's *first* ID position.

Institute where degree was obtained. Overall, respondents reported a wide variety of institutions where they had obtained their degrees. Table 6 reports those institutions cited by more than one respondent. Note that the number of respondents from Virginia Polytechnic Institute and State University far exceeded that from any other institution. Due to the potential for bias resulting from this condition, that institution was disqualified from consideration in the selection of an exemplary program for the case study portion of this research.

Career environment experience. Most of the respondents from both the 1994-2003 and PRE-1994 sample groups indicated that they had gained the majority of their design experience in the higher education career environment, at 43.4% and 46.6%, respectively. For both groups, the second most frequently cited career environment was business and industry, at 27.3% for the 1994-2003 sample group, and 25.9% for the PRE-1994 sample group. The K-12 education and government/military career environments were each listed by about 10 to 14 percent of respondents, with a majority of experience in the health care and non-profit work environments reported by the least number of respondents. A related question asked respondents to list the career environment of their *first* ID position. This question was not on the first online survey, but was included as part of both the second online and the mail surveys. It is interesting to note the differences between sample groups for this question. Less than half as many first ID positions in a business and industry environment were reported by the PRE-1994 Graduate sample (12.2%) as were reported by the 1994-2003 Graduate sample (30%). In addition, the PRE-1994 sample reported almost a tenth of the first ID positions (9.8%) were in a health care environment, as compared to only 1.7% of first ID positions for the 1994-2003 sample.

Generalist versus specific programs. A majority of respondents reported having attended what they characterized as a generalist program designed to prepare them for a variety of career

environments (64% for the 1994-2003 graduate sample, and 66% for the PRE-1994 sample). Of the remaining 34% to 36% who listed a specific program, roughly a third reported attending a program designed to prepare them for a higher education environment (1994-2003 at 32.5% and PRE-1994 at 34.8%), followed by those attending programs designed to prepare them for K-12 education (1994-2003 at 30.0%, and PRE-1994 at 21.7%), and then a business and industry environment (1994-2003 at 25.0%, and PRE-1994 at 13.0%).

It is not known whether these programs advertised themselves as generalist programs or programs designed to prepare graduates for a specific career environment, or whether these figures merely reflect the impressions of the students. It is also not known how many of the specific programs were designed as such by program administrators or tailored to a specific career goal by the students themselves. The figures on program flexibility (see next section) indicate that students had a fair amount of flexibility to tailor their studies to their own goals. Those respondents who attended generalist programs reported having more flexibility in program coursework selection than those in programs designed for a specific career environment (92.7% of those in generalist programs reported being able to select from 11% to 49% or more of their program hours as opposed to 58.9% in specific-environment programs). Providing students with the ability to tailor their plan of study to individual goals may be a factor in enabling these generalist programs to avoid specialization in preparation and continue to prepare students for a variety of career environments.

Program flexibility and types of preparation. In response to a question designed to determine the amount of flexibility IDT programs offered their students to tailor their course of study to personal needs, the majority of participants indicated that they were able to select from 11% to 49% of their total coursework hours (1994-2003 sample at 62.1%, and the PRE-1994

sample at 61.5%). It is possible that students took advantage of this flexibility to tailor their coursework hours to a specific career environment or job role. Furthermore, I response to a question concerning the types of preparation experiences participants used to prepare for a specific career environment, over 80% of both sample groups indicated that they took courses from within their degree departments, and over half reported taking courses from other academic departments. Over half also reported that they had participated in an internship or independent study. It was unfortunate that internships and independent studies were combined in one answer option, because it would have been advantageous to this study to isolate and compare other variables for those respondents who had experienced an internship.

Job role. On the first version of the online survey, respondents were asked to identify their job from a list of eleven job roles, and it is assumed from the wording of the question that they indicated their current position. However, on the second version of the online survey and on the mail survey, respondents were also asked to indicate the job role of their *first* ID position. Table 7 reflects this discrepancy, providing two percentages for each sample group (a *combined* survey percentage and an *adjusted* percentage reflecting the removal of the first online survey counts). When the counts for the first online survey were subtracted from the totals, the top three job roles for each sample group remained the same, but their rank order had changed. For the 1994-2003 Graduate sample, the top job role was Instructor/Trainer (26.6%), followed by ID Team Member (21.9%), and then Sole Designer/Developer (17.2%). For the PRE-1994 Graduate sample, the top job role was Sole Designer/Developer (23.8%), followed by Technology Coordinator (16.7%), and then ID Faculty in Higher Education (14.3%). This survey question did not contribute to an understanding of the original research questions, and it has therefore been included merely for defining the survey sample.

Professional organization advertising survey. To gain perspective on the professional background of the samples, respondents were asked to indicate through which professional organization they learned of the survey. The majority reported having learned of the survey through AECT, although this was, in part, due to the fact that the mail survey was sent only to AECT members (see comparison of online and mail survey responses below). For the 1994-2003 graduate sample, a significant percentage were made aware of the survey through the Virginia Tech University IT listserv (19.3%). This accounts for the disproportionate number of respondents from that institute and is evidence of the effectiveness and benefits of using listservs to keep in contact with past graduates.

Online versus mail survey results. The results of an analysis of the difference in demographics between online and mail respondents for the 1994-2003 Graduate sample are illustrated in Table 8. Included are *only* those demographics for which there was a substantive difference between averaged percentages for online versus mail survey figures. For example, the number of mail respondents with doctoral degrees (57%) was notably higher than the percentage of online respondents with doctoral degrees (36.5%), resulting in a combined percentage of 42.7% for all survey respondents. For the combined percentage of respondents with a masters degree (50.0%), the reverse was true: only 31.0% of the mail respondents reported a masters as their highest degree while 57.1% of the online respondents indicated their highest degree was a masters.

There were also some differences in the type of degree cited by mail and online respondents. While the percentages of those with ID, IT, or ET degrees were quite similar (63.9% for mail respondents and 69.8% for online respondents), several online respondents reported having a training and development degree (9.5%). None of the mail respondents

reported having this degree. In addition, the percentage of mail respondents with library science/media center degrees was much higher (19.4%) than that of online respondents with the same degree (3.2%). These figures on type of degree may, in fact, reflect the makeup of the professional organizations.

Another factor which differed significantly was the percentage of respondents with zero to five years of experience (18.8% for the mail respondents and 30.2% for the online respondents). In addition, there was a notable difference in the percentage of mail and online respondents who cited a business and industry environment as opposed to a higher education environment for providing the majority of their ID experience. Only 8.8% of the mail

Table 8. Mail versus online survey demographics, 1994-2003 Graduate sample.

Demographic		Mail 1994-2003	Online 1994-2003
		Graduates (N=32)	Graduates (N=63)
Level of degree	EdD/PhD	57.0%	36.5%
	Masters	31.0%	57.1%
Type of degree	Instructional Design, Instructional/Educational Technology	63.9%	69.8%
	Training & Development	2.8%	3.2%
	Human Performance Technology/Improvement	0%	9.5%
	Curriculum Design/Development	2.8%	0%
	Library Science/Media Center	2.8%	1.6%
	Instructional Systems	19.4%	3.2%
	Technical Writing	2.8%	1.6%
	Other (combinations, other)	5.5%	11.1%
Years of professional ID practice	0 to 5 years	0%	0%
	6 to 10 years	18.8%	30.2%
	11 to 15 years	43.8%	33.3%
	16+ years	15.6%	12.7%
Career environment with majority of experience	Business & Industry	21.9%	23.8%
	Higher Education	8.8%	34.7%
	K-12 Education	67.7%	32.0%
	Government/Military	17.6%	12.0%
	Health Care	2.9%	16.0%
Freedom to personalize program of study	Non-Profit	2.9%	4.0%
	Able to select <10% of program hours	0%	1.3%
	Able to select 11-49% of program hours	9.4%	17.5%
	Able to select ≥50% of program hours	75.0%	55.5%
Professional organization advertising survey	Not applicable/Don't remember	15.6%	25.4%
	ASTD	0%	1.6%
	ISPI	---	9.3%
	AECT	97.0%	29.6%
	AECT and other	3.0%	27.8%
Virginia Tech IT Listserv	---	1.8%	
		---	31.5%

respondents listed a business and industry environment, while that environment was cited by 34.7% of the online respondents. In contrast, 67.7% of the mail respondents cited a higher education environment for the majority of their experience, as opposed to only 32.0% of online respondents who listed that career environment.

On the whole, more of the online respondents (17.5%) were restricted to selecting 10% or less of their program hours than the mail respondents (9.4%). This could be a reflection of the fact that there were more masters graduates in the online group. Masters programs, in general, allow less flexibility in coursework selection than do doctoral programs.

Some of these differences may, in part, be due to the way in which the respondents were made aware of the survey. The mail survey respondents were made aware through the professional organization AECT. AECT claims that 60.0% or more of its membership is employed in higher education. Over 38% of the online respondents, however, were informed of the survey through professional organizations who claim that much of their membership is employed in a business and industry career environment (ASTD and ISPI).

Findings for Research Question One: How Students are Prepared

The responses given by the 1994-2003 Graduate sample for several of the survey questions were analyzed to determine how both generic and specific-environment programs prepare students for professional practice in different career environments, and to answer the first research question:

1. How do IDT programs prepare students for professional practice in different career environments? In general, can they be characterized as specific-environment programs (designed for a specific career environment), non-specific or generalist programs

(designed to accommodate all career environments), or personally-tailored programs (providing a large degree of flexibility for students to plan to their own career goals)?

As noted above, 64.0% of respondents reported attending a generalist program and 36% indicated that they had attended a program designed to prepare them for a specific career environment. It should be noted that the designation of “generalist” or “career environment-specific” represents a judgment on the part of the respondent, and may not accurately reflect how the program advertises itself. A review of the program descriptions in the 2002 Educational Technology Yearbook illustrates that very few programs advertise in writing that their program, or tracks within their program, are targeted at preparing students for a single specific career environment (Fitzgerald, et al, 2002).

Of those respondents who attended a specific environment program, 65.5% were able to select from 11% to 50% or more of their program coursework hours. In addition, of those who attended a program characterized as “generalist,” 93.5% reported that they were allowed to select from 11% to 50% or more of their program coursework hours. It appears, therefore, that a little over a third of the programs attended by survey respondents offered tracks designed for a specific career environment. The other two-thirds of the programs, characterized by respondents as “generalist,” provided a great deal of flexibility to students in the selection of program hours to enable them to tailor coursework to their own specific career goals.

In addition to coursework within the program department, over half of the respondents (52.5%) indicated that they had taken coursework from other departments to prepare for a specific career environment. Other preparation experiences taken to prepare for specific career environments included internships and independent studies (60.0%), instruction following completion of coursework (26.3%), and instruction from a non-academic institution (14.5%).

Findings for Research Question Two: Preparation Program Success

The responses given by the 1994-2003 Graduate sample for several of the survey questions were analyzed to determine how successful these programs are in preparing students for professional practice in different career environments. The analyses were designed to answer the second research question:

2. Are specific-environment programs more successful in preparing practitioners than non-specific or generalist programs, as evidenced by the receipt of an exemplary rating from practitioners?

The analyses run for question two only used the responses of the 1994-2003 Graduate sample because these ratings would also be used to select an exemplary program. The assumption was that the programs attended by respondents who had obtained their degrees more than ten years ago were more likely to be substantially different today than those programs attended within the last ten years.

Success Indicated by Overall Program Ratings

A chi-square analysis was run to compare the *overall* program ratings of respondents who attended generalist programs to those who attended career-environment-specific programs. A 3x3 chi-square analysis was run comparing ratings of excellent, fair, and not adequate for generalist, specific, and other/combination programs. The survey question asked respondents to give their degree program an overall rating for preparing them to practice instructional design, development, and/or delivery in their career environment. Frequency results for this question are illustrated in Table 9. 65.5% of all generalist program graduates said their program's overall preparation was excellent. 50.0% of all career-environment-specific program graduates said their

program's overall preparation was excellent. Results of the chi-square are significantly different from what we would expect due to chance, $\chi^2(4, N = 86) = 22.51, p = .000$, indicating that there is a relationship between the type of program and the ratings the programs received. In this case, it appears that the generalist programs received more excellent ratings from their graduates than did the environment-specific programs.

A comparison of the amount of freedom given students to customize their coursework to career goals reveals that in generalist programs, 93.5% of respondents indicated that they were able to select from 11% to 49% or more of their program hours, and 6.4% were able to select 10% or less of their program hours. However in environment-specific programs, 65.5% were allowed to select from 11% to 49% or more of their program hours, and 31.0% were able to select 10% or less of their program hours.

Table 9. Overall and Cultural ID program ratings.

	All 1994-2003 Graduates ^a			Generalist Program Graduates ^b			Specific-Environment Program Graduates ^b		
	(N=86)			(N=58)			(N=24)		
	Not Adequate	Fair	Excellent	Not Adequate	Fair	Excellent	Not Adequate	Fair	Excellent
Give your degree or training program an overall rating for preparing you to practice instructional design, development, and/or delivery in your career environment	1.2%	38.4%	60.5%	0%	34.5%	65.5%	0%	50.0%	50.0%
Rate your program on preparing you for the culture of your career environment	27.9%	48.8%	23.3%	27.6%	50.0%	22.4%	25.0%	50.0%	25.0%

^a N=86; The remainder of respondents (9) did not answer this question.

^b For total program type N=86, for generalist programs N = 58, for specific-environment programs N = 24, and for "other" or "combination" programs N=4. Percentages for "other" not included.

In addition, the last section of the survey asked respondents to list up to three IDT preparation programs they knew of to be exemplary for preparing instructional designers for

practice in their career environment. The results for this question are illustrated in Table 10. The three programs receiving the most exemplary program “votes” from all survey respondents in the 1994-2003 Graduate sample were Indiana Bloomington, Florida State University, and the University of Georgia in Athens. It should be noted that seven out of the eight survey respondents who actually attended one of those institutions gave their program an “excellent” overall rating (the eighth respondent was a mail survey participant who skipped the back page of the survey and did not answer that question).

Success Indicated by Program Workplace Cultural Preparation Ratings

A 3x3 chi-square analysis was run to compare program ratings (i.e., excellent, fair, and not adequate) for *workplace cultural* preparation for generalist, specific, and other/combination programs. The survey question asked respondents to give their degree program a rating for preparing them for the culture of their career environment. Frequency results for this question are illustrated in Table 9. While the comparison of generalist to specific programs did not show a significant difference, $\chi^2(4, N = 86) = 1.317, p = .859$, it was notable that over 25% of all respondents felt their program was not adequate for preparing them for the cultural aspects of their career environment.

To look at it another way, respondents appeared to be less satisfied with their program’s *workplace cultural* preparation than with their program’s *overall* preparation for instructional design. Only 22.4% of all generalist program graduates said their program’s cultural preparation was excellent, and 27.6% of them said their program’s preparation for the culture of their career environment was not adequate. Only 25.0% of all career-environment-specific program graduates said their program’s overall preparation was excellent, and 25.0% said their program

preparation was not adequate for the culture of their career environment. The remaining 50.0% of both generalist and specific program respondents rated their program’s workplace cultural preparation as “fair.”

Table 10. Exemplary ID programs, as rated by 1994-2003 graduates and PRE-1994 graduates.

	1994-2003 Graduates (N=95)	Pre-1994 Graduates (N=53)
Exemplary Programs ^b (Respondents could list up to three exemplary programs)	Out of 162 entries: ^a	Out of 97 entries: ^a
	Arizona State 3.7% (6)	Brigham Young U 2.1% (2)
	Florida State U 11.7% (19)	Florida State U 14.4% (14)
	GA Tech U 1.2% (2)	Indiana Bloomington 16.5% (16)
	Indiana Bloomington 15.4% (25)	Northern Illinois U 3.1% (3)
	Ithaca College 1.2% (2)	Penn State 8.3% (8)
	Marymount U, VA 1.2% (2)	So. Illinois U, Carbondale 2.1% (2)
	Penn State 4.9% (8)	Syracuse 7.2% (7)
	San Diego State U 3.7% (6)	U of Georgia, Athens 7.2% (7)
	So. Illinois U, Carbondale 1.2% (2)	U of No. Iowa, Cedar Falls 3.1% (3)
	Syracuse 4.3% (7)	Utah State U, Logan 6.2% (6)
	U of Calgary, Canada 1.2% (2)	All others (with 1 vote each) 24.7% (24)
	U of Georgia, Athens 7.4% (12)	
	U of No. Iowa, Cedar Falls 1.9% (3)	
	U of Saskatchewan, Canada 1.2% (2)	
	Utah State U, Logan 3.7% (6)	
	Virginia Tech U 6.8%(11)	
	Wayne State U, Detroit, MI 1.9% (3)	
	All others (with 1 vote each) 27.2%(44)	
Reasons for exemplary ^c nature of programs	(N=68) Out of 266 reasons given:	(N=38) Out of 170 reasons given:
	Personal Experience 19.6% (52)	Personal Experience 18.2% (31)
	Hired/collaborated with individual who attended that program 24.4% (65)	Hired/collaborated with individual who attended that program 22.9% (39)
	Read about program 18.4% (49)	Read about program 19.4% (33)
	Familiar with program’s reputation 34.6% (92)	Familiar with program’s reputation 31.2% (53)
	Other reason 3.0% (8)	Other reason 8.2% (14)

^a For the calculation of exemplary programs, a single vote was entered for programs listed more than once by the same respondent.
^b Due to the number of online survey respondents from Virginia Tech University (a total of 21), Virginia Tech was taken out of the pool of exemplary schools. However, it is notable that more than half of the respondents from that university rated it as exemplary.
^c “Other” reasons given for assigning an exemplary rating included: work there/current faculty member at that program, currently attending program, faculty authors the literature (also listed specific faculty), quality of faculty, know the students/faculty, participation in professional conferences, and personal knowledge of program requirements and curriculum.

Findings for Research Question Three: Preparation for Design Practice and Cultural Factors

The responses to the survey questions on general instructional design preparation (including general instructional design competencies, competencies specific to particular career environments, instructional design models, learning theories, subject matter, and flexibility in instructional design), and questions on cultural preparation for the workplace were analyzed to

determine how practitioners feel they have been prepared for the career environment in which they work, the subject of the third research question:

3. According to practitioners, how and how well have they been prepared for practice, specifically with respect to design practices or cultural aspects (values, beliefs, attitudes and assumptions) that may vary across career environments?

Preparation for General Instructional Design Items or Tasks

Respondents were asked to indicate their preparation for the following six items or tasks related to instructional design practice:

1. General instructional design competencies as identified by professional organizations
2. Competencies relating specifically to the respondents' career environment
3. Instructional design models used in the respondents' design practice
4. Learning theories used in the respondents' design practice
5. Specific subject matter of respondents' workplace position, and
6. Flexible design using a variety of learning theories, instructional strategies, and instructional modes.

Table 11 illustrates the level of preparation reported by respondents in both the 1994-2003 and PRE-1994 Graduate samples for these six items. In general, the results indicate that for these six items, the majority of both sample groups felt *somewhat to fully* prepared. The percentages of those who felt they had *minimal or no preparation* were slightly larger for the categories of “competencies specific to career environment” and “subject matter of the position.”

A 3x4 chi-square comparison was made of generalist, specific, and other/combo programs for each of the six items, for preparation ratings of No Preparation, Made Aware, Some

Preparation, and Fully Prepared. Results indicated that responses on four of the six items were not significant. However, results for two of the items, “competencies specific to career environment” and “subject matter of first ID position,” were related to the type of program.

Table 11. ID program preparation for general instructional design activities.

To what extent did your degree program or training prepare you...	Sample Group	Sample Size	No Preparation	Made Aware Of	Some Preparation	Fully Prepared
...for practicing general instructional design competencies?	1994-2003 Graduates	(N=94)	5.3%	10.6%	34.0%	50.0%
	Pre-1994 Graduates	(N=50)	4.0%	4.0%	36.0%	56.0%
...for practicing competencies specific to your career environment?	1994-2003 Graduates	(N=95)	7.4%	13.7%	49.5%	29.5%
	Pre-1994 Graduates	(N=50)	10.0%	6.0%	40.0%	44.0%
...to work with the ID models used in your career environment?	1994-2003 Graduates	(N=95)	3.2%	5.3%	40.0%	51.6%
	Pre-1994 Graduates	(N=50)	2.0%	4.0%	48.0%	46.0%
...to work with the learning theories used in your career environment?	1994-2003 Graduates	(N=94)	3.2%	3.2%	33.0%	60.6%
	Pre-1994 Graduates	(N=48)	0%	4.2%	35.4%	60.4%
...for the subject matter of your first ID position?	1994-2003 Graduates	(N=95)	28.4%	21.1%	33.7%	16.8%
	Pre-1994 Graduates	(N=49)	24.5%	20.4%	28.6%	26.5%
...to practice flexible instructional design?	1994-2003 Graduates	(N=95)	4.2%	10.5%	41.1%	44.2%
	Pre-1994 Graduates	(N=50)	2.0%	6.0%	40.0%	52.0%

For “competencies specific to career environment,” significant chi-square results $\chi^2(6, N = 95) = 11.680, p = .069$ reflected the fact that 48.3% of those who attended specific programs felt fully prepared, versus 19.4% of those who attended generalist programs. When the categories of “some preparation” and “fully prepared” were combined, figures for these groups amounted to 93.1% and 72.6%, respectively. Thus, as could be expected, the competencies specific to career environments are more likely to be covered by a specific program than by a generalist program.

For “subject matter of first ID position,” significant chi-square results $\chi^2(6, N = 95) = 20.03, p = .002$ reflected the fact that over 40% of those who attended generalist programs

reported having no preparation for “subject matter of first ID position,” as compared to only 6.9% of those who attended environment-specific programs. Again, as expected, specific programs tend to cover subject matter more frequently than do generalist programs.

Workplace Cultural Aspects

Participants were asked to identify which of 47 different workplace cultural aspects had become “issues” for them when they first entered instructional design practice. An “issue” was defined in the surveys as “something requiring them to expend more effort than desired to adjust.” The topic of corporate culture is prevalent in the literature; however, information on cultural aspects that job applicants should consider prior to accepting employment is spread across a wide range of topics and was compiled for this study from a variety of articles and sources (Bartell, 2001; Cabral-Cardoso, 2001; Grimwald, A., 2001; Trimby, 1982; Tasker & Packham, 1993).

Table 12 illustrates the percentages of respondents in the 1994-2003 Graduate sample who indicated that an aspect had been an issue for them and who also indicated that they had not been prepared for that issue. It is not known whether these aspects became issues for respondents because they had not been prepared for them in their academic program or due to some other variable such as personality, or a lack of previous work experience or instruction from other undergraduate or graduate degree programs.

Of the 47 workplace cultural aspects, eight aspects were identified as issues by 40.0% or more of respondents from the 1994-2003 Graduate sample. Those aspects and the percentage of respondents for whom they were issues include:

1. the nature of internal workplace politics (59.1%)

2. trade-offs between quality, timeliness, and cost in work assignments (46.6%)
3. freedom to challenge or criticize the decisions of supervisors (46.0%)
4. availability of project resources for work assignments (44.3%)
5. directive versus participative management styles (43.2%)
6. the amount of freedom given to make decisions (42.0%)
7. employer attitudes toward change, innovation, and risk (40.9%)
workload (40.9%)

Of those eight aspects that had become issues for respondents, five of them were identified by respondents as aspects that they had not been prepared for in their IDT preparation program. Those five aspects and the percentage of respondents who indicated they were issues but they were not prepared for them, are listed below:

1. freedom to challenge or criticize the decisions of supervisors (74.4%)
2. the nature of internal workplace politics (69.2%)
3. availability of project resources for work assignments (68.4%)
4. directive versus participative management styles (64.9%)
5. workload (52.8%)

Respondents also noted that they were not prepared for four other aspects that received high ratings as issues but did not quite reach the 40.0% cut-off figure, including:

1. Flow and clarity of communication in work relationships was an issue for 38.6%, and 47.1% of those respondents had not been prepared for that aspect.
2. Employer emphasis on rules and procedures (or bureaucracy) was an issue for 37.5%, and 53.1% of those respondents had not prepared for that aspect.

3. Availability of opportunities for advancement was an issue for 37.5%, and 71.9% of those respondents had not prepared for that aspect.

Employer's concern for employee's quality of life & job satisfaction was an issue for 34.1%, and 70.0% of those respondents had not prepared for that aspect.

As indicated previously, the program ratings for preparation for workplace culture (see Table 11) illustrate that respondents appeared to be less satisfied with their program's workplace cultural preparation than with their program's overall preparation for instructional design. The percentages for the entire 1994-2003 Graduate sample indicate that over a quarter (27.9%) of the respondents felt their preparation for the culture of their career environment was not adequate. Almost half (48.8%) rated their program's workplace cultural preparation as "fair" and less than a quarter rated their program's preparation as "excellent."

Table 12. Cultural aspects that were issues & whether programs prepared respondents for those issues.

Item Number	Aspect of Work Environment Culture	Issues for 1994-2003 Graduates (N=88) ^a	Issues for Which 1994-2003 Graduates Were Not Prepared ^b
26	The nature of internal workplace politics.	52	36/52
4	Trade-offs between quality, timeliness, cost in work assignments.	41	16/41
27	Freedom to challenge or criticize decisions of supervisors.	40	29/39
21	Availability of project resources for work assignments.	39	26/38
30	Directive vs. participative management styles.	38	24/37
3	Amount of freedom given to make decisions.	37	10/36
9	Workload.	36	19/36
22	Employer attitudes toward change, innovation, & risk.	36	13/35
15	Flow & clarity of communication in work relationships.	34	16/34
25	Employer emphasis on rules & procedures (bureaucracy).	33	17/32
35	Availability of opportunities for advancement.	33	23/32
42	Emphasis on group vs. individual problem-solving processes.	32	11/31
5	Quality standards for work assignments.	31	10/31
12	Type and amount of collaboration & teamwork with co-workers.	30	7/29
39	Employer's concern for employee's quality of life & job satisfaction.	30	21/30
47	Assumptions concerning the nature of truth & reality.	30	12/30
2	Amount of freedom given to set priorities & deadlines.	28	7/27
10	Stability of work assignments.	28	15/28
34	Employer support of continuing education & professional development.	28	14/27
6	Flexibility of established deadlines for work assignments.	27	10/27
7	Expectations of time between project start & completion.	27	9/27
28	Expectations regarding conformity to established norms.	26	14/25
36	Recognition & occupational prestige.	26	19/26
46	Emphasis on learning to meet individuals' goals vs. to meet the goals of the organization.	26	12/26
8	Accountability for work assignments.	24	4/24
32	Formal versus informal authority & reporting structures.	24	14/24
37	Measures & methods of employee assessment.	24	15/23
11	Freedom to express creativity through work assignments.	23	7/22
23	Job security.	23	15/22
33	Rewards systems such as salary, vacation & other benefits.	22	13/21
40	Emphasis on or attitude toward knowledge-sharing.	22	13/22
43	Employer attitude toward intellectual property rights.	22	11/22
38	Types of incentives & disincentives.	21	14/21
1	Amount of freedom given to set goals.	19	8/18
18	Expectations for work completion & overtime.	19	10/19
44	Emphasis on knowledge-creation vs. knowledge-consumption.	19	10/19
17	Flexibility of hours & schedule.	18	11/17
20	Practices & expectations regarding meetings & their conduct.	18	8/17
41	Emphasis on or attitude toward protection of proprietary information.	18	10/18
45	Emphasis on knowledge as means-to-a-goal, vs. as end-in-itself.	18	7/18
13	Verbal & non-verbal interpersonal communication.	17	7/17
14	Written communication.	17	4/17
29	Effect of national politics on reporting structures & resources.	16	8/16
19	Expectations of appropriate work ethic & its demonstration.	15	6/15
24	Amount of freedom given to express individuality.	15	9/14
31	Employer or co-worker attitudes regarding discrimination.	11	7/11
16	Established or acceptable dress.	8	6/8

^a Seven of the 1994-2003 Graduate sample respondents did not answer the cultural aspects portion of the survey, so N=88, rather than 95.

