Design, Planning, and Implementation

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This sixth section of the *Handbook* is focused on recent research involving instructional design, planning, and implementation. It is most closely related to the section on Design and Development in the previous edition of the *Handbook* (Spector, Merrill, van Merriënboer, & Driscoll, 2008) and to chapters in the soft technologies sections of the first two editions (Jonassen, Harris, & Driscoll, 2001; Jonassen, 2004). As is the case for all chapters in this edition of the *Handbook*, there is no duplication with previous editions, and the research findings and perspectives reported in these chapters are new. The focus is on innovative tools and technologies that support design, development, and deployment of educational and communication technologies.

The section begins with a chapter on instructional design models by Andrew Gibbons, Elizabeth Boling, and Kennon Smith that presents a new look at the nature of design and the notion of an instructional design model. The authors examine traditional instructional design models and note how these have departed from the vast literature on design processes and models in other disciplines. Instructional design researchers are encouraged to take lessons learned from other disciplines and develop a broader and more robust notion of design that is less likely to constrain and limit the potential of new technologies and pedagogical approaches.

The chapter by Michael Savoy and Alison Carr-Chellman on change agency is nicely complementary to the innovative look at instructional design models. Understanding how innovations are adopted within an organization is important for optimizing their impact. The authors review on diffusion of innovation and adoption processes and present recent research in a variety of contexts as a foundation for the implications of a changement management strategy. Findings suggest that leadership is a critical aspect of successful change agency but communication style and message content also play important roles. The notion of a collaborative and distributed approach to change agency is described as one likely approach for many instructional innovations in the future.

The chapter by Phillip Harris and Donovan Walling on policies builds on the previous chapter on change agency as it addresses how policies influence adoption and implementation of new educational technologies. This chapter focuses initially on policies pertaining to technology in the USA, especially as found in the US National Educational Technology Plan of 2010. The discussion then proceeds to a review of policies outside the USA. The emphasis throughout is on how national policies influence educational research priorities, and how those policies are somewhat different in different countries. The authors note that policies can inhibit or enhance educational research and practice. Not surprisingly, policies are not value neutral. In the USA, one can argue that the No Child Left Behind Act of 2001 was aimed primarily at fixing problems with poorly performing schools rather than at transforming how public education occurs. Unlike the fix-it approach of NCLB, the authors argue that the more recent educational technology plan of 2010 takes a forward look at how learning and instruction can be transformed through the use of technology and investments in research and developments. This chapter should serve as a reminder to educational technology researchers that we have a voice that needs to be heard when policies are proposed and framed, and this is true for every country.

The chapter by Michael Hannafin, Janette Hill, Susan Land, and Eunbae Lee on student-centered and open learning environments then describes recent research in an important area of transformative educational practice. Previous *Handbook* chapters have discussed constructivist approaches to learning and instruction so that the topic is not taken up specifically in this *Handbook*. Rather, the editors decided to focus on a specific approach that is consistent with the turn in the last 20 years or so towards constructivism—namely, an emphasis on student-centered learning and instruction. The

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authors review the research literature with regard to self-directed and self-initiated learning in both informal and more structured learning environments. While some of the evidence is critical of student-centered approaches, there is also evidence that in many contexts, providing support for self-directed learning and student-negotiated learning goals can be highly effective, especially with regard to motivation. As with most instructional approaches, there is no magic solution for all learning situations, and there is a need for more research on when and how student-centered learning is effective.

Given the need for continuing research on instructional design and implementation strategies, the chapter by Monica Tracey and Elizabeth Boling on preparing instructional designers is highly relevant. The authors note that since the 1990s a broader conception of design and new approaches to learning, along with many new technologies, have caused instructional design programs to review and rethink how they are preparing instructional designers. A number of recent competencies for instructional designers are reviewed, including the research-based set of instructional design competencies developed by the International Board of Standards for Training, Performance and Instruction (*ibspti*; see http://www.ibstpi.org). The *ibspti* competencies, and those developed by the International Society for Technology in Education (ISTE) and by the IEEE Technical Committee on Learning and Technology, as well as recent textbooks in this area (see, for example, Spector, 2012) all point to the need for changes in how instructional designers are prepared. Developing design expertise is a relatively slow process. Integrating studio-based experiences and actual design work into curricula is important in preparing instructional designers for productive careers. Many programs around the globe are adopting these approaches, and research on

their efficacy will be important for the future evolution of professional programs.

The final chapter in this section by Gilbert Paquette is on recently developed tools and technologies to support instructional design practice. While it is of course important to provide instructional design trainees with authentic and realistic learning experiences as argued by Tracey and Boling, it is likewise important to provide instructional designers with state-of-the-art tools and technologies that support and facilitate the development of robust and effective learning environments. The author traces the development of these tools from early authoring tools and instructional advising systems to more recent Web-based repositories, learning objects, and recommendation engines. While the future of instructional engineering is generally rich with regard to resources, it is evermore challenging for designers to craft meaningful and effective learning activities, resources, and environments for specific learners in quite different situations. As always, ongoing research will be required to maintain progress in this area of instructional design, planning, and implementation.

References

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*An asterisk next to a reference entry throughout this Handbook indicates a reference that the author(s) considers to be central to the topic.