

INSTRUCTIONAL DESIGN THEORIES
THAT MAY BE PARTICULARLY USEFUL
AT PATTEN UNIVERSITY

by

Theodore C. Smith

A Paper Presented in Partial Fulfillment

Of the Requirements of

ED7620 Theoretical Basis of Instructional Design

June, 2003

Address:	7053 Enright Drive
City, State, Zip:	Citrus Heights, CA 95621
Phone:	(916) 726-4961
E-mail:	tcsmith@surewest.net
Instructor:	Rod Sims
Mentor:	None

Abstract

Patten University has been asked to develop one or more online degree programs for Church of God pastors and other professionals. The online program provides an opportunity to employ several instructional design theories that may enhance and increase the effectiveness of this training program and increase learning opportunities. This paper explores four instructional design theories and discusses the enhanced learning opportunities that each may provide in online or face-to-face settings, or both.

Table of Contents

Table of Contents.....	ii
List of Tables.....	iii
List of Figures	iv
Introduction.....	1
Institutional Setting.....	1
What Is Instructional Design?.....	2
Role of Formative Research in Instructional Design at Patten University.....	5
Selected Instructional Design Theories and Models of Potential Use at Patten.....	8
Summary and Conclusions.....	18
References	18

List of Tables

Table 1. Degrees, certificates, and majors currently available from Patten University.....	3
--	---

List of Figures

Figure 1. Ethnic composition of 2002-2003 undergraduate student body.....	7
Figure 2. Systematic design model.....	16

Introduction

Instructional design theories offer explicit guidance on how to better help people learn and develop" (Reigeluth, 1999c, p. 5). The purpose of instructional design (ID) theory is to inform us what to do when a certain instructional intent has to be realized (Klauer, 1997, p. 447). Many ID theories are directed at K-12 learners; however, universities can benefit from engaging in formative research, reviewing of a variety of instructional models and theories, and, after making appropriate modifications, use the theories to determine (a) whether existing academic programs are achieving educational objectives and (b) how current programs and related activities might be improved.

This paper examines the concept of formative research and several ID theories and models and, using Patten University as an example, reviews the potential for using these theories and models to achieve Patten's instructional goals. The first section of this paper describes the institutional setting. The second defines what is meant by instructional design. The third section examines the role of formative research in instructional design at Patten University. Section four identifies four ID theories and models and discusses their potential use at Patten. The final section summarizes the paper and presents conclusions.

Institutional Setting

Patten University is a private, coeducational, interdenominational Christian college that provides undergraduate and graduate education. Patten's program emphasizes three core values: (a) learning, (b) faith, and (c) community (Patten College, 2002, p. 8). President Gary Moncher (2003) notes that "This institution wants to make a difference," not just in the lives of students, but also to the local and worldwide communities.

Located in Oakland, California, Patten houses the Church of God's Theological Seminary West (Patten 2002, p. 9; Moncher, 2003) and has extension sites or cooperative programs in California (Fountain Valley, Fresno, Los Angeles, Sacramento, San Jose, and San Quentin State Prison), Oregon, New Mexico, Taiwan, Hong Kong, and Sri Lanka. Patten also cooperatively offers a professional certificate program to support the Western Region of the International Church of the Foursquare Gospel (Frank Markow, personal communication).

The university, accredited by the Western Association of Schools and Colleges, has about 700 students. On its main campus, Patten currently offers degrees and certificates in majors that are listed in Table 1. Overseas programs primarily focus on business-related courses and degrees. Extension sites within the United States currently offer only ministry- or profession-related Associate degrees (Patten, 2002, p. 35; Frank Markow, personal communication).

In early 2003, the Church of God requested that Patten create an online ministry-related degree program to provide training to the denomination's pastors. The Church of God estimates that about 70 percent of its pastors lack bachelor degrees. Approximately 10,000 Church of God pastors are located in the western United States—many in small communities that are distant from religious colleges (Frank Markow, personal communication).

What Is Instructional Design?