^b This number represents the percentage of those for whom the cultural aspect was an issue, who addressed their preparation, and were not prepared for that cultural aspect.

Selection of an Exemplary Program

As reported in the previous chapter, the results of the survey were used to inform the selection of an exemplary program to visit for the Phase II case study portion of the research. The two survey program rating questions (“give your program and overall rating...” and “give your program a rating for preparing you for the culture of your career environment”) as well as the exemplary program listings (Tables 11 and 12) were used to determine the top two exemplary programs. Top programs considered for the case study were those rated as exemplary by a majority of their own graduates, as well as being listed as an exemplary program by a majority of all 1994-2003 Graduate survey respondents.

IDT programs that were consistently rated as exemplary by a majority of respondents in the 1994-2003 Graduate sample included Indiana University – Bloomington (IU), and Florida State University – Tallahassee (FSU). Indiana Bloomington was rated top overall with 15.4% of the exemplary ratings and Florida State received the second highest percentage of exemplary ratings with 11.7%. (Percentages are low because many IDT programs were listed. IU and FSU, while not receiving a large percentage of the votes, did, in fact, have the most votes of all programs.) Of the top programs, Florida State was chosen because of its high ratings from those respondents in a business and industry environment (see Table 13), because the literature search indicated that the greatest variability in IDT practice is found in a business and industry environment, and because the literature showed that FSU made a conscious effort to meet the needs of the business and industry job market by incorporating a human performance technology emphasis in its curriculum (Dick & Wager, 1995). The business and industry orientation of the

program at FSU was of particular interest to the researcher due to past work experiences in that career environment.

Summary of Survey Findings

This chapter presented the quantitative data collected through mail and online versions of a survey of IDT practitioners. The data were used to answer the first three research questions of the study, as well as to provide a listing of exemplary programs for consideration for the Phase II case study and cultural items to include in the case study interview protocols.

Survey Demographics

The survey demographics indicated that for highest level of degree (masters versus doctoral), there was a higher percentage of respondents with a masters degree in the 1994-2003 graduate sample and online sample, and a higher percentage of respondents with a doctoral degree in the PRE-1994 and mail survey samples. Approximately 70% of all respondents indicated that they had an instructional design, instructional technology, or an educational technology degree. The second most frequently cited degree was in instructional systems. A comparison of the years of IDT practice experience and year of degree for the 1994-2003 sample group suggests that a little over a third of students in preparation programs have past instructional design experience (that is, 36.9% of individuals who received their degree in the last ten years had more than 11 years of experience). This indicates that two-thirds of the students in preparation programs could possibly have little-to-no work experience and/or instructional design experience. In addition, the wide range of institutions and type of programs cited by participants indicates that there may be graduates from non-traditional programs that compete against traditional program graduates for IDT jobs. Finally, higher education

environments provided the majority of the work experience for respondents working in IDT (45%). The second most frequently cited career environment for work experience was business and industry (26.6%).

Key Findings

Key findings relating to the three research questions for the Phase I survey follow:

Generalist versus specific programs. A majority of respondents (65%) indicated that they had attended a generalist program. Of those that attended a program designed to a specific career environment, approximately a third (33.6%) attended one designed for higher education environments, 26% attended a K-12 targeted program, 19.1% attended a program geared to prepare them for a business and industry environment, 8.8% attended one designed for a government/military environment, and the remaining 12.5% attended programs targeted for health care, non-profit, and “other” environments.

Program experiences and flexibility. There was considerable variability in the course work and experiences students completed for their IDT degree. Over half of the respondents reported that they took courses from outside their degree department, and over half also indicated that they had participated in an internship or independent study. Of all respondents, 61.8% were able to select from 11 to 49% of their program hours. In a comparison of program flexibility between generalist and specific programs, it was determined that 93.5% of generalist program attendees were able to select from 11 to 49% of their program coursework, while only 65.5% of specific-program attendees were allowed to select that much of their coursework. The wide variability of coursework experiences and flexibility makes it difficult to make comparisons across programs.

Generalist versus specific programs. Respondents completing generalist programs were more satisfied with their program than participants completing degrees in programs designed to prepare them for a specific career environment.

Preparation for general instructional design practice and cultural aspects. Overall, respondents felt somewhat to fully prepared for general instructional design practice preparation. Respondents completing degrees in programs designed to prepare them for a specific career environment reported that they were better prepared for competencies specific to their career environment and the subject matter of their first ID position than were respondents who attended a generalist program. Over 25% of all respondents felt that their program was not adequate for preparing them for the cultural aspects of their career environment.

Exemplary IDT programs. The top preparation programs listed as exemplary by respondents in the 1994-2003 graduate sample and that also received an excellent rating from attendees were Indiana University in Bloomington, and Florida State University in Tallahassee.

CHAPTER 5 – METHODS FOR PHASE II QUALITATIVE CASE STUDY

Phase II consisted of a case study of an IDT program to provide information on how an exemplary program prepares students to practice instructional design in different career environments. The results of the Phase I survey identified many exemplary IDT preparation programs, and these results informed the selection of a program for the case study portion of the study. The case study methodology is designed to answer the following research questions:

4. What are the philosophies of IDT educators in an exemplary program concerning IDT professional preparation for different career environments and the cultural aspects of those environments?
5. On what type of experiences do educators base their philosophies of IDT preparation?
6. How does an exemplary IDT preparation program instantiate the philosophies of its educators?

Design and Rationale for Case Study Research

The case study design included a combination of data gathering methods designed to accomplish triangulation of data sources (Creswell, 2003), including in-depth interviews of IDT educators currently teaching in the exemplary program, telephone interviews of educators who taught in and administered the program in the past, a focus group session with current students, telephone interviews of former students, and program document analyses. Triangulation of data sources was one of the recommended techniques used to establish the "trustworthiness" of the research (Creswell, 1998, p. 197) (see discussion of triangulation and trustworthiness in the section on "Trustworthiness," below).

Merriam (2001) defines case study research as a type of qualitative research that involves the holistic description and analysis of a single phenomenon, or a “bounded system” (p. 27). In line with Merriam’s definition, this research used a case study design because the goal of the research was “insight, discovery, and interpretation rather than hypothesis testing” (p. 28-29). In this study, the case study method served to investigate the complexity and contextual conditions highly pertinent to the phenomenon of IDT preparation for different career environments (as recommended by Yin, 1994).

The case study design was chosen because the features characteristic of case studies fulfilled the requirements of this project: (a) Particularistic – the case study used for this study focused on a particular IDT program identified as exemplary for preparing students for professional practice in specific career environments; (b) Descriptive – because little is known about the phenomenon of specific environment preparation, the rich, “thick” description of this case study provided the detailed picture required to understand the phenomenon; (c) Heuristic – because case studies can explain the background of a situation, can explain why methods and practices work or fail, and can evaluate, summarize, or draw conclusions concerning a phenomenon, they can ultimately bring about the discovery of new meaning, and extend or confirm what is known about IDT preparation for specific career environments (Merriam, 2001; Stake, 1995).

The case study approach taken has enabled collection of thick, descriptive information that will aid in the transferability of findings to other IDT programs (Creswell, 1998). It is hoped that the detailed descriptions will enable readers to recognize shared characteristics between the case under study and their own situation. Throughout the process, the researcher used journaling to ensure dependability by demonstrating that the research process followed was logical,

traceable, and documented. The researcher journals provide an audit trail of the research process that can be consulted at any point to confirm the nature of the findings or trace the decisions and actions taken in the research process (Creswell, 1998).

The *interviews* conducted during the case study served several purposes as outlined by Seidman (1998). The interviews established the background context of the participants' experiences, allowed the participants to reconstruct the details of their experiences within the context in which they occurred, and encouraged the participants to reflect on the meaning their experiences hold for them and for their institution's IDT program.

The *focus group session* was included in the study because the focus group presented a more natural environment than that of an individual interview because "...participants are influencing and influenced by others – just as they are in life" (Krueger & Casey, 2000, p. 11). The focus group interview enabled the researcher to determine the range of opinions of people across several groups, pinpointing how they really think and feel about an issue. To optimize this advantage, the researcher sought to promote a comfortable, permissive, and nonjudgmental environment in which to hold the meeting, selected participants with the common characteristic of current enrollment in the program, encouraged both positive and negative comments, asked open-ended questions, made sure that participants realized that there was no pressure to reach a consensus, and sought to understand the feelings, comments, and thought processes of the participants.

The study design included plans for collecting and analyzing *program documentation*. This design feature was included because of the advantages inherent in this type of data analysis: (a) documents can be reviewed repeatedly, coded to note themes, and used in triangulation with other data sources; (b) documents are not created as a result of the case study and are therefore

unobtrusive; (c) documents can provide exact names, references, and details of a program; and (d) they often provide the broad coverage of a long time span, multiple events and program administrations (Yin, 1994). An annotated bibliography of program-related documents is included in Appendix N.

Trustworthiness

All research is concerned with producing valid and reliable knowledge that can be trusted. The two-phase, quantitative and qualitative approach of this study was designed to provide a means of ensuring the *trustworthiness* of the findings. Research results can be judged trustworthy if “there has been some accounting for their validity and reliability” (Merriam, 2001, p. 198). It is most appropriate to use the word *trustworthy* for mixed methods studies because it applies to both quantitative and qualitative research, and many qualitative researchers assert that certain terms used to define quantitative research (e.g., *reliability*) should never be applied to qualitative work (Creswell, 2003), because a qualitative study is not designed in a manner to enable another researcher to reproduce the same results.

For qualitative research, accounting for validity and reliability takes different forms than in quantitative research. Lincoln and Guba (1985) assert that quantitative terms such as *internal* and *external validity*, *reliability*, and *objectivity* are not adequate to establish the trustworthiness of qualitative, naturalistic research. They advocate replacing these terms with alternatives such as *credibility*, *transferability*, *dependability*, and *confirmability* (Creswell, 1998, p. 197).

The credibility of findings is important for themes or perspectives that are contested or are dubious, as well as for those that are critical to an assertion or represent key interpretations (Stake, 1995). Gaining needed confirmation, increasing the credibility of interpretation, and

demonstrating the commonality of an assertion can all be accomplished through a technique known as *triangulation*. Triangulation involves making use of multiple and different sources, methods, and theories to provide corroborating evidence of a theme or perspective (Creswell, 1998). For this study, the credibility and confirmability of the findings was established through the use of triangulation of data sources from in-depth interviews, focus groups, and document analyses. Other techniques that will be used to establish credibility include member checks (presenting draft materials to interviewees for confirmation and further illumination) and prolonged engagement in the field (Stake, 1995).

Case Study Selection

The results of the survey revealed many exemplary IDT programs; however, there were two programs that were consistently rated as exemplary by a majority of respondents in the 1994-2003 Graduate sample: Indiana University - Bloomington, and Florida State University – Tallahassee. Indiana Bloomington was rated top overall with 15.4% of the exemplary ratings and Florida State received the second highest percentage of exemplary ratings with 11.7%. However, the program at Florida State University was selected for the case study because it had the highest percentage overall in an analysis of the listing of exemplary programs by those 1994-2003 Graduate participants in a business and industry career environment (see Table 13, below). The opinions of business and industry environment participants were given preference in program selection because of a perception that for participants working in a higher education environment, it would be difficult to distinguish how much of their preparation was due to the actual program design and administration, and how much was due to that fact that their academic preparation took place in the same environment as their future work environment. In other

words, practitioners in a higher education environment benefit from being a part of the same community of practice during their academic preparation that they eventually enter following graduation, as in an apprenticeship (Brown, et al., 1989).

Table 13. Exemplary IDT programs as selected by survey participants employed in a business and industry career environment.

Graduate Program	Number of Times Program was Listed as Exemplary by 1994-2003 Business & Industry Respondents (out of 31 entries; N=23) ^a
Florida State U, Tallahassee	5
Indiana U, Bloomington	4
San Diego State U	3
U of Georgia, Athens	3
Ithaca College	2
Marymount U, Arlington, VA	2
Virginia Tech U, Blacksburg	2
All others (only 1 vote each)	10

^a Respondents could list up to three exemplary programs, for a total of 31 entries.

Interview and Focus Group Protocol Development and Pilot Testing

Both the in-depth IDT educator and focus group interview protocols featured a semi-structured design to encourage the discovery of information not anticipated by the researcher (refer to Appendix K). The interview protocol was pilot tested with an IDT educator at another university, who has a reputation as an exemplary educator in the preparation of instructional designers for practice using case study methods. The focus group protocol was pilot tested with current students in the researcher's program of study. The interview protocol was not pilot tested with former students. The main selection criteria for the pilot test subjects for both the interview and focus group protocols were "convenience, access, and geographic proximity" (Yin, 1994, p. 75).

Implementation of Interviews and Focus Group Session

Once the exemplary program had been identified, IRB approval was sought and obtained. Concurrently, following suggested procedure (Stake, 1995), the applicable permission and access was sought from the administrator of the exemplary program, and a visitation schedule was established. The case study research was carried out at the site of the exemplary institution for a period of three days (April 19 to 21, 2004).

Interview and focus group session arrangements were coordinated by the exemplary program's office administrator. During the course of the study, in-depth interviews of about an hour in length were conducted with ten IDT educators, two of which were visiting professor emeriti from Syracuse University in New York and Purdue University in Indiana, who had been teaching in the program at FSU for several years. Three current educators were unavailable during the case study trip and were interviewed via telephone later in April and May. Three former educators from the program, including the original administrator who initiated and built the program in the late 1960s and early 1970s, were interviewed by telephone later in April and May. These emeriti professors were identified repeatedly by other educators and by current and past students as having had a significant impact on the program. A follow-up interview with the current program administrator was conducted a month later at a professional conference.

One focus group session lasting approximately 90 minutes was conducted during the study with six current masters students and five current doctoral students. Another current doctoral student was interviewed later by telephone, and yet another was interviewed in person a month later at a professional conference.

At the beginning of all personal interviews, focus group sessions, and telephone interviews, participants were assured that the data gathered would remain confidential and that

they could at any point choose to withdraw from the study. The advance email requests for focus group participants included a promise of pizza but no other offer of compensation. *Following* the completion of the session, participants in the focus group were each given \$10 as a thank you for their participation. Participants were unaware of this reward prior to the session. With the participant's permission, all IDT educator interviews were audio-taped and participants were offered the option to member check the transcript of the interview.

The current program administrator supplied the names and contact information for five graduates of the program (both masters and doctoral graduates), and these professionals were contacted and interviewed by telephone later in the spring of 2004. The researcher learned of yet another former masters student while visiting the university and that student was interviewed by telephone later in April.

The researcher used saturation as the criteria for the number and length of interviews, continuing to interview available educators and students until no more new information that added to the understanding of the phenomenon could be found (Creswell, 1998). Interview protocols consisted of etic issues (those identified by the researcher), but the interviews were conducted with sensitivity to the emergence of emic issues (those brought up by the interviewees). Both these emic issues and results from the Phase I survey provided the basis for probes used during the interviews to follow up on issues that were not anticipated when the researcher developed the protocols. During the course of the case study visit and later during analysis, the researcher took time to journal, recording impressions, interpretive commentary, and preliminary analysis during and after the scheduled interviews (Stake, 1995). Journaling (also referred to as memoing) served to record the researcher's line of reasoning and reflections, and to provide an audit trail or record of the steps taken in the research process, the decisions

made concerning the conduct of the analysis, and the analytical thoughts of the researcher concerning the study.

After all personal interviews and telephone interviews were completed, the tapes were transcribed. During transcription, pseudonyms were used for the participants and care was taken to delete or disguise any information that could be used to identify the participants. Later, permission was sought and obtained to name the Florida State University Instructional Systems program as the subject of the case study (see Appendix M), and to name four of the retired faculty members in the write-up of the case study.

Implementation of Program Document Analysis

During the course of the case study, the researcher collected available program documents for analysis and to provide a source of data triangulation. The documents collected included (a) program descriptions and requirements, (b) course descriptions, (c) educator vitae and resumes, (d) a departmental organizational chart, (e) an awards ceremony program, (f) a listing of outside lecturers who spoke at a recent semester's professional seminar, (g) lists of educator advisees, (h) distance program student occupations and locations, (i) a description of the learning systems institute that employed current students and some faculty in program-related projects, (j) two self-evaluation reports, and (k) a competency analysis form for the masters program listing student requirements for a evaluative print-based portfolio.

IRB Approval

Participants for all interviews and the focus group session were required to sign an informed consent form approved by the Institutional Review Board (IRB) for Virginia

Polytechnic Institute and State University. The consent form for interview participants included the following statement concerning anonymity and confidentiality:

The results of this study will be kept confidential. While anonymity cannot be guaranteed, the researcher will make every effort to disguise the identity of participants. Neither your name nor any other personal identifier will be associated with the information you supply. Publications from the findings will use pseudonyms and mask personal identifiers.

The consent form for focus group participants also included the phrase, “Please note, however, that anonymity cannot be guaranteed due to the group nature of focus group sessions.” Consent forms for case study interviews and the focus group session are included in Appendix R.

In the case study section of this report, steps were taken to protect anonymity by limiting the description of participants quoted. The decision was made to use the names of retired faculty and use pseudonyms for current faculty. Permission to use actual names was sought and obtained from the four retired faculty who were founding members of the Florida State Instructional Systems program. This decision simplified the reporting of educator philosophies and enabled the researcher to draw parallels between the direction of the IDT field and the philosophies of the Florida State founding faculty. The IRB approval letters for both the survey and case study portions of this research are included in Appendix Q.

Data Analysis

As noted in Chapter 3, the results of the exemplary program ratings and listings from the survey were used to inform the selection of an IDT preparation program for the case study portion of the project. Following the case study data collection, the data were analyzed and

coded using confirmatory codes taken from research questions four, five and six (refer to the Phase II summary in Table 14). Common themes were identified. The documents collected during the case study were also analyzed for the confirmatory codes. Finally, program-related documents and data from both the Phase I survey and the Phase II interviews were triangulated to ensure the trustworthiness of the findings, and to answer research questions four, five, and six.

Researcher Reflexivity

In qualitative research, it is appropriate for the researcher to familiarize the reader with “his or her training, experience, philosophical orientation, and biases” (Merriam, 2001, p. 228). This type of introspection is referred to as “reflexivity” and is typical of qualitative research today (Creswell, 2003, p. 182). In this section, I will use the first person tense as I provide a personal profile to enable the reader to understand my frame of reference in researching this topic.

I have always been one of those people for whom learning was, in and of itself, an incentive and a reward. When in undergraduate school, I was interested in so many subjects that I found it hard to settle on a major; so when I discovered the field of instructional design and technology, I felt I had located a gold mine. To me, the field represented an opportunity to continue learning about all different areas of knowledge and, at the same time, earn a living by creatively communicating that knowledge to others.

In the early 1980s, when I first obtained my masters in Instructional Technology, the practice of employing instructional designers in business and industry work environments was relatively new. I chose to enter that work and developed instructional materials for a variety of different industries: engineering and construction, oil exploration and production, financial,

computer hardware and software, and as an independent consultant to insurance and other industries. I also was employed in a K-12 environment and participated in volunteer opportunities that exposed me to non-profit and government institutional environments. The combination of theory and media skills that my masters program had equipped me with was more than adequate to meet the technical challenges I faced in the work world. However, there were other, more subtle things that I encountered outside the walls of academe for which I was totally unprepared. Corporate cultures and the unspoken “do’s” and “don’ts” of this new world of work – the unstated values, beliefs, attitudes, assumptions, and customs unique to each work environment – were mystifying to me, and I found myself adopting a protective stance until I could ascertain the “lay of the land.”

Had my disequilibrium resulted from the fact that I had gone straight from my undergraduate experience to obtain my masters without any work experience between (other than seven years of part-time jobs)? Was it my personality, or possibly a lack of knowledge about what it meant to be a “professional” in *any* work environment? Was there something I could have done to better prepare myself for the issues I eventually faced, or were these things that everyone should figure on learning through bad decisions and the “school of hard knocks?”

My work in a wide variety of industries and work settings also made me aware of some things that I suspected were basic cultural differences between private and public sector settings. It also made me aware that some career environments have unique requirements – both technical and experiential. Just as positions in higher education require knowledge of tenure, grant writing, and research skills, a position in any corporate environment requires the employee to understand the basic economics of their company and their own contribution to its profitability. As a result, I have undertaken this study of the preparation of instructional designers for different career

environments to further my own understanding and make sense of my own experiences, and to ultimately become a better educator of instructional designers. Therefore, any biases that I might have concerning the case study portion of this project result from my own life experiences.

Summary

A summary of the methodology used for Phase II of the research study is presented in Table 14. Note that permission was sought and obtained to name the Florida State University Instructional Systems program as the subject of the case study (see Appendix M), and to name four of the retired faculty members in the write-up of the case study.

Table 14. A summary of specific methods used to answer Phase II research questions.

Research Questions	Method of Data Collection & Analysis	Case Study Questions/Data
4. What are the philosophies of IDT educators in an exemplary program concerning IDT professional preparation for different career environments and the cultural aspects of those environments?	Case study research consisting of IDT educator in-depth, face-to-face interviews, triangulated with data from student focus group sessions & document analysis. Confirmatory coding and analysis of interview data, and member checks for trustworthiness.	Case study educator interview questions and focus group session questions on what topics were covered in the classroom.
5. On what type of experiences do IDT educators base their philosophies of IDT preparation?	In-depth, face-to-face interviews of IDT educators, triangulated with data from student focus group sessions & information from educator’s resumes. Confirmatory coding and analysis, and member checks.	Case study educator interview questions and focus group session questions on the experiences that educators shared in the classroom.
6. How does an exemplary IDT preparation program instantiate the philosophies of its educators?	Triangulation of data from case study interviews, focus group sessions, program documentation, and phone interviews of former graduates of the program. Confirmatory coding and analysis of data, and triangulation with telephone interview data from past graduates of the program.	Case study educator interview questions, focus group session data and information from telephone interviews concerning what topics were covered and what experiences were provided in the program, and information from related documentation.

CHAPTER 6 – PHASE II ANALYSIS OF CASE STUDY FINDINGS

This chapter presents the Phase II case study results of an analysis of Florida State University's (FSU) Instructional Systems program in Tallahassee, Florida. The purpose of this phase was to determine what this exemplary program has been doing to prepare instructional designers for different career environments (refer to permission letter in Appendix M). A description of the Instructional Systems program, the study participants, and the program history places the study in the appropriate context. The case study findings are then presented and appropriate information is included from document analysis and student interviews to triangulate and verify the findings. A list of the documents analyzed for this case study is included in Appendix N.

The decision to study the Instructional Systems program at FSU was informed by the results of the Phase I survey, which focused on the alignment of IDT practitioners' preparation and work experiences. The information from the survey informed Phase II in two ways:

- it provided a listing of exemplary programs from which the IS program at FSU was chosen, and
- it provided data which informed the development of the case study interview protocols.

The Phase II case study findings contained in this chapter address the following research questions:

4. What are the philosophies of IDT educators in an exemplary program concerning IDT professional preparation for different career environments and the cultural aspects of those environments?
5. On what type of experiences do educators base their philosophies of IDT preparation?

6. How does an exemplary IDT preparation program instantiate the philosophies of its educators?

Case Study Context

This section describes the Florida State University (FSU) Instructional Systems (IS) program, the study participants, and the history of the program. This information provides the context necessary to understand the program, its educators, and its students.

Program Organization

The Instructional Systems (IS) program at Florida State University (FSU) is currently under the Department of Educational Psychology and Learning Systems (EPLS). The IS program's strong empirical focus is reflected in the fact that it was formerly a part of the Department of Educational Research. According to the EPLS department's website, the IS program "...focuses on applying a systematic model to analyze, design, develop, and evaluate a variety of instructional systems. IS practitioners apply principles from a wide range of disciplines to analyze instructional problems, design solutions, then evaluate, revise and implement the solutions" (FSU, 2004).

The entire EPLS department, but especially the IS program, is closely affiliated with the university's Learning Systems Institute (LSI), which is internationally known for major research and development projects related to instructional design, distance learning, and evaluation. LSI has as its mission to bridge "the gap between research and practice in education and training..." and to maintain:

...project-based teams led by FSU faculty and graduate students with a wide range of experience in many varied disciplines. These multidisciplinary teams

develop robust solutions using systems approaches to the planning, design, evaluation, and improvement of instruction, learning, and human performance (LSI, 2003).

As a result, LSI supplies valuable authentic, relevant experiences to IS students in the form of internship and assistantship opportunities, which were determined by this study to be integral to the preparation and satisfaction of current students and graduates of the program.

LSI was the “brain child” of one of the founders of the IS program, Robert Morgan, who started it as the Center for Educational Technology (CET) just one year after starting the IS program in 1968. Since 1969, LSI has drawn more than \$130 million in external funding into the university and has provided an authentic environment in which students can learn about and engage in the application of research to “...maximize human learning and performance through systematic, scientific design processes based on clearly defined outcome criteria, valid assessments, and incremental improvements” (LSI, 2003). The Institute is currently employing 55 graduate students with a 5.5:1 ratio of students to supervising faculty.

Another on-campus entity that provides students with opportunities for authentic, relevant experience is the Office of Distributed and Distance Learning (ODDL). ODDL supports and produces online teaching and learning for the FSU community, and provides support to faculty in their pursuit of instructional excellence. ODDL has several units, one of which is a course development unit where instructional designers help faculty design courses that go online.

Degree Options and Student Body

The IS program offers degrees at the masters, specialist, and doctoral levels, as well as optional certificate programs in Human Performance Technology, Online Instructional

Development, and Program Evaluation. In all, there are currently 128 students enrolled in IS programs. According to IS program faculty, many of the students enrolled in the various IS programs are individuals who have obtained undergraduate or graduate degrees, have worked, and are returning to obtain a masters or doctoral degree in instructional systems.

FSU IS educators generally agree that the IS doctoral degree adopts more of a generalist approach to preparing students for career environments. The masters program is designed to give students a good foundation in instructional systems and performance improvement, but also has several areas of specialization. According to one senior faculty member, most masters students “...go into business and industry so a lot of the courses that we offer are...targeted towards preparing them for business and industry” (Seth).

The 36-hour Masters degree program enables students to specialize in instructional systems only, or in instructional systems with an emphasis in either Performance Systems Design, or Open and Distance Learning. The later emphasis is available either on campus or through an online masters program. All masters candidates are required to complete an internship, create a print-based portfolio of products produced in the program, and prepare a written reflective exam. This written exam is a reflective self-analysis of their competence in the field, using as a guideline 27 competencies in the six categories of analysis, design, implementing media and technology, evaluation and research, management, and communication.

The majority of online masters students are employed and taking an average course load of one or two courses per semester. An analysis of a December, 2003 listing of the online masters students with a major in Distance Learning indicates that since the founding of the online program, the 107 online masters students enrolled were employed in business and industry

(34.3%), higher education (21%), government and military (19%), K-12 education (19%), health care (5.7%), and non-profit (1.0%) (see the documents list in Appendix N).

The IS doctoral program builds upon practitioner skills and includes emphases on research and management skills. The doctoral program has recently been revised and the IS program is adopting new requirements, going from the current 100-hour program to a 92-hour program. An internship is encouraged but not required for the doctoral program.

