

Capitalizing on the Overlap between Instructional Technology and HRD: A Potential Opportunity

Elaine L. Demps
Texas A&M University

The fields of instructional technology (IT) and human resource development (HRD) are both evolving fields of study and practice with overlapping domains. However, this overlap can be viewed not as a redundancy but as a potential opportunity to mutually strengthen both fields. This paper offers a preliminary conceptualization on how to capitalize on the overlap through academic curricula between both programs.

Keywords: E-learning, Defining HRD, Academic Programs

Instructional technology (IT) is the application of various forms of technology to the teaching and learning process (Albright, 1996; Surry & Robinson, 2001) with the goals of attending to learning needs and problems (Roblyer, 2006). The potentials of IT are significant. In the academic setting, IT can offer “improved patterns of social interaction, changes in teaching styles, more effective teaching, increased student (and perhaps teacher) motivation, and enhanced student learning” (Earle, 2002, p. 5). In the workplace, IT allows 1) cost savings due to the possibility of developing a course once but offering it multiple times and 2) the convenience of accessing a course anytime anywhere (Lee, Owens, & Benson, 2002). The results of the 2006 National Survey of Information Technology in U.S. Higher Education (The Campus Computing Project, 2006) indicate that the integration of IT is still the second single most important information technology issue in higher education, making this issue either the first or second most important issue since the year 2000. Moreover, the 2005 ASTD State of the Industry Report (ASTD, 2005) shares that more organizations, between 27% and 38%, rely on technology to deliver learning programs. However, many IT innovations, designed and developed to address learning needs or problems, fail to be successfully implemented because instructional designers, who are essentially change agents (Ely, 1999b), lack guidance on how to implement change (Ensminger, Surry, Porter, & Wright, 2004).

In a former life, my academic and professional interests sided with designing and developing educationally sound, effective, and engaging course materials made with technology. For example, with subject matter experts (SMEs), user interface designers, videographer, and evaluation specialist, I—as the project manager, instructional designer, and programmer—collaboratively designed and developed multimedia case studies on anemia using Macromedia Authorware. At the time, I was a full-time generalist in IT at a health professions university and a part-time Ph.D. student in an IT program whose emphasis, I learned during an orientation meeting, was instructional design. I thought this emphasis fit my interests perfectly.

However, as a generalist in IT, my professional duties were broader than instructional design and development. I also helped faculty members, departments, and colleges in their quests to determine whether they should individually or collectively adopt and implement certain instructional technologies. For instance, I worked with the chair and faculty members of one department who, as a group, were going through the innovation-decision process (Rogers, 2003) of whether to adopt a course management system (CMS) such as WebCT or Blackboard to post course materials for their residential students.

What I recall about a meeting with that department, when a colleague and I did a presentation on the overview of web-based instruction and course management systems, was the palpable tenseness in the air. Although most of the faculty members, including the department chair, were very open to adopting and implementing a CMS, the body language and mannerisms of a handful of senior faculty members clearly indicated they were adamantly against the idea. Because of this dissension, what was to be an informational meeting seemed to become a public declaration of who was joining which of the two camps: one for the adoption of a CMS and another against the idea.

Perhaps it was during that tense meeting when I began to realize my job duties included being a change agent. In any case, I also began to question where instructionally sound, effective, and engaging course materials fit in the culture and dynamics of the people who needed to believe in them in order to teach with or learn from them. If I help build such course materials, would the professors opt to teach with them? Would the students desire to learn from them? Over the next few years, this fear that beautifully designed courses—instructionally and aesthetically—

would fail to be implemented, and therefore, the resources spent developing them wasted, further strengthened as I experienced and witnessed additional projects that were not implemented smoothly or successfully. Consequently, my academic interest shifted from instructional design and development to implementation and institutionalization. I applied to a Ph.D. program in human resource development (HRD) because it provided an emphasis in technology integration. When I was accepted, I quit my full-time job, relocated, and became a full-time student.

