

## Competencies for the New-Age Instructional Designer

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### ABSTRACT

This chapter provides an analysis of current competencies (i.e., knowledge, skills, and attitudes) that are necessary to achieve effective instructional design and development outcomes with specific focus on contemporary technology-mediated educational applications. Referring to current competency standards and models, such as those devised by *ibstpi*<sup>®</sup>, this chapter elaborates on those competencies essential for supporting the integration of hardware and software technologies (mobile devices, personal blogs, multiplayer environments) into collaborative instructional networks. In addition, the analysis identifies recent models of design that provide

a framework for educational professionals to ensure that they have the knowledge, skills, and attitudes to effectively manage the challenges and utilize the affordances of educational technology in today's complex social settings. By understanding these shifts, instructional designers will appreciate the expanding and changing nature of their role.

### KEYWORDS

*Competency*: 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.

*Development model:* A recommended set of activities or tasks that defines a process for successful instructional design.

*Instructional design:* A purposeful activity that results in a combination of strategies, activities, and resources to facilitate learning.

*Instructional designer:* A person with the competencies to design instruction.

## INTRODUCTION

The field and practice of instructional design has a long and proud heritage. Through ongoing research and development, theories and models for best practice in the creation of instructional interventions have been established (Reigeluth, 1999) and supported by definitions and specifications of the knowledge, skills, and attitudes required to be an effective instructional designer (Richey et al., 2001). In fact, Reigeluth (1999, p. 5) stated that “an instructional design theory ... offers explicit guidance on how to help people learn and develop.” The competency standards articulated by Richey et al. (2001) provide a foundation from which individuals can effectively implement an instructional theory. It is important to note, however, that there are many permutations of instructional design and development teams. In terms of the players in the instructional design field, Richey and colleagues (2001, p. 108) argued that the field of instructional design has a number of established or emerging specialist roles. Four roles—analyst, evaluator, e-learning specialist, and project manager—have evolved and are common in many settings:

- The *analyst* specializes in performance analysis and training needs assessment.
- The *evaluator* specializes in various forms of evaluation and assessment, but especially transfer and impact evaluation.
- The *e-learning specialist* specializes in development of multimedia and electronic learning products, particularly Web-based learning.
- The *project manager* specializes in managing internal or external designers on one or several projects.

More recent writing has suggested that the teacher and the learner are considered integral to the overall design process (Sims and Jones, 2003; Sims and Hedberg, 2006). As course conceptualization and implementation change, we face a challenge to better understand the roles and skills required to establish effective

learning environments for new generations of both teachers and learners. At the same time, we are consistently presented with alternatives to existing models of instructional design which impact on both the theoretical perspective and methods of implementation (Fox, 2006; Sims and Jones, 2003). We also face significant social and technological changes that, from the educational perspective, have been popularized by Prensky’s (2001, 2006) notions of the digital immigrant and digital native, as well as changes in learners’ behaviors due to access to online gaming and social networking technologies.

In this chapter, we consider the impact of these changes on the underlying skill sets for the instructional designer and also on where and when the instructional design role should be practiced. It is recognized that the practice of instructional design is not static (Irlbeck et al., 2006) and that it is essential to consistently reflect on best practices to meet contemporary learning environments and expectations. Understanding new perspectives of instructional design also means appreciating that interactions between elements in the system can lead to the emergence of highly complex, intelligent behavior (Kays, 2003); consequently, it is not merely a case of implementing an instructional design model but rather one of using behaviors and activities within the broader instructional design system as a means to allow complex and intelligent behaviors and higher level learning to occur. The application of emergence theory (Kays, 2003; Kays and Francis, 2003) to the design of online distance education derives from viewing the e-learning environment and the learning process itself as a problem in organized complexity. Kays innovatively linked emergence theory and instructional design (Kays, 2003; Kays and Francis, 2003), and as she argued in Irlbeck et al. (2006, pp. 177–178):

The elements in it—students, instructor, resource materials, environment—interact spontaneously, even randomly, and are shaped by social processes of a natural alignment of the concepts for learning and dynamic group behaviour. ...In the most pure application of emergence, the teacher or “pacemaker” would not exist in the traditional sense. Faculty in the emergent role will need a far different attitude from the conventional role and will become part of the collective rather than the controlling agent.