An IS program faculty member estimated that:

Not counting international students who go back to their home country, I would roughly estimate that about 85 - 90% of our masters graduates go into business and industry, with the other 10% - 15% going into government ID positions or working on ID projects (either contracts and grants, distance learning, or on-campus ID) in university settings. At the doctoral level, not counting international students who go back to their home country, I would roughly estimate that 50% go into academic positions, with the other 50% taking jobs in business and industry, government, R&D centers, etc; with most of those folks working in business and industry (Seth).

Case Study Participants

A total of 17 faculty interviews, one student focus group session with eleven participants, and seven individual student and alumni interviews were conducted in the course of this case study. Ten of the faculty interviews were conducted face-to-face, and seven by telephone. All but six of the student/alumni interviews were conducted face-to-face with six student/alumni interviews conducted by telephone. Summary information and the pseudonyms for each faculty,

student and graduate participant are included in tabular form in Appendix L. Faculty participants included:

1. eleven current junior and senior faculty members, where the five junior members had five or less years of experience at FSU and the six senior faculty had served at FSU more than five years (one junior and one senior faculty member are considered adjunct faculty);
2. four former faculty, professor emeritus, three of whom are still actively involved in some aspect of the program and/or university research projects, and all of which represent faculty who were instrumental in the scope and design of the current program (permission was sought and obtained to use these individual's names in the case study report); and
3. two visiting professors from long-established instructional design programs located in the northeastern and mid-western United States.

In addition, there are two more adjunct professors who were not interviewed for this study.

Instructional Systems Program History

The history of the Florida State University (FSU) Instructional Systems (IS) program represents a notable piece of the larger history of the instructional design field, since it includes events and individuals who have impacted the field and molded the course of its early evolution. Robert Gagné, Leslie Briggs, Walter Dick, and many other influential theorists and authors are part of the heritage that the Instructional Systems program at FSU has contributed to the field of instructional design and technology.

The scope and direction of the IS program reflects the vision of its original faculty and the first program leader, Robert Morgan, who hired and assembled faculty with diverse strengths to create the program in 1968. Morgan's vision concerned the need for a *science of education*:

In my earliest exposure to systems ideas, I came to the conclusion that what was really needed in...educational improvement was a merger of management science, behavioral science, and communications technology.... Imagine those three disciplines being available to the educational planner, and being able to draw on each one in the most appropriate way to build new kinds of educational programs! (Morgan)

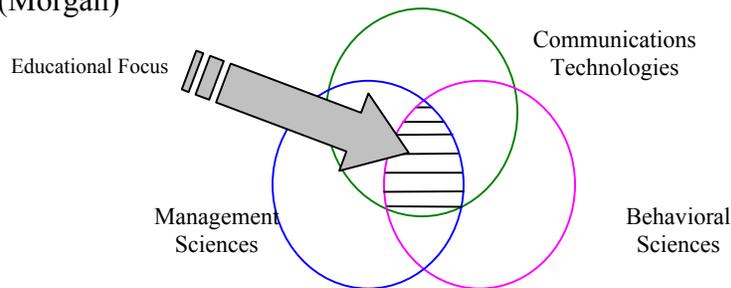


Figure 9. Instructional systems: Convergence of management, communications, and behavioral sciences.

Figure 9 illustrates the contributions to instructional systems from other established fields. The field of management science contributes systems theory, planning, cost analysis, and scheduling; the behavioral sciences contribute learning research and developmental psychology; and communications technology contributes communications theory, and the media and methods to send instructional messages. These elements and more, when focused on education and training problems, made up Morgan's conceptualization of instructional systems. Similar programs were emerging across the nation, but two things made the program at Florida State unique: (a) the program was, from the outset, based on systems theory, and (b) it did not place major emphasis on media, which was the case with many other programs that grew out of an

audiovisual focus. Furthermore, the program's empirical emphasis was reflected in the fact that it was housed in the Department of Educational Research:

Our idea was to come in and graft onto that department – add to it – people that represented different aspects of the systems methodology...we grafted systems onto a research, statistics, and methodology foundation...we always incorporated media considerations but it was never a driving force. It wasn't then and it isn't now (Morgan).

Morgan's educational background was in experimental psychology, and prior to coming to FSU, he worked in a variety of career environments including higher education, business and industry, and government career environments. It was while employed with Litton Industries that he was introduced to systems thinking. When the dean of the College of Education gave Morgan funds for five full professorships to start the program, and he hired individuals with similar backgrounds. These individuals were also acknowledged leaders in their respective fields, and they represented major elements of a systems approach.

From the field of communications and media he chose Leslie Briggs, who was well-known for his research on integrated instructional media or multi-media. For applied learning, he turned to Robert Gagné who he considered the top learning researcher in the country and who had gained notoriety for his work in that area during World War II. Morgan called on a long-time colleague, Robert Branson, to come contribute in the area of management and managed developmental enterprises. Branson had gone to school with and worked with Morgan, and had headed up the largest of Litton's Job Corps centers for rehabilitation of teenagers in California. Taking one of the professorships himself, Morgan filled the fifth position with a public school

administrator who eventually left and was replaced by Roger Kaufman, who had co-authored one of the first definitive texts on educational systems.

Walter Dick was already at FSU, and under the new program he co-authored what would eventually become the most widely-used textbook in the field, “The Systematic Design of Instruction,” which he wrote with Lou Carey. As the program grew, other scholars were added to the faculty, but Morgan stressed, “every time we brought somebody in, they were evaluated in terms of where they fit in this mosaic of technical, professional, and intellectual requirements for educational systems development.”

With that strong and focused beginning, the Instructional Systems program at FSU embodied the philosophies of the founding faculty, articulated here by Morgan:

My philosophy is very pragmatic and it’s empirical. Pragmatic in the sense that, we’re looking for things that work, and empirical in that we’re not willing to rely on anything but learner data to demonstrate whether or not it has worked. And systems and the other kinds of things...are tools that you have in your arsenal...you determine the optimum combination of those things based on what works.... So that really has under-pinned everything we do at Florida State (Morgan).

The direction of the IS program continues to remain true to the vision of its original faculty, although it has expanded in scope to embrace newer learning theories, strategies, and techniques. The program has also kept abreast of, and even served as a leader in recent trends in the field. Several years ago, the department made a decision to offer a Human Performance Technology (HPT) option to its students. This decision has placed FSU as a popular source of graduates for positions in business and industry and the military. Three of the alumni interviewed

by telephone for this study remarked that major corporations not only come to FSU to recruit the program's graduates, they also regularly provide internships to current students, often hiring them later upon their graduation. This was confirmed by both faculty and student interviewees.

Another evidence of the program's status as a leader in the field is its popularity as a degree program for U.S. and foreign military organizations. Appendix O provides an email message from a United States Coast Guard (USCG) commander, soliciting eligible personnel to apply to receive a USCG-sponsored and funded assignment to complete a masters degree in performance technology. The memo advises that successful applicants are to attend one of the three leading programs in the United States, and lists Florida State's IS program as the first of those three programs. In addition, during the case study trip, the researcher was informed by faculty and students alike that Australian and Singapore military organizations send their performance technology degree candidates *exclusively* to the IS program at Florida State.

Findings for Research Questions: Educator Philosophies, Experiences and Instantiation

Interviews of the 17 FSU faculty were analyzed using confirmatory coding to ascertain the philosophies of educators at an exemplary IDT program. These philosophies and the personal experiences faculty shared that helped shape those philosophies are included in this section. Examples of how the Instructional Systems program at FSU instantiates the preparation philosophies of its faculty are also included to provide a picture of how an exemplary program prepares graduates to practice in both business and industry and higher education career environments. Where applicable, results from the faculty interviews are triangulated with the student and alumni interviews and the document analysis to verify the results (see Appendix N for a list of the documents analyzed).

Common Educator Philosophies

Many of the current IS program faculty share common preparation philosophies that reflect those expressed by the original founding faculty. Along with Robert Morgan, three other founding faculty were available to share their philosophies. As noted above, Morgan's philosophy emphasizes pragmatism, systems thinking, and empiricism. Morgan believed that systems thinking had the potential to make positive changes in education and so he concentrated on producing graduates who would be change agents. Graduates of the program would be trained in instructional systems, equipping them to change the current paradigm for educational activity to one that was more empirically-based:

The course offerings, collectively, were a strong reflection of systems thinking....

One of the things that we tried to build into all our courses was to make our graduates change agents. You go out and your purpose in life is to change and to improve, whether you're developing training courses for IBM or curriculum or computer instruction or whatever. Well, we had intentionally wanted to make missionaries out of them and I think with a fair number of our graduates we accomplished that purpose. (Morgan)

That same pragmatic approach and belief in change agency is reflected in the remarks of Walter Dick:

...we were all trained as experimental and learning psychologists...we all had been...in business and industry,...all shared an interest in very practical applied applications of psychology.... We were interested in change, and we were not a bunch of theoreticians who wanted to stare at the ceiling and think great thoughts. We wanted to get out and get into the learning context whether it be public school

or university, whether it was Korea or South America, wherever it was and make a difference (Walter Dick).

Roger Kaufman concurred with the importance of change agency and went even further, emphasizing the personal ethical responsibility of instructional designers to work for the betterment of society. When asked if he had ever experienced a misalignment of his own values, attitudes, and assumptions with the culture he found himself operating in, his reply reflects his philosophy of change agency for the greater good:

Absolutely. In my lifetime, I have fired about four or five clients. One of which was [Arthur] Anderson...I told them they were in ethical and later financial trouble [if they did not consider how their operation could contribute to Mega – the greater good of society]...Their history speaks for itself....misalignment is a matter of professional ethics (Roger Kaufman).

Two other original philosophies have persisted in the program: the importance of providing authentic research and project opportunities for students, and exercising vigilance in self-evaluation and continuous improvement. These philosophies are best conveyed in the words of Robert Branson:

Professors ought to support graduate students, and ...graduate students ought to be involved in research and other projects, ...a student's education would not be complete without project involvement.... [In the mid-1980s] we had about 15 graduates come back to the campus and tell us what was good about the program and what was bad about it and what we ought to do about it.... We wanted to be fairly well in touch with what was going on in the market...we made some important modifications to the program based on their feedback (Robert Branson).

Each of these philosophies persists today and can be seen in the philosophies and practices of the current faculty: (a) pragmatism; (b) a systematic, systemic, and empirical approach to instruction and instructional design; (c) change agency; (d) the importance of authentic, relevant, real-world experience in design and research activities; and (e) vigilance in self-evaluation and continuous improvement. In addition to these, the current faculty interviewed frequently emphasized the importance of (f) opportunities for both students and faculty that promote collaboration and mentoring that, in turn, foster professional development and an atmosphere of collegiality.

Most of the philosophies expressed by educators were experientially-based, and interviewees often shared critical incidents or ‘war stories’ that had helped shape their preparation philosophies. Philosophies rooted in experience are often more strongly held, and where applicable, these stories have been included in the discussion of each major philosophy, below.

Pragmatic Approach

The pragmatic philosophy of using “what works best” was a common theme expressed by many of the FSU faculty. This pragmatic approach originated with the founding faculty, and is evident in the philosophies of current faculty. This is illustrated by a senior faculty member who emphasized the practical application of learning theories to IDT preparation:

My [graduate] program was very theoretical...but throughout, my questions had to do with well, ‘what difference does this research make and how do we use it to make education a better thing?’ ... I have a very pragmatic perspective both in terms of the practical side of let’s use what works, but also in the sense of

integrating a variety of [theoretical] positions.... I look to take some of the best of all of it (Eva).

Several faculty members shared how they use experiential exercises to make those theories come alive. The success of these methods was confirmed by the student focus group and the graduate interviews. For example, one masters student made this comment about the quality of his theory classes:

Prior to taking the course...I was pretty much a behaviorist.... I'll be looking at it from completely different ways now. You know, situated cognition and the ARCS model.... The [classes have] ...done a good job of opening my eyes to all the theories. ... (Ken)

Instructors also use case studies in their courses to sensitize students to the differences they could encounter in various career environments. The wide range of career environment backgrounds represented on the teaching staff enables them to produce a number of these case studies from their own experience.

Another practical step mentioned by several was the use of a multitude of diverse examples to discourage the tendency of novices to think that there is just 'one right way' to approach a learning problem. One instructor shared the experiential basis for her philosophy:

If I give examples, I have to give a lot of real diverse examples – or none at all.

And I don't like to give templates because [of] the first thing I experienced on the job as an instructional designer.... Sometimes you [just] have to figure out what it looks like, and ...maybe this is [why] the disequilibrium [occurs] for people.

...often in school you are told "the final project will look this way, it will be one of these." And you get on the job and your boss doesn't know what it looks like.

And they want you to articulate what they want in the first place. ...[I think]we do students a disservice if we give them too many... [templates]. I mean, at some point you use that kind of stuff as a scaffold, but then at some point you have to let go (Madeline).

Another method that works is using guest speakers to provide multiple and diverse perspectives, to help convey the breadth and complexity of the field and the latest trends, and to provide information on topics for which instructors have little or no experience. Funds are set aside to bring in weekly guests from various career environments to speak to students about learning theories, new instructional design models, recent trends in the business world, and instructional design methods, teaching strategies, and tools. These guest speakers are often alumni or experts in the field who come to speak in courses at the invitation of the instructor. In addition, each spring there is an entire class featuring guest speakers that can be taken repeatedly for the benefit of everyone in the program. This seminar course was mentioned repeatedly by faculty, students, and alumni as providing several benefits:

We have a seminar that you are required to take at least once, and encouraged to [continue taking] ... They bring in guest speakers that are past graduates or industry professionals or academic professionals or journal editors ...to supplement ...and give us a more real world feel for what is going on. ...There are all different kinds of things you get out of the sessions because they are so diverse in nature (Keegan).

Systematic, Systemic and Empirical Approach

In addition to seeking out and using what works, faculty members agreed that a systematic and systemic (holistic) approach is best for most tasks involved in human performance improvement and instructional design. Many participants explained that they used a systematic approach to the design of their own courses and the selection of appropriate teaching strategies, as well as emphasizing to students that they be systematic in their own IDT practice. One faculty member was adamant in his insistence that this systematic approach could be used with all theoretical models:

[I cover] systems theory and I talk about how you can incorporate any psychological model or theory of human learning performance under the instructional systems process...whether it's behavioral psychology, cognitive information processing, [or] constructivist philosophy... the instructional design process, in contrast to ...[how] some others like to characterize it (as just a behavioristic process – it's not) – it's a systematic problem-solving process into which you can incorporate psychological concepts and theories of learning based on your learning goals... or the nature of the learning environment that you are trying to establish (Ian).

At the program level, a systematic effort was undertaken a few years ago to ensure that FSU IS students would be marketable upon graduation. This was done at the program level through a competency-based masters degree evaluation (examination) which included the requirement to produce a print-based portfolio (refer to Appendix P). Faculty developed the exam using a pragmatic, systematic approach to ensure that the masters graduates were equipped with the skills that employers desired. They first identified potential employers for their

graduates and then determined the competencies required by those employers. The resulting list of competencies is given to masters students early in their academic program. In this way, students are made aware of program expectations and can work toward developing the competencies during their coursework, as well as identify potential competencies for further professional development following graduation. A final competency analysis report containing the student's reflections on their progress is the capstone experience of the masters program. The approach taken to develop this competency exam mirrored the effort to define the program as a whole in the mid-1970s when the IS program was first formalized.

This approach is also *systemic* in that it looks holistically at the student's overall experience in the program and seeks to extend their plans for professional development beyond their academic preparation program. Systemic thinking involves always seeking to understand the larger system (Mitchell, 1989), and why it works rather than just how it works. In fact, the Instructional Systems program is geared toward understanding its role in relation to the larger world of work and society.

In addition to a systematic and systemic approach, faculty frequently emphasized the importance of ensuring that IDT practice be informed by empirical research. Many also strive to involve students in their empirical research, making course and method evaluation processes transparent so students have a better understanding of the research process. In line with this, one junior faculty member stated his philosophy in this way:

I believe what it comes down to is this – we talk about all the different instructional design models, but if you look at the research that has been done on the design process, people are struggling to find some common theme or framework on which to empirically test which models lead to better instructional

design. What I hope to do is to apply this type of research [to solve instructional design problems] (Keith).

The modeling of this systematic, systemic and empirical approach was found to be appreciated by current students and alumni. One alumnus expressed it this way:

...the Instructional Systems Program equipped me with, namely, a very analytical, disciplined and useful approach to improving performance, in a human service-oriented way. (Rhys)

Change Agency

The IS faculty share this belief that systematic and empirically-based instructional processes and products can make a positive impact on individuals and societies. Their dedication to positive change agency for the purpose of improving education is seen as the “value-added” that they and program graduates can offer educational efforts in all career environments.

One of the senior faculty shared the personal basis for his life’s emphasis on change management and the reason he feels it is so critical to the curriculum:

I spent a year as the program director for dissemination for...[a non-profit] foundation and when I came in there ...they took me to a great big room full of all kinds of media.... [They said] “We funded all of these things, millions of dollars, and they are not being used.” [I asked,] “Why aren’t they being used?” Most was a matter of innovation and change and my whole emphasis there became one of processing innovation and change. I don’t think we get enough of that because people in this field are changing whether they realize it or not, and whether you are in a business or academic facility. ... you become a change agent. You

question the things that are being done and you have opportunities to suggest other alternative ways (Cyril).

Change agency is an element of the curriculum that has for some time been deemed important enough to be the topic of an entire course. Students are encouraged to take the change management course or to take a similar one offered through the FSU College of Business.

Self-Evaluation and Continuous Improvement

Current faculty displayed a willingness to change, as well, as evidenced by their emphasis on self-evaluation and improvement. Faculty frequently expressed their desire to provide their own “value-added” contributions to the program. To accomplish this, they use a variety of methods to evaluate their own efforts and investigate new ways to improve their teaching and research. This philosophy of continuous improvement is pursued by individuals, groups, and across the entire program. For example, the online instructors meet monthly in what they call their Pathfinders group, a distance learning support group for the educators:

All our online instructors meet to share and talk shop... we share our instructional strategies and we try to identify issues and do problem-solving and troubleshooting, and so forth. Particularly because we actually teach many of the same courses...So we're always reviewing the content and making modifications to it (Keith).

Part of the emphasis on self-evaluation and improvement can be explained by a desire to carry on the legacy of quality begun by the founding faculty, as expressed by many in the program. A faculty member, commenting on the qualities of new hires replacing the recently-retired founding faculty, described the general attitude in this way:

I think we have tried not to remain complacent – we believe in revision and continual improvement. So I think we have attempted to stay up on things to keep a sense of who we are as a program and what our particular uniqueness and strength is and yet to also align that...with the directions of the field.... (Eva)

More formal evaluation efforts are also used to assess and improve the IS program. These evaluations include those conducted by students, other university entities, and even outside consultants from other university IDT programs (refer to the evaluation reports listed in Appendix N).

Evidences of how the program instantiates this philosophy of self-evaluation and continuous improvement abound. One way this is manifested is by faculty who model good instructional design. One educator shared an example of this and commented on the qualities of the faculty as a whole:

Seth is a particularly excellent model as an instructor.... His strategies include not only being a good presenter, but he goes back after each class and ... makes notes on what happened and what worked and what didn't. He really...pays attention to what is reaching the students and what isn't...I think all of the instructors [in this program] are people who are paying attention to the students – to both the content and what we want them to be able to do, but also [to] who the students are and what is going to work with them and what isn't (Melanie).

Alumni of the program frequently commented on the excellent example provided by instructors in the program, as in this comment by a graduate who recalls being “turned on” to the field by the instructor of one of his first classes:

...talk about a frigging phenomenal instructional design, oh my gosh. That guy is the best instructional designer I have ever seen. I remember going through a three hour class and it seemed like 30 minutes. It was so well put together. ...it was phenomenal. He really ...walks the walk, big time. (Rhys)

Current students concur. During the student focus group session, all those present either verbally or nonverbally agreed with this student's assessment of the instruction:

I would say that on the whole, the modeling of teaching and the instruction that's happening in the classrooms is excellent. It's dynamic; it reflects the content that we're learning so there's not that big 'go home and have that paradoxical knot in your stomach where you're reading one thing but you're doing something else [in class].' (Ellen)

This accomplishment represents no small feat, either, because as one faculty member wryly noted, the challenge to "practice what you preach" in instructional design and delivery is particularly difficult:

An instructional systems program, it's one of the toughest programs for faculty to get in and become successful because the students and faculty – all together being in the instructional business – they all have a critical view of how to teach and what to teach. Students know if you are a good teacher or not because that is their business (Tallis).

The importance placed on self-evaluation and continuous improvement is also illustrated by the freedom several students and graduates of the program felt to express their opinions on areas where the program needs to improve. Current students and graduates of the program suggested a number of areas for potential improvement based on their own experiences in the

work world. When they shared these areas, the alumni and students were quick to point out that their opinions on the matter had already been solicited by the IS program. One alumna who had gone into a business and industry career environment, shared his thoughts on how he thought the program needed to change to prepare students for that environment. After crediting the program for providing excellent theory and instruction, he went on to say:

For getting out and working in the business world there are a lot of holes. Now they were probably holes that I saw maybe more glaring because I had just come from MBA school, and I saw that a lot of people that were in the program were [ignorant to] ...very basic finance questions....So I think that having some level of basic business competency in the program [is important]....[Not] mandatory because obviously not everybody is going into business and industry. (Rhys)

A graduate with considerable experience in the corporate field identified marketing, technology skills, and evaluation as weak areas in the program:

You have to know how to market yourself, your skills, what you bring to the organization. ... The other ...is they're still weak on computer-based instruction, developing e-learning, all about media. ...that's not a competency that I've needed. But if I was just going in, if I was 27, with the degree I've got – I'd be in trouble....And then evaluation...you really need some more on evaluation.... when instructional designers get out into the system, that's the thing that you have to be able to talk about (Penny).

Current students also felt free to voice their concern over different aspects of the program, particularly in the area of guidance in designing their program of study. During the focus group session, a few doctoral students who had masters degrees from other programs

indicated that they believed they would benefit from a competency list such as that compiled for the masters students. In addition, both masters and doctoral students expressed a concern over a lack of guidance in course sequencing:

Sequencing ...has come up frequently and I think it does affect how the competencies are met and how the program really feeds its students. Given that we know what we know about schema theory and all these other things and how people build knowledge, as a program we're not really considering how we're putting those layers on. As instructional designers, I would think that we would think that it would be more effective to go at it in a procedural way. (Ellen)

The fact that several faculty members also mentioned some of these areas for improvement illustrates that they are aware of potential short-comings. Several mentioned that they try to steer students to courses in other departments to acquire some of those skills. This willingness to send students elsewhere for training not available in the program is yet another evidence of an open attitude of self-evaluation, continuous improvement, and desiring the best for students.

Authentic, relevant, real-world experiences

An out-growth of this dedication to evaluation and excellence is a philosophy of providing authentic, relevant, real-world experiences to students. Many faculty incorporate authentic learning experiences into their courses, that feature the type of ill-defined problems common in IDT practice. They do this with case studies (many taken from their own consulting experiences), and real world projects that match student teams with actual clients to solve educational or performance problems.

Other faculty detailed the elements they felt were essential to these authentic experiences, including plenty of practice and feedback, diverse examples, project-centered design, and instruction in a variety of strategies to provide students with a toolbox for future practice. In one of the introductory courses, students interview alumni to hear what practitioners are really doing and to learn about the current trends in the field. One faculty member summarizes the value of these authentic hands-on experiences in the statement: "...you learn what you do and you remember what you use" (Conrad).

Real-world practice is also gained through supplemental learning experiences outside the coursework, such as internships and assistantships at both on- and off-campus locations. Off-campus internships in the Tallahassee area and across the country are often provided through alumni of the program. On-campus experiences are usually fulfilled at LSI or ODDL, where research centers set up by individual faculty provide a base and grant funds for projects that employ graduate students. Students work alongside faculty on research teams, enabling them to participate in an authentic community of practice and to benefit from the modeling of faculty. Many of the faculty members have joint appointments between the IS program and LSI or ODDL which allow them to devote the time necessary to mentor students in these cognitive apprenticeship-type experiences. These joint appointments have the added advantage of helping faculty keep current, which increases the value of their interaction with students. "We're really out in the field in the sense of knowing what is going on...of knowing the research... We are just very aware of the current trends as a group" (Dori).

Current students and alumni frequently expressed appreciation for their internship and assistantship experiences, crediting them with helping them develop necessary expertise. One graduate – now employed in business and industry – describes her LSI assistantship as follows:

The Learning Systems Institute position was just phenomenal.... I learned more there than I did in any of my classes...that was a critical part of my education... that was real life Navy, we had Navy contracts at that point and I was on one Army contract. You know, real-life work. You had all the constraints, all the ambiguity, you were forced with the timeline...because we were a research organization, we got to apply a lot of what we learned...we got to take the pure research and pull it forward to the applied area (Anna).

Authentic experiences are particularly valuable for preparing students for the *context* of their future career environment. One faculty member felt this was very important for those intending to enter an academic environment:

I really have come to believe that the only career that you should be prepared for ...is to get into the academic environment. And if you want to go out and teach ... you need to be planning for it far in advance... I know this because I didn't do it myself...I had no intention of going into the teaching business. I was researching and... I had no problem with that. I saw people that... were planning on ...[going into teaching and they were] doing the research, reading the literature, practicing their teaching.... and they built it up as they went along so by the time they graduated they already had a resume and had put in all the publications, all the presentations – they were in [the right] mental framework for that career. And that made them successful. (Tallis)

Where context is concerned, experience is the most effective teacher, and the internships and assistantships at LSI, ODDL, and off-campus institutions are particularly helpful in preparing students for the contextually-bound aspects of future practice. The internships are

usually paid experiences and frequently lead to job offers following the completion of the internship experience. The success of the IS program in preparing students for careers in business and industry can be seen in the number of companies that come regularly to the campus to recruit interns and job applicants.

The program experiences success in placing students in higher education, as well, and students felt particularly well-prepared in the area of research. However, some students noted that there are some gaps in the experiences they are able to get in the program in the areas of teaching and service. After emphasizing that the modeling of teaching by expert instructors was excellent, one student went on to comment on some areas that could be improved:

We don't put a lot of emphasis on providing teaching opportunities at the collegiate level for graduate students.... I think it's a rule that graduate students are not allowed to teach other graduate students. ...[but] when it comes to getting a job in the field, you have the prospect of looking at the set of requirements and it says, "can teach graduate level" and we have a rule in place that says I cannot have that experience, period. So there's one line on my resume and application that I'm going to leave blank...also, I haven't found much to tell me how it is I'm going to go about getting grants once I hit academe. [And then] service, I think, is kind of a mysterious area where there is almost a wall between us and what the faculty members are doing behind the scenes to try to keep things going (Ward).

In addition, students, faculty, and past graduates repeatedly commented on the value of several project-based courses, which pair teams of students with local businesses and campus instructors to complete a real-world project. These courses are particularly good at preparing graduates to go into business and industry career environments:

We have the course ...[where they] analyze a performance problem and see what the root cause of it is and come up with an idea for a solution. That's front-end analysis...real important in the field of performance improvement... We [also] have a project management course that helps prepare people to manage ID projects which is ...also necessary in business and industry (Seth).

Opportunities That Facilitate Mentoring and Collaboration

Whether it was in coursework or supplemental learning experiences, there was one element cited by faculty and students as fostering their professional development and an atmosphere of collegiality in the program. That element was the abundance of opportunities that facilitated mentoring and collaboration. The experiential and research opportunities available to students and faculty alike through LSI and the distance and faculty development entity ODDL, provide ample opportunity for mentoring. Students have greater access to faculty who are able to scaffold students in this environment as they model involvement in vital research. Several educators expressed their philosophy as one of cognitive apprenticeship (Brown, Collins, Duguid, 1989), in which they actively model the thinking processes involved in research and instructional design.