I recently completed my written and oral qualifying exams in HRD. While preparing for the exams, because my specialization is IT, I was challenged by my academic advisor, Dr. Susan Lynham, to explore how IT and HRD overlap. I turned to the literature for answers and indeed found what appears to be an overlap between the two fields. However, this overlap does not seem to suggest a redundancy. Rather, it seems to be a possible opportunity to mutually extend the theories and practices of both fields towards effective design and development of technology-based learning products and processes as well as successful IT integration.

The purpose of this paper is to explore the apparent overlap between the fields of IT and HRD and offer a preliminary conceptualization of how to capitalize on the overlap through graduate academic curricula, where IT and HRD practitioners and scholars are developed. What follows then is the result of a literature review guided by three research questions. The research questions, methodology, theoretical framework, results and findings, conclusions and recommendations, and implications for HRD are presented in the remainder of this paper.

Research Questions and Methodology

The three research questions that guided the literature review were: 1) What is IT? 2) What is HRD? 3) What is the overlap between IT and HRD? The methodology employed was a conceptual review of relevant scholarly literature found by using *EBSCOhost* to search four databases: *Academic Search Premier*, *Educational Resource Information Center (ERIC)*, *Professional Development Collection*, and *Science & Technology Collection*. The search was limited to full text articles and the phrases used were: 1) definition of instructional technology; 2) definition of educational technology, as *educational technology* is often used interchangeably with IT (Ely, 1999a; Gentry, 1995; Seels & Richey, 1994); 3) definition of human resource development; and 4) educational technology and human resources.

The fourth search phrase was formed from the built-in keywords of *EBSCOhost* and was aimed at locating the literature that addressed the overlap between the two fields. However, when the fourth search results yielded only a handful of relevant literature, additional searches were conducted focusing on authors who had published on the topic of IT adoption and implementation (e.g., Donald P. Ely and Daniel W. Surry) and HRD and learning technologies (e.g., Angela D. Benson). This latter approach yielded two special topic issues of peer-reviewed journals: 1) *Change and Learning Technologies*, a British Journal of Educational Technology issue edited by Daniel W. Surry in 2005 and 2) *Information and Learning Technologies*, an Advances in Developing Human Resources issue co-edited by Angela D. Benson and Scott D. Johnson in 2002.

Theoretical Framework

The theoretical framework that guided the literature review was the definitions of IT and HRD because a definition of a field can “explain its purposes, functions and roles to those within and those outside the field” (Reiser & Ely, 1997, p. 63) as well as becoming “a unifying base to rally around” (Chalofsky, 1992, p. 175). For the purposes of this paper, one definition of each field was selected as the theoretical framework. For IT, the 1994 definition by the Association for Educational Communications and Technology (AECT) was selected, and for HRD, the definition developed by the HRD faculty at my institution was selected. A brief history of how each field has been defined, detailed description of each selected definition, and the rationale for selecting the two specific definitions are provided below.

Defining IT

IT is an interdisciplinary and evolving field of practice and study, where the aim is to inform and advance practice through a solid knowledge base of theories that include communication, systems, and learning (Ely, 1999a; Reiser, 2001; Seels & Richey, 1994). Over a period of 40 plus years, multiple formal definitions have been offered. The label ascribed to the field also changed frequently, denoting the core emphases and concerns of the different periods. The early stages of the field have been attributed to the visual instruction movement and can be dated as far back as the 1600s when Johann Comenius advocated learning through the senses by teaching using “real objects and illustrations” (Reiser, 1987, pp. 12-13). In the 1920s, *visual* instruction evolved into *audiovisual* instruction as the advancement of audio technology allowed sound recordings to be integrated with images and illustrations (Reiser &

Ely, 1997). In the 1950s, the field incorporated communication theories and models and saw itself as the field of *audiovisual communication* (Reiser & Ely, 1997; Seels, 1995). In 1963, the Department of Audio Visual Instruction of the National Education Association was the first to officially define the field: “audiovisual communication is that branch of educational theory and practice concerned primarily with the design and use of messages which control the learning process” (Reiser & Ely, 1997, p. 65).