These perspectives on instructional design and the competencies required of the instructional designer gave rise to a range of challenges with regard to ensuring that individuals are well equipped with the necessary competencies to establish learning environments to meet the needs of today’s learners. Consequently, it is imperative for current instructional

designers to expand their skill set to meet these needs and challenges.

Reigeluth (1999) added the subtitle *A New Paradigm of Instructional Theory* to his text on instructional design, and since then we have witnessed radical shifts in the possibilities for educational delivery, predicated on the growth of online technologies. When examining the role and practice of instructional design, a key issue to emerge is the blurring between the activities of the designer and the user (teacher, learner, trainer, trainee). Whereas established models often assume that teaching strategies, learning activities, and resource materials are designed and developed independently from the delivery environment, current environments do allow those activities to be undertaken by all course participants (Sims and Jones, 2003). It is pertinent, therefore, to question who is the designer, what is his or her role, and what competencies are essential in the design and development context? It is also important to consider how instructional designers are gaining their skills and the extent to which certification programs are consistent with the current demands of society and the learner.

A second factor that confronts today's designers is to manage the balance between being knowledgeable (in creating environments and the expectations of the learner) and implementation (instructional and learning goals, timelines, and effective performance of outcomes). Effectively designed and implemented technology-enhanced collaborative learning systems and interactive learning objects can improve teaching and learning outcomes; however, building these environments may require more time than is allowed by development budgets or implementation timelines.

Another factor relates to the shifts and changes in the learner population, popularized by Prensky's (2001) differentiation of the digital native and the digital immigrant. Commentators are now referring to the millennial or new-age learner and the dynamic shift toward mobile and broadcast information access and the ability to learn constantly (Carmean, C., pers. commun.). The implication for instructional design is that the next generation of designers, instructors, and educators needs to develop competencies that expand upon or even replace those that have been considered essential (Richey et al., 2001). Certainly these competencies should emphasize that technologies are tools to think and learn with rather than objects to engage with and possibly learn from. Part of this newer understanding of learning with technology is its very social nature. The complexity of the world now requires learners to better understand content from multiple perspectives and to use tools such as communication networks, modeling, simulations, and hypertexts to access mul-

iple perspectives of information that can enrich the instructional and learning experience. One question to consider is whether these networks will have the sophistication to enable learning without the intervention of the traditional instructional designer (Kays, 2003; Siemens, 2004).

These are the challenges of the new instructional designer: to understand what makes a powerful learning experience, what technologies can be integrated to foster learning in these environments, and how to do it effectively. The emerging social technologies (e.g., blogs) allow learners to collaborate and communicate informally, and hardware technologies are creating portable devices that facilitate the anytime, anywhere learning principle. So, the instructional designer is challenged with new technologies and with learners who are working with content and accessing content in quite different ways. Additionally, the ability of learners to source vast amounts of information necessitates a switch from content specification being solely the responsibility of a subject-matter expert. If we accept this development, we need to consider how content is contextualized within the learning environment and who the owner and responsible provider of that content is (Sims, 2006).

Finally, it is important to better understand how the established models of design and development can be effectively applied or modified to meet the ever-changing socioeconomic conditions and environments; for example, there is renewed interest in the use of games for education and training, and researchers are examining how podcasts and blogs might enhance the educational experience. More specific factors such as social capital and accessibility are having an impact on the instructional process, and designs catering to multicultural learners are in demand. Can current instructional design models meet these needs? Do instructional designers have the competencies to address these factors? Are existing competencies valid, or do they require repurposing?

To address these questions, this chapter uses the validated set of instructional designer competencies developed by the International Board of Standards for Training, Performance, and Instruction (*ibstpi*<sup>®</sup>; <http://www.ibstpi.org/>) to both emphasize the existing key competencies for the instructional designer as well as introduce those specific knowledge, skills, and attitudes we believe are necessary to meet the demands of 21st-century education and training. In developing this analysis, we use the definition of competency provided by Richey and colleagues (2001, p. 32): “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.”