The mentoring in the IS program is not a new development. A tradition of faculty mentoring dates back to the original faculty and continues today, making it possible to recruit and keep good students and good faculty:

I had good mentors early on and that was very important.... they were very generous with their time and their mentoring ...When you start with that and you are working with those people who really want to see you develop and stay here, I

mean that is one strength of this institution I think, is when we get somebody we really work to keep them. (Conrad).

The faculty-to-faculty mentoring extends to faculty-student mentoring. Robert Branson illustrates the emphasis placed on this in his discussion of the importance of a faculty member's private practice to the opportunities available to students:

I have always had a very strong belief that if you work in a professional school...then you need to maintain a private practice. So I have always maintained a private practice. ...in so doing, I am able to involve students in my private practice to get a different perspective on what goes on, and I am able to work for a variety of clients that allows me to be able to say "This is what it's like at American Express, or Accenture, or wherever." (Branson)

Current faculty maintain private consulting practices, as well, or take sabbaticals to work in the training departments of large corporations or in other career environments to keep their skills current. In this way, they develop collaborative relationships through which they establish contacts so they can provide learning experiences and jobs for their students.

The alumni relationships are also important to the department, and faculty frequently collaborate with graduates of the program or call upon them to speak to students about their experiences in the real world of IDT practice. Collaboration is seen as yet another way to use *what works* to provide a quality education for students and a stimulating and atmosphere for faculty and students alike:

It's a place that works, you know, everybody is happy to be here and working together, and I think that does have an impact....I do think being in a smoothly-

functioning department makes a big difference....Even alumni I see as being really important here, people keeping up those connections (Madeline).

Additional collaborative relationships are developed through the annual spring LSI Symposium, which brings IST professionals from around the globe to FSU to collaborate on research projects that have the potential to impact the field for years to come. Students working assistantships at LSI have the opportunity to work on some of those projects, benefiting from both the opportunity to network and the participation in a vital international community of practice. Faculty, too, benefit from the collaboration, scholarship, and research that is a natural outgrowth of such events, and ultimately their instruction is enhanced. One recent example is an effort involving LSI and the University of Twente in the Netherlands, in which Dutch scholars and FSU faculty and students collaborate in an effort to apply theorist Jan van Merriënboer's 4C-ID model to the study of transfer of complex learning (van Merriënboer, Kirschner, & Kester, 2003).

These opportunities were frequently cited by students and alumni as positive experiences contributing to their professional development. The belief that one is a part of something very good is a powerful motivator for students and faculty alike, as described by this faculty member:

One of the things I think the students really appreciate about the program is...they see this as a caring program with faculty really trying to work with the students to make them professionally prepared....there is a real neat sense of community here. I am pretty confident we are not deluding ourselves when we say that. And the students see that the faculty are there to support them and make them better prepared. That instills pride in the program.... So it all fits into the ethos here and

creates students that are proud of the program and feel like they can do the job they have to do (Seth).

Contradictory Philosophies and Complicating Factor

On the whole, similar preparation philosophies were expressed by the IS program faculty at FSU. However, there were two philosophies on which the faculty was divided. In addition, there was a complicating factor noted by many in the program.

Program flexibility. FSU educators expressed contradictory views on whether the IS program was sufficiently flexible to enable students to obtain the preparation experiences they needed to become successful practitioners. These differences in opinion may reflect basic differences in philosophy concerning program content. While some faculty pointed to the evidence of excellent placement figures and expressed confidence that the program provided plenty of flexibility to enable students to customize their program of study to individual career goals, others described the program (especially the masters program) as “lockstep” or less flexible. Interestingly, changes were made to the doctoral program requirements, effective Fall, 2004, and some faculty members described those changes as an effort to incorporate more flexibility in student options.

Preparation for specific career environments. Faculty also expressed differing philosophical opinions on whether students should be prepared for certain career environments. Most felt that the masters program’s focus on a business and industry environment had been successful in preparing students for that sector and had served to give the program recognition. A few others, though, felt that a lack of a wide range of contextual examples could be limiting the students’ options in a tight job market.

As far as the preparation of masters and doctoral students, the faculty were in general agreement. Since the FSU program sees most of its masters graduates enter the business and industry career environment, faculty agreed that a significant amount of differentiation was needed in the training for masters versus doctoral students. They concurred that doctoral students, who typically entered an academic environment, were in need of research skills, grant writing experience, and additional theoretical knowledge. On the other hand, masters students required more knowledge of business and management practices, human performance technology practices, and a solid design/development foundation.

Student background variability as a complicating factor. Quite a few faculty members mentioned that the variability in backgrounds between students entering the program often made it hard to teach the classes. Student backgrounds range from older students who have had extensive work experience prior to entering the program, to those coming straight from an undergraduate program, to international students. In such cases, the student's maturity level and/or a lack of prior knowledge can become a problem and the instructor needs to take measures to accommodate individual learners. Walter Dick elaborated on one aspect of the problem, emphasizing that a lack of experience limited a student's ability to relate some of the material presented to their life and practice:

When we first started, our students were mostly in their mid-30s, late 30s and they had had careers and left them to come back and do a doctoral degree. So they came in...with the knowledge of the context in which they were going to use their skills...but after a while we started getting 21 year old [students] from the psychology department who had no prior experience, they had not even worked for McDonald's (Walter Dick).

In the ensuing discussion of context, Dick expressed special concern over the difficulty in preparing international students for the context they would encounter upon graduation. He commented that while many of the FSU faculty had participated in a significant amount of international work, he was not sure that their contextual experience was sufficient to help them be sensitive to the needs of internationals. Several other current faculty members also voiced concern for international students, and one expressed the belief that international students require special guidance on searching for a job:

You can talk about the work cultures and things....[but] they don't know the protocol in America and I mean even in general it's different – what to expect and what the sort of rituals are that you do, and just basic things like that (Dori).

Philosophies Concerning Preparation for Cultural Aspects of Career Environments

All of the IS program educators interviewed concurred that context and culture could negatively impact a novice instructional designer's successful performance in the work world. The faculty members interviewed were asked about the following six workplace cultural issues identified by at least 40% of survey respondents:

1. The nature of internal workplace politics;
2. trade-offs between quality, timeliness, and cost in work assignments;
3. availability of project resources for work assignments;
4. the amount of freedom given to make decisions;
5. employer attitudes toward change, innovation, and risk; and
6. workload.

Faculty members expressed a wide variety of opinions as to whether and how students could be sensitized to the cultural issues raised by the survey. Their opinions on the matter generally fell into one of the following categories:

1. The issue should be addressed, but was not currently covered in the IS program;
2. The issue should be addressed, and it is currently covered in the FSU IS program curriculum;
3. The issue cannot be addressed because it is too rooted in individual differences; or
4. The issue should not be addressed because it is outside of the purview of a preparation program.

Many of the faculty who felt that these issues should definitely be covered in a preparation program shared personal experiences or encounters that had led them to that conclusion. One faculty member related this experience:

I would say some of these line up very nicely with my experience. I mean, work load is interesting because one of the things that was often...said to me when I worked for this company is that “we are ‘professionals,’ and what that means is you put in whatever time it takes... the company owns you. ...We expect you to be here.” So I was at the office by 7:00 in the morning and I hardly left a day before 6:00 in the evening and, you know, that makes for a pretty long day. ... Do the best you can, or it comes out of your own hide, basically, (because we had to charge our time to the different projects)... [those] certainly are consistent with my experience (Eva).

Only a few faculty members indicated that a few of the issues that should be covered were probably not addressed in the current program. Most indicated that the majority of the

issues were either covered explicitly in current courses, or they tended to come up naturally as a result of the collaboration and group dynamics of project teams in both courses and supplemental learning experiences. For example, one instructor described ‘debriefing’ sessions he regularly facilitates in his class, where students discuss the problems they’ve had with their team or with their client. He emphasized that by sharing solutions in this way, the students...

...come up with a shared mental model about what you do and how you do things....[the] reflection is most valuable – the groups that have nothing to share sit down and listen to these guys talking about their problems and people are trying to think through their own problems, projects, and their own clients. Then they understand (Anonymous).

Other measures cited by faculty for sensitizing students to cultural issues included the use of case studies to familiarize students with contexts that cannot be easily experienced or simulated, and with the interpersonal skills required by those contexts. Also, faculty reported that many of the cultural issues came up during guest lectures. In analyzing the student focus group comments, it was noted that many of these topics were, indeed, covered in the coursework and students indicated an appreciation of the concepts and team skills they had learned.

A very few faculty felt that the cultural issues were either not within the purview of a preparation program or were so rooted in individual differences that they would have to be experienced and adjusted to in the real world of work. Some faculty, however, indicated that the issues were tied to values clarification that students should attempt to clear up prior to making a decision between public and private sector work settings. All faculty members agreed that differences exist between public and private sector career environments, and one educator summarized it this way:

Well there are major differences and I do think students should be sensitized. The private sector operates on a profit motive and public sector operates on the greatest return to the public good on investment, and those are very different. They don't have to be antagonistic, but they are not the same and I think students need to know that and I think we try teach them that here. Of course, a great many of our students...come to us as mature adults. They've had experience in the work setting, whether it's at a community college, or public schools, or offices in the private sector. (Morgan)

Another faculty member concurred on the differences between public and private sector work environments, saying that in the public sector...

...there is more of a focus on inquiry, on people – supporting people's development. And in the private sector there is, of course, the traditional focus on the bottom line. And you are working not as a professional but to support the overall mission of the organization, rather than just to further your own development or whatever you are contributing to the world (Ian).

One educator shared that when he received calls from graduates who were complaining about a job they had had for three or so months, he would advise them to stick it out for a year and if they were still dissatisfied, he would help them try to find a different position.

And you know I hardly ever got a phone call back. I think there is that initial shock where everything just seems awful and not what they expected and they want to bail out.... I guess the other side of that is any time I taught I would say "when you are dealing with real world problems, you have to know your own

values, your own ethics, and you have to know where you draw the line in the sand” (Walter Dick).

Other faculty noted that this type of disequilibrium often cuts across sectors and there are some aspects of workplace culture that are frequently issues for individuals, whatever the sector or career environment. Some of these educators noted that for most of the cultural aspects identified as issues by the survey, the extent to which the cultural aspect was an issue would likely be affected by the quality of an individual’s interpersonal communication skills. These faculty members also emphasized that there are certain interpersonal skills that are needed by graduates going into all types of career environments and job positions. A few educators noted that a topic of study no longer emphasized as much as it was in the past, is in the area of communications. When asked whether he thought a communications course could be used to address some of the cultural issues that were identified through the survey, one senior faculty member responded:

That was such a strong part of our field in the late 50’s and early 60’s and 70’s. The communication theory was just naturally taught. I don’t really see much of that anymore. We have a College of Communication here...but it tends to be more mass media, not interpersonal communication. I have always thought of communication as an interpersonal kind of thing; not ‘how do you tell the world about a new idea.’ But I think we have kind of lost that and even though we bow to communication in our AECT definition I don’t think that it’s as prevalent.... Communication is so pervasive in all of our work lives. It’s relationships with other people, it’s introducing new ideas, it’s taking the current setting and coming up with alternative ways of doing it. It’s learning how to listen to other people and

not just talk. It's learning how to determine who in the group is likely to be an early adapter and who are the lagers in the group and how to get at those people and the things that they respond to (Cyril).

Another instructor concurred that more was needed in the curriculum in the area of interpersonal communications skills:

[When I taught in X,] we spent some time going through the communication model ... [but] it didn't really give you strategies for the workplace. One of the things we did in the ...class is [devote] the first part to leadership and teamwork needs more. I would like to see a whole class on that actually (Melanie).

Table 15. Measures to address cultural aspects of career environments.

<i>Cultural Aspect</i>	<i>Measures Currently Used or Suggested to Address Cultural Aspects</i>
<ul style="list-style-type: none"> • The nature of internal workplace politics • Trade-offs between quality, timeliness, and cost in work assignments • Availability of project resources for work assignments • The amount of freedom given to make decisions • Employer attitudes toward change, innovation, and risk • Workload 	<ul style="list-style-type: none"> • <i>Collaborative teamwork in classes</i> • <i>Teamwork in research cell groups</i> • <i>Internships, assistantships</i> • <i>Client negotiations and interactions when developing instruction for an assistantship, internship, or class.</i> • <i>Debriefing sessions to discuss client relations with entire class, for the purpose of developing a shared mental model</i> • <i>Case studies</i> • <i>Relate examples to students' prior work experiences</i> • <i>Require students to complete course requirements under certain 'true-to-life' constraints</i> • <i>Provide instruction in project and change management</i> • <i>Encourage students to get involved in extra-curricular activities so they learn how to deal with multiple responsibilities in an academic environment.</i>

None of the methods and suggestions offered by the FSU IS faculty to sensitize students to cultural or contextual aspects of career environments were new to the field; however, the combination of a wide variety of strategies used appears to have worked for graduates of the program. In general, triangulated findings from the document analysis and interviews of students and program graduates confirmed that the measures mentioned by faculty had been, or were, in fact taken and were effective. In addition, the discussion of reviving the communications aspect of an IDT education – one that emphasizes interpersonal communication skills – provides a thought-provoking topic for consideration. The measures taken or suggested by faculty to try to sensitize students to the cultural issues identified through the survey are summarized in Table 15.

Summary

This chapter presented the context of the FSU Instructional Systems program case study and the findings for the qualitative research questions.

IDT Educator Philosophies

The findings for Research Questions 4, 5, and 6 were combined and presented by preparation philosophy. The preparation philosophies identified through this case study include:

1. A pragmatic approach;
2. A systematic, systemic, and empirical approach to both the content and methods used;
3. A dedication to change agency;
4. Self-evaluation and continuous improvement in both personal educator methods and the program as a whole;
5. Incorporation of authentic, relevant, real-world experiences; and
6. Providing opportunities for faculty and students that promote mentoring and collaboration, and that subsequently foster professional development and an atmosphere of collegiality.

Examples of each of these philosophies were included to provide the thick, rich description necessary to understand the phenomena of IDT preparation philosophies. In addition, the faculty was found to be divided on two topics dealing with IDT preparation, including:

1. the amount of program flexibility required to enable students to obtain the preparation they need to be successful, and
2. the amount of differentiated preparation necessary to prepare students for specific career environments.

While faculty opinion varied on how much differentiation should be made in the preparation of students for different career environments, they were agreed on the type of distinctions needed between preparation experiences for masters versus doctoral students. It is interesting to note that in this program, at least, the distinction between masters and doctoral

students is ultimately related to the career environment that they enter. Finally, several faculty noted a factor that complicated efforts to prepare students for practice. That factor is the variability of student backgrounds. This is a particularly difficult problem when dealing with international students, because instructors are typically not familiar with the work context international students will enter following graduation.

Faculty participants were asked to comment on six cultural aspects of career environments that had been identified through the survey as aspects that became “issues,” or challenges, for at least 40% of the survey respondents. Many faculty indicated that most of these topics were covered in the current curriculum. Some also noted that the issues were affected by the quality of an individual’s interpersonal communications skills, and some suggested that returning to an emphasis on communication in the curriculum might help alleviate these issues.

IDT Educator Experiences

The findings for Research Question 5 consisted of a collection of past and current personal experiences of IDT educators that they felt had impacted their preparation philosophies. Many of those incidents shared were either life experiences or experiences related to what worked or didn’t work for them as instructors.

Program Philosophy Instantiation

The findings for research question six concerned details on how an exemplary IDT program instantiates the preparation philosophies of its educators. A variety of programs, courses, requirements and policies, and teaching strategies were gleaned from the educator interviews, from student and alumni interviews, and from document analyses. This information was triangulated and then reported to provide a picture of how an exemplary program prepares

instructional designers and human performance improvement specialists for professional practice in business and industry and academic career environments. A summary of the measures, methods, strategies, and program policies used and suggested by FSU Instructional Systems educators is presented in Table 16.

In addition to the implementation of measures for each of these preparation philosophies, there are many opportunities for research and practical experience that are available to both students and faculty at the level of the program, the university and its research institutes, the community, and even at national and international levels. These opportunities facilitate the professional development of students and faculty, foster collaboration and mentoring, and promote an atmosphere of collegiality in the FSU Instructional Systems program. Ultimately, what *works* is the combination of diverse individuals who are working in synergy rather than at odds with each other. Their diversity is an advantage because they are all working hard to *make* it work and are “practicing what they preach.”

Table 16. Instantiation of FSU Instructional Systems educator philosophies.

Educator Philosophy	Ways the Philosophy is Instantiated
A Pragmatic Approach – Use what works	<ul style="list-style-type: none"> • Use of alumni and guest speakers in class and at Spring Seminar • Experiential exercises • Team collaboration and shared experiences • Class debriefing sessions following client interactions to build shared mental models • Faculty “war stories” from their experience in a variety of career environments • Case studies
A Systematic, Systemic, Empirical Approach	<ul style="list-style-type: none"> • Involve students in analysis and measurement of class processes • Involve students in vital research on teams • Well-designed courses and a “practice what you preach” attitude on the part of faculty • Holistic view of the program and students’ future occupation in terms of the value-added provided to society as a whole • Competency-based masters program
Change Agency	<ul style="list-style-type: none"> • Change management course • Project management course teaches the importance of learning negotiating skills • Emphasis on the “value-added” provided by skilled IS graduates both to the immediate educational problem and to future society
Self-Evaluation and Continuous Improvement	<ul style="list-style-type: none"> • Regular reflection on the part of faculty, both individually and as groups, to analyze what worked and what didn’t work • Regular evaluations by the university, students, past alumni, and outside IDT experts • Regular program revisions based on the results of evaluations
Authentic, Relevant, & Real-World Experiences	<ul style="list-style-type: none"> • Many courses incorporate authentic projects making use of on- and off-campus clients and actual educational and performance problems • Masters program requirement to complete an internship • On- and off-campus opportunities for assistantships and internships • Participation in research communities of practice throughout the student’s program of study • Emphasis on instantiation of this philosophy to handle the cultural issues revealed through the survey
Mentoring and Collaboration Opportunities	<ul style="list-style-type: none"> • A tradition of mentoring both at the faculty-to-faculty and faculty-to-student level • Collaboration opportunities between faculty; faculty and students; faculty, students and outside researchers both nationally and internationally • Annual LSI symposium that highlights global collaboration

CHAPTER 7 – SUMMARY, DISCUSSION & CONCLUSIONS

This chapter begins with a review of the study's purpose and research questions, limitations, and findings. Each section of the findings is followed by a discussion of the significance of those findings. A general discussion of the cross-phase analysis is followed by conclusions and practical implications of this study for IDT educators, potential students, and practitioners.

Research Purpose and Questions

The primary purpose of this study was to identify how, and how well, IDT programs are preparing students for professional practice in different career or work environments. The goals of the study were to:

1. identify how IDT preparation programs are preparing students for professional practice in different career environments – through programs that target a specific career environment, through generalist programs, or through program flexibility;
2. identify programs that are rated as exemplary by current practitioners; and to
3. identify what IDT educators in exemplary programs are doing to prepare students for different career environments.

The study used a mixed method, two-phase approach to determine the answers to the following six research questions:

1. How do IDT programs prepare students for professional practice in different career environments? Are programs designed to prepare students for a *specific* career environment, *generalist* to accommodate students entering all career

environments, or *flexible* to enable students to customize their studies to fit their own career goals?

2. Are specific programs more successful in preparing practitioners than generalist programs, as evidenced by the receipt of an exemplary rating from practitioners?
3. According to practitioners, how and how well have they been prepared for practice, specifically with respect to design practices or cultural issues (values, beliefs, attitudes and assumptions) that may vary across career environments?
4. What are the philosophies of IDT educators in an exemplary program concerning IDT professional preparation for different career environments and the cultural aspects of those environments?
5. On what type of experiences do educators base their preparation philosophies?
6. How does an exemplary IDT preparation program instantiate the philosophies of its educators?

Phase I of the study used a survey of current practitioners to answer the first three Research Questions, and Phase II of the study used a case study of an exemplary IDT program to answer Research Questions 4, 5, and 6, as illustrated in Figure 10. Final cross-phase analysis compared the results of the quantitative and qualitative portions of the study.

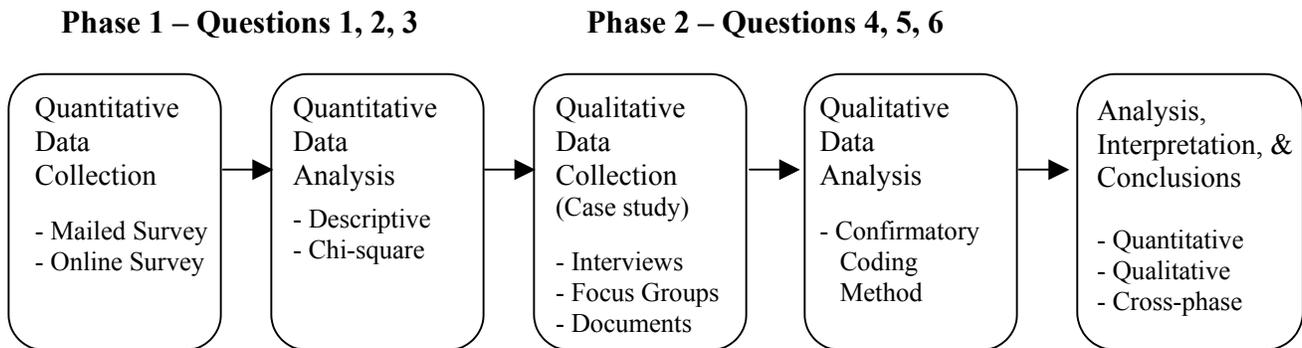


Figure 10. Sequential, mixed methods research design model.

Limitations

There were several limitations to this study resulting from the design of the research, the instrumentation, the logistics of the study, and the nature of the participants. This section presents those limitations by phase of study. One limitation applied to both phases of the project: “Meanings are in People, Not in Words”

In reviewing the program descriptions for IDT programs, it is clear that there are no established systems or categories for describing the types of IDT programs. Therefore, participants’ answers – both in the survey and in the case study interviews – were based on their own understanding of the terminology used by the researcher. Efforts were made in both cases to define the terms, but ultimately, as in the words of the communication theorist David Berlo, “meanings are in people and not in words” (Berlo, 1960, p. 175).

Phase I Survey Limitations

Opinions versus Observable Behavior

Phase I of the research study used a survey to explore practitioners’ perceptions about the match between their academic preparation program and the demands and challenges of their practice, as well as their opinions of exemplary programs for preparing IDT students for professional practice in their career environment. Since the data collected were opinions and perceptions of the participants and not observed behaviors, caution should be used in the interpretation and application of the results.

Limited External Validity of Online Surveys

Online surveys have limited external validity due to several factors including the inability to obtain a random sample, and limits on the awareness of potential participants to the online

survey's existence. In addition, a known problem with web-based surveys exists in the fact that web surveys have a lower response rate than mail surveys (Couper, 2000; Solomon, 2001).

Standardization of Survey Instrument Compromised

To some extent, delays in revisions to the online survey compromised the standardization of the instrument, recognized as a key to the external validity of survey findings (Sapsford, 1999). In an effort to minimize the effect of this limitation, the data from the mail and online surveys were analyzed separately, and for those questions that differed between versions of the survey, the results were analyzed to extract those aspects of the questions that were consistent across versions.

Access to Target Population Limited

Access to potential participants was limited for both versions of the survey. The online survey, in particular, was subject to privacy policies of all three professional organizations that limited access to their membership and, therefore, the membership's awareness of the survey. None of the organizations were willing to release the email addresses of their membership. For the mailed survey, AECT provided the mailing addresses for three divisions. Access to the mailing addresses of the other organizations was not pursued due to the prohibitive cost of mailing lists for organizations of that size.

For the online version, neither ISPI or the national organization of ASTD were willing to advertise the survey on their websites; however, the local chapter of ASTD did advertise it on their website and a portion of the national ASTD membership was informed of the survey through four of the organization's discussion boards. ISPI members were informed through their online and emailed newsletter. As a result, only those members who accessed the discussion

boards, websites, and read the ISPI newsletter were made aware of the existence of the survey, and there is therefore no way to ascertain the exact number of potential respondents. Therefore, the online survey must be categorized as a self-selected, non-probability-based, with no way to guarantee a true random sample (Gunn, 2002, Satmetrix, 2001). To address this limitation, the addition of a mail survey was implemented to minimize this potential threat to the external validity inherent in this situation.

Lack of Options on Mail Survey for Those in Library Science

As noted in the Phase I results, the mailed survey had a higher percentage of respondents who identified themselves as having a library science or media center degree than did the online version of the survey. Several mail survey respondents noted that the mailed survey had a lack of answer options for those with a library science/media center degree or who operated in that type of career environment (i.e., noting that their career environment was a library-related environment). This flaw in the survey design can be traced back to the fact that none of the pilot testers had a background in library science.

Mailing of Survey Subject to Postal Challenges

The survey distribution and reminders were all carried out via U.S. and international mail service, since AECT did not want their membership to be contacted via email or telephone. This increased the survey's vulnerability to the issues of time, delivery and forwarding problems associated with the mail service.

Phase II Case Study Limitations

Case Study Subject to Scheduling Needs of Participants

The spring semester at FSU ends earlier than the spring semester at Virginia Polytechnic Institute and State University (the researcher's institute). Therefore, the case study trip to Florida State had to be carried out earlier than originally anticipated. An initial survey analysis was conducted to obtain cultural variable data to include in the case study interview protocol. However, there was insufficient time to do a thorough culling of ineligible cases from the data pool prior to the analysis and, as a result, two of the cultural aspects selected as issues by at least 40% of survey respondents were not included in the interview protocol. The two cultural aspects were (a) the freedom to challenge or criticize the decisions of supervisors, and (b) directive versus participative management styles.

Variation of Examples Provided to Interview Participants

The researcher did not anticipate that some participants would request examples to clarify some of the cultural variables included in the questions. The examples given varied from interview to interview. Standardization of examples would have lent more validity to the analysis of participants' responses.

Possible Participant Agendas

It is acknowledged that the FSU participants had a vested interest in the conduct of this case study. Participants were doubtless aware that a positive experience for the researcher could potentially translate into a positive report of the IDT program at FSU. To address this limitation, the researcher triangulated data sources, and did not suppress any negative comments about the need for program improvements made by the program graduates and current students. In addition, the researcher contacted two graduates that were not specifically recommended by the program administration.

Single-Site Case Study Limitations

Single site case studies, of all qualitative techniques, offer the least generalizability due to its focus on a particular and specific situation. The mixed method approach involving both the quantitative survey and the qualitative case study was undertaken in an effort to address this limitation. In an exploratory study such as the current inquiry which seeks to understand how an exemplary program prepares students for practice, it is important to consider one case in depth than for many to be considered shallowly. Subsequently, the results of the current study can be combined with those of other case studies featuring other IDT programs, contributing to an overall picture of preparation for career environments.

Summary and Discussion of the Findings

This section summarizes the findings from the quantitative and qualitative portions of the study.

Phase I Survey Demographic Findings and Discussion

Both an online and mail version of the survey instrument was developed and administered to practicing instructional designers through three professional organizations: AECT, ISPI, and ASTD. The mail version of the survey was administered to a systematic sample of three divisions of AECT and received a 32% response rate. Results of both versions of the survey were combined and after deleting unusable cases and cases that did not fit the survey frame, the results were divided into two sample groups. The target sample group of 1994-2003 Graduates had 95 respondents, and the comparison sample group of PRE-1994 Graduates had 53 respondents, illustrating that almost twice as many of the total respondents had obtained their

degree in the last ten years. The following represents a summary of the demographic findings from the survey.