"Instructional design theories offer explicit guidance on how to better help people learn and develop" (Reigeluth, 1999c, p. 5). Instructional design (ID) theory differs fundamentally from theories in other domains of science: Its purpose is not to explain why a part of reality is as it is but to inform us what to do when a certain instructional intent has to be realized (Klauer, 1997, p. 447). Knowing-how instead of knowing-what. ID theories progress not only by research but by development. Seel (1997) notes that instructional design theories are either descriptive

Table 1	
Degrees, certificates, and majors currently available from Patten University	
Degree or Certificate	Major
Bible Certificate	
Associate of Arts:	Biblical Studies Church Ministry Early Childhood Development General Studies
Bachelor of Arts:	Art Biblical Studies Christian Leadership Church Ministries Communication Liberal Studies Organizational Management Pastoral Studies Sacred Music
Master of Arts:	Education
Master of Business Administration	
Master in Church Ministries	
Multiple Subject Teaching Credential	
Note: The Master in Church Ministries is offered through the on-campus extension of the Church of God Seminary. Adapted from Patten University (2002, pp. 35, 69).	

(ones that describe systematic integration) or prescriptive (ones that describe how to achieve instructional goals in principle). "A theory in a general and formal sense is a set of propositions or clauses that describe regularities of evidence," plus axioms and/or theorems. Theories permit scientists to separate relevant from irrelevant phenomena. "[Every] observation is theory driven. Theories are a base for further systematic and goal-oriented observations [Only] with the help of theories can we transcend the boundaries of our real experiences and explain or predict

phenomena" (Seel, 1997, p. 356). Reigeluth asserts that instructional design theories "describe specific events outside the learner that facilitate learning" (p. 13). LaGow (1977) states, "Instructional design theory should be able to explain the sequence used in the design of instruction and provide a basis for criteria to judge the usefulness of tasks that are included in the activity" (p. 3, as cited in Taylor, 2003).

Instructional design models are more precise representations of a theory's parts and contain greater levels of detail. Models are concrete and clear enough that its properties are well defined and predictions are exact (Seel, 1997, p. 357). "An instructional design model gives structure and meaning to an I.D. problem, enabling the would-be designer to negotiate her design task with a semblance of conscious understanding. Models help us to visualize the problem, to break it down into discrete, manageable units" (Ryder, 2003, ¶ 1). Yet models are simplifications of reality, because reality is too complex to copy and because much of the complexity is irrelevant to a specific problem. Models only accentuate or develop specific aspects of the instruction. The most useful approach is to examine the way a model does or does not fit and compare one model to others. ID models include planning-and prognosis models, in effect seeking to determine whether the model is adequate and useful for instructional planning.

Numerous instructional design theories and models exist, developed by educational scientists and practitioners. Rather than regarding instructional design (ID) theory from a "one size fits all" perspective, it is best to regard each theory as but one tool in a suite of options, with the goal of the instructor and learner being to select the optimum vehicle that suits the style of individual learner's.

Role of Formative Research in Instructional Design at Patten University

Reigeluth and Frick (1999) note that the instructional design theories presented in Reigeluth (1999a) are not perfect and suggest that formative research will be most helpful for creating and improving instructional-design theories. Formative research is developmental or action research that is intended to improve instructional practices or processes (Reigeluth and Frick, 1999, p. 633). Traditional quantitative research methods are not particularly useful for improving instructional-design theory. Qualitative methods (formative evaluation and case-study research methodologies) are more appropriate.

Small (1995) indicates that action research lacks any prescribed methodology and tends to emphasize practical problems. Action research requires a commitment to collaboration and is always conducted in the setting where the problem is encountered. The focus of the research usually is on a single case or unit. Typically entire populations (such as an organization, classroom, or community) are usually studied rather than a sample drawn from a diverse population. Most action research uses qualitative case study methods rather than quantitative ones. Action research is unique in that (a) the research problem may evolve and (b) the definition of the problem and methodology may change as the research proceeds. Action research is a partnership among researchers and non-researcher collaborators. The researcher contributes theoretical knowledge, experience, and the skills associated with social science research; the participant collaborators contribute practical knowledge and experience about the situation being studied. Action researchers, being sensitive to the needs and perspectives of their non-researcher collaborators, must use methods and measures that have a "high degree of face validity and practical utility" (Small, p. 943). So that the results may effect change, action researchers also make findings available to participants in ways that are both timely and easily understood.

