Thriving, Not Merely Surviving, With Technology

Some Guidelines for Successful Distance *Learning*

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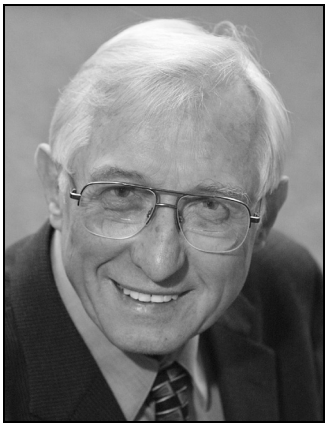
It is acknowledged that there are widely ranging views about whether distance education is similar to other forms of education. This article identifies foundational concepts and guidelines that, the authors contend, are needed for successful distance education as well as for other forms of technology-rich education and conventional approaches. This article describes why *functional relevance* and *engaged learning* are foundational concepts, but also that each particular learning context requires that other aspects need to be addressed.

Why Should We Design Instruction? Purposes and Perspective

People vary in the extent to which they view distance education as part of a wide array of educational opportunities versus as a distinct and unique approach to education that is so different that it needs to be considered as a separate entity with its own



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principles and guidelines. The same can be said about e-learning: Some suggest that principles previously found to be useful in classrooms can also be applied to e-learning, whereas other people seem to feel that contemporary technology resources have such radical implications for instruction that wholly new principles and guidelines must be devised for e-learning (Chadwick, 2002; Foshay & Bergeron, 2002). But, on professional listservs as well as in the professional literature, there seems to be some gradual trend toward focusing more on learning and less on details about the particular technology-support or context in which learning occurs.

The authors acknowledge that distance education does have some unique aspects; but we also contend that there are principles and guidelines from more traditional forms of education that can be applied or modified for use in distance education and other forms of technology-supported learning. This view is particularly pertinent considering the emergent preferences for blended learning, whereby instruction involves various combinations such as face-to-face and distance education. Also of note here is the increasingly wide range of contexts in which distance learning occurs; these include so-called training contexts (e.g., in business, military, government, technical areas) and education contexts (e.g., K-12 schools, higher education, continuing education). The terms *instruction* and *learning* will be used to refer to both training and education contexts. This article identifies two foundational concepts that underlie why and how instruction is designed, and designates several aspects that we contend must be addressed for designing successful distance education. It is recognized that any suggestions from this article may have to be modified due to characteristics, constraints and/or kinds of resources that actually exist in any given practical situation. However, suggestions are offered in the form of guidelines that can facilitate successful distance learning.

When planning instruction, we typically recognize the need to consider expert opinion, academic standards or performance standards, examples of instruction that have been provided in the past, technology and other resources available to deliver or support instruction, and budgetary limitations. With all of those details and other pressing matters, it's easy to give little more than token attention to the *expectations and perceptions of* (potential or actual) *learners*. Moreover, especially when computers, the Internet and other technology resources are likely to be used, there is a tendency to focus too much on the nature of those resources and to overlook questions about whether such resources are necessary or desirable for the particular planned learning. Two foundational concepts—functional relevance and engaged learning—can help us take a different perspective about why and how we can better design instruction.

Functional Relevance

Functional relevance basically focuses on the extent to which intended learners actually perceive instruction as being relevant for, and fit with, the way(s) that they function in their work, studies, personal lives, and so forth (Snelbecker, 1984, 1989, 1993; Snelbecker, Miller, & Zheng, 2004). Development of this concept was influenced by Rogers' (1969) concept of personally relevant learning and by Heider's *common sense* psychology observations (Heider, 1958; Snelbecker, 1988). Rogers proposed that students are more likely to learn if or when they perceive intended learning as being relevant for them personally, as distinct from what someone else (instructors, parents, work supervisors, etc.) may think that they should be learning. It is not enough that some "authority" believes that such learning will be relevant for them "now" or at some point in their lives. Both Rogers and Heider contended that each person acts more in accordance with his or her own present perceptions about situations, and less in automatic compliance with what instructors say that the learners should feel or perceive. Thus it is essential not only that instruction be designed so that it is relevant for how learners function but also that intended learners recognize how and why it is important for them. Making instruction functionally relevant requires that we use language, ideas, and examples with which intended learners are familiar; clarify and elaborate on what is being learned, in both regarding specific details and broader perspectives; provide guidelines to support their initial exploration of new ideas or skills; gradually help them to become more independent of such support; and help them to become self-directed learners who take prudent cognitive risks in using their new ideas and skills (Feldman, Snelbecker, & Mason, 2004).