Degree level and type. The survey results indicate that for the target sample (1994-2003 graduates), 50.0% had a masters degree and 42.7% had a doctoral degree. The majority of respondents (approximately 70.0% overall) held a degree in instructional design, or instructional or educational technology. The next most frequent degree title in the target sample was instructional systems at 7.3%. It is interesting to note a shift from curriculum design and library science degrees in the PRE-1994 sample to human performance technology and training and development degrees in the 1994-2003 sample.

Years of Experience. The fact that 63.1% of the target sample of 1994-2003 Graduates had from 1 to 10 years experience, indicates that the remaining 36.9% (over a third) had worked as instructional designers prior to getting their highest degree in instructional design or related degree. This shows that many IDT students have their own practical experiences to share that may bring a contextual element to coursework. The contributions of students with diverse backgrounds was also emphasized in the case study findings. The experiences of such students, when shared, can enrich the instructional experience for all students. However, these statistics also mean that *two-thirds* of students in a preparation program likely do *not* have any prior IDT or other work experience.

Institutions. Respondents obtained their degrees from a large variety of institutions and for the target sample alone, 56 institutions were listed. Many respondents received their degrees from non-traditional online programs (such as Capella Online University out of Chicago), highlighting the scope of the challenge involved in trying to obtain current trend data on practitioners. Merely working through preparation programs to collect data from alumni is not

enough, and researchers must investigate other ways to access non-traditional populations within the design/development/human performance community.

Generalist vs. specific programs and program flexibility. The majority of current and past programs are generalist, as evidenced by the 65.0% of respondents who attended a generalist program. Of those that attended a specific program, approximately a third (33.6%) attended a program designed for higher education environments, 26% attended a K-12 targeted program, 19.1% attended a program geared to prepare them for a business and industry environment, 8.8% attended a program designed for a government/military environment, and the remaining 12.5% attended programs targeted for health care, non-profit, and “other” environments (respondent did not provide a description). It is interesting to note that the second most cited environment for majority of experience was business and industry (after higher education). However, the second most frequently cited program specialization (again, after higher education) was K-12 education. Further research would be necessary to determine whether this indicates a mis-match in preparation for the current job market.

Total Flexibility. Of all respondents, 61.8% were able to select from 11 to 49% of their program hours, and some had even more flexibility in their program of study. This suggests a wide range of variability in how students choose to pursue career goals, which makes it difficult to compare and therefore assess the success of programs.

For the sample surveyed, it appears that the majority of respondents attended a generalist program (65%) that enabled them to select from 11% to 49% of their coursework hours. However, this is a broad range and further research is needed to better determine the amount of flexibility these programs allow, and how that flexibility varies with respect to masters versus doctoral programs. It is clear, however, that career-environment-specific programs tend to be

more rigid and offer less flexibility to students than generalist programs (only 65.5% of specific program respondents had been allowed to select from 11% to 49% of their program coursework hours).

Without further research, it is impossible to know the reason for the differences noted between the mail and online survey respondents. Surveying a larger sample would contribute to determining whether the differences reflect a basic difference in audience due to (a) demographic differences between the professional organizations surveyed (the mail survey having been sent to the AECT membership which has a higher percentage of higher education members, and the online survey which had respondents from the memberships of AECT, ISPI, and ASTD, thus representing a broader range of career environments), or (b) access issues, personal preferences and characteristics of online versus mail survey respondents.

Phase I Survey Research Question Findings and Discussion

1. Research Question One - How are IDT students prepared? In generalist programs? In specific career environment programs or in flexible programs?

In answer to this research question, a little over a third of the programs attended by survey respondents offered tracks or emphases for a specific career environment. The other two-thirds of the programs, characterized by respondents as “generalist,” provided a great deal of flexibility to allow students to select program hours. To prepare for a specific career environment or goal, over half the respondents (52.5%) indicated having taken coursework from other departments during their degree program. Sixty percent indicated that they had participated in an internship or independent study experience.

2. Research Question Two - Are specific programs more successful in preparing practitioners than generalist programs, as evidenced by the receipt of an exemplary rating from practitioners?

In answer to research question two, the survey results show that there is a relationship between the type of program and the ratings the programs received. In this case, it appears that the generalist programs received more “excellent” ratings from their graduates than did the environment-specific programs. It is unclear whether the high ratings for generalist programs were due to the program content or the amount of flexibility in the program. Further research should be conducted to determine the optimum amount of flexibility in program content that serves to both cover the foundations of the field and allows enough leeway for students to tailor their program to their specific career goals. In addition, over 25% of all respondents felt their program was not adequate in its preparation for cultural aspects of their career environment.

3. Research Question Three – How, and how well, have practitioners been prepared for practice, specifically with respect to design practices or cultural issues (values, beliefs, attitudes and assumptions) that may vary across career environments?

The majority of respondents felt “somewhat prepared” to “fully prepared” for the following *general instructional design practices or tasks*: (a) general instructional design competencies (as identified by professional organizations); (b) instructional design models used in the respondents’ design practice; (c) learning theories used in the respondents’ design practice; and (d) flexible design using a variety of learning theories, instructional strategies, and instructional modes. In contrast, the percentages of those that felt they had “minimal” or “no preparation” were slightly larger for the following practices or tasks and that a specific

environment program was more likely to cover these items than was a generalist program: (e) competencies relating specifically to the respondents' career environment; and (f) specific subject matter of respondents' workplace position. This appears to indicate that most practitioners felt well prepared for the instructional design task requirements of their jobs, but, as can be expected, feel less prepared for the contextual elements of the subject matter and competencies related to their career environment.

An analysis of the *workplace cultural aspects* showed that there were eight aspects that 40% or more of respondents indicated were issues for them when they first entered instructional design practice: (a) nature of workplace politics; (b) trade-offs between quality, timeliness, and cost in work assignments; (c) freedom to challenge or criticize the decisions of supervisors; (d) availability of project resources for work assignments; (e) directive versus participative management styles; (f) the amount of freedom given to make decisions; (g) employer attitudes toward change, innovation, and risk; and (h) workload. When a comparison was made of the overall program ratings and the cultural preparation ratings, respondents were found to be less satisfied with their program's workplace cultural preparation than with their program's overall preparation for instructional design practice.

The two survey program rating questions ("give your program an overall rating..." and "give your program a rating for preparing you for the culture of your career environment") as well as the exemplary program listings (Tables 9 and 10) were used to determine the top three exemplary programs. The three programs receiving the most exemplary program "votes" from all survey respondents in the 1994-2003 Graduate sample were Indiana Bloomington, Florida State University, and the University of Georgia in Athens. The program at FSU was selected for the case study for two reasons:

1. FSU had the highest percentage overall in an analysis of the listing of exemplary programs by those 1994-2003 Graduate participants in a business and industry career environment (see Table 13 in the chapter three); and
2. The literature review indicated that the greatest variation in competency requirements and IDT practices occurred in business and industry career environments (Berge, et al., 2002; Furst-Bowe, 1996; Liang, 1999; Moallem, 1995; Morlan & Lu, 1994; Piskurich & Sanders, 1998; Reiser & Dempsey, 2002; Richey, et al., 2001).

Phase II Case Study Findings and Discussion

Phase II of the study concentrated on identifying preparation philosophies of educators at an exemplary program and the instantiation of those philosophies. The program studied was the Instructional Systems program at Florida State University, where the following common educator preparation philosophies were identified: (a) a pragmatic approach; (b) a systematic, systemic, and empirical approach to both the content and methods used; (c) a dedication to change agency; (d) self-evaluation and continuous improvement in both personal educator methods and the program administration; (e) incorporation of authentic, relevant, real-world experiences; and (f) a dedication to providing opportunities for faculty and students that promote mentoring and collaboration. These philosophies are based on the personal experiences of the faculty, including their work in other career environments, their consulting experiences with those environments, and their experiences with “what works” in an exemplary IDT preparation program. The Instructional Systems program at FSU instantiates these educator preparation

philosophies through a wide variety of measures, methods, strategies, and program policies, as detailed in Table 16.

Conclusions from Cross-Phase Analysis

Taken together, the results from the survey and the case study of the FSU Instructional Systems program lead to some interesting conclusions. Aggregating the data from both the survey and case study suggests several conclusions, however, these must be considered within the scope and limits of the study itself (as outlined previously). Specifically, all conclusions drawn from the current survey and single-site case study should be seen as tentative and developing, and their application should be mitigated by local circumstance.

Contextualize Learning with Situated Experiences and Cognitive Apprenticeship

FSU educators emphasized that authentic and relevant experiences and methods provide the context needed for their students to be successful upon entering IDT practice. The value of using such experiences to provide context as well as instructional design practice is supported in the literature. Tessmer and Richey (1997) state that contextualizing the instruction to the future work environment “makes abstract concepts more concrete, promotes understanding and retention, as well as facilitates reinforcement and transfer of training” (p. 90).

Relevant IDT context involves authentic experiences that immerse learners in the IDT community of practice, and is facilitated when IDT educators such as those at FSU ‘practice what they preach’ and model the practices, thinking processes, and problem-solving strategies they promote. Rowland, Fixl and Yung (1992) outlined three important elements necessary to move the novice IDT student more directly from everyday problem-solving processes to skilled

design processes: “learning in context, modeling of expert thought processes, and reflection” (p. 37). He linked these practices to develop an apprenticeship model of learning.

Several of the educators at FSU emphasized their use of cognitive apprenticeship to model expert thought processes. They use such methods as modeling, coaching, scaffolding, and reflection, to model expert design for their students. The literature supports the use of such measures as effective in preparing instructional designers (Cennamo & Holmes, 2001; Julian, 2001), and emphasizes that relevance to one’s work or life and active learning experiences are important in making a learning experience powerful (Rowland, Hetherington, & Raasch, 2002).

Relevance is affected by content, context, and methods, and is increased when the personal utility of the instruction is apparent to learners (Driscoll, 2000). Learning in context can increase relevance. The relevance of instruction is also easier to perceive when the learner has prior knowledge to which he can connect the new material. Therefore, the survey finding that only a third of students in preparation programs have had previous work and/or IDT experience, makes the issue of context all the more critical. When students have no prior work or contextual experience and the learning experience is de-contextualized, it is difficult for students to both acquire and apply new knowledge, skills, or attitudes (Tessmer & Richey, 1997). FSU educators noted with concern that this variation in student background experience made it difficult to adequately address contextual issues. This was a special concern with international students, since instructors likely did not have an adequate picture of the work context those students would be entering upon graduation.

The opportunities at FSU for internships and assistantships and the resulting mentoring of, and collaboration with faculty provide the type of contextual learning necessary for students considering practice in a variety of career environments. Contextualizing the learning in

preparation programs by providing situated experiences and using cognitive apprenticeship techniques can be used to address the issues of relevance, acquisition and application of new knowledge, and the variation in background experience and knowledge of students.

The Importance of Values Clarification and Interpersonal Communications Skills

The literature pointed out that there are definite differences in the cultural value systems between public and private sectors (Cabral-Cardoso, 2001; Tasker & Packham, 1993). FSU educators concurred. In addition, FSU educators and alumni indicated that graduates often experience disequilibrium when first entering the work world, and that this disequilibrium often occurs in a variety of career environments. Several of the faculty suggested that students could be prompted to consider their values and attempt to clarify them prior to making a decision on a career environment.

Furthermore, survey results indicated that practitioners felt that their preparation programs did a better job at preparing them for instructional design practice than for the cultural aspects of their career environment (many of which are values-related). FSU educators indicated that many of those cultural issues identified by survey respondents were covered in the FSU IS curriculum, and that many were also likely related to interpersonal communications skills. Some educators felt that these skill areas were covered in team collaboration and through the modeling of instructors. The literature does, in fact support behavior modeling as an excellent method for teaching interpersonal communication skills (Medsker & Fry, 1997). The literature also emphasizes that interpersonal communication skills are a critical requirement for IDT success (Bassi, et al, 1996; Cartlidge, et al, 1999; Liang, 1999; Morlan & Lu, 1993; Rossett, 2000; Surrey & Robinson, 2001; Valkeavaara, 1998). Yet, at least three FSU educators indicated that

the study of communications, and especially interpersonal communications, is no longer emphasized in the field as it once was and that it should be returned to the curriculum. One educator explained it this way:

That was such a strong part of our field in the late 50's and early 60's and 70's. The communication theory was just naturally taught. I don't really see much of that anymore.communication is so pervasive in all of our work lives. It's relationships with other people, it's introducing new ideas, it's taking the current setting and coming up with alternative ways of doing it. It's learning how to listen to other people and not just talk. It's learning how to determine who in the group is likely to be an early adopter and who are the laggards in the group and how to get at those people and the things that they respond to (Cyril).

Situated experiences can be used to address the problem of differing culture and value systems in various career environments, and can, to some extent, provide exposure to the type of interpersonal communications challenges that students may encounter in the work world. However, IDT educators should give consideration to how instruction in these skills could be included in the curriculum. Should a strong interpersonal communication component be added back into the IDT curriculum to handle the interpersonal challenges that the practitioners and students in this study have shared? It would seem so, although it may be that an existing business or communications department course would provide the necessary information concerning corporate culture, interpersonal skills, and even values clarification that would aid especially those students with no work experience background.

Generalist Programs with Flexibility

The survey indicated that the majority of current programs are generalist in nature but that at least a third of programs are targeted to specific career environments. The case study results indicated that the FSU Instructional Systems program is both generalist and specific. It is generalist in that it has always placed a strong emphasis on the basic foundational skills and knowledge of the field – systems thinking, a basic understanding of the process as opposed to a specific model, and a committed pragmatic approach to use what works. The program is specific from the standpoint of targeting and maintaining ties with the business and industry work environment to ensure that its masters graduates are trained in the competencies required by those employers. This approach has been successful for FSU.

The survey results indicate that for most academic markets, a generalist approach to preparation with plenty of program flexibility makes more sense than one targeted to a specific career environment. One compelling reason for this was brought out by a faculty member who stressed that with the volatility of the current job market and the evolving nature of the field (i.e., the future and synergy of IDT and HPT), it would be unwise to limit students' options by limiting the context of their education. The better alternative is to give students a strong foundation in the core elements of the field and provide plenty of flexibility for them to take electives that prepare them for the career environment that they plan to enter. Furthermore, a wide variety of learning experiences that place them in a community of practice, interacting with alumni and experts in the field, will enable them to pick up on the differences inherent in the various career environments that they are considering.

The Importance of Continual Evaluation and Improvement

One philosophy identified through the case study was that of self-evaluation and continuous improvement. According to FSU alumni currently working in business and industry, some students, and even some faculty, there are areas for potential improvement in the Instructional Systems program. The IS program has never been focused on providing media skills and while the faculty sees this as a positive thing, several alumni indicated that the program was weak in technology skills. Alumni and a one faculty member also pointed to a weakness in the area of evaluation, even though several other faculty members claimed that this was a strength of the program. Without exception, all alumni indicated that the program needed to encourage students wishing to enter the business and industry environment to get some basic skills in business, management, accounting, and marketing. These same areas – business skills, marketing ability, technology skills, and the previously-mentioned communication skills – are also emphasized as necessary skills in the literature, as cited in studies of requirements listed in job advertisements (Byun, 2000; Moallem, 1995).

Due to their habit of frequent evaluation and continual improvement, FSU will likely address the areas considered short-comings by their alumni and students. To the credit of the program, the same alumni and students who suggested areas for improvement were unanimous in their approval of other elements of the program that had been added over time as a result of past evaluation efforts. Students and alumni were unanimous in their appreciation of the authentic, real-world experiences offered through the project-based courses that offered opportunities for students to work with clients, as well as the internship and assistantship experiences offered through on- and off-campus organizations and companies. They also attested to the value of case studies and the examples that faculty provided from their own extensive experience in other

career environments, and the value of the research skills and experiences gained through working at LSI.

Conclusions from the Research Process

This section contains conclusions and recommendations resulting from lessons learned through the actual research process.

Improve access to practitioners. The difficulty encountered with accessing the population of current IDT practitioners is something that could potentially be remedied by several stakeholders: IDT preparation programs, professional organizations, and IDT practitioners. IDT programs must make a concerted effort to maintain contact with their alumni. Alumni are not only valuable to the program in providing students and professors with a window to the working world, but they are also a means for evaluation for those programs as well as to the field as a whole. If not abused, access to alumni and their opinions through survey research and interviews provides a means to accomplish this. In addition, the relationships fostered can benefit alumni by giving them access to relevant methods and research, and opportunities to share their own experiences, as well as opportunities to participate in the research and educational arm of the IDT community of practice.

In addition, professional organizations must follow AECT's lead by providing access to practitioners and a forum for both IDT faculty and graduate students to conduct research that will lead to evaluation of the field and preparation programs. However, caution must be observed to avoid taxing the links to members and it would be wise for professional organizations to set policy for this endeavor. One possibility would be to host a site that features links to surveys (approved by either preparation programs or the professional organization itself). Interested

members could access and complete surveys to provide data for current studies. Incentives such as job aids, procedural guidelines, and otherwise inaccessible articles could be offered to those that participate.

It would also be necessary for preparation programs to emphasize the importance to their students of continuing to contribute to the pool of knowledge after graduation. Required research projects for students in such programs can go a long way toward reinforcing this concept, as the painful memory of low response rates can, in the future, be a powerful incentive to encourage participation by practitioners.

Finally, to maintain the viability and relevance of the field, individual practicing instructional designers must make an effort to keep in touch through alumni associations and professional organizations. Without the feedback necessary to revise and keep our preparation programs and organizations vital, our niche will be filled with others who compete in the arena of instructional design and performance improvement. As in the words of one FSU graduate:

... these days, at least in larger companies, the instructional designers have been marched out by the HR generalists that come in with one class on needs assessment and think they know all about it, and the organizational development team thinks they know all about performance technology... if you do not know how to market yourself, you will end up on the back row. (Penny)

Ultimately, it is incumbent on all instructional designers to take ownership in promoting the profession and its health and viability.

Replicate similar studies. This study has potential for replication for each of the major career environments discussed: higher education, K-12 education, business and industry, government, military, health care, and non-profit. The continued pursuit of such studies would

ultimately result in information on the specific skills and knowledge necessary for successful instructional design practice in each career environment, and would provide a more complete picture of preparation of IDT students for different career environments. Information resulting from such studies would provide guidelines for students wishing to select electives in flexible programs to prepare them for a specific career environment. It would also provide IDT educators with details on the type of contextual skills and knowledge required for each type of career environment, and guidelines for the type of internships and other authentic experiences helpful to students planning to enter those environments.

In Closing...

The Instructional Systems program at Florida State University provides an excellent example of how to use situated methods and cognitive apprenticeship to prepare students for successful IDT practice in both a business and industry environment and a higher education environment. There are, however, several areas that could be improved that were noted by alumni and current students. These same areas are emphasized in the literature as being essential for preparing IDT students for a variety of career environments. Overall, however, the IS program at FSU provides its students with legitimate peripheral participation through project-based, real-world learning experiences, case studies, internships, and assistantships using a situated learning model that embodies the elements of cognitive apprenticeships.

Over twenty years ago, a study by Silber (1982) found that institutions had differing views of IDT, claiming that some programs thought it involved a systematic, replicable, scientific process while others thought it was a holistic/systemic process, and some taught and used one ID model, while others used many models. The philosophies and practices at FSU

reveal that the faculty believes the processes involved in instructional systems and design are *both* systematic, replicable, and scientific, *and* systemic; and they teach students to use not only the Dick and Carey model, but also alternative models and theories. The program has evolved as the field has evolved, surviving, thriving, and expanding its territory by embracing performance improvement and by paying attention to contextual considerations in IDT preparation.

In his closing speech at an April 20, 2004 annual awards ceremony for the IS faculty and students, a senior faculty member expressed what he believed to be the essence of the Florida State Instructional Systems program:

For those of you who are new to this, you can see the feeling we have among the faculty. This has been going on now for years ever since Bob Morgan first started it. When I came here to Florida State, I could not believe I would be working with Bob Morgan and Bob Branson, Walt Dick, Bob Gagne, Leslie Briggs; and you know, I wondered how they would treat me. Immediately they treated me like a colleague, which was wonderful. And I think that the spirit continues on in the program, and I hope it will continue on for many years (Seth).

Ultimately, it is this sort of cooperative spirit and passion for excellence that prepares students best for professional practice in whatever career environment they choose to enter. The future is challenging for IDT programs as more and more alternative disciplines compete for the market share of instructional design and development jobs. However, if programs follow the example set by programs like FSU, holding fast to what works from the past and adopting what works from new theories and methods through a process of continuous self-evaluation and improvement, there will always be plenty of exemplary programs for potential students to choose from in this field.

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APPENDICES

A – AECT/NCATE Program Standards

B – ibstpi Standards (note that the correct abbreviation is lowercase, ibstpi)

C – ibstpi 1986 Standards

D – ITEA Standards for Technology Education

E – ISTE/NCATE Standards

F – AASL Standards for School Library Media Specialists

G – ISPI/ASTD 10 Performance Standards for Certified Performance Technologists (CPT)

H – Mail Survey

I – Survey Letter

J – Survey Reminder Postcard

K – IDT Educator, Focus Group, and Graduate Telephone Interview Protocols

L – Summary Data and Pseudonyms for Faculty, Student, and Graduate Participants

M – Permission email from Chair, Instructional Systems Program, Florida State University

N – List of FSU Case Study Program Documents Analyzed

O – United States Coast Guard Email Regarding the Three Leading Performance Technology Programs Approved for a Special USCG Training Opportunity

P – FSU Masters and Online Distance Masters Competencies

Q - IRB Survey and Case Study Approval Letters

R – Case Study Interview Consent Forms

Appendix A

AECT/NCATE Program Standards

AECT/NCATE PROGRAM STANDARDS
Initial and Advanced Programs for Educational Communications & Technology
Prepared by AECT (AECT, 2000)

INITIAL PROGRAMS IN EDUCATIONAL COMMUNICATIONS AND INSTRUCTIONAL TECHNOLOGY (ECIT)

These standards are concerned primarily with the curriculum and candidate competencies required for initial programs in the area of educational communications and instructional technologies (ECIT). Initial ECIT programs are defined as those which represent initial entry into the field.

Standard 1: DESIGN

Candidates demonstrate the knowledge, skills, and dispositions to design conditions for learning by applying principles of instructional systems design, message design, instructional strategies, and learner characteristics.

1.1 Instructional Systems Design (ISD)

- 1.1.a Utilize and implement design principles which specify optimal conditions for learning.
- 1.1.b Identify a variety of instructional systems design models and apply at least one model.
- 1.1.c Identify learning theories from which each model is derived and the consequent implications.

1.1.1 Analyzing

- 1.1.1.a Write appropriate objectives for specific content and outcome levels.
- 1.1.1.b Analyze instructional tasks, content, and context.
- 1.1.1.c Categorize objectives using an appropriate schema or taxonomy.
- 1.1.1.d Compare and contrast curriculum objectives for their area(s) of preparation with federal, state, and/or professional content standards.

1.1.2 Designing

- 1.1.2.a Create a plan for a topic of a content area (e.g., a thematic unit, a text chapter, an interdisciplinary unit) to demonstrate application of the principles of macro-level design.
- 1.1.2.b Create instructional plans (micro-level design) that address the needs of all learners, including appropriate accommodations for learners with special needs.

1.1.3 Developing

- 1.1.3.a Produce instructional materials which require the use of multiple media (e.g., computers, video, projection).
- 1.1.3.b Demonstrate personal skill development with at least one: computer authoring application, video tool, or electronic communication application.

1.1.4 Implementing

- 1.1.4.a Use instructional plans and materials which they have produced in contextualized instructional settings (e.g., practical field experiences, training) that address the needs of all learners, including appropriate accommodations for learners with special needs.

1.1.5 Evaluating

- 1.1.5.a Utilize a variety of assessment measures to determine the adequacy of learning and instruction.
- 1.1.5.b Demonstrate the use of formative and summative evaluation within practice and contextualized field experiences.
- 1.1.5.c Demonstrate congruency among goals/objectives, instructional strategies, and assessment measures.

1.2 Message Design

- 1.2.a Apply principles of educational psychology, communications theory, and visual literacy to the selection of media for macro- and micro-level design of instruction.
- 1.2.b Apply principles of educational psychology, communications theory, and visual literacy to the development of instructional messages specific to the learning task.
- 1.2.c Understand, recognize and apply basic principles of message design in the development of a variety of communications with their learners.

1.3 Instructional Strategies

- 1.3.a Select instructional strategies appropriate for a variety of learner characteristics and learning situations.
- 1.3.b Identify at least one instructional model and demonstrate appropriate contextualized application within practice and field experiences.
- 1.3.c Analyze their selection of instructional strategies and/or models as influenced by the learning situation,

nature of the specific content, and type of learner objective.

1.3.d Select motivational strategies appropriate for the target learners, task, and learning situation.

1.4 *Learner Characteristics*

1.4.a Identify a broad range of observed and hypothetical learner characteristics for their particular area(s) of preparation.

1.4.b Describe and/or document specific learner characteristics which influence the selection of instructional strategies.

1.4.c Describe and/or document specific learner characteristics which influence the implementation of instructional strategies.

Standard 2: DEVELOPMENT

Candidates demonstrate the knowledge, skills, and dispositions to develop instructional materials and experiences using print, audiovisual, computer-based, and integrated technologies.

2.0.1 Select appropriate media to produce effective learning environments using technology resources.

2.0.2 Use appropriate analog and digital productivity tools to develop instructional and professional products.

2.0.3 Apply instructional design principles to select appropriate technological tools for the development of instructional and professional products.

2.0.4 Apply appropriate learning and psychological theories to the selection of appropriate technological tools and to the development of instructional and professional products.

2.0.5 Apply appropriate evaluation strategies and techniques for assessing effectiveness of instructional and professional products.

2.0.6 Use the results of evaluation methods and techniques to revise and update instructional and professional products.

2.0.7 Contribute to a professional portfolio by developing and selecting a variety of productions for inclusion in the portfolio.

2.1 *Print Technologies*

2.1.1 Develop instructional and professional products using a variety of technological tools to produce text for communicating information.

2.1.2 Produce print communications (e.g., flyers, posters, brochures, newsletters) combining words and images/graphics using desktop publishing software.

2.1.3 Use presentation application software to produce presentations and supplementary materials for instructional and professional purposes.

2.1.4 Produce instructional and professional products using various aspects of integrated application programs.

2.2 *Audiovisual Technologies*

2.2.1 Apply principles of visual and media literacy for the development and production of instructional and professional materials and products.

2.2.2 Apply development techniques such as storyboarding and or scriptwriting to plan for the development of audio/video technologies.

2.2.3 Use appropriate video equipment (e.g., camcorders, video editing) to prepare effective instructional and professional products.

2.2.4 Use a variety of projection devices with appropriate technology tools to facilitate presentations and instruction.

2.3 *Computer-Based Technologies*

2.3.1 Design and produce audio/video instructional materials which use computer-based technologies.

2.3.2 Design, produce, and use digital information with computer-based technologies.

2.3.3 Use imaging devices (e.g., digital cameras, video cameras, scanners) to produce computer based instructional materials.

2.4 *Integrated Technologies*

2.4.1 Use authoring tools to create effective hypermedia/multimedia instructional materials or products.

2.4.2 Develop and prepare instructional materials and products for various distance education delivery technologies.

2.4.3 Combine electronic and non-electronic media to produce instructional materials, presentations, and products.

2.4.4 Use telecommunications tools such as electronic mail and browsing tools for the World Wide Web to

develop instructional and professional products.

2.4.5 Develop effective Web pages with appropriate links using various technological tools (e.g., print technologies, imaging technologies, and video).