Subsequently, AECT, a representative scholarly and professional organization for the field of IT¹, just as the Academy of Human Resource Development (AHRD) is a representative scholarly and professional organization for the field of HRD (Githens, Dirani, Gitonga, Teng, & Benson, 2006), organized multiple committees of definitions who were each charged to develop the definition that reflects the present state of the field. Therefore, after the first formal definition in 1963 of audiovisual communication, AECT defined in 1977 *educational technology*, a term that is typically considered to be synonymous with IT (Ely, 1999a; Gentry, 1995; Reiser & Ely, 1997; Seels & Richey, 1994), although some view educational technology to be broader than IT given that *educational* pertains to “all aspects of education” while *instructional* narrows the scope to “teaching and learning problems” (Seels & Richey, 1994, p. 4).

In 1994, AECT defined *instructional technology* which states “Instructional Technology is the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning” (Seels & Richey, 1994, p. 1), where the five domains are design, development, utilization, management, and evaluation. The domains, in turn, are comprised of subcategories or focus areas. Table 1 below lists the domains, subcategories, and theories that inform the areas. This table is based on Figure 2.1 (p. 26) and Figure 3.1 (p. 70) of Seels and Richey’s 1994 AECT definition book.

While other scholars and practitioners have defined IT differently than AECT’s definition (e.g., Schneberger and Jost [1994] and Roblyer [2006]), majority of them appear to reference the AECT definition (e.g., Albright, 1996; Hains, Belland, Concelcao-Runlee, Santos, & Rothenberg, 2000; Surry & Robinson, 2001). Also, even though AECT unveiled a new definition for *educational technology* in 2004 and the AECT board approved it in 2005 (Januszewski, 2005; Januszewski, 2006), for the purposes of this paper, the 1994 AECT definition was selected because the accompanying “definition book” (Januszewski, 2005 p. 46)—the book that AECT publishes along with the definition and which provides the detailed accounts of a definition—for the 2004 definition is still in press (Reiser, 2007).

Table 1. *The IT Domains, Subcategories, and Theory Bases*

Domain	Subcategories	Theory Bases
Design	Instructional systems design	General systems
	Message design	Learning
	Instructional strategies	Motivation
	Learner characteristics	Perception
		Instruction
Development		Curriculum
	Print technologies	Communication
	Audiovisual technologies	Visual thinking
	Computer-based technologies	Visual learning
	Integrated technologies	Visual communication
Utilization		Aesthetics
	Media utilization	Knowledge utilization
	Diffusion of innovations	Curriculum
	Implementation and institutionalization	General systems
	Policies and regulations	Change
Management		Organizational development
	Project management	General management
	Resource management	Communication
	Delivery system management	Motivation
	Information management	Economic
Evaluation		Information
	Problem analysis	Behavioral learning
	Criterion-referenced measurement	Cognitive learning
	Formative evaluation	Measurement
	Summative evaluation	General

¹ For example, a study by Kim and Lee (2006) found graduate faculty members most often recommended students in the field to join AECT.

Defining HRD

Like IT, HRD too is an interdisciplinary and evolving field of practice and study whose aim is to inform practice through a solid knowledge base of theories (Lynham, 2002; Swanson & Holton, 2001). Because it is interdisciplinary, HRD is perceived as being shaped by a multitude of disciplines. Swanson and Holton (2001) offer the theories of psychology, economics, and system as foundations; Yang (2004) augments Swanson and Holton’s perspective with adult learning theory; and Lynham and Cunningham (2006) broaden Swanson and Holton’s perspective to the theories pertaining to people, process/systems, and performance. Hatcher’s (2000) perspective, a synthesis of the earlier works of Swanson, Jacobs, and Hatcher, is the theoretical foundations from “general systems theory, economics, psychology, sociology, and ethics” (p. 2-2).