This is a design perspective that is not limited to education and training. It is noteworthy that parallel ideas have recently been emerging among companies that design such diverse things as Web sites and department stores. Two companies—Electronic Ink and IDEO—in particular have been identified as leaders because of the extent to which they take into account their customers and other end-users throughout the design process. This statement is on Electronic Ink's Web site:

> Usability is a measure of how well a tool or device meets the needs of the person using it. Usability

> guides every decision made at Electronic Ink. The user plays an essential role throughout our process. They help define and refine the technology, based upon their needs and tasks. They help shape the software they will eventually use.… [This] increases productivity and accelerates user acceptance, while decreasing training time. (www.electronincink.com)

IDEO was featured as the cover story of the May 17, 2004 issue of *Business Week* (Nussbaum, 2004), with this notation on the cover: "A tiny firm called *IDEO* redefined good design *by creating experiences, not just products* [italics added]. Now it's changing the way companies innovate." Both of these design companies make extensive use of focus groups and periodic tryouts and discussions with users, along with a full array of experts also typically needed in other design companies. That can be expensive. But the first author of this article also has worked with a significantly lower budget to use these same ideas—having intended learners involved in defining and describing intended outcomes, instructions, and support needed during their learning process (Snelbecker et al., 2004).

Engaged Learning

We advocate using the term "engaged learning" as a foundational concept and influence on our perspective for designing instruction. Engaged learning is a term that reminds us that: (a) real learning occurs during only part of the total time that people are supposedly involved in or with instruction, and (b) real learning can be increased by maximizing the time that those people are engaged productively on-task to achieve the particular educational/training goals, standards or competencies.

Three other terms customarily have been used for several years in classroom studies (and interventions) concerning relationships between amount of learning time as a potential influence on (or, determinant of) one's academic achievement level or extent. Those three terms are, respectively, allocated time (the total time scheduled for a particular subject or class—including start up and closing activities and administrative matters), time on task (time when students are actively engaged in studying the particular subject matter), and academic learning time (amount of time when students are actually learning skills, knowledge, critical thinking). Studies typically show that allocated time is not generally related to academic achievement, that time on task has some modest relationship with achievement, but that academic learning time typically is found to have the highest relationship with academic achievement. Thus, it is contended generally that the more time students are engaged in effective learning, the higher their academic achievement is likely to be. These ideas are sufficiently accepted that they are included in some introductory educational psychology textbooks (e.g., Woolfolk, 2004).

For various reasons, the concept of academic learning time has not typically been used with regard to distance education or to other forms of technology-supported learning. That may be due to the fact that much (most?) of the academic learning time literature has been rooted in the human interactions and engagement that are more commonly associated with face-to-face learning. The term "interactivity" has sometimes been used in the technology-supported learning literature to refer to getting students engaged in learning. However, interactivity has been used to refer to a variety of transactions, not all of which are related to improving learning engagement.

One criticism that some educators have emphasized about distance learning is that there may be reduced constructive learning-relevant interactions between instructors and students, and that this could reduce academic achievement (Merisotis & Phipps, 1999). Advocates of technology-supported or technology-based distance learning sometimes have rebutted that view by contending that the technology resources might afford greater, not lesser, opportunities for student interactions (Debbagh & Bannan-Ritland, 2005). Another term, interactivity, which at once somewhat overlaps in meaning with academic learning time, but that also has different connotations associated with it, has been used particularly in conjunction with multimedia systems and various other forms of instructional technology resources. For example, Saettler (2004) noted: "One of the primary applications of interactive video involves an instructional situation whereby a learner is given control so that he may review the material or gain access to remedial instruction" (p. 464). Fisher (2000), in one of a series of chapters in *The 2000/2001 ASTD Distance Learning Handbook* (Mantyla, 2000), illustrated the connection between interactivity and engagement with this comment: "Exercises include all interactions that are used to engage the student in the learning process" (p. 68). Gayeski (2005) described changes that became possible or necessary as new technology resources became more sophisticated and afforded new versions of interactivity. She and her colleague, Williams, developed a taxonomy: "Levels of interactivity and interactive media" (p. 95).

Without detracting one bit from the value of that system or from the contributions of the other pioneers and contemporary interactivity experts, sometimes there seems to

be more of an emphasis on the learner's control of the multimedia or other systems than there is with the extent to which the learner is getting "deep understandings" rather than only surface familiarity with the subject matter to be learned. *Interactivity* sometimes has been used to characterize instances of student engagement in classroom contexts but seems to be more frequently used with regard to distance education and various forms of technology-enhanced learning. One problem is that the term, "interactivity," has been defined and described in too many different ways to provide consistent results. For example, depending on the authors and context, interactivity can refer to any one or combination of the following: interactions between student and instructor; interactions among students; human-computer interaction; students' levels of control over sequence of instruction; task selection; novice to expert levels of complexity or difficulty; depth of critical thinking versus only general familiarity with topic; kind of feedback; time of feedback (such as delay versus immediacy); provision of additional information or help; individual versus group participation; instructional versus evaluative focus, and so forth.