Gaventa (1988) states that participatory research:

. . . attempts to break down the distinction between the researchers and the researched, the subjects and the objects of knowledge production by the participation of the people-for-them-selves in the process of gaining and creating knowledge. In the process, research is seen not only as a process of creating knowledge, but simultaneously, as education and development of consciousness, and of mobilization for action (p. 19).

Thus, according to Gaventa, participatory research involves (a) research, (b) education, and (c) action.

Park (1993, p. 1) describes participatory action research as "a self-conscious way of empowering people to take effective action toward improving conditions in their lives." He asserts that "Organized rational efforts with an explicitly liberatory goal are needed in order to counteract the disenfranchising features of modern society that are embedded in sociocultural structures."

Universities are always changing. Most of today's students enter college having had life and learning experiences that are quite different from those of students 20 years ago. Computers have relegated slide-rules to the trash heap and opened new research and delivery methods and opportunities. Course content is altered as cultural, environmental, and geopolitical issues change and science and technology advances. Given this ever-changing university environment, instructional design theories and models probably require continual reexamination, modification, and adjustment.

The university community is comprised of students, faculty, staff, and members of the neighboring residential community. These constituent groups, although they work together to achieve learning, may have different perspectives and goals. Also, within the student population, there probably sub-populations that may have different perspectives, needs, and goals. For example, Patten University draws ethnically diverse populations into a common community

setting (Figure 1). While some undergraduate learners are full-time students who have recently completed high school, many are adult learners who have families and full-time jobs. About half of Patten learners are graduate students.

Given this dynamic environment, the diverse population, and the desire for innovative programs and delivery systems, participatory and/or action research may be very useful for conducting formative research. Such a research effort would provide additional projects for graduate students in education, help foster improved learning opportunities, and enable investigation of possible extensions of existing theories. For example, a researchers could inveestigate whether some theories and models that, to date, have only been tested in the K-12 environment might be appropriate—perhaps with some modification—for use in undergraduate or graduate degree programs.

Patten University Ethnicity

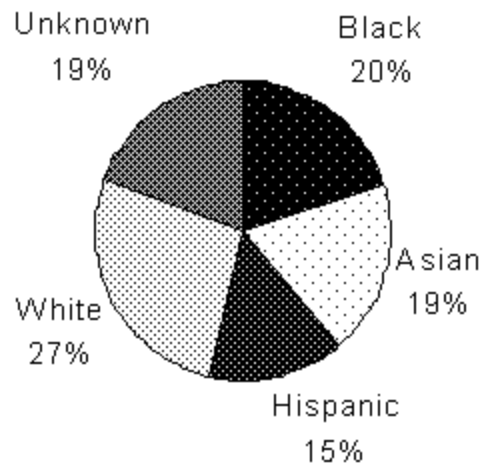


Figure 1

Ethnic composition of 2002-2003 undergraduate student body
(Constructed from admissions data provided by Inez Bailey)

Selected Instructional Design Theories and Models of Potential Use at Patten

There are probably dozens of theories that might be used and/or tested at Patten University. However, this paper only examines a few to illustrate potential applications, benefits, and research needs and opportunities.

Individual Differences

Snow (1997) observed that students differ individually in prior knowledge, skills, abilities, interests, attitudes, and motives, personal styles of thought and learning processes. Instructional practice has mostly remained fixed, adaptive to individual differences mostly in minor ways, if at all. He stated that students have usually been expected to fit the instructional system as given, which can generate attrition.

Snow concluded that the most important individual differences for research and development in ID & evaluation are (a) cognitive abilities, (b) achievement motivational and volitional orientations, and (c) personal styles and strategies. He defined these constructs as *aptitudes*—signifying "aspects of the present state of a person that are propaedeutic, that is, needed as preparation, for later achievement in some particular learning situation" (p. 216). He also states that:

"First, individual differences are more complex than the single rank order conceptions of intelligence and motivation usually manifest in popular thinking, and they are also more fundamental to learning than is usually assumed in educational and social policy. Second, individual differences in aptitudes not only predict individual differences in learning from instruction, they also interact with alternative instructional treatments. That is, they relate differently to learning outcome under different instructional designs (p. 216).

Snow called these individual differences and instructional treatment conditions "aptitude-treatment interaction."