2.4.6 Use writable CD-ROMs to record productions using various technological tools.

2.4.7 Use appropriate software for capturing Web pages, audio wave files, and video files for developing off-line presentations.

Standard 3: UTILIZATION

Candidates demonstrate the knowledge, skills, and dispositions to use processes and resources for learning by applying principles and theories of media utilization, diffusion, implementation, and policy-making.

3.1 Media Utilization

3.1.1 Identify key factors in selecting and using technologies appropriate for learning situations specified in the instructional design process.

3.1.2 Use educational communications and instructional technology (ECIT) resources in a variety of learning contexts.

3.2 Diffusion of Innovations

3.2.1 Identify strategies for the diffusion, adoption, and dissemination of innovations in learning communities.

3.3 Implementation and Institutionalization

3.3.1 Use appropriate instructional materials and strategies in various learning contexts.

3.3.2 Identify and apply techniques for integrating ECIT innovations in various learning contexts.

3.3.3 Identify strategies to maintain use after initial adoption.

3.4 Policies and Regulations

3.4.1 Identify and apply standards for the use of instructional technology.

3.4.2 Identify and apply policies which incorporate professional ethics within practice.

3.4.3 Identify and apply copyright and fair use guidelines within practice.

3.4.4 Identify and implement effective policies related to the utilization, application, and integration of instructional technologies.

3.4.5 Identify policies and regulations which apply to the utilization, application, and integration of distance delivery technologies.

Standard 4: MANAGEMENT

Candidates demonstrate knowledge, skills, and dispositions to plan, organize, coordinate, and supervise instructional technology by applying principles of project, resource, delivery system, and information management.

4.0.1 Demonstrate leadership attributes with individuals and groups (e.g., interpersonal skills, group dynamics, team building).

4.1.1 Apply project management techniques in various learning and training contexts.

4.2.1 Apply resource management techniques in various learning and training contexts.

4.3.1 Apply delivery system management techniques in various learning and training contexts.

4.4.1 Apply information management techniques in various learning and training contexts.

Standard 5: EVALUATION

Candidates demonstrate knowledge, skills, and dispositions to evaluate the adequacy of instruction and learning by applying principles of problem analysis, criterion-referenced measurement, formative and summative evaluation, and long-range planning.

5.1.1 Identify and apply problem analysis skills in appropriate educational communications and instructional technology (ECIT) contexts (e.g., conduct needs assessments, identify and define problems, identify constraints, identify resources, define learner characteristics, define goals and objectives in instructional systems design, media development and utilization, program management, and evaluation).

5.2.1 Develop and apply criterion-referenced measures in a variety of ECIT contexts.

5.3.1 Develop and apply formative and summative evaluation strategies in a variety of ECIT contexts.

5.4.1 Develop a long-range strategic plan related to any of the domains or subdomains.

ADVANCED PROGRAMS IN EDUCATIONAL COMMUNICATIONS AND INSTRUCTIONAL TECHNOLOGY (ECIT)

These standards are concerned with candidate performances, curriculum, faculty, specialized support services, and

evaluation procedures required for the accreditation of advanced programs in the area of educational communications and instructional technologies (ECIT). *It is expected that advanced candidates are able to demonstrate the competencies outlined in the initial program.*

Standard 1: DESIGN

Candidates demonstrate the knowledge, skills, and dispositions to design conditions for learning by applying principles, theories, and research associated with instructional systems design, message design, instructional strategies, and learner characteristics.

1.1 Instructional Systems Design

1.1.a Apply a variety of instructional systems design models.

1.1.b Identify theories from which a variety of ID models are derived and the consequent implications.

1.1.c Demonstrate proficiency in the prescription, implementation, and evaluation of treatments to maximize learning/performance outcomes in a variety of contexts.

1.1.1 Analyzing

1.1.1.a Utilize research methodologies appropriate to the investigation of instructional tasks and content.

1.1.1.b Identify the theories and historical background of analysis as a component of instructional design and instructional systems development.

1.1.2 Designing

1.1.2.a Demonstrate in-depth synthesis and evaluation of the theoretical constructs and research methodologies related to instructional design as applied in multiple contexts.

1.1.2.b Utilize principles and procedures of instructional design in a variety of contexts and systems.

1.1.2.c Recognize and articulate current trends in the development of theory and emerging practice related to instructional design.

1.1.3 Developing

1.1.3.a Demonstrate personal skill development with two or more: computer authoring application, video tool, or electronic communication application (not telephone).

1.1.3.b Utilize the research, theoretical, and practitioner foundations of the field in the development of instructional materials.

1.1.3.c Utilize the research, theoretical, and practitioner foundations of the field in the selection of media for instructional settings.

1.1.4 Implementing

1.1.4.a Conduct basic and applied research related to technology integration and implementation.

1.1.4.b Utilize the research, theoretical, and practitioner foundations of the field in the implementation of instructional plans.

1.1.5 Evaluating

1.1.5.a Demonstrate congruency among goals/objectives, instructional strategies, and assessment measures.

1.1.5.b Conduct basic and applied research in the evaluation of emergent learner assessments.

1.1.5.c Articulate the relationships within the discipline between theory, research, and practice as well as the interrelationships between people, processes, and devices.

1.2 Message Design

1.2.a Conduct basic and applied research related to message design, which includes multiple media.

1.3 Instructional Strategies

1.3.a Identify multiple instructional strategy models and demonstrate appropriate contextualized application within practice and field experiences.

1.3.b Demonstrate appropriate uses of multiple instructional strategies for complex, interactive environments.

1.4 Learner Characteristics

1.4.a Analyze the effectiveness of macro- and micro-level design efforts by considering the interactions of learner characteristics, instructional strategies, nature of the content, and the learning situation.

1.4.b Demonstrate in-depth synthesis and evaluation of the theoretical constructs and contemporary research related to the identification and importance of learner characteristics.

Standard 2: DEVELOPMENT

Candidates demonstrate the knowledge, skills, and dispositions to develop instructional materials and experiences by applying principles, theories, and research related to print, audiovisual, computer based, and integrated technologies.

- 2.0.1 Collaborate with a development team to apply principles of design specifications to produce technological products.
- 2.0.2 Use theory, research, and evaluation to select appropriate technological tools for developing effective instructional products and processes.
- 2.0.3 Compare, analyze, critique, and evaluate commercially produced products to determine how learning theories, instructional design specifications, production principles, and teaching strategies are embedded within the product.
- 2.0.4 Solve problems of design specifications for embedding learning theories and effective teaching strategies in the development of instructional or professional products.
- 2.0.5 Evaluate the effective use of design specifications in products used in a variety of learning or training environments.
- 2.0.6 Create instructional or professional products using technology resources such as CD-ROMs, laser discs, Web pages, digital technologies, and other emerging technology resources.
- 2.0.7 Apply principles of learning theories and research to create effective learning environments.

Standard 3: UTILIZATION

Candidates demonstrate the knowledge, skills, and dispositions to use processes and resources for learning by applying principles, theories, and research related to media utilization, diffusion, implementations, and policymaking.

3.1 Media Utilization

- 3.1.1 Apply research and theory in the selection and utilization of technologies for learning.

3.2 Diffusion of Innovations

- 3.2.1 Apply research and theory in the implementation of strategies for the diffusion, adoption, and dissemination of innovations in learning communities.

3.3 Implementation and Institutionalization

- 3.3.3 Identify and implement strategies to engage stakeholders in the process of diffusion, adoption, and dissemination.
- 3.3.5 Evaluate the effects of diffusion, adoption, and dissemination.

3.4 Policies and Regulations

- 3.4.4 Implement effective policies related to the utilization, application, and integration of instructional technologies in a variety of contexts.

Standard 4: MANAGEMENT

Candidates demonstrate knowledge, skills, and dispositions to plan, organize, coordinate, and supervise instructional technology by applying principles, theories and research related to project, resource, delivery system, and information management.

- 4.0.1 Implement and evaluate a micro-level technology plan in an appropriate setting.

- 4.1.1 Implement and evaluate project management techniques using current research.

- 4.2.1 Implement and evaluate resource management techniques using current research.

- 4.3.1 Implement and evaluate delivery system management techniques using current research.

- 4.4.1 Implement and evaluate information management techniques using current research.

Standard 5: EVALUATION

Candidates demonstrate knowledge, skills, and dispositions to evaluate the adequacy of instruction and learning by applying principles, theories, and research related to problem analysis, criterion referenced measurement, formative and summative evaluation, and long-range planning.

- 5.0.1 Exhibit a knowledge of and display skill in the analysis of current educational communications and instructional technology (ECIT) research on evaluation in order to evaluate ECIT projects and programs.

- 5.0.2 Demonstrate skill in the conception, design, implementation, and reporting of original ECIT research on evaluation in order to evaluate ECIT projects and programs.

- 5.0.3 Apply theories underlying the five ECIT domains to instructional projects.

- 5.0.4 Identify and apply strategies to develop and implement a long-range plan for an ECIT program or project.

Appendix B

ibstpi Standards (Richey, et al., 2001)

ibstpi Instructional Design Competencies

(Refer to the Standards for supporting performance statements)

Professional Foundations

1. Communicate effectively in visual, oral, and written form. (Essential)
2. Apply current research and theory to the practice of instructional design. (Advanced)
3. Update and improve one's knowledge, skills and attitudes pertaining to instructional design and related fields. (Essential)
4. Apply fundamental research skills to instructional design projects. (Advanced)
5. Identify and resolve ethical and legal implications of design in the workplace. (Advanced)

Planning and Analysis

6. Conduct a needs assessment. (Essential)
7. Design a curriculum or program. (Essential)
8. Select and use a variety of techniques for determining instructional content. (Essential)
9. Identify and describe target population characteristics. (Essential)
10. Analyze the characteristics of the environment. (Essential)
11. Analyze the characteristics of existing and emerging technologies and their use in an instructional environment. (Essential)
12. Reflect upon the elements of a situation before finalizing design solutions and strategies. (Essential)

Design & Development

13. Select, modify, or create a design and development model appropriate for a given project. (Advanced)
14. Select and use a variety of techniques to define and sequence the instructional content and strategies. (Essential)
15. Select or modify existing instructional materials. (Essential)
16. Develop instructional materials. (Essential)
17. Design instruction that reflects an understanding of the diversity of learners and groups of learners. (Essential)
18. Evaluate and assess instruction and its impact. (Essential)

Implementation & Management

19. Plan and manage instructional design projects. (Advanced)
20. Promote collaboration, partnerships, and relationships among the participants in a design project. (Advanced)
21. Apply business skills to managing instructional design (Advanced)
22. Design instructional management systems. (Advanced)
23. Provide for the effective implementation of instructional products and programs. (Essential)

Appendix C

ibstpi 1986 Standards

Competency One: Determine projects that are appropriate for instructional design.

Competency Two: Conduct a needs assessment.

Competency Three: Assess the relevant characteristics of learners/trainees.

Competency Four: Analyze the characteristics of a setting.

Competency Five: Perform job, task and/or content analysis.

Competency Six: Write statements of performance objectives.

Competency Seven: Develop the performance measurements.

Competency Eight: Sequence the performance objectives.

Competency Nine: Specify the instructional strategies.

Competency Ten: Design the instructional materials.

Competency Eleven: Evaluate the instruction/training.

Competency Twelve: Design the instructional management system.

Competency Thirteen: Plan and monitor instructional design projects.

Competency Fourteen: Communicate effectively in visual, oral and written form.

Competency Fifteen: Interact effectively with other people.

Competency Sixteen: Promote the use of instructional design.

Appendix D

ITEA Standards for Technology Education

The International Technology Education Association (ITEA) is the professional organization of technology teachers. Their mission is: “to promote technological literacy for all by supporting the teaching of technology and promoting the professionalism of those engaged in this pursuit. ITEA strengthens the profession through leadership, professional development, membership services, publications, and classroom activities” (ITEA, 2003).

The document entitled, *Advancing Excellence in Technological Literacy: Student Assessment, Professional Development, and Program Standards (AETL)* contains three separate but interrelated sets of standards: student assessment, professional development, and program standards. Of these, the professional development standards delineate criteria to be used by teacher educators, administrators, and supervisors in assuring effective and continuous in-service and pre-service education for teachers of technology.

ITEA Professional Development Standards:

Standard PD-1: Professional development will provide teachers with knowledge, abilities, and understanding consistent with *Standards for Technological Literacy: Content for the Student of Technology (STL)*.

Standard PD-2: Professional development will provide teachers with educational perspectives on students as learners of technology.

Standard PD-3: Professional development will prepare teachers to design and evaluate technology curricula and programs.

Standard PD-4: Professional development will prepare teachers to use instructional strategies that enhance technology teaching, student learning, and student assessment.

Standard PD-5: Professional development will prepare teachers to design and manage learning environments that promote technological literacy.

Standard PD-6: Professional development will prepare teachers to be responsible for their own continued growth.

Standard PD-7: Professional development providers will plan, implement, and evaluate the pre-service and in-service education of teachers.

The above standards are available at:

<http://www.iteawww.org/TAA/Publications/AETL/AETLListingPage.htm>

Appendix E

ISTE/NCATE Standards (ISTE, 2001)

The International Society for Technology in Education (ISTE) recognizes that educational computing and technology foundations (NETS for Teachers) are essential for all teachers. ISTE also acknowledges educational computing and technology specialty areas beyond these foundations and has established program standards for initial and advanced programs. These program standards will assist teacher education units, and professional organizations and agencies in understanding and evaluating the educational preparation needed for specialization within the field.

ISTE has developed performance assessment standards for initial and advanced educational computing and technology programs including: (1) the technology facilitation initial endorsement; (2) the technology leadership advanced program; and (3) the secondary computer science education preparation programs. Institutions offering one or more of these programs should respond to the corresponding set of program standards.

Technology Facilitation (TF) -- Initial Endorsement Standards

Technology Facilitation (TF) endorsement programs meeting ISTE standards prepare candidates to serve as building/campus-level technology facilitators. Candidates completing this program will exhibit knowledge, skills, and dispositions equipping them to teach technology applications; demonstrate effective use of technology to support student learning of content; and provide professional development, mentoring, and basic technical assistance for other teachers who require support in their efforts to apply technology to support student learning. (Revised Fall 2001)

Technology Leadership (TL) -- Advanced Program Standards

Technology Leadership (TL) advanced programs meeting ISTE standards prepare candidates to serve as technology directors, coordinators, or specialists. Special preparation in computing systems, facilities planning and management, instructional program development, staff development, and other advanced applications of technology to support student learning and assessment will prepare candidates to serve in technology-related leadership positions at district, regional, and/or state levels. (Revised Fall 2001)

Secondary Computer Science Education (CSED) -- Endorsement/Degree Program Standards Secondary Computer Science Education programs meeting ISTE standards prepare candidates to serve as Teachers of computer science in secondary schools. They focus on preparing their students in the more technical aspects of computing such as problem analysis, algorithm selection and evaluation; program design, implementation, specification, and verification; and systems analysis. (Revised 1997 -- Slated for Revision, Fall 2002)

For details on each of the above standards lists, refer to the ISTE standards available online at

<http://cnets.iste.org/ncate/> .

Appendix F

AASL Standards for School Library Media Specialists

“The primary goal of the School Library Media Specialist Preparation Program Standards is to prepare graduate students for service as certified school library media specialists, grades PreK-12.” (p. 8 of ALA/AASL Standards for Initial Programs for School Library Media Specialist Preparation). There are three critical areas of service for today’s school library media specialists: information access and delivery, teaching and learning, and program administration.

Standard 1: Use of Information and Ideas

School library media candidates encourage reading and lifelong learning by stimulating interests and fostering competencies in the effective use of ideas and information. They apply a variety of strategies to ensure access to resources and information in a variety of formats to all members of the learning community. Candidates promote ethical use of the school library media program and its services.

Efficient and Ethical Information-Seeking Behavior

UNACCEPTABLE

Candidates demonstrate little or no evidence of the research process. Candidates do not differentiate user needs. Candidates do not identify or support student interests or needs. Legal and ethical practices are ignored.

ACCEPTABLE

Candidates model strategies to locate, evaluate and use information for specific purposes. Candidates identify and address student interests and motivations. Candidates interact with the learning community to access, communicate and interpret intellectual content. Candidates

adhere to and communicate legal and ethical policies.

TARGET

Candidates advocate for and demonstrate effective use of current and relevant information processes and resources, including emerging technologies. Candidates model a variety of effective strategies to locate, evaluate and use information in a variety of formats for diverse purposes. Candidates plan reference services, using traditional and electronic services that are comprehensive and address the needs of all users. Candidates model and teach legal and ethical practices.

Literacy and Reading

UNACCEPTABLE

Candidates demonstrate little or no evidence of knowledge of the reading process. They are not familiar with reading material for children and youth.

ACCEPTABLE

Candidates are aware of major trends in reading material for children and youth. Candidates select materials in multiple formats to address the needs and interests of diverse young readers and learners. Candidates use a variety of strategies to promote leisure reading. They model their personal enjoyment of reading in order to promote the habits of creative expression and lifelong reading.

TARGET

Candidates are knowledgeable about historical and contemporary trends and multicultural issues in reading material for children and young adults. Candidates analyze and apply research in literacy and reading in order to select and recommend diverse materials in formats and at levels that facilitate the reading process and the development of fluency in readers. They collaborate with teachers to integrate literature into curriculum. Candidates instill a sense of enjoyment in reading in others that leads to lifelong reading habits.

Access to Information

UNACCEPTABLE

Candidates demonstrate little or no evidence of issues related to access to information. Candidates do not demonstrate knowledge of the legal and ethical practices of the profession.

ACCEPTABLE

Candidates support flexible and open access for the library media center and its services. Candidates identify barriers to equitable access to resources and services. Candidates facilitate access to information in print, nonprint, and electronic formats. Candidates comply with and communicate the legal and ethical codes of the profession.

TARGET

Candidates analyze and implement library media program scheduling options for different needs by developing flexible and open access for the library media center and its services. Candidates plan strategically to ensure physical and intellectual access to information for the entire school community. Candidates identify means of providing remote access to information. Candidates model and promote the tenets of privacy, confidentiality, intellectual property, and intellectual freedom.

Stimulating Learning Environment

UNACCEPTABLE

Candidates demonstrate little or no evidence of awareness of the impact of the climate of the library media environment on learning.

ACCEPTABLE

Candidates demonstrate ways to establish and maintain a positive educational climate in the library media center. Candidates identify relationships among facilities, programs, and environment that impact student learning. Candidates plan and organize library media centers according to their use by the learning community.

TARGET

Candidates demonstrate collaborative techniques as they create and maintain an attractive, positive educational climate in a technology-rich, library media center. Candidates use research-based data, including action research, to analyze and improve services.

Standard 2: Teaching and Learning

School library media candidates model and promote collaborative planning with classroom teachers in order to teach concepts and skills of information processes integrated with classroom content. They partner with other education professionals to develop and deliver an integrated information skills curriculum. Candidates design and implement instruction that engages the student's interests, passions, and needs which drive their learning.

- Knowledge of Learners and Learning
- Effective and Knowledgeable Teacher
- Information Literacy Curriculum

Knowledge of Learners and Learning

UNACCEPTABLE

Candidates demonstrate little or no evidence of knowledge of learner characteristics, learning processes, or exceptionalities. The link among student interests, learning, information skills instruction, and student achievement is not assessed or documented.

ACCEPTABLE

Candidates design library media instruction that assesses learner interests, needs, instructional methodologies, and information processes to assure that each is integral to information skills instruction.

TARGET

Candidates support the learning of all students and other members of the learning

community, including those with diverse learning styles, abilities and needs. Information skills instruction is based on student interests and learning needs and is linked to student achievement. Candidates ensure that the library media curriculum is documented as significant to the overall academic success of all students.

Effective and Knowledgeable Teacher

UNACCEPTABLE

Candidates develop lesson plans in isolation with little or no attention to instructional methodologies. Instruction exhibits limited strategies and the use of few resources. Student learning is not assessed.

ACCEPTABLE

Candidates work with classroom teachers to co-plan, co-teach, and co-assess information skills instruction. The library media specialist as teacher of information skills makes use of a variety of instructional strategies and assessment tools.

TARGET

Candidates analyze the role of student interest and motivation in instructional design. Student learning experiences are created, implemented and evaluated in partnership with teachers and other educators. Candidates can document and communicate the impact of collaborative instruction on student achievement. Candidates develop a regular communication procedure between home and school.

Information Literacy Curriculum

UNACCEPTABLE

Candidates develop an information literacy curriculum which is in isolation from content curriculum and which relies on traditional print-only library research tools and location and access skills.

ACCEPTABLE

Candidates employ strategies to integrate the information literacy curriculum with content curriculum.

TARGET

Candidates incorporate technology to promote efficient and equitable access to information beyond print resources. Candidates assist students to use technology to access, analyze, and present information. Candidates work to ensure that responsibility for an integrated information literacy curriculum is shared across curricular areas throughout the school. Candidates advocate for the information skills curriculum in order to assure appropriate learning experiences for all students, and to address the academic needs of the school community.

Standard 3: Collaboration and Leadership

School library media candidates provide leadership and establish connections with the greater library and education community to create school library media programs that focus on students learning and achievement; encourage the personal and professional growth of teachers and other educators, and model the efficient and effective use of information and ideas.

Connection with the Library Community

UNACCEPTABLE

Candidates are unaware of the potential for benefits to the school library media program from making connections to the larger library community. Candidates have limited or no understanding of the role of professional associations and journals in their professional lives.

ACCEPTABLE

Candidates demonstrate the potential for establishing connections to other libraries and the larger library community for resource sharing, networking,

and developing common policies and procedures.

TARGET

Candidates articulate the role of their professional associations and journals in their own professional growth. Candidates employ strategies to ensure connections between the school community and the larger library world of public, academic, special libraries, and information centers. Candidates participate in professional associations.

Instructional Partner

UNACCEPTABLE

Candidates are not able to articulate how to create an integrated library media program from an isolated school library media center.

ACCEPTABLE

Candidates model, share, and promote ethical and legal principles of education and librarianship. Candidates acknowledge the importance of participating on school and district committees and in faculty staff development opportunities.

TARGET

Candidates anticipate providing leadership to school and district committees. Candidates share expertise in the design of appropriate instruction and assessment activities with other professional colleagues.

Educational Leader

UNACCEPTABLE

Candidates are unaware of basic trends and issues in the field of education. Candidates have minimal knowledge of professional associations in other disciplines, or of the role of other educational professionals. Candidates take a passive role in the school.

ACCEPTABLE

Candidates are able to articulate the relationship of the library media program with current educational trends and important issues. Candidates recognize the role of other educational professionals and professional associations.

TARGET

Candidates translate for the school the ways in which the library program can enhance school improvement efforts. Candidates utilize information found in professional journals to improve library practice. Candidates develop a library media program that reflects the best practices of education and librarianship. They have a thorough understanding of current trends and issues in education. Candidates write a plan for professional growth that justifies their own professional choices. Candidates engage in school improvement activities by partnering with administrators to help teachers learn and practice new ways of teaching. Candidates share information, apply research results, and engage in action research.

Standard 4: Program Administration

School library media candidates administer the library media program in order to support the mission of the school, and according to the principles of best practice in library science and program administration.

Managing Information Resources: Selecting, Organizing, Using

UNACCEPTABLE

Candidates demonstrate little knowledge of accepted library policies, procedures and practices for selecting, organizing, and using information.

ACCEPTABLE

Candidates select, analyze, and evaluate print, nonprint and electronic resources using professional selection tools and evaluation criteria to

develop a quality collection designed to meet diverse curricular and personal needs. Candidates organize the library media facility and its collections - print, nonprint and electronic -, according to standard accepted practice. Candidates support intellectual freedom and privacy of users. Candidates plan for efficient use of resources and technology to meet diverse user needs.

TARGET

Candidates utilize collection analysis and evaluation research and techniques to ensure a balanced collection which reflects diversity of format and content, reflecting our multicultural society. Candidates design plans for collection development and analysis and policies that ensure flexible and equitable access to facilities and resources. Candidates develop procedures to analyze the effectiveness of library media policies, procedures, and operations. Candidates ensure that policies and procedures are in place to support intellectual freedom and the privacy of users of all ages.

Managing Program Resources: Human, Financial, Physical

UNACCEPTABLE

Candidates demonstrate little knowledge of effective management policies, procedures and principles. Candidates show little knowledge of relationship of facility to program needs.

ACCEPTABLE

Candidates develop and evaluate policies and procedures that support the mission of the school and address specific needs of the library media program, such as collection development and maintenance, challenged materials and acceptable use policies. Candidates apply accepted management principles and practices that relate to personnel, financial and operational issues. Candidates plan adequate space for individuals, small groups and whole classes.

TARGET

Candidates organize, manage and assess all human, financial, and physical resources of the library media program. Candidates advocate for ongoing administrative support for library media program and policies. Candidates actively seek alternative sources of funding for the library media program, both within and outside the school community.

Comprehensive and Collaborative Strategic Planning and Assessment

UNACCEPTABLE

Candidates are not able to develop a plan for the library media program. Candidates do not use data for decision-making.

ACCEPTABLE

Candidates collaborate with teachers and administrators to develop a library media program plan that aligns resources, services and information literacy standards with the school's goals and objectives. Candidates use data for decision-making.

TARGET

Candidates collaborate with teachers, administrators, students and others in the school community to develop, implement, and assess long-term, strategic plans. Candidates are able to align the library media program with the information literacy standards and the school's goals, objectives and content standards. Candidates use quantitative and qualitative methods of data collection and analysis to assess data and make decisions on which to base plans and policies.

Appendix G

ISPI/ASTD 10 Performance Standards for Certified Performance Technologists (CPT)

Performance Improvement Standards

The 10 Standards are based on ISPI's four principles, following a systematic process, and agreeing to a Code of Ethics. They are summarized below:

- 1) Focus on results and help clients focus on results.
- 2) Look at situations systemically taking into consideration the larger context including competing pressures, resource constraints, and anticipated change.
- 3) Add value in how you do the work and through the work itself.
- 4) Utilize partnerships or collaborate with clients and other experts as required.
- 5) Be systematic in all aspects of the process including: The assessment of the need or opportunity.
- 6) Be systematic in all aspects of the process including: The analysis of the work and workplace to identify the cause or factors that limit performance.
- 7) Be systematic in all aspects of the process including: The design of the solution or specification of the requirements of the solution.
- 8) Be systematic in all aspects of the process including: The development of all or some of the solution and its elements.
- 9) Be systematic in all aspects of the process including: The implementation of the solution.
- 10) Be systematic in all aspects of the process including: The evaluation of the process and the results.

Available at: <http://www.certifiedpt.org/>

Appendix H

Mail Survey

Instructional Design Career Environments Survey

This four-part survey takes from 15- to 20- minutes to complete. Use the enclosed, stamped self-addressed envelope to return the completed survey. The envelope is marked for follow-up purposes only, and it will be separated from your survey to preserve your anonymity. For a copy of the results, include your name and email address on the last page under "additional comments." Send the completed survey to:

Miriam Larson
Center for Instructional Technology Solutions in Industry and Education
220 War Memorial Hall
Box 0313
Virginia Tech University
Blacksburg, VA 24061

Thank you for your participation! If you'd like a summary of the results, please add your name and email address under "additional comments" at the end of the survey.

If you have **Questions**, please contact:

Miriam Larson, Investigator (540-231-5587 or milarso1@vt.edu),
Dr. Barbara Lockee, Advisor (540-231-5587) or lockeebb@vt.edu), or
Dr. David Moore, Institutional Review Board Chair, Virginia Tech University
(540-231-4991 or moored@vt.edu).

Instructions

Please answer the questions as completely as possible. A portion of the survey asks you to reflect on your *first* instructional design position. This could be a past or current instructional design, development, and/or delivery position; however, please reference the same position throughout that portion of the survey.