## COMPETENCY STANDARDS

The field of instructional design is well established. As such, a number of organizations have developed competency standards for those who wish to practice instructional design; for example, the International Society for Technology in Education (ISTE) standards, although not specifically directed at designers, provide relevant perspectives on technology competencies. Similarly, a recent project conducted by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) recommended a series of competencies for training educators in information and communication technology (ICT). In contrast to the UNESCO standards, which focus on competencies of integrating educational technologies into teaching, and the ISTE competencies, which are educational technology standards and performance indicators for teachers, students, and administrators, *ibstpi*<sup>®</sup> provides a set of internationally validated competencies and performance indicators for instructional designers (Richey et al., 2001).

At the time of this writing, however, few organizations provide professional certification of individuals to perform instructional design tasks at an agreed-upon level. Numerous institutions offer instructional design programs, with the assumption that graduation will provide a form of certification. Even if formal certification of instructional designers were to become more prevalent, this would not preclude the need to continually investigate competency classifications to ensure their currency, relevance, and integrity. The questions of whether or not instructional designers should be certified and what the standards might be remain unanswered.

Given the rigorous validation procedures of the *ibstpi*<sup>®</sup> competencies and our association with *ibstpi*<sup>®</sup> as directors, we have selected this approach to reinforce established competencies for instructional designers and to highlight those areas where further work is required to address the shifting sands of the instructional designer's work. In terms of competency validation, a number of assumptions have been made, including: (1) instructional design is a process that is most commonly guided by systematic design models and principles, and (2) instructional design is most commonly aimed at the transfer of training and improved individual and organizational performance. These assumptions reinforce one perspective of the instructional designer—that of a person (or team) that operates separately in their endeavors from the implementation and delivery environment. The extent to which the *ibstpi*<sup>®</sup> competencies are relevant to the new-age instructional designer is the focus of the following section.

## The *ibstpi*<sup>®</sup> Standards

The *ibstpi*<sup>®</sup> standards are clearly significant in defining instructional designer competencies; yet, the opportunity remains to extend these to address the issues of blurred roles, efficiency, and the currency of design models. The *ibstpi*<sup>®</sup> competencies focus on four domains of skill: (1) professional foundations, (2) planning and analysis, (3) design and development, and (4) implementation and management. Within each of these groups, specific competency statements are defined. The following analysis identifies selected statements from these standards (italicized) and presents issues that must be addressed with respect to the way in which instructional designers approach the design of instructional materials and environments.

Within the professional foundations group, the first competency identified and considered essential for the instructional designer is the ability to *communicate effectively in visual, oral, and written form*. Although no one would dispute the importance of communication, when one interacts with design stakeholders who may exist within different time zones and geographic areas and whose communication is dependent on collaborative network tools, then certain forms of communication are often disabled (e.g., visual or oral), and the written form is the primary interactive element. What does this mean for the designer? The designer's communication skills must extend to combinations of asynchronous and synchronous interactions, and their ability to present instructional information must integrate key factors pertinent to the virtual environment. Even more frequently, instructional designers will have to rely on podcasts, wikis, and mobile phones to receive and respond to information; the traditional modes will be superseded by those underpinned by these emerging digital technologies.

A second competency states the importance to the instructional designer of being able to *update and improve ... knowledge, skills, and attitudes pertaining to instructional design and related fields*. One of the key issues emerging from current research and theory of instruction design is the importance of a multidisciplinary approach; for example, Kays (2003) emphasized the importance of emergence theory as a means to better understand the intricacies and dynamics of instructional design, while Irlbeck and colleagues (2006) argued the value of a multidisciplinary approach, extending the original concepts of Sims and Jones (2003). Design-based research is also being used to inform the development and revision cycles of technology-enhanced learning environments; this research

methodology helps extend our knowledge of developing, implementing, and sustaining effective technology-enhanced learning environments and to create and test theoretical constructs of such designs. The intention of this research is to inquire into the nature of technology-enhanced learning and create frameworks for informing the use of design elements to enhance technology-based environments (Cobb, 2001; Collins, 1992; Design-Based Research Collective, 2003; Koszalka and Ganesan, 2004).