Snow postulates that aptitude differences and aptitude-treatment interaction can be used by instructional designers to "understand, evaluate, and improve instruction for all the students to be served in a particular educational or training situation (p. 216). He also identified five issues that involve ethical issues and empirical experience that need to be addressed to realize this potential. They are:

1. Are there aptitude differences that predict individual differences in goal achievement in this situation, given this instructional program, student population, and social and institutional context?
2. Are the goals of the instruction met by all students and, in particular, by those students with initial inaptitudes who would thus have been predicted not to achieve these goals?
3. Are there inequities preserved or produced by this instructional program because of individual differences beyond immediate goal attainment, especially in retention, transfer, or enrichment of learning?
4. Are there any students who are particularly ill-served or hurt by this instructional program, relative to other alternatives?
5. Are there design alternatives aimed at the same instructional goals that would eliminate problems of inaptitude, achievement failure, inequity, or other negative outcomes as identified previously? (p. 217).

As stated previously, Patten wants to create an online learning program for ministry-related degrees. Siemens (2002) notes that as students shift from the traditional classroom to an online setting, they need to shift from being passive learners to active learners. Several universities (including Capella) provide online self-assessment tools to help potential applicants

determine whether they have the basic computer skills and aptitude that will aid them in online learning. Research might explore alternative models for (a) helping new learners acquire the basic computer skills and shift to an active learning mode and (b) be useful in screening of applicants and selectively steering new learners into appropriate program entry classes.

Martinez (2002) suggests that research might also explore "the impact of emotions and intentions on learning and how we develop, use or manage our values, cognitive abilities and social relationships" (¶ 6). In Patten's case, research might conceivably focus on the role of social relationships among active pastors who are online or traditional students. Research questions might address issues such as:

1. Is it better to mix active pastors with non-pastors in specific online courses?
2. Given that some religious denominations prohibit women pastors, what additional support, if any, will improve learning opportunities for female learners? What factors (e.g., class mix, policies, faculty support) are critical or important?
3. Does denominational politics affect learning outcomes?

The basic data for these and other questions probably are best gathered through formative research and might have immediate application in instructional design. Directly involving learners in the research might help improve awareness of issues, increase willingness to participate, and directly impact learning outcomes.

Microinstructional Methods

Overview

Andre (1997) argued that taught topics are rarely intended to be learned in isolation. Instead, he asserts:

Facts, skills, procedures, concepts, principles, problems solving, and metacognitive strategies are taught to help the learner understand and act to solve problems in real-world domains. The fundamental goal of most instruction is to facilitate the development of knowledge structures that support flexible classes of performances in some domain of interest (p. 243).

He also recognized that "Learner systems and the environmental systems interact dynamically to influence each other" (p. 244) and proposed that these systems could be analyzed by thinking of them as consisting of series of instructional episodes—interactions between the learner and the environment.

Instructional methods differ in the nature and kinds of instructional episodes they attempt to program for learners In general, instructional episodes differ in how they lead learners to activate preexisting knowledge or motivational structures, in the nature and types of information provided by the environment, in how learners are encouraged to process information in the environment and relate it to preexisting knowledge, in the types of performances that are encouraged, and in the nature and types of information provided as a result of the learner's performance (p. 244).

Andre grouped these instructional methods into three major phases: (a) activation phase, (b) instruction phase, and (c) feedback phase.

Individual Methods

Activation Phase of Instructional Episode

Andre noted the importance of being able to provide "cues to encourage learners to activate preexisting knowledge" (p. 246), and that such activation may promote transfer of strategies from prior learning. "Providing learners with a conceptual model can facilitate the acquisition of problem-solving skills as [well] as the learning of declarative knowledge" (p. 247).

He also discussed "advance organizers"—providing learners with a description about the structure of new information prior to studying—and the use of objectives and pre-questions. Objectives and pre-questions can be effective learning tools because they tend to focus learning; however, these same tools also usually lessen the learning of peripheral information.

Instructional Phase of Instructional Episode

Andre states that "the nature of the response learners are encouraged to make is a powerful variable in influencing what they learn. A question can be interpreted as a direction to make a particular kind of response" (p. 249). Furthermore,

When students expect to answer questions after they read, view, or otherwise experience an instructional presentation, and they cannot predict the specific information that will be tested, they learn information better [than] students who do not expect questions [Students] may be trained to use questions themselves to facilitate their learning" (p. 249).