Please note: A web-based version of this survey was available on the AECT website from mid-January to February 29, 2004. If you completed and submitted the online version, please mark the "I took the online version" box below and return this page in the enclosed envelope. This will preserve the accuracy of the response rate calculations.

I took the online version of this survey between January 15 and February 29, 2004.

Instructional Design Career Environments Survey – Part 1 of 4

- 1. Practicing Instructional Designer?** Are you currently working as an instructional designer or do you spend a significant amount of your time designing, developing, and/or delivering instruction?
- Yes (If yes, skip question 2 and go to question 3)
 - No

- 2.** If no, did you *at one time* work as an instructional designer or spend a significant amount of your time designing, developing, and/or delivering instruction?
- Yes
 - No

What is Instructional Design Preparation? This section addresses instructional design preparation. There are a variety of ways individuals are prepared to practice instructional design (ID). For purposes of this survey, preparation can refer to formal academic degree programs, non-academic training programs, and/or professional certification programs.

- 3. ID Preparation?** Did you obtain a degree, complete a special training program, or obtain a certification in Instructional Design or a *related* field (for example: instructional or educational technology, training and development, human performance technology)?
- Yes
 - No

If yes, please select the title that best describes your program or certification below:

- Instructional Design, Instructional or Educational Technology
- Training and Development
- Human Performance Technology/Improvement
- Curriculum Design/Development
- Library Science/Media Center
- Instructional Systems
- Technical Writing
- Certification (please describe) _____
- Other (please describe) _____

If no, how did you obtain the knowledge and skills you use/used to design instruction? Please check all that apply from the list below:

- Read "how to" books
- Obtained training from current or previous employer
- Took courses from an academic institution
- Took courses from a non-academic institution
- Learned "on the job"
- Completed a portion of a degree program
- Other (please describe) _____

4. Level of Degree, Certification, or Training:

Please indicate the **highest** degree, certification, or certificate of completion you obtained in instructional design or a related field:

- Bachelor of Arts, or Bachelor of Sciences
- Masters
- Specialist
- Doctorate of Education
- Doctorate of Philosophy
- Certification (please describe) _____
- Other (please describe) _____
- Not applicable; did not obtain a degree or certification in ID or a related field.

Instructional Design Career Environments Survey – Part 1 of 4**5. Year of Degree, Certification, or Training:**

Please indicate the year you obtained this degree, training, or certification: _____

6. Degree, Certification, or Training from What Institution/Organization?Please enter the **name and location** of the institution or organization where you obtained your degree, certification, or training:
_____**7. Years of Professional Practice:**How many **total** years have you been engaged in the design, development, and/or delivery of instruction?

- 0-5 years
- 6-10 years
- 11-15 years
- 16+ years
- Not applicable; I am not and have never designed, developed or delivered instruction

What is a Career Environment? A career environment is the work environment in which you practice(d) instructional design. It could be higher education, business & industry, K-12 education, government/military, health care, non-profit, or some other career environment. The next few questions are designed to identify your career environment and whether or not you were prepared specifically for that environment.

8. Career Environment:In which of the following career environments have you had the **majority** of your experience in the design, development, and/or delivery of instruction?

- Business & Industry
- Higher Education
- K-12 Education
- Government/Military
- Health Care
- Non-Profit
- Other (Please explain): _____

9. Program Type – Generalist or Specific?Was your degree, certification, or training program **generalist** in nature (geared to prepare you for a variety of career environments) or designed to prepare you for a **specific** career environment?

- Not applicable**; No degree, certification, or training in instructional design or a related field.
- Generalist**; my program was designed to prepare me for all career environments.
- Specific**; my program was designed to prepare me for the career environment of...
 - business and industry
 - higher education
 - K-12 education
 - government/military
 - health care
 - non-profit
 - another or a combination of career environments (explain below): _____

Instructional Design Career Environments Survey – Part 1 of 4**10. Environment Prepared For/Employed In:**

Did you at any time in the course of your career, practice instructional design, development, and/or delivery in the same career environment for which you were prepared?

- Yes
 No

11. Preparation Experiences Related To Career Environment:

During your preparation for instructional design practice, did you do one or more of the following to prepare *for a specific career environment* (check all that apply):

- I took **courses within** my degree department.
 I took **courses from other** academic departments.
 I completed an **independent study or internship**.
 I obtained environment-specific **instruction after** I finished my degree coursework.
 I obtained environment-specific instruction **from a non-academic institution**.
 Not applicable.

12. Freedom to Personalize Preparation Program:

If you attended an academic degree program in instructional design or a related field, indicate how flexible your program was by selecting the percentage of coursework hours you were allowed to select to tailor your program to your own career goals:

- Less than 10% of total program hours (Almost all my coursework was dictated)
 From 11 to 49% of total program hours
 50% or more of total program hours
 Not applicable

13. Professional Organization:

This survey is being advertised by three different professional organizations. Please check the organization that informed you of this survey:

- American Society of Training & Development (ASTD)
 International Society for Performance Improvement (ISPI)
 Association for Educational Communications & Technology (AECT)
 Other (please describe) _____

END OF PART 1

Instructional Design Career Environments Survey – Part 2 of 4

For the Remainder of the Survey - You are asked to reflect on your *first* instructional design, development or delivery position. This could be a past or current position; however, please reference the same position throughout the *remainder* of the survey.

14. Environment of First ID Position:

In which of the following career environments was your *first* instructional design, development, or delivery position?

- Business & Industry
- Higher Education
- K-12 Education
- Government/Military
- Health Care
- Non-Profit
- Other (Please explain): _____

15. Job Role:

From the list below, select the job role that *best* describes your *first* instructional design, development, and/or delivery (ID) position.

- Consultant** – This individual is *external* to the client’s organization, and provides services related to the design, development, and/or delivery of instruction.
- Sole Instructional Designer/Developer** – *Internal* to the organization, designs and/or develops instruction, may consult subject matter experts or out-source portions of the work.
- Instructional Design Team Member** – Designer or developer on an instructional design/development project team.
- Instructional Design Project Team Manager** – Manager of a team of instructional designers and developers working on ID projects.
- Instructor or Trainer** – Personally delivers instruction (other than instructional design instruction) in any of the career environments.
- Faculty Teaching ID in Higher Education** – Teaches the principles for designing and developing instruction (ID) in an academic institution.
- Faculty Teaching ID in Non-Academic Institution or Organization** – Teaches the principles of ID in a company or other non-academic institution/organization.
- Faculty Designing or Developing in a Different Academic Discipline** – Designs, develops, and/or delivers instruction in a non-ID (or related) academic department.
- Human Performance Improvement Specialist** – Specialist in the methods and techniques used for improving human performance.
- Technology Coordinator** – Coordinates the use of instructional technologies in any of the career environments.
- Distance Education/eLearning Program Administrator** – Administrates a distance education or eLearning program in any of the career environments.
- Other or Not Applicable** (please explain):

Instructional Design Career Environments Survey – Part 2 of 4

What are Instructional Design Competencies? Competencies are the knowledge, skills, and abilities used in the practice of instructional design. Examples of competencies: "conduct a needs assessment," or "communicate effectively in visual, oral and written form." This part of the survey determines which instructional design activities you were prepared to perform, and how that preparation related to your subsequent work experiences.

16. Your General Preparation for Practice:

Use this scale to rate the 6 items below. My degree program or training...

0 = Provided no preparation at all (or counterproductive training) on this activity

1 = Made me aware that this activity was required in professional practice

2 = Provided some preparation for performing this activity

3 = Fully prepared me to effectively perform this activity

To what extent did your ID degree/training program prepare you for or address...	0 No Preparation	1 Made Aware	2 Some Preparation	3 Fully Prepared
... general ID competencies , as identified by professional organizations? (AECT, IBSTPI, ASTD, etc)				
... competencies specific to your career environment, as identified by professional organizations or by your employer?				
...the ID models you eventually used in your instructional design position?				
...the learning theories you eventually used in your instructional design position?				
...the specific subject matter you worked with in your first instructional design position?				
... how to flexibly design instruction using a variety of learning theories, instructional strategies, and instructional modes?				

Question Not Applicable -- I did not receive a degree or training in instructional design.

END OF PART 2

Instructional Design Career Environments Survey – Part 3 of 4

What is Work Place Culture? Every work place has a culture that consists of the values, beliefs, attitudes, assumptions, and customs characteristic of that particular work environment. Certain aspects of the culture may become "**issues**" for individuals; requiring them to expend more effort than desired to adjust. Examples include: value placed on timeliness; beliefs about the amount of autonomy employees can handle; attitudes toward risk; assumptions about priorities, deadlines, and work ethic; and dress customs (casual or formal).

17. Career Environment Cultural Preparation for Practice:

Reflect on the culture of the environment you entered when you *first* began professional ID practice. A list of several aspects of career environment culture follows. *For each item*, identify:

1. whether it was an **issue for you** when you first entered ID practice, and
2. whether or not you were **prepared** for that item through your ID degree or training program.

1 of 2	1. Issue?		2. Prepared?	
	Yes	No	Yes	No
Freedom you were given to set your own goals.				
Freedom you were given to set your own priorities & deadlines.				
Freedom you were given to make your own decisions.				
Trade-offs between quality, timeliness, & cost in work assignments.				
Quality standards for work assignments.				
Flexibility of established deadlines for work assignments.				
Differing expectations of time between project start & completion.				
Accountability for work assignments.				
Workload, relative to work assignments.				
Stability of work assignments.				
Freedom to express yourself creatively in your work assignments.				
Type and amount of collaboration and teamwork with co-workers.				
Verbal & non-verbal interpersonal communications.				
Written communications.				
Flow & clarity of communication in work relationships.				
Established or acceptable dress, relative to working conditions.				
Flexibility of hours & schedule.				
Differing expectations for work completion & overtime.				
Expectations of appropriate work ethic & how it should be exhibited.				
Practices & expectations regarding meetings & their conduct.				
Availability of project resources for work assignments.				
Employer attitudes toward change, innovation, & risk.				
Job security, relative to working conditions.				
Freedom you were given to express your individuality.				
Employer emphasis on following established rules & procedures (amount of bureaucracy).				

Instructional Design Career Environments Survey – Part 3 of 4

17. Career Environment Cultural Preparation for Practice: (continued)

Reflect again on the culture of the environment you entered when you *first* began professional ID practice. For each aspect of career environment culture below, identify:

1. whether it was an **issue for you** when you first entered ID practice, and
2. whether or not you were **prepared** for that item through your ID degree or training program.

2 of 2	1. Issue?		2. Prepared?	
	Yes	No	Yes	No
The nature of internal workplace politics.				
Freedom to challenge or criticize decisions of supervisors.				
Employer expectations regarding conformity to established norms.				
Effect of national politics on reporting structures & resources.				
The nature of management styles (e.g., directive vs. participative).				
Employer or employee attitudes regarding discrimination.				
Formal versus informal authority & reporting structures.				
Salary, vacation & other benefits, relative to rewards systems.				
Employer support of continuing education & professional development				
Opportunities for advancement, or lack thereof.				
Recognition & occupational prestige, or lack thereof.				
Measures & methods of employee assessment.				
Types of incentives & disincentives.				
Employer's concern (or lack thereof) for the employee's quality of life & job satisfaction.				
Employer's emphasis (or lack thereof) on knowledge-sharing, & its alignment with your own personal values & beliefs.				
Employer's emphasis (or lack thereof) on protection of proprietary information, & its alignment with your own personal values & beliefs.				
Emphasis on group versus individual problem-solving processes, relative to your own personal preferences.				
Employer's attitude toward intellectual property rights, & its alignment with your own personal values & beliefs.				
Employer's emphasis on knowledge-creation versus knowledge-consumption, & its alignment with your own personal values & beliefs				
Employer's emphasis on knowledge as a means-to-a-goal versus as an end-in-itself, & its alignment with your own personal values/beliefs				
Employer's emphasis on learning to meet the goals of individuals, versus learning to meet the goals of the organization, & its alignment with your own personal values & beliefs.				
The assumptions in your work place concerning the nature of truth & reality relative to instructional design, & their alignment with your own personal values & beliefs.				

END OF PART 3

Instructional Design Career Environments Survey – Part 4 of 4

18. Preparation Program Overall Rating:

Please give your degree or training program an **overall rating** for preparing you to practice instructional design, development, and/or delivery (ID) *in your career environment*:

- Excellent preparation to practice ID in my career environment.
- Fair preparation to practice ID in my career environment.
- Did not adequately prepare me for practicing ID in my career environment.
- I'm not & haven't ever been employed in the career environment for which I was prepared.
- Not applicable.

19. Program Cultural Preparation Rating:

Rate your preparation program on preparing you for the **culture** of your career environment:

- Excellent preparation for my career environment's culture.
- Fair preparation for my career environment's culture.
- Did not adequately prepare me for my career environment's culture.
- I'm not & haven't ever been employed in the career environment for which I was prepared.
- Not applicable.

20. Exemplary Instructional Design & Technology Programs:

From your own experience or from other's, please list the *name and location* of up to three academic programs that you know to be exemplary for preparing instructional designers for *your* career environment. Indicate *why* you feel they are exemplary by checking all that apply:

- | | |
|---------------------------|--|
| Program 1: _____
_____ | <input type="checkbox"/> I personally attended this program.
<input type="checkbox"/> I hired or collaborated with an individual who attended this program.
<input type="checkbox"/> I have read good things about this program.
<input type="checkbox"/> I am familiar with this program's reputation.
<input type="checkbox"/> Other _____ |
| Program 2: _____
_____ | <input type="checkbox"/> I personally attended this program.
<input type="checkbox"/> I hired or collaborated with an individual who attended this program.
<input type="checkbox"/> I have read good things about this program.
<input type="checkbox"/> I am familiar with this program's reputation.
<input type="checkbox"/> Other _____ |
| Program 3: _____
_____ | <input type="checkbox"/> I personally attended this program.
<input type="checkbox"/> I hired or collaborated with an individual who attended this program.
<input type="checkbox"/> I have read good things about this program.
<input type="checkbox"/> I am familiar with this program's reputation.
<input type="checkbox"/> Other _____ |

21. Additional Comments:

Please add any additional comments concerning your preparation program that relate to its success in preparing you for a particular career environment, or any comments related to questions that were unclear or did not provide an option that related to your situation:

END OF PART 4 of 4

THANK YOU for participating in this survey! For a summary of the results, provide your email:

Appendix I

Survey Letter



Association for Educational Communications & Technology

1800 N. Stonelake Dr., Suite 2 • Bloomington, IN 47404 • Voice (812) 335-7675 • Fax (812) 335-7678

email: aect@aect.org • url: www.aect.org

February 27, 2004

Dear AECT Member:

Enclosed you will find a survey developed by one of our members to collect data on our membership and their experiences. This study of the professional preparation of instructional designer/developers looks at whether, and how, current academic and certification programs prepare designers for different career environments. You have been randomly selected from three AECT divisions to participate.

This survey is sponsored by the Center for Instructional Technology Solutions in Industry and Education (CITSIE) at Virginia Tech University. It has been pilot-tested and will require approximately 15 minutes of your time. You are asked to identify your career environment (*for example, higher education, business and industry, K-12 education*), whether you were prepared specifically to practice design in that environment, and if so, how you were prepared. In addition to providing some demographics on our membership, the results of this survey are anticipated to identify programs that do a particularly good job of preparing instructional designers for specific career environments.

No identifying information will be collected as a result of your participation and at no point in the process will the survey data submitted be linked with your name or address. The enclosed, self-addressed envelope is marked for follow-up purposes only and once your survey is received, it will be separated from the envelope. If you are interested in obtaining a copy of the results, you may send the researcher, Miriam Larson, an email at milarso1@vt.edu. To share your experiences, please sign the enclosed consent form, complete the survey, and *return it by March 31, 2004*.

Please Note: A web-based version of this survey was available on the AECT website from mid-January through February, 2004. If you submitted the online version, please mark the "I have taken this survey online" box on the first page of the enclosed survey and return it without filling it out. This will preserve the accuracy of the response rate calculations.

Thank you for participating!

Sincerely,

Philip Harris
Executive Director
AECT

Appendix J

Survey Reminder Postcard

(Sent out March 22, 2004)

Dear AECT Member:

Approximately two weeks ago, you should have received a survey about the preparation and work experiences of AECT members.



If you have not yet completed and returned your survey, please consider taking the 10-15 minutes necessary to do so. The aim of this research is to identify how the academic preparation of instructional designers matched their work experiences, and your participation is highly desired.

Thank you very much!

Miriam Larson

P.S. Please ignore references in the survey instructions to a consent form. The survey qualifies as exempt research and does not require a consent form. The reference was inadvertently left in the instructions. If you need another copy of the survey, I can be reached by email at mlarso1@vt.edu Thanks again for your help!

Appendix K

IDT Educator, Focus Group, and Graduate Telephone Interview Protocols

IDT Educator Interview Protocol:

(Note: IDT educator interviewees will receive these questions in advance.)

A. Interviewer Introduction:

My name is Miriam Larson and I am doing research on the career environments that instructional designers enter upon completion of their degrees. These career environments include higher education, business and industry, K-12 education, government, military, health care, and non-profit, among others. In particular, I'm trying to find out whether instructional design preparation programs seek to prepare students for potential differences in career environments and if so, how they do that. Last fall, I conducted a survey of IDT practitioners. Survey respondents identified your program as exemplary. I am now conducting case studies of exemplary programs and would like to ask you a bit about your program and courses, your philosophy on IDT preparation, and your experiences concerning different career environments.

B. Obtain permission to audiotape the interview.

C. Discuss issues of confidentiality and anonymity.

D. Obtain signature on informed consent form.

E. Start tape and ask the following:

- “Please state your name” (wait for statement of name)
 - “You understand that I’m audio taping this interview?” (wait for affirmation)
 - “...and you give me permission to do so?” (wait for affirmation)
 - “You understand that you are not required to participate in this study and that you may withdraw at any time – or decline to answer any specific question – without being subject to adverse action?” (wait for affirmation)
 - “...and do you wish to participate at this time?” (wait for affirmation)
 - Continue with the questions, as follows...
1. Could you please briefly describe for me your background, how you came to choose a career in instructional design, your own academic degree program, work experiences and your responsibilities in this program? (I will also attempt to ascertain this in advance by accessing or asking for their vitas.)
 2. What are your beliefs concerning how, if at all, instructional design students should be prepared for different career environments or goals?
 3. Does your program provide a generalist preparation curriculum, or do you advise students to take certain coursework or internship experiences based on their specific career goals?
 4. Does your program have any established guidelines for the prerequisite skills, knowledge, and competencies required for entry into your graduate program?
 5. What type of coursework, if any, do students in your degree program take from outside your department?

6. How do you believe students should be prepared for the different job roles (consultant, project team member or leader, teaching faculty, administrative support faculty, etc.) that they may assume upon completion of their instructional design degree?
7. Do you believe your students come into your program with a definite plan for their career, or do they tend to decide during the course of their academic career?
8. What, if any, content differences are designed into your program to prepare students to enter different career environments?
9. Has your program established any communication channels or collaborative partnerships with other departments, disciplines, or outside organizations in order to provide your students with internships or other educational opportunities?
10. Every work environment has a certain culture that conveys the values, attitudes, beliefs, assumptions, and customs of that organization or institution. Do you think it is possible to prepare students to ascertain whether they will adapt readily to a certain culture prior to accepting a position, and if so, how would you or do you attempt to prepare them for that challenge?
11. Have you ever had the experience of working in a situation where you found that your own values, beliefs, attitudes or assumptions were in direct conflict with those around you? If so, please describe that experience for me.
12. Now please consider your philosophy of how instructional designers should be prepared for professional practice. Can you describe any personal experiences or convictions that would help explain how and why your philosophy on ID practice evolved?
13. Please describe the ways that you convey your philosophy of IDT preparation through the courses you teach, the suggestions you propose, and the other contributions that you make to this IDT program?
14. Why do you think survey respondents rated this program as exemplary for preparing them for their (insert specific type of environment, if applicable) career environment?
15. (if applicable) Why do you think survey respondents rated this program as exemplary for preparing them for the *cultural* aspects of their career environment?

Student Focus Group Interview Questions:

A. Interviewer Introduction:

My name is Miriam Larson and I am doing research on the career environments that instructional designers enter upon completion of their degrees. These career environments include higher education, business and industry, K-12 education, government, military, health care, and non-profit, among others. In particular, I'm trying to find out whether instructional design preparation programs seek to prepare students for potential differences in career environments and if so, how they do that.

B. Obtain permission to audiotape the interview.

C. Discuss issues of confidentiality and anonymity.

D. Obtain signature on informed consent form.

E. Start tape and ask the following:

- “This is Miriam Larson and I am leading a focus group discussion with students/former students from the instructional design program at XXX university.”
- “There are XX students/former students present today and they are aware that I am audio taping this interview.”
- “I am going to say your names and ask each of you to record your permission to audio tape and your agreement to participate in the interview.”
- “(student’s name) Do you agree to participate in this interview, and do you understand that you are not required to participate in this study and that you may withdraw at any time – or decline to answer any specific question – without being subject to adverse action? And do you further give permission to audio tape your comments in this interview? If you agree to all of the above please answer in the affirmative.” (wait for affirmation from each student).
- Continue with the questions, as follows...

1. Have you found your professors to be knowledgeable about working conditions in different career environments, and if so, which career environments are they familiar with? Have they shared the source of their knowledge or experience?
2. Can you share any examples that your professors have used to illustrate the challenges encountered by instructional designers in the work world?
3. Each working environment has its own organizational culture. Has there been discussion in any of your classes, internships or other graduate experiences concerning how work cultures might vary with regard to (insert cultural variables identified through the survey, part 3)?
4. Please describe the experiences you’ve had and the skills you’ve developed through this program that you think will serve you particularly well once you enter the work force.

5. Are you confident that you've been adequately prepared for the work world? Are there competencies that you believe you will need to pursue on your own either during your graduate experience or following graduation and employment?
6. What type of career environment do you anticipate entering upon graduation and what kind of skills and knowledge do you think are important for you to obtain for that environment?
7. Has your program addressed:
 - Core or general instructional design competencies as identified by any of the professional organizations (AECT, ISPI, ASTD, etc.)?
 - Instructional design competencies specific to certain career environments?
 - Specific instructional design models that might be prevalent in certain career environments?
 - The application and use of a variety of learning theories?
 - How to achieve "grounded design," that is, designing instruction that is consistent with a learning theory and its foundational epistemological assumptions? (epistemology meaning the beliefs concerning the nature of knowledge and how learners come to know)

Former Student Interview Questions:

Interviewer Introduction:

My name is Miriam Larson and I am doing research on the preparation of instructional design students for different career environments (higher education, business and industry, K-12 education, government, military, health care, and non-profit organizations). In particular, I am doing a study of the Instructional Systems program at Florida State University (FSU), and the methods the educators there use to prepare students for professional practice. Early this year, I conducted a nation-wide survey of members of several professional organizations that identified FSU as an exemplary program for preparing individuals to successfully practice instructional design.

I would like to ask you a few questions about your academic and professional experiences to identify specific ways your program prepared you to practice in your career environment.

Confidentiality, anonymity and the consent form:

You were sent a consent form to sign and return. That consent form indicates that the results of this study will be kept confidential by the interviewer. Neither your name nor any other personal identifier will be associated with the information you supply. Publications from the findings will use pseudonyms and mask personal identifiers. Please note, however, that anonymity cannot be guaranteed due to the limited number of individuals participating in these telephone interviews.

Audio Taping & Participation:

I must have your agreement to participate and to be audio taped. At the beginning of the interview, you will be asked to give your permission to participate and to be audio taped. Once the audio tape has started, I will read the following participation statement, and ask you to give your verbal assent to audio tape the interview. The statement follows:

It is [date]. This is Miriam Larson, and I am interviewing [your name], a past graduate of the Instructional Systems program at Florida State University. [Your name], do you understand that you are not required to participate in this study and that you may withdraw at any time, decline to answer any specific question, or ask to have the recorder paused at any time – without being subject to adverse action? Do you agree to voluntarily participate in this interview and do you further give permission to audio tape your comments in this interview? (I will wait for your affirmation)

Questions:

- Please briefly state the degree and level of degree you received from FSU, and share your career path since graduation. Please include information on the following:
 - The year of your degree from the Instructional Systems department at FSU
 - The career environments you have worked in since graduation
 - The nature of your undergraduate studies
 - Whether you went straight from your undergraduate studies into your graduate program, or had some work experiences between

- Why you decided to get a degree from the IS department at FSU
2. What part do you believe your degree played in getting you the job or jobs you have held since graduation?
 3. Please briefly describe your job duties with respect to instructional design, systems design, performance improvement, or any other responsibilities.
 4. Have you been satisfied with the way your degree from the program at FSU has prepared you for professional practice?
 5. What experiences did you have during your degree program (such as coursework, assistantships, and internships) that you feel prepared you particularly well for professional practice?
 6. Did you find your professors to be knowledgeable about working conditions in your career environment? Did they have knowledge of other career environments, and if so, which career environments were they familiar with?
 7. Did your professors share stories from their personal experiences and if so, were they helpful in sensitizing you to the challenges you have encountered since entering professional practice?
 8. Please describe any experiences you had or skills you developed through the program at FSU that served you particularly well once you entered the work force.
 9. Were there any work competencies that you had to pursue on your own either during your graduate experience or following graduation and employment?
 10. Please indicate whether your program of study addressed the following items. If so, indicate whether those items were ones you needed to know about for professional practice. Finally, if the item *was* addressed by your program and it *was* important for professional practice, please indicate whether it was addressed adequately to meet your needs.
 - Core or general instructional design competencies as identified by any of the professional organizations (AECT, ibstpi, ASTD, etc.)?
 - Instructional design competencies important for your specific career environments? (for example, grant writing for higher education, or calculation of ROI for business & industry)
 - Specific instructional design models that are used in your career environment?
 - The flexible application and use of a variety of learning theories?
 - How to achieve “grounded design,” that is, designing instruction that is consistent with a learning theory and its foundational epistemological assumptions? (epistemology: the beliefs concerning the nature of knowledge and how learners come to know)

11. Every work environment has a certain culture that embodies the values, attitudes, beliefs, assumptions, and customs of that organization or institution. A survey conducted of ID practitioners early this year indicated several aspects of work environments that were “issues” for the participants when they first began their instructional design practice. “Issues” was defined for the respondents as something in their new work environment that was different from what they had anticipated, and which required them to expend more effort than they would have desired to adjust.

The following nine aspects were identified by over 40% of all respondents as things that had been issues for them once they entered their work environment.

- a. Did any of these aspects become issues for you when you entered professional practice?
 - b. If so, were they addressed in your degree program and if so, were they adequately addressed (to the degree that it would be possible to prepare someone for it generically)?
 - c. If addressed, in which class or through what educational experience were they addressed?
- The availability of project resources for work assignments.
 - Employer attitudes toward change, innovation, and risk.
 - The nature of internal workplace politics.
 - Amount of freedom given to set priorities and deadlines.
 - Amount of freedom given to make decisions.
 - Trade-offs between quality, timeliness, and cost in work assignments.
 - Quality standards for work assignments.
 - Expectations of time between project start & completion.
 - Workload

Appendix L

Summary Data and Pseudonyms for Faculty, Student, and Graduate Participants

Table 17. FSU Instructional Systems faculty educator status (N=17).

Status ¹	Number
Junior Faculty	4
Senior Faculty	5
Professor Emeritus	4
Visiting & Adjunct Faculty	4

¹ Junior faculty have five or less years at FSU, Senior Faculty have more than five years at FSU.

Table 18. FSU Instructional Systems faculty educators (N=17).