Numerous definitions exist for HRD, as well as a strong argument for not defining the field since defining the field would impede the possibilities for further evolution, change, and growth (Lee, 2001). Harbison and Myers, scholars outside the field of HRD, appear to have first defined HRD in 1964: “human resource development is the process of increasing the knowledge, the skills, and the capacities of all the people in a society” (as cited in Paprock, 2006, p. 18). However, the first definition to be offered by a scholar from the field of HRD was Nadler in 1970: “HRD is a series of organized activities conducted within a specified time and designed to produce behavioural change” (Weinberger, 1998, p. 77). Besides Nadler’s definition, Weinberger tracked 17 additional definitions that were published between the years 1976 and 1995. In 1995, Swanson defined HRD as “a process of developing and unleashing human expertise through organization development and personnel training and development for the purpose of improving performance (Weinberger, 1998, p. 79). Overall, the definitions portray HRD as a field whose foci include learning and performance improvement—both individual and organizational, process-based, through training, career development, and organization development. While 16 of the 18 definitions actually defined the term *HRD*, one defined *training and development* (in 1983 by McLagan), and another defined *human performance technology* (in 1988 by Jacobs). Therefore, unlike the field of IT, the field of HRD appears to have come to a consensus to call itself HRD.

The definition selected for this paper was developed by the HRD faculty at my institution: “Human resource development is the process of improving learning and performance in individual, group, and organizational contexts through domains of expertise such as lifelong learning, career development, training and development, and organization development” (Dooley, 2002, p. 28-2). Unlike the field of IT, HRD has not been defined by AHRD, HRD’s representative professional organization. Therefore, an inclusive but clearly bound definition that addresses the current thoughts of the field was sought and our HRD faculty’s definition was selected because 1) it reflects an inclusive stance regarding the debate of learning *or* performance paradigm in HRD (Kuchinke, 1998) by indicating learning *and* performance in the definition and 2) it encompasses not only the domain of training and development but also organization development (OD) and career development, two additional domains of expertise often attributed to HRD (Swanson & Holton, 2001), as well as lifelong learning. At the same time, this definition clearly bounds the outcome expectations by specifying improvement as a goal and individual, group, and organizational as the contexts. Table 2 below is an interpretation of how Swanson and Holton’s (2001) theoretical foundation could be applied to our institution’s definition.

Table 2. Interpretation of Texas A&M University’s HRD Faculty Definition of HRD through Swanson and Holton’s (2001) Theoretical Foundations

Domains of Outcome	Theoretical Foundations		
	Psychological Theories	Economic Theories	System Theories
Individual Group Organization	Psychological theories that guide learning and performance of individuals, groups, and organizations through lifelong learning, career development, training and development, and organization development	Economic theories that guide learning and performance of individuals, groups, and organizations through lifelong learning, career development, training and development, and organization development	System theories that guide learning and performance of individuals, groups, and organizations through lifelong learning, career development, training and development, and organization development

Results and Findings

The three research questions that guided the literature review were *what is IT*, *what is HRD*, and *what is the overlap between IT and HRD*. The theoretical framework was the definition of each field. The preceding sections where IT and HRD were defined also addressed the first two research questions. Therefore, this section will attend to the

third research question, *what is the overlap between IT and HRD*. Furthermore, because the purpose of this paper is to suggest that there exists an opportunity to extend the theories and practices of each field via the overlap between the two fields, the overlap will be described in terms of how an apparent gap in one field is a strength in another.

Extending the Theories and Practices of IT through HRD

Of the five IT domains, the domain of utilization—specifically, its subcategories implementation and institutionalization—can be served well by the theories and practices of HRD. Utilization is defined as the “act of using the processes and resources for learning” (Seels & Richey, 1994, p. 46). Its four components are media utilization, diffusion of innovations, implementation and institutionalization, and policies and regulations. Media utilization is incorporating already developed resources into instruction; diffusion of innovations is promoting adoption of innovations through communication channels; implementation is the actual use of an innovation in the organization; institutionalization “is the continuing, routine use of the instructional innovation in the structure and culture of an organization” (p. 47); and policies and regulations are the rules that guide utilization, such as copyright laws.