Andre asserts that the questioning technique leads to better long-term performance than does note taking (p. 250).

Similarly, Andre reports that studies show that encouraging learners to elaborate upon learned information and/or to form images typically improves learning. "Learners should be led to develop imagery relevant to the instruction that captures the critical associative connections between to-be-learned concepts" (p. 250). "Elaborative questions can facilitate concept construction and conceptual understanding" (p. 251).

Mnemonic devices provide associative clues to facilitate learning. Andre cites the sentence "Every good boy does fine" as an example for learning the names of the lines in music scores. [FACE is the mnemonic for the spaces between those lines]. He also describes the key word method wherein the learner imagine funny images to learn associative pairs (e.g., duck = pato in Spanish, which sounds like *pot*, therefore picture a duck swimming in a large pot on a large stove. Andres states that this method helps short and long term performance.

Semantic or concept mapping involves the construction of a network diagram of concepts. This technique helps students become aware of associations and links in a given knowledge domain, which helps learners integrate knowledge.

Andre also addresses response requirements and practice effects. He notes that the spacing or distribution of practice effects can affect learning. Distributed practice (one or fewer study sessions per day) is more effective than massed practice (multiple session on one day or several days). Learning typically increases as between-session interval increases. As learners develop expertise, they become able to perform a process with little conscious effort (automatization). However, initially the process may require great effort (e.g., memorization of math tables in grades 3-4 results in little effort to use basic knowledge in more complex tasks in higher grades).

Other microinstructional methods described by Andre include text signaling devices— cues that provide emphasis or highlight important material (e.g., titles, headings, and phrases [such as, thus], numerical lists, underlining, italics)—and use of examples to teach or illustrate concepts. However, "Using conventional worked problems as examples may not facilitate learning if the problem demands too high a cognitive load; but problems redesigned to reduce cognitive load did facilitate learning" (p. 256, after Ward and Sweller, Experiment 3; and Tarmizi and Sweller, 1988).

Andre notes that when deeply held, prior misconceptions are resistant to instructional change. The conceptual change approach argues that instruction should activate misconceptions and then induce learners to be in a state of disequilibrium or dissatisfaction about the misconception. Learners are led to be dissatisfied with their current conceptions by being placed in situations in which they make predictions based on their current conceptions and conceptions from peers (p. 257). At that point, instruction should (a) lead to an alternative conception that the learner can understand and (b) provide practice in the use of the model (p. 257).

Feedback Phase of Instructional Episode

"Feedback is any information provided to the learner as a result of a response" (p. 259).

Andre reports that instructional feedback typically results in superior performance on later tests and should have its greatest effects on items with the same or similar content to the items students received feedback about (p. 259-260).

Potential Use at Patten University

The suite of microinstructional methods described by Andre potentially can be combined with other study skill methods and techniques (e.g., daily study schedule, memory cards, Cornell note-taking format; see Keeley, 1997, and AVID Center, n.d.) to develop and deliver a study skills course. Such a course was developed by Terry Small and Graham Best for Pacific Life Bible College (GS118E, *The Ultimate "How to Study Seminar"*) and may provide a initial core for Patten's course.

The conceptual change approach might be appropriate to apply in several Patten courses. However, care will need to be exercised as some misconceptions amount to fundamental religious beliefs (e.g., age of the Earth, limitations on roles of women in ministry). Before employing the technique, university administrators should be consulted to assure that they (a) are aware of what will be taught and (b) are willing to deal with any potential backlash. The instructor also must be sensitive to learners as the learning goals do not include destroying faith in God or Christ, but instead seek to broaden perspectives (e.g., demonstrating that faith in the Bible and in a 4.7 billion year-old Earth are not mutually exclusive and that scientists should not automatically be branded as satanic). The goal, instead, should be an enlightened respectful discourse. As the late admitted agnostic paleontologist Stephen Jay Gould (2003) notes:

I don't agree with this [fundamentalist Christian], but we could have a terrific argument. I would push the "cold bath" theory; he would (presumably) advocate

the theme of inherent spiritual meaning in nature, however opaque the signal. But we would both be enlightened and filled with better understanding of these deep and ultimately unanswerable issues. Here, I believe, lies the greatest strength and necessity of NOMA, the non-overlapping magisteria of science and religion. NOMA permits—indeed enjoins—the prospect of respectful discourse, of constant input from both magisteria toward the common goal of wisdom (p. 202).

