Web-Based Instruction: 
Emphasizing Pedagogy in a Technological Environment—
A Message From the Guest Editors

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There is a long and uneasy relationship between those who interpret instructional technology by emphasizing its technological component and those who emphasize its instructional component. At each new technological turn (radio, television, cable television, the Internet), a new age of learning and discovery has been proclaimed. Unfortunately, while these so-called “technological learning revolutions” have influenced the content of what is learned, none of them has had a lasting effect on the nature of the learning process itself.

Why has technology had so little effect on the learning process? The primary reason is that in each situation the learning entity has remained the same—the human being (see Clark, 1994, 2001)—and changes in human learning capacity are evolutionary, not revolutionary. This lack of media effect on learning raises the question: If technology has little or no direct influence on learning in a technologically rich environment, then what type of pedagogy is most effective?

This special issue of the Journal on Excellence in College Teaching on Web-Based Teaching and Learning (WBTL) seeks to provide an entry into the discussion regarding effective teaching and learning in a Web-based environment. The Web is currently being used to teach a plethora of college courses in both developed and developing countries. With the rapid expansion of Web-based instruction (WBI), the importance of this discussion cannot be understated. This issue begins with a discussion of the basic
principles, guidelines, and benchmarks involved in creating effective WBTL environments and ends with a series of reflections on the nature of the journey from classroom instructor to online instructor.

**Principles, Guidelines, and Benchmarks**

The first section of this special issue begins with *Scheer, Terry, Doolittle*, and *Hicks* providing 15 principles of online instruction within three broad areas—Instructional Support Services, Instructional Design Principles, and Online Pedagogical Principles. The authors stress that “effective online instruction is a synthesis of administrative support, instructional design and development, and pedagogical implementation” (p. 9). Scheer et al. end their discussion with a caveat and reminder that the principles they delineate are guides to effective instruction and are not to be applied without significant forethought as to their contextual appropriateness.

While Scheer et al. base their course design on a thorough review of the theoretical and empirical literature related to WBI, *Lee* provides principles based on interviews with three experienced instructional designers working on three divergent instructional cases: redesigning an online MBA course, converting a face-to-face communications course to an online course, and creating from scratch an online chemistry course. Based on these interviews, course artifacts, and the courses themselves, Lee generates a series of guidelines for designing WBI; noting, “The primary purpose of the guidelines is to make the three participating experts’ overall WBI design process, as well as the underlying principles and knowledge that guided them through the process, available to interested online instructors and instructional support staff” (p. 45).

*Scheer et al.* and *Lee* approach the design of online instruction from theoretical principles and experiential guidelines, respectively. *Olney, Chumley,* and *Parra* provide a third approach: basing course design on benchmarks, in this case, those of the Institute for Higher Education Policy (IHEP, 2000). Olney et al. redesigned one aspect of a third-year medical course to include online modules that integrate geographically diverse students and faculty physicians. While the authors report that these new modules have been successful, they also indicate an interesting development: “Based on student feedback and faculty reluctance to use the modules, we have made one significant change to the curriculum: We have decided to make it completely Web-based rather than a Web-enhancement tool” (p. 84).

*Terry, Doolittle, Scheer,* and *McNeill* complete the first section of this
issue by focusing on the cognitive foundations involved in creating effective instructional multimedia. They address seven empirically derived principles of multimedia design that “provide educators with firm pedagogical footing on which to develop multimedia learning environments that enhance the learning, retention, and transfer of information” (p. 102).

Self-Regulation and Online Learning

While the first section of this issue addresses basic principles of WBTL, the three articles that the second section comprises focus more narrowly on the development and support of learner self-regulation within Web-based learning environments. Perkins and Giordano take a very broad view of student self-regulation in a Web-based environment by examining the Web-page access patterns of undergraduate and graduate students enrolled in a linguistics course. They found that graduate students accessed content-related course Web pages more often than undergraduates: “[T]he graduate students . . . were self-motivated in accessing the course technologies to obtain the content they desired and the information they needed to complete the assignments” (p. 110).

While Perkins and Giordano take a broad approach to student self-regulation, Kitsantas and Dabbagh take a more fine-grained approach. They surveyed college students in order to determine whether the presence of Web-based pedagogical tools (for example, online availability of student information, online quizzes, e-mail, chat rooms, digital drop-boxes, digital libraries) supported the students’ use of academic self-regulation strategies (for example, goal setting, strategy use, self-monitoring, self-evaluation, time management, and help seeking). They found that “different tools supported different self-regulatory strategies” (p. 136).