A third competency in this domain is to *identify and resolve ethical and legal implications of design in the workplace*. Although clearly important due to the growing issues of plagiarism, ownership, copyright, and intellectual property rights, the question remains as to how effectively this resolution can be achieved independently from the delivery environment. Not only must designers consider these issues when instructional materials are devised, but they must also allow for resolution within the actual delivery cycle. This reinforces the urgency of the role of the designer to shift from an external content focus to an internal dynamic focus. It also emphasizes the need to identify how all stakeholders might be involved in the design process (Sims and Hedberg, 2006).

With respect to the planning and analysis competencies, one of the key skills for the instructional designer is to *conduct a needs assessment* to determine the rationale and justification and outcomes for a proposed course. One of the shifting areas of the design framework is the input required from the many stakeholders who are integral to the success of technology-mediated projects (Sims and Hedberg, 2006). Needs assessment input is even more important now as complex technology-enhanced instructional environments emerge; determining what and who to engage in the needs analysis process is a critical competency that requires a set of performance activities that inform the design of effective instruction. Similarly, the competency to *design a curriculum or program* is not something that can be done in isolation from other key stakeholders (see Sims et al., 2002); therefore, the instructional designer has to shift from creator of a curriculum to one who conceptualizes environments where curricula can be dynamically created and modified. This extends to competencies such as *select and use a variety of techniques for determining instructional content*, as we must question whether the role of the instructional designer or has content become too fragmented and complex to be predetermined (Sims et al., 2002).

Within the context of online learning, which is a key element of current educational technology, this argument extends to competencies such as *identify and*

*describe target population characteristics and analyze the characteristics of the environment*. Examining each of these leads to questions such as how easy is it to actually specify a target population and to what extent can we assume homogeneity in training groups? Certainly, there are what might be termed *closed* cohorts of learners (such as a new intake of Marines), but the same cannot be said of the classroom, where ethnic diversity and socioeconomic differences can result in vast differences in learner characteristics. Similarly, the environments in which people now learn cannot easily be predicted; for example, are they learning in the workplace, at home, or on the road? We argue that this may no longer be the instructional designer's role to define, but rather that role must be to enable the individual participants to adapt the learning environment to their individual and contextual needs. Although this would appear to be captured in the competency to *reflect upon the elements of a situation before finalizing design solutions and strategies*, we question how well an instructional designer can achieve this if they are separated from the teacher, learners, and delivery environment.

Considering the design and development competencies, there is an underlying assumption that the instructional designer is in a position to achieve certain outcomes and that instructional materials can be developed independently. As an example, *select and use a variety of techniques to define and sequence the instructional content and strategies* has a sense of predetermination of sequence, whereas current models of online learning argue for more dynamic and indeterminate or fuzzy aspects of content that may be relevant to a course of study. The ability of learners to take on this role, rather than the designers, cannot be underestimated (Sims et al., 2002). This also relates to defined competencies such as *develop instructional materials and design instruction that reflects an understanding of the diversity of learners and groups of learners*, where the question must again be raised as to how well the designer can predict the delivery environment and cater to that diversity effectively. Rather than predicting how learners will or should respond, designers have the responsibility to create environments where learners are empowered with such choices.

Given the above discussion, the set of competencies related to implementation and management of instructional environments takes on new meaning and importance; for example, the competency to *promote collaboration, partnerships, and relationships among the participants in a design project* has been emphasized, but it is argued the participants have been identified as having priority roles in the process.

## ENHANCED COMPETENCIES

In the current climate of education and training, practitioners are faced with competing theories of learning (Driscoll, 2005; McCarthy, 2000), debate and variation in instructional design theory (Fox, 2006; Jonassen, 2006; Reigeluth, 1999), shifting learning preferences and lifestyles of learners (Prensky, 2006), and continual technological change and development. Within this setting the way in which people engage in learning activities and the roles of those who devise those activities and associated teaching strategies are being challenged. The enhanced communications and connectivity afforded by digital technology enable a more immediate response to learning needs which in turn challenges the existing roles and competencies of instructional designers. In the following discussion, we present a set of enhanced competencies that are situated over and above those already deemed essential (Richey et al., 2001) and which demonstrate the need for those in the instructional design field to reflect on expanding their current skill sets.