Systematic Design of Instruction and Social, Ethical, and Intellectual Development

Patten University's president has stated that one of his desires is that every course has an ethical, moral, or community service component, but he only has a vague idea of what the learning goal should be. There are two models that might be applied to this instructional problem, perhaps in combination—Dick's (1997) systematic design of instruction and Lewis, Watson, and Schap's (1999) social, ethical, and intellectual development theory.

Dick (1997) describes a broad model (Table 2) that show stepwise how to create instruction when developers only have a vague idea of what the goal should be. The model assumes that there should be some type of goal for learners and that designers should be able to identify what the student should be able to do after completing the learning (instructional objectives). In Patten's case, each instructor could be directed to develop one or more course exercises that would address ethics, morals, or community service. However, one might ask what those exercises might look like. Perhaps the social, ethical, and intellectual development theory of Lewis, Watson, and Schaps (1999) provides a partial answer. They suggest that social, ethical, and intellectual development can be promoted through a curriculum that fosters bonds among fellow learners. Although their theory is intended for K-6 schools, it easily fits within Patten's overall program and goals.

Methods described by Lewis, Watson, and Schaps include (a) reading literature that is rich in social and ethical themes, (b) group-value developmental discipline, (c) cooperative

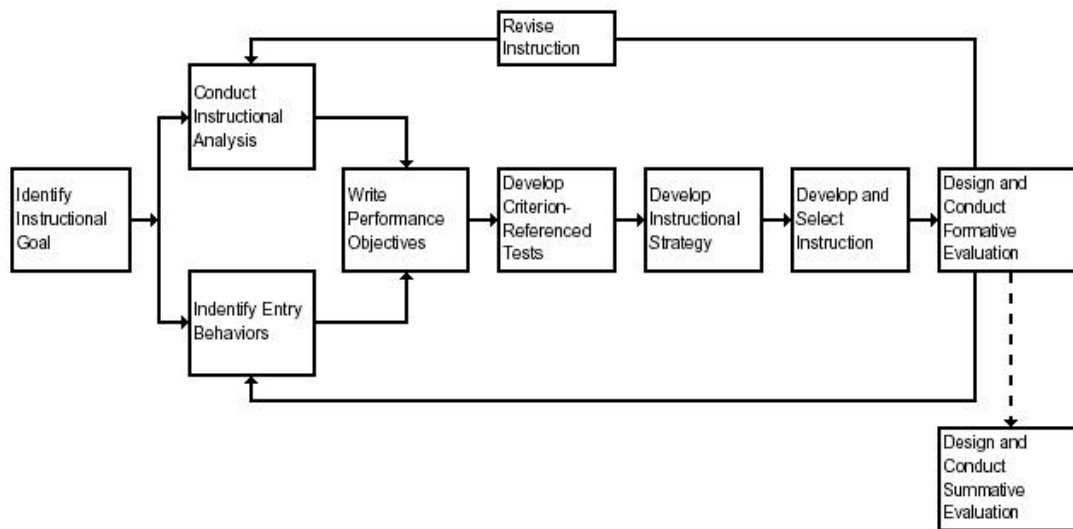


Figure 2

Systematic design model
(Modified after Dick, 1997, Fig. 17.1)

learning, and (d) schoolwide activities. At the university, several courses probably already involve reading of materials that are rich in social and ethical themes.

With respect to developmental discipline, Lewis, Watson, and Schaps suggest that (a) students should get to know one another and build relationships throughout the year, (b) students should help build and maintain class norms (not rules imposed by others), and (c) involving students in the solution of disciplinary problems. At Patten, students may join Community of Faith groups (which meet weekly) and are encouraged to devote time for prayer and Bible reading. These groups could play a vital role in building relationships if each group also had as one of its goals praying for one another (such prayer probably occurs, but is not an explicitly stated goal of the activity as described in Patten [2002]). Student Government and the Student Affairs Committee involve students in activities that affect academic, social, and spiritual life,

policy development, and in cases involving student misconduct. "Students play a vital part in the growth and harmonious operation of the College" (Patten, 2002, p. 9).