Faculty Pseudonym	Type of Interview
Melanie	Face-to-face
Dori	Telephone
Tallis	Face-to-face
Madeline	Face-to-face
Eva	Face-to-face
Cyril	Face-to-face
Keith	Face-to-face
Blake	Face-to-face
Ian	Face-to-face
Aneta	Telephone
Seth	Face-to-face
Peter	Face-to-face
Conrad	Face-to-face
Emeritus Faculty Name	Type of Interview
Robert Morgan	Telephone
Robert Branson	Telephone
Roger Kaufman	Telephone
Walter Dick	Telephone

Table 19. FSU Instructional Systems Program: Student status.

Status	Number
Current MS Student	6
Current PhD Student	7
MS & PhD Graduates	5

Table 20. FSU Instructional Systems Program: Current student and graduate summary.

Student/Graduate Pseudonym	Type of Interview
Afet	Focus group
Tan	Focus group
Bert	Focus group
Ken	Focus group
Li Wei	Focus group
Ross	Focus group
Ellen	Focus group
Hui Ying	Focus group
Felice	Focus group
Ward	Focus group
Clark	Focus group
Keegan	Individual
Kerstin	Telephone
Rhys	Telephone
Penny	Telephone
Anna	Telephone
Jack	Telephone
Don	Telephone

Table 21. FSU current students: Previous work environments. (N=18) ^a

Work Environment Prior to Program	Number ^a (N=18)
K-12 Education	6
Higher Education	5
Business & Industry	8
Government/Military	5
Health Care	0
Non-Profit	4

^a Note that the number listed for a certain work environment exceeds the total number of participants because some participants indicated multiple work environments.

Table 22. FSU current students: Intended work environments. (N=13) ^a

Intended Work Environment Following Degree	Number (N=13) ^a
K-12 Education	1
Higher Education – U.S.	3
Higher Education – Foreign	3
Business & Industry, then Higher Education	2
United States Military	2
Foreign Military	1
Undecided	1

^a Note: Program graduates are not included in this table; all five are currently working in business and industry.

Appendix M

Permission Letter from Program Chair to name FSU

Miriam:

Of course it is okay to refer to our program by name! We will be honored to have you do so.

Bob Reiser
IS Program Leader

At 12:02 PM 9/23/2004, you wrote:

Hello Dr. Reiser:

I was writing to find out if I could obtain permission to refer to Florida State University's Instructional Systems program as the exemplary program featured in my case study. I obtained official permission from Dr. Kaufman, Dr. Branson, and Dr. Dick to use their names and I am waiting on word from Dr. Morgan as to whether I can use his name. I have used pseudonyms for all current faculty, and in the text of the case study those pseudonyms are tied only to the type of interview I conducted with them (telephone versus face-to-face; I had conducted telephone interviews with 3 of the current staff).

If this would be okay, would you please send me a letter or email to that effect?

Thank you so much -

Miriam

Robert Reiser

Robert M. Morgan Professor of Instructional Systems
Department of Educational Psychology and Learning Systems
305 Stone Building
Florida State University
Tallahassee, Florida 32306-4453
professional website: <http://mailer.fsu.edu/~rreiser/index.html>
telephone: 850-644-4592
e-mail: rreiser@mailers.fsu.edu
fax: 850-644-8776

Appendix N

List of FSU Case Study Documents Analyzed

Document Title/Description	Obtained From	Date & How Obtained	Comments
PSA Course Evaluation of the IS Program at FSU	Alumnus	5/13/04 Via email; date of document is April, 2003	Electronic file; Filed under FSU Case Study/Program Documents/ListofProgramDocuments.doc
Evaluation Report - Master's Program in Instructional Systems w/a Major in Open & Distance Learning at FSU	Office Assistant	4/19/04 Via email; date of document is May, 2002	Electronic file; Filed under FSU Case Study/Program Documents/ListofProgramDocuments.doc
Department organizational chart	Current student	4/19/04	Paper copy; 1 page; obtained from grad student after focus group session
FSU K-20 Initiatives pamphlet listing dept special programs & research	From FSU ODDL office	4/20/04	Paper copy; 26 pp; Lists & describes several special programs & grants with which the dept faculty are involved.
18 th Annual IS dept Awards Reception, April 20, 2004	At awards reception	4/20/04	Paper copy; 1 page
FSU online learning flyer	From ODDL office	4/20/04	Paper copy; ½ page; Lists the FSU online programs, including the IS online masters program
Spring 2004 Wednesday Seminar (EDG 5792?)	Current Student	4/19/04	Paper copy; 1 page; Lists the speakers and topics for the department's seminar class
FSU Dept of Educational Research Instructional Systems Program Course Listing 9-14-98	Office Assistant	4/19/04	Paper copy; 5 pp; Course listing to date; they are currently changing the courses (also have copy of proposed courses)
FSU Office for Distributed & Distance Learning (ODDL) Excerpt from 2004 Strategic Plan & email describing it	ODDL director via office assistant	4/21/04	ODDL grew out of LSI (Learning Systems Institute – the research arm of the department); Paper copy; 2 pages (including the explanatory email)
FSU ODDL Brochure	From ODDL office	4/20/04	Paper copy; 1 page; describes the services & support offered by ODDL
Learning Systems Institute (LSI) annual meeting flyer. LSI is the research arm of the department; it is university-wide but was begun by the founder of the dept, Robert Morgan)	From Office Assistant	4/20/04	Paper copy; 1 page dbl-sided; a summary of the LSI performance record provided to participants in the annual meeting; includes vision statement, mission statement, Return on Investment (ROI), total expenditures, the research structure, support and supported positions.
About LSI – web pages from the FSU LSI site	Website via Office Assistant	4/21/04	Paper copy; 19 pp. Describes the institute and its current and past programs
List of PhD Advisees Fall, 2004; Revised 4/9/04	Office Assistant	4/20/04	Paper copy; 2 pp; List of the initial temporary PhD student advisees assigned to each professor in the department and the permanent assignments (major professor)
List of Masters Advisees Spring/Fall, 2004; Revised 4/9/04	Office Assistant	4/20/04	Paper copy; 2 pp; List of the initial temporary Masters student advisees assigned to each professor in the department and the permanent assignments (major professor)

Document Title/Description	Obtained From	Date & How Obtained	Comments
Dec. 24, 2003 listing of the online masters students in Instructional Systems w/a major in Open & Distance Learning, enrolled from beginning of program to-date	Office Assistant	4/21/04	Paper copy; 8 pp; Listing does not give student names, just their location and job title/description
Copy of program description for the Masters (MS) in Instructional Systems, dated Feb. 1, 2002	Office Assistant 4/20/04	Office Assistant	Paper copy; 6 pp; Includes description of the IS major, department description, program description, the curriculum course requirements, the admission criteria, program procedure, internship requirement, other graduation requirements, financial assistance information, and contact information. This is the current program; it is changing.
Copy of program description for the Doctorate (PhD) in Instructional Systems, dated Feb. 1, 2002	Office Assistant 4/20/04	Office Assistant	Paper copy; 11 pp; Includes description of the IS major, department description, program description, the curriculum course requirements, the admission criteria, program procedure, description of examinations, residency requirements, research requirements, dissertation planning suggestions, financial assistance information, and contact information. This is the current program; it is changing.
Proposed Doctoral Program 11/21/03	Office Assistant	4/20/04	Paper copy; 2 pp; This is a summary of the changes being proposed for the doctoral program in IS at FSU
I.S. Masters Comprehensive Examination: Competency Analysis Report and Print-Based Portfolio (Dated: Revised Feb, 2001)	Program Leader	4/20/04	Paper copy; 9 pp; This is the competency-based examination for completion of the requirement for MS in IS.
Instructional Systems flyer (no date) "A graduate program..."	Office Assistant	4/20/04	Paper copy; 1 page, 2-sided; original flyer; need to clarify its origin and currency status
Instructional Systems flyer (no date) "Improving human learning and performance..."	Office Assistant	4/20/04	Paper copy; 1 page, 2-sided; reproduced copy, not original; need to clarify its origin & currency status
Various email clarifications from Dr. Morgan, Dr. Branson & Dr. Kaufman			
Case study journal notes	Self	N/A	None
IDT educator vitae & resumes	Educators	Email & in person	Hard copies only of some, some electronic copies
Lists of Wednesday Seminar guest speakers (EDG 5932) for Spring semesters in 2000, 2001, 2003, 2004	Program Leader	Email from Program Leader, 9/13/04	
New Doctoral Program Requirements; effective Fall, 2004	Program Leader	9/13/04, Emailed pdf document	Developed by a committee headed by faculty member. Filename: New_Doctoral_Program.pdf_1.pdf and filed under FSU Case Study/Program Documents

Appendix O

This message is posted with the originator's permission. (Bold and underline added.)

R 161638Z MAR 04
ALCOAST 131/04
COMDTNOTE 1520

SUBJ: POSTGRADUATE OPPORTUNITY - MASTERS IN PERFORMANCE TECHNOLOGY

A. COMCOGARD PERSCOM WASHINGTON DC//EPM-1// 051415Z MAR 04/ALCGENL 035/04

B. COMCOGARD PERSCOM WASHINGTON DC//C// 011700Z MAR 03/ ALCGPERSCOM 018/04

C. COMCOGARD WASHINGTON DC//G-WT// 030959Z MAR 03/ALCOAST 100/04

1. THIS ALCOAST SOLICITS ELIGIBLE SENIOR ENLISTED AND JUNIOR OFFICER PERSONNEL TO APPLY FOR THE PERFORMANCE TECHNOLOGY MASTER DEGREE PROGRAM. WE INTEND TO SELECT 6 OFFICERS AND 1 ENLISTED MEMBER TO BE ASSIGNED TO THIS FULL-TIME GRADUATE DEGREE PROGRAM IN SUMMER/FALL 2005. APPLICATION PROCEDURES ARE DEFINED AND MANAGED BY CGPC VIA REFS (A) AND (B). THE DEADLINE FOR APPLICATIONS IS 21 MAY 04 FOR OFFICERS AND 01 MAY 04 FOR ENLISTED APPLICANTS.

OFFICERS O-3 SELECTED THROUGH O-4 SELECTED AND ENLISTED MEMBERS E-6 ABOVE THE CUT FOR E-7 THROUGH E-8 WILL BE CONSIDERED. APPLICATIONS MUST INCLUDE GRE SCORES THAT ARE LESS THAN FIVE YEARS OLD.

SUCCESSFUL APPLICANTS IN THE PAST HAVE HAD AN AVERAGE GRE SCORE OF 1000 COMBINED VERBAL AND QUANTITATIVE. 2. SUCCESSFUL COMPLETION OF THE PERFORMANCE TECHNOLOGY PROGRAM LEADS TO EITHER A MASTER OF SCIENCE DEGREE IN INSTRUCTIONAL SYSTEMS, INSTRUCTIONAL SYSTEMS TECHNOLOGY OR INSTRUCTIONAL AND PERFORMANCE TECHNOLOGY OR A MASTER OF ARTS DEGREE IN EDUCATION WITH A CONCENTRATION IN EDUCATIONAL TECHNOLOGY. ATTAINMENT OF THESE DEGREES PREPARE MEMBERS TO SPECIALIZE IN PERFORMANCE TECHNOLOGY, HUMAN PERFORMANCE CONSULTING, INSTRUCTIONAL TECHNOLOGY, INSTRUCTIONAL DESIGN, DISTANCE LEARNING, TRAINING MANAGEMENT, AND HUMAN RESOURCE DEVELOPMENT.

3. **MEMBERS WILL ATTEND ONE OF THE THREE LEADING SCHOOLS IN THE NATION FOR THIS SPECIALTY: FLORIDA STATE UNIVERSITY (FSU), INDIANA UNIVERSITY (IU) OR SAN DIEGO STATE UNIVERSITY (SDSU).** PROGRAM LENGTH IS 12-14 MONTHS AND SELECTEES WILL INCUR A MINIMUM ACTIVE DUTY

OBLIGATION OF THREE MONTHS PER MONTH OF INSTRUCTION FOR THE FIRST 12 MONTHS AND ONE MONTH PER MONTH OF INSTRUCTION THEREAFTER.

4. MEMBERS SELECTED TO ATTEND FSU OR IU MUST BE ABLE TO TRANSFER IN TIME TO ENROLL DURING LATE SUMMER 2005 WHILE THOSE SELECTED FOR SDSU MUST BE ABLE TO TRANSFER NLT LATE MAY 2005 TO ENROLL IN THE SUMMER SEMESTER. OFFICERS WILL BE RESPONSIBLE FOR THE COST OF BOOKS AND SUPPLIES WHILE ENROLLED IN THE PROGRAM. ALL BOOKS WILL BE FUNDED FOR ENLISTED MEMBERS.

5. SELECTEES WILL BE EXPECTED TO COMPLETE FOLLOW-ON TOURS IN PERFORMANCE CONSULTING OR TRAINING MANAGEMENT BILLETS AT EITHER HEADQUARTERS OR ONE OF THE TRAINING CENTERS. **THERE ARE OPPORTUNITIES FOR PROGRAM GRADUATES AT THE SENIOR LEVEL IN HIGHLY VISIBLE POSITIONS AT THE TRAINING COMMANDS AND AT HEADQUARTERS.**

6. CONTACT LCDR REED STEPHENSON (202) 267-2435, E-MAIL RSTEPHENSON(AT)COMDT.USCG.MIL FOR ADDITIONAL INFORMATION.

7. INTERNET RELEASE AUTHORIZED.

8. RADM R. J. PAPP, JR., DIRECTOR OF RESERVE AND TRAINING SENDS.

BT

Appendix P

FSU Masters Competencies (as of September 2001)

The competency skills for the Online Distance Learning (ODL) master's exam is nearly identical to the ISD exam, except for the following additions. The additions are identified below in underlined text.

Analysis: Examining complex functions or procedures in order to identify and understand the fundamental elements and their relationships as an initial step in solving human and organizational performance problems.

1. Designs needs assessment plan or proposal by applying knowledge of distance learning field
2. Identifies gaps between actual & desired performance.
3. Identifies appropriate data-gathering techniques to gain insight into cause of gaps in performance.
4. Proposes solutions that are appropriate to closing an identified performance gap.
5. Conducts learner analysis prior to designing training.
6. Determines the knowledge, skills and attitudes required to master a specific job, task or role.
7. Determines required resources and constraints for a solution or solution system.
8. Identifies relationships of systems and subsystems within an organization.
9. Determines learner's entry skills, prerequisite knowledge and aptitudes.

Design: Planning and selecting instructional strategies and performance support tools based on performance objectives whereby all elements related to performance and learning is systematically brought together.

1. Prepares an instructional analysis for given learning outcomes.
2. Prepares a learning and performance context analysis for a given learning outcome.
3. Prepares clear statements of objectives (in performance terms with conditions and acceptable performance criteria stated) for various categories of learning outcomes.
4. Applies rules and principles of learning to the design of instructional materials and the design of group activities in a distance learning environment.
5. Applies instructional design strategies intended to account for individual differences among learners.
6. Specifies appropriate instructional strategies for various categories of learning outcomes.

Implementing Media and Technology: Planning, selecting, modifying, designing and producing informational, instructional and performance support materials.

1. Selects media for given instructional objectives with a rationale for the selection.
2. Develops instructional material using a variety of different media.
3. Utilizes instructional media and equipment effectively in presentations and settings that demonstrate proper utilization and appropriate showmanship techniques.
4. Utilizes electronic communication technologies effectively to support learning through instructor'-:student and student-student interaction using appropriate techniques.
5. Applies skills in using computer software for professional use.

Evaluation and Research: Gathering and interpreting data applicable to various aspects of improving human performance for the purpose of making management and instructional decisions.

1. Assess and synthesizes data from a variety of sources and draws logical conclusions from available information (excluding formative evaluation).
2. Conducts formative evaluations of products.
3. Designs and implements appropriate assessments of human performance and organizational results.
4. Designs and implements appropriate assessments of human learning.

Management: Developing and implementing programs/projects that facilitate the achievement of educational/organizational goals through organizational, change, project and personnel management.

1. Develops a long-range project plan.
2. Prepares a project budget.
3. Coordinates the design team by delegating responsibilities to specific personnel.
4. Identifies requirements for project-related information systems.
5. Demonstrates principles and techniques that are used in change management.

Communication: Articulating goals and processes of the program/project to several publics. Conceptualizing, synthesizing, promoting and directing a program/project that reflects a commitment to organizational goals and professional ethics.

1. Communicates effectively in professional writing.
2. Communicates effectively in instructional materials and other forms of instruction.
3. Works effectively with other team members.
4. Communicates effectively orally.
5. Uses effective interpersonal communication techniques.
6. Develops a professional network.
7. Demonstrates understanding of a professional code of ethics.

Appendix Q

IRB Survey and Case Study Approval Letters

IRB Approval for Phase I Survey



Institutional Review Board

Dr. David M. Moore
IRB (Human Subjects) Chair
Assistant Vice Provost for Research Compliance
CVM Phase II - Duckpond Dr., Blacksburg, VA 24061-04
Office: 540/231-4991; FAX: 540/231-6033
e-mail: moored@vt.edu

October 21, 2003

MEMORANDUM

TO: Barbara Lockee T&L 0313
Miriam Larson T&L 0313

FROM: David M. Moore 

SUBJECT: IRB EXEMPTION APPROVAL – “ A Study of the professional preparation of Instructional Design & Technology (IDT) graduates for different work environments” – IRB # 03-497

I have reviewed your request to the IRB for exemption for the above referenced project. I concur that the research falls within the exempt status. Approval is granted effective as of October 20, 2003.

Cc: File
Department Reviewer: Bonnie Billingsly T&L 0313

IRB Approval for Phase II Case Study



Institutional Review Board

Dr. David M. Moore
IRB (Human Subjects) Chair
Assistant Vice Provost for Research Compliance
CVM Phase II- Duckpond Dr., Blacksburg, VA 24061
Office: 540/231-4991; FAX: 540/231-6033
email: moored@vt.edu

DATE: April 15, 2004

MEMORANDUM

TO: Barbara B. Lockee Teaching and Learning 0313
Miriam Larson T&L 0313

FROM: David Moore 

SUBJECT: **IRB Expedited Approval:** "A study of the professional preparation of Instructional Design & Technology (IDT) students for different work environments" IRB # 04-226

This memo is regarding the above-mentioned protocol. The proposed research is eligible for expedited review according to the specifications authorized by 45 CFR 46.110 and 21 CFR 101.11. As Chair of the Virginia Tech Institutional Review Board, I have granted approval to the study for a period of 12 months, effective April 15, 2004.

cc: File
Department Reviewer Jan Nespor T&L 0313

Appendix R

Case Study Interview Consent Forms

Virginia Polytechnic Institute and State University
Informed Consent for Interview Participants

Title of Research Project: A study of professional preparation of Instructional Design and Technology (IDT) graduates for different work environments.

Investigators: Miriam B. Larson milarso1@vt.edu
 Dr. Barbara Lockee lockeebb@vt.edu
 220 War Memorial Hall
 Center for Instructional Technology
 Virginia Tech
 Blacksburg, VA 24061

<p>III. The Purpose of the Project This study examines the philosophies of Instructional Design and Technology (IDT) educators to identify how an exemplary IDT program prepares students for professional practice in different career environments (i.e., higher education, business and industry, K-12 education, military/government, health care, and non-profit environments).</p> <p>IV. Procedures If you choose to participate in this study, you will be asked to participate in one, approximately one-hour semi-structured interview. During this interview, you will be asked questions concerning your educational philosophy and how you prepare students for professional practice. With your permission, the interview will be audiotape recorded. The tapes will be transcribed and tapes and transcripts will be securely stored until analysis is completed, at which time both tapes and transcripts will be destroyed.</p> <p>III. Risks There are no anticipated risks to participants beyond those experienced in everyday activity.</p> <p>IV. Benefits of this Project This project will contribute to the understanding of the nature of exemplary academic IDT preparation programs and the preparation philosophies of IDT educators.</p>	<p>V. Anonymity and Confidentiality The results of this study will be kept confidential. While anonymity cannot be guaranteed, the researcher will make every effort to disguise the identity of participants. Neither your name nor any other personal identifier will be associated with the information you supply. Publications from the findings will use pseudonyms and mask personal identifiers.</p> <p>VI. Compensation There is no compensation for participating in this project.</p> <p>VII. Freedom to Withdraw You are free to withdraw from this study at any time without penalty by informing the researcher of your desire to withdraw, or by contacting one of the representatives listed in section X, Participant’s Permission, below. You may ask that the tape recorder be turned off at any time during the interview.</p> <p>VIII. Approval of Research This research project has been approved, as required, by the Institutional Review Board at Virginia Tech for Research Involving Human Subjects.</p> <p>IX. Participant’s Responsibilities Participation in this study is voluntary. You must sign this consent form to participate.</p> <p><i>Agreement to this form constitutes agreement to participate in the project as well as permission to audiotape record the interview.</i></p>
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X. Participant’s Permission

I have read and understood the Informed Consent Form for Participants and the conditions of this project. I have had questions I have about the project answered. I hereby acknowledge the above and give my voluntary consent for participation in this project. If I participate, I understand that I may withdraw at any time without penalty. I indicate my agreement by signing and returning a copy of this form to the researcher, or indicating agreement through an e-mail note. If I have questions about this research project, I may contact Miriam Larson, Investigator (540-231-5587 or milarso1@vt.edu), Dr. Barbara Lockee, Advisor (540-231-5587 or lockeebb@vt.edu), Dr. Jan Nespor, Departmental IRB Representative (nespor@vt.edu), or Dr. David Moore, Institutional Review Board Chair for Virginia Tech (540-231-4991 or moored@vt.edu).

Signature: _____ **Date:** _____

Virginia Polytechnic Institute and State University

Informed Consent for Telephone Interview Participants

Title of Research Project: A study of the professional preparation of Instructional Design and Technology (IDT) graduates for different work environments.

Investigators:

Miriam B. Larson
 Dr. Barbara Lockee
 220 War Memorial Hall
 Center for Instructional Technology
 Virginia Tech
 Blacksburg, VA 24061

mlarso1@vt.edu
lockeebb@vt.edu

<p>I. The Purpose of the Project This study examines the experiences of graduates of an exemplary academic Instructional Design and Technology (IDT) program to identify the ways in which the program and its educators prepare students for professional practice in different career environments.</p> <p>II. Procedures If you choose to participate in this study, you will be asked to participate in one, no longer than one-hour semi-structured telephone interview. During this interview, you will be asked questions concerning your educational philosophy and how you prepare students for professional practice. With your permission, the interview will be audiotape recorded. The tapes will be transcribed and tapes and transcripts will be securely stored until analysis is completed, at which time both tapes and transcripts will be destroyed.</p> <p>III. Risks There are no anticipated risks to participants beyond those experienced in everyday activity.</p> <p>IV. Benefits of this Project This project will contribute to the understanding of the nature of exemplary academic IDT preparation programs and the preparation philosophies of IDT educators.</p>	<p>V. Anonymity and Confidentiality The results of this study will be kept confidential. While anonymity cannot be guaranteed, the researcher will make every effort to disguise the identity of participants. Neither your name nor any other personal identifier will be associated with the information you supply. Publications from the findings will use pseudonyms and mask personal identifiers.</p> <p>VI. Compensation There is no compensation for participating in this project.</p> <p>VII. Freedom to Withdraw You are free to withdraw from this study at any time without penalty by informing the researcher of your desire to withdraw, or by contacting one of the representatives listed in section X, Participant’s Permission, below. You may ask that the tape recorder be turned off at any time during the interview.</p> <p>VIII. Approval of Research This research project has been approved, as required, by the Institutional Review Board at Virginia Tech for Research Involving Human Subjects.</p> <p>IX. Participant’s Responsibilities Participation in this study is voluntary. You must sign this consent form to participate.</p> <p><i>Agreement to this form constitutes agreement to participate in the project as well as permission to audiotape record the interview.</i></p>
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X. Participant’s Permission

I have read and understood the Informed Consent Form for Participants and the conditions of this project. I have had questions I have about the project answered. I hereby acknowledge the above and give my voluntary consent for participation in this project. If I participate, I understand that I may withdraw at any time without penalty. I indicate my agreement by signing and returning a copy of this form to the researcher, or indicating agreement through an e-mail note. If I have questions about this research project, I may contact Miriam Larson, Investigator (540-231-5587 or mlarso1@vt.edu), Dr. Barbara Lockee, Advisor (540-231-5587 or lockeebb@vt.edu), Dr. Jan Nesor, Departmental IRB Representative (nespor@vt.edu), or Dr. David Moore, Institutional Review Board Chair for Virginia Tech (540-231-4991 or moored@vt.edu).

Signature: _____

Date: _____

Virginia Polytechnic Institute and State University
Informed Consent for Focus Group Participants

Title of Research Project: A study of professional preparation of Instructional Design and Technology (IDT) graduates for different work environments.

Investigators: Miriam Larson mlarso1@vt.edu
 Dr. Barbara Lockee lockeebb@vt.edu
 220 War Memorial Hall
 Center for Instructional Technology
 Virginia Tech
 Blacksburg, VA 24061

<p>I. The Purpose of the Project This study examines the experiences of students at an exemplary academic Instructional Design and Technology (IDT) program to identify the ways in which the program and its educators prepare students for professional practice in different career environments.</p> <p>II. Procedures If you choose to participate in this study, you will be asked to participate with other students in one, semi-structured focus group session from one to two hours in length. During the session, you will be asked questions about your academic coursework, internships and outside experiences related to preparation for career environments and goals.</p> <p>With the permission of all participants, this session will be audiotape recorded. The tapes will be transcribed and tapes and transcripts will be securely stored until analysis is completed, at which time both tapes and transcripts will be destroyed.</p> <p>III. Risks There are no anticipated risks to participants other than those experienced in everyday activity.</p> <p>IV. Benefits of this Project This project will contribute to the understanding of the nature of exemplary instructional design preparation programs and preparation philosophies of IDT educators.</p>	<p>V. Anonymity and Confidentiality The results of this study will be kept confidential by the interviewer. Neither your name nor any other personal identifier will be associated with the information you supply. Publications from the findings will use pseudonyms and mask personal identifiers. Please note, however, that anonymity cannot be guaranteed due to the group nature of focus group sessions.</p> <p>VI. Compensation There is no compensation for participating in this project.</p> <p>VII. Freedom to Withdraw You are free to withdraw from this study at any time by informing the researcher of your desire to withdraw, or by contacting one of the representatives listed in section X, Participant’s Permission, below. You may ask that the tape recorder be turned off at any time during the interview.</p> <p>VIII. Approval of Research This research project has been approved, as required, by the Institutional Review Board at Virginia Tech for Research Involving Human Subjects.</p> <p>IX. Participant’s Responsibilities Participation in this study is voluntary. You must sign this consent form to participate.</p> <p><i>Agreement to this form constitutes agreement to participate in the project as well as permission to audiotape record the interviews.</i></p>
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X. Participant’s Permission

I have read and understood the Informed Consent Form for Participants and the conditions of this project. I have had questions I have about the project answered. I hereby acknowledge the above and give my voluntary consent for participation in this project. If I participate, I understand that I may withdraw at any time without penalty. I indicate my agreement by signing and returning a copy of this form or indicating agreement through an e-mail note. If I have questions about this research project, I may contact Miriam Larson, Investigator (540-231-5587 or mlarso1@vt.edu), Dr. Barbara Lockee, Advisor (540-231-5587 or lockeebb@vt.edu), Dr. Jan Nesor, Departmental IRB Representative (nespor@vt.edu), or Dr. David Moore, Institutional Review Board Chair for Virginia Tech (540-231-4991 or moored@vt.edu).

Signature: _____ **Date:** _____