As a result of these various complications and possible confusion about terminology, the present authors propose using "engaged learning" as the term referring to maximizing students' engagement in productive and in-depth learning. Stated another way, instead of having technology "drive" curriculum and instruction, curriculum and instruction should "drive" selections of technology resources and distance learning methodologies (Clark, 1994). Thus, both functional relevance and engaged learning put the spotlight on the learner and learning outcomes.

Extending These Foundational Concepts

The foundational concepts of functional relevance and engaged learning are necessary but not sufficient for designing distance learning. In addition to those ideas, designers and instructors must consider how to adapt instruction to fit with the characteristics of a particular learning situation. The current trend is toward making technology transparent to the e-learner or distance learner. This is a departure from a focus on technology and provides the opportunity for designers and instructors to re-focus on learning and the design of instruction.

Elsewhere the second author and a colleague (Miller & Miller, 2000) have proposed five dimensions that influence the design of Web-based instruction: (a) theoretical orientation, (b) instructional goals, (c) nature of the content, (d) learner characteristics, and (e) technology capabilities. We'll offer some suggestions about how these five dimensions are applicable to distance education.

Theoretical orientation is viewed by some as the core of the instructional process because it influences how learning is conceptualized and, for the case of distance education, how technology is used to facilitate learning. One relevant theoretical orientation is typically represented as a continuum: At one end, learning is viewed as the transmission of knowledge from expert to learner while, at the other end of the continuum, learning is viewed as the construction of knowledge. Of course, the beliefs of any given designer or instructor may fall somewhere along this continuum, and may change over time or with different situations. With a view that learning involves transmission of knowledge, the distance education designer attempts to identify prescriptive strategies, techniques, and technologies that facilitate processing and acquisition of information. At the other end of the continuum, with an emphasis on learners' construction of knowledge, designers would select strategies, techniques, and technologies that support sharing of diverse perspectives, collaboration among learners, and consensus building. The selection and use of technology for distance learning depends to some degree on the designer's or instructor's beliefs about learning and teaching. A view of instruction that involves expert-to-novice transmission of information requires the use of technology as a presentation and delivery tool. When instruction involves the facilitation of collaboration and sharing of multiple perspectives, technology is used predominately as a communication tool or as a tool to represent shared knowledge.

Learning goals relate to theoretical orientations at a conceptual level. If learning is transmission of knowledge, then the goal of learning is to acquire new knowledge. If learning is construction of knowledge, then the goal is some yet-to-be defined understanding. However, at a practical level for K-12 educators, learning goals are content-specific, are established by state standards, and guided by professional recommendations. Challenges that face designers or instructors include reconciling their theoretically based goals with externally established learning goals as well as with goals that arise from the nature of the content.

In fact, not only does content influence goals, the nature of content influences the appropriateness of using some particular theoretical approach. Content that is highly structured, and that includes prerequisite concepts or skills, and specific learning objectives might require more prescriptive strate-

gies. Material that is more ill defined or experiential may require constructivist-learning principles.

Learner characteristics present some interesting questions regarding effective distance learning designs. In addition, there is some controversy and misunderstanding about which characteristics are important. Certain cognitive styles such as field preference have a wealth of empirical evidence involving traditional learning environments; recent research indicates that this style is important for some distance learning situations. Spatial ability is also emerging as a characteristic that affects learners' successful use of hypermedia environments. Motivation and prior knowledge also continue to be stalwart characteristics that affect learners' success in distance learning environments. Some constructs—such as learning style—that typically have been advocated more on the basis of people's interest than by research findings, apparently continue to find support for their use in distance learning.

The extent to which *technology capabilities* are important influences on learning has had mixed reactions. Excited by the idea of interactivity and given the technological tools to do so, designers have increased students' control over various aspects of instructional elements including sequencing, tasks, and feedback. Unfortunately, not all students benefit. A substantial amount of research in distance education, especially involving hypermedia environments, has indicated there may be ways in which learner control can enhance learning, but that *unrestricted* learner control can lead to learners becoming "lost in hyperspace," getting distracted, and failing to make meaningful connections among presented ideas (Park & Hannafin, 1993; Weller, Repman, Lan, & Rooze, 1995; Wilson & Jonassen, 1989).

Each distance learning situation presents its own challenges. We hope that the concepts of functional relevance and engaged learning, along with these above five guidelines, will help readers to focus on intended learning and to maximize the opportunities that students have to be productively engaged in those learning processes.

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