Utilization is a very important domain because “use by learners is the only *raison d’être* for instructional materials” (Seels & Richey, 1994, p. 46, italics in original). Moreover, implementing and institutionalizing IT innovations require planned individual and organizational changes (Seels & Richey, 1994), and thus, IT is “a field based on change” (Surry, 2005, p. 933). And yet, the subcategories implementation and institutionalization have been identified as not only lacking solid knowledge base (Seels & Richey, 1994) but also found to be less emphasized than the domains of design and development (Surry & Ely, 2007). Therefore, when IT innovations fail, unsuccessful implementation and institutionalization are thought to be the reason (Cuban as cited in Seels & Richey, 1994; Cuban, Kirkpatrick, & Peck, 1999; Surry & Ely, 2007; Surry, 2005).

HRD, on the other hand, is a field that explicitly addresses individual and organizational changes through the domain of expertise organization development (OD). OD is defined as “the process of systematically unleashing human expertise to implement organizational change for the purpose of improving performance” (Swanson & Holton, 2001, p. 260). Indeed, Seels and Richey (1994) list “organizational development and education” (p. 45) as the only knowledge base for implementation and institutionalization.

In addition to OD, HRD philosophical metaphors also signify the centrality of change to the field: the metaphors of HRD as an organizational problem solver (the informing knowledge base includes theories of organizational change or effectiveness) and organizational change agent, interventionist, or helper (the informing knowledge base includes intervention theories) (Watkins, 2001).

Judging by a 2005 issue of the *British Journal of Educational Technology*, in which the entire issue was dedicated to exploring change, change research, and IT (Surry, 2005), the field appears to be placing a higher priority on the implementation and institutionalization aspects of IT innovations. Looking to HRD for theories and practices pertaining to OD and change would extend the theories and practices of IT.

Extending the Theories and Practices of HRD through IT

The overlap between IT and HRD occurs through another set of domains, namely design and development (from IT) and training and development (T&D, from HRD). This particular overlap can benefit HRD. IT’s strength is in the domains of design and development, where design is defined as “a process of specifying conditions for learning” (Seels & Richey, 1994, p. 30) and development is defined as “a process of translating design specifications into physical form” (Seels & Richey, 1994, p. 35). The subcategories in the design domain are instructional systems design, message design, instructional strategies, and learner characteristics. The subcategories in the development domain are print, audiovisual, computer-based, and integrated technologies.

T&D is one of the domains of expertise in HRD, and one that is often considered to be the origins of HRD since performance improvement through teaching and learning have been addressed by mankind for centuries (Swanson & Holton, 2001). T&D is defined as “a systematic process of developing work-related knowledge and expertise in people for the purpose of improving performance” (Swanson & Holton, 2001, p. 204).

Several years ago, an *Advances in Developing Human Resources* issue’s (Benson & Johnson, 2002) focus was on how technology—specifically, the Internet and Web—is making an impact on the HRD profession as the use of the Internet and Web, and the associated communication tools and other web-based applications, has become more pervasive in the workplace. The impact was organized and explored around three resulting changes to the HRD profession: 1) producing technology-mediated learning, 2) integrating technology-mediated performance enhancement tools, and 3) facilitating technology-mediated organizational development and change. The first

change, producing technology-mediated learning, addresses the need for the HRD field to provide a new set of competencies to allow the traditional trainers to evolve into e-trainers (Aragon & Benson, 2002). This need can be assisted by extending the theories and practices of IT into HRD.

The competencies for e-trainer include 1) a broader knowledge base about instructional design, in order to produce learning materials and methods that are not simply a replication of what was done traditionally but instead to produce those that take advantage of the new environment (e.g., the Internet and Web); and 2) an augmented set of skills “in areas that are not typically within the domain of HRD professionals, including skills in the use of technology, technology management, troubleshooting, graphic design, and media production” (Benson, Johnson, & Kuchinke, 2002, p. 397). The specific subcategories of the design and development domains from IT that can address these new HRD competencies are message design and integrated technologies. Their associated theory bases are perception, visual thinking, visual learning, visual communication, and aesthetics.