We have presented a case that factors are emerging that require a reassessment of the competencies for those involved in instructional design. In fact, if we subscribe to the shift toward learner-centered environments as proposed by Reigeluth (1999) and integrate this shift with the critical factors impacting on learning environments, then we can propose that the overall role of the designer, in the context of institutional stakeholders, must be scrutinized and debated. As new models are established to support the growth of collaborative and networked learning (Crawford, 2004; Sims and Jones, 2003), it becomes imperative to reposition the roles and skill sets of instructional designers to the extent that the term *instructional design* might even be replaced by *learner/learning design* (Sims, 2006).

We propose that instructional design competencies be expanded to apply equally to learners, instructors, and technical support staff, rather than being identified solely with the instructional designer. To use a simple analogy, we are suggesting that the role of the instructional designer should shift toward that of an architect rather than a builder, with the latter skills being assigned to teachers and learners. Competency sets, such as those defined by *ibstpi*<sup>®</sup>, will form the basis for a new layer of competencies, and one question raised is whether they should continue to be referred to as instructional design competencies, as the potential shifts in skill requirements identified in this analysis could change the ways we perceive education and training.

This discussion also suggests that the control the instructional designer has on the overall educational process may be diminishing. Certainly, some would

argue that social network environments allow the participants to create and develop the design (Siemens, 2004; Webb and Sims, 2006). Based on current technologies and social changes, it would appear that the designers of educational materials will no longer be creating predefined and complete courses but rather conceptualizing shells in which a multitude of activities and participants can interact in a dynamic and changing learning environment.

Another question is whether or not the word *instruction* best represents what is occurring in educational and workplace settings. Would it be preferable to think about an *interactive architect* or the *learning environment architect* rather than an instructional designer? For example, if massive multiuser online learning environments become established, it is feasible that the environment itself will become the teacher and that interactions between participants and the environment will define the learning experience. The competencies to achieve this are at a different level than those that currently apply to the established roles of *instructional designers*.

Following from this and considering the work of Kays (2003) and the relationship between emergence theory and instructional design, we face the potential of learning outcomes emerging from learning environments over which the instructional designer has no control—and the factors that govern the emergence of such occurrences are complex and uncertain. Thus, when considering existing sets of competencies for the instructional designer, we also must be very aware that significant social and technological changes are impacting the way we teach and the way we learn. As a consequence, it is essential that those who practice instructional design build new understandings of emergent learning environments to ensure that their practice is current and relevant.

## CONCLUDING REMARKS

In this chapter, we have posed key questions regarding who an instructional designer is and the key competencies required for him or her to perform their role effectively. *ibstpi*<sup>®</sup> (Richey et al., 2001) captures the key competencies of how we have traditionally defined the instructional design professional, and as technology is becoming more popular and easier to use this role is becoming less aligned to an individual and more distributed to those who facilitate technology-enhanced instruction and the learners who participate in such environments. The strength of the existing competencies are that they define how instruction must be tied to learning, regardless of who is designing,

developing, implementing, or evaluating. And, although these competencies suggest a strong foundation for design professionals, questions are emerging in this new age around the explosive availability of new technologies and their integration into instruction and learning. We need to consider new aspects of learners, environments, technology features, and implementation coupled with emerging research. Although traditional learning and instructional theories can inform, shifts in learning and instructional paradigms help us to keep focused on the purpose of designing instruction: purposeful engagement, social interactions, and activities.

It is a time of change, when social and technological forces are redefining what it means to learn. It is a time of change, when learners come with a new set of skills that embrace mobile, digital, wireless technologies. It is a time of change, when the complexity of collaborative learning and the wealth of information accessible to individual learners can make predetermination of content almost impossible. Consequently, the extent to which the instructional designer can successfully work in and adapt to these conditions must be considered. Although the current sets of competencies remain important and the skills of practicing instructional designers remain critical to successful learning outcomes, we contend that the very nature of instructional design, as a role that exists separately from the delivery environment, is being challenged and that repurposing and modifying the core competencies are critical if the instructional design role is to be considered relevant to new modes of learning and teaching.

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\* Indicates a core reference.