Whereas Kitsantas and Dabbagh focused on which existing pedagogical tools foster student self-regulation, Birenbaum focused on creating a novel Web-based learning environment that is theoretically sound with regard to the development and support of academic self-regulation. Birenbaum created a metaphorical hypermedia city that provided students with course materials, multiple representations of knowledge, flexible access to these representations, and conferencing communications with the instructor and other students. In addition, Birenbaum’s course, for which the hypermedia city interface was constructed, followed a constructive design whereby “central features of the learning-centered pedagogy practiced in the course are dialogue, reflection, and participation” (p. 153). Birenbaum’s students found the new interactive
environment quite stimulating and educationally beneficial.

**Course Modifications and Enhanced Learning**

Birenbaum’s creation of a new course environment represents one approach to WBTL. Perhaps a more common approach is to augment an existing course for an online or blended environment. The third section of this issue addresses course modification and begins with

**Stephenson**’s redesign of an undergraduate physiology course. Stephenson provides a unique alternative to the online versus face-to-face debate. His alternative was to teach two sections of the same course, one face-to-face and one online, simultaneously. He allowed students to move freely between these two sections and to use the instructional materials available to both sections. In addition to allowing students to move between courses, Stephenson added and emphasized significant improvements to the multimedia instructional aspects of the course. He found that student performance and satisfaction in both sections increased while the dropout rate decreased.

Stephenson’s use of multimedia to achieve positive effects on student performance is challenged by the work of **Thompson**. Thompson constructed and assessed instructional tutorials designed under three different conditions: as instructional text only; as instructional text and illustrations only; and as instructional text, illustrations, and animations or short movie clips. Thompson found little meaningful difference between the students engaged in these different instructional environments. As he states, “the results presented here do not unequivocally support the theory that learning efficacy is directly proportional to the visual richness of the media presented” (p. 203).

While Stephenson and Thompson examine the *direct* effects of course design on student learning, **Furr**, **McFerrin**, and **Fuller** examine its incidental learning effects. Furr et al. focus specifically on the incidental learning that occurs in an asynchronous online course versus a desktop video conference course. They found that students learn more incidentally about technology and self-regulation, but they also tend to develop a more negative attitude toward distance learning courses. They conclude that “although good teaching comprises many universal tenets, the notion that faculty or students can transfer seamlessly from the traditional classroom to varied electronic formats should be dispelled” (p. 224).
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Reflections

This special issue begins with a focus on Web-based principles and guidelines, next addresses the need for student self-regulation, and then discusses the realm of course modification. It ends, appropriately, with reflections on the process of WBTL.

Stenger discusses integrating student reflection into the design of a course on leadership and spirituality within a nonprofit management program. The course teaches students various reflection tools (for instance, contemplation, meditation, being) and then integrates reflection into the course through the use of journals and listservs. Stenger states that “having permission to stop, rest, and reflect takes some students by surprise, but once they see the course objectives and realize that we are serious about this approach to leadership development, I sense a kind of relaxation within the course itself” (p. 239).

Stenger’s focus on student reflection complements Sudzina’s focus on instructor reflection. Sudzina presents a self-reflection on her journey from an early adopter of WBI to an experienced online practitioner. In addition to providing a window into her own journey, Sudzina offers a look back at the early and developing years of WBI. With candor, she allows readers to share in her successes and failures, her joys and frustrations. She concludes, ultimately, that “our ongoing challenge as educators will be to incorporate what we know about excellence in traditional teaching and learning to produce excellence in the virtual classroom” (p. 260).

Finally, the guest editors of this special issue emphasize that the principles, guidelines, examples, and reflections contained within do not represent a prescriptive set of “teacher-proof” pedagogical strategies that, if applied, will result in maximal student learning. Instead, this issue provides an example of the flexibility inherent in effective Web-based teaching and learning, and the necessity for instructors to design Web-based environments with forethought. The Web is a rich environment for stimulating and cultivating valuable teaching and learning. It is the hope of the guest editors that readers will find the accompanying articles both beneficial and inspirational.

References

Clark, R. E. (2001). Learning from medial: “Arguments,” analysis, and evi-