Conclusion and Recommendation

The fields IT and HRD indeed appear to overlap via the shared domains of 1) utilization-OD and 2) design and development-T&D. Furthermore, the overlap appears to present as a strength/weakness combination. That is, while the IT knowledge base for implementation and institutionalization, whose domain is utilization, is lacking, the knowledge base for OD in HRD is established. Similarly, while the design and development domains of IT have been well attended to, new e-trainer competency requirements are emerging in the T&D domain for which HRD theories and practices are lacking. Thus, an opportunity for a 2-way bridge appears to exist between the two fields, on which the established knowledge base from one field can be accessed by the other field, as shown in Figure 1 below.

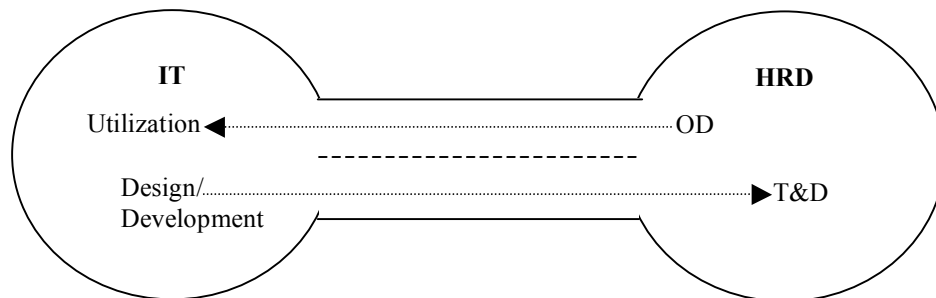


Figure 1. A possible 2-way bridge between IT and HRD.

One potential mechanism for building this bridge is through a partnership in the IT/HRD graduate programs, where practitioners and scholars typically develop their knowledge base and skills. In fact, Surry and Robinson (2001) recommend that IT programs augment their curricula with a variety of courses, one of which is on change agency. At my present institution, both the IT and HRD programs are housed in the college of education. If a partnership were arranged where the IT program offered a design/development track and the HRD program offered an OD track, graduate students of one program can acquire the necessary knowledge base and skills offered by the other program. For example, although a T&D course is offered as a specialization in our HRD program, it is only one course and therefore provides an *overview* of design and development. Even though the students learn about ADDIE (analyze-design-develop-implement-evaluate), they do not focus on it extensively throughout multiple semesters designing and developing various forms of instructional materials. On the other hand, the IT program offers a series of semester-long courses that addresses a spectrum of topics and skills that can fill the e-trainer competency gap: instructional design; graphic design, to include message design and aesthetics; and multimedia development. Likewise, the IT graduate students participating in the OD track can enroll in a series of HRD courses such as change theory, OD, and strategic planning.

Contributions to New Knowledge in HRD

Both IT and HRD are evolving fields of study and practice, attend to bringing about change, and share common domains of expertise. Furthermore, since both IT and HRD have not matured enough to be considered disciplines (Ely, 1999a; Kuchinke, 2001), both appear to be anxious to carve out its niche and claim its territory. Therefore, suggesting an overlap between the two fields may offend some IT and HRD scholars and professionals who are passionate about making their respective field distinct, because, after all, if your field is much like another, how do you identify yourself? For instance, Kuchinke (2002) found certain graduate HRD programs were housed under the official names of educational technology, instructional systems development training systems, instructional psychology and technology, and instructional systems technology, which can further blur the boundaries and identities of the two fields. However, the overlap suggested in this paper is new and different in that the overlap is meant to augment and broaden the theories and practices of both fields by taking advantage of the apparent strengths of one which are weaknesses in another. The latest AECT definition, unveiled in 2004 but whose definition book has not been published, is: "Educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (Reiser, 2007, p. 6). Given this latest definition, both IT and HRD are clearly concerned with improving performance. By building a 2-way bridge between the two fields that capitalizes on each field's strengths, we can both work *together* to achieve this goal.

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