Lewis, Watson, and Schaps suggest using group work as a way to build understanding and ethical values. Patten students are engaged in various community service projects, either individually or as groups. In fact, Patten requires students to participate in Christian/Community Service (CCS) as part of their degree program. CCS activities include local programs for betterment of the community, volunteer tutoring programs, urban missions, and ministries to youth, the disabled, the elderly, and in prisons.

Regarding schoolwide programs, Lewis, Watson, and Schaps discuss (a) the need to deepen and strengthen students' bonds to the school and (b) the search for ways to make families feel more welcome at school. Regarding strengthening students' bonds, Patten could survey learners to determine how best to accomplish this strengthening. Regarding finding ways to make families feel more a part of the academic community, Patten might develop a suite of on-campus activities intended for learners and their families—not just barbecues and parties, but also encourage young (K-12) learners to participate in a noncompetitive university science fair, living history display, poetry contest, or some other academically oriented activity, and award participation certificates to all young learners.

Some course instructors, however, might find the president's directive challenging. For example, it might be difficult to incorporate ethics or moral issues in a calculus course (except perhaps for the usual admonitions regarding cheating). Possible community service activities might include volunteering to help tutor high school calculus students; if the president's directive were slightly expanded to include relationship building (per Lewis, Watson, and Schaps), then cooperative learning activities (e.g., forming student learning teams) might be an acceptable

approach. However, based on Dick's model, the first step in the process in which Patten faculty should engage is to clearly define the instructional goals, then begin a reflective process to determine whether those goals are being met and, if not, revise the instruction and/or related activities so as to achieve the goals.

Summary and Conclusions

Instructional design theories inform us what to do when a certain instructional intent has to be realized. Universities can benefit from engaging in formative research, reviewing of a variety of instructional models and theories, and, after making appropriate modifications, using the theories to determine whether existing academic programs are achieving educational goals and objectives and how current programs and related activities might be improved.

This paper used Patten University as an example to illustrate how formative research and four ID theories and models—(a) individual differences, (b) microinstructional methods, (c) social, ethical, and intellectual development, and (d) systematic design of instruction—some of which were originally designed for use in K-12 settings, might be used to help assure that Patten's instructional goals are achieved.

References

- Andre, T. (1997). Selected microinstructional methods to facilitate knowledge construction: Implications for instructional design. In R. D. Tennyson, R. Schott, N. Seel, & S. Dijkstra (Eds.), *Instructional design, Vol. 1., International perspectives* (pp. 243-267). Mahwah, NJ: Lawrence Erlbaum Associates.
- AVID Center. (N.D.). Cornell notes. Newport News, VA: Hines Middle School AVID Program. Retrieved June 16, 2003, from <http://hines.nn.k12.va.us/avid/notes.html>.
- Dick, W. (1997). A model for the systematic design of instruction. In R. D. Tennyson, R. Schott, N. Seel, & S. Dijkstra (Eds.), *Instructional design, Vol. 1., International perspectives* (pp. 361-369). Mahwah, NJ: Lawrence Erlbaum Associates.

- Gaventa, J. (1988). Participatory research in North America. *Convergence* 24, 19-28.
- Gould, S. J. (2003). Nonoverlapping magisteria. In P. Kurtz (ed.), with the assistance of B. Karr & R. Sandhu, *Science and religion* (pp. 191-205). Amherst, NY: Prometheus Books.
- Keeley, M. (1997). *The basics of effective learning—Cornell note-taking format*. Newtown, PA: Bucks County Community College. Retrieved June 16, 2003, from <http://www.bucks.edu/~specpop/Cornl-ex.htm>.
- Klauer, K. J. (1997). Instructional design theory: A field in the making. In R. D. Tennyson, R. Schott, N. Seel, & S. Dijkstra (Eds.), *Instructional design*, Vol. 1., *International perspectives* (pp. 447-453). Mahwah, NJ: Lawrence Erlbaum Associates.
- LaGow, R. L. (1977). The utilization of grounded theory to identify instructional development elements in adult education programs (ERIC Document Reproduction Service No. ED145074).
- Lewis, C., Watson, M., & Schaps, E. (1999). Recapturing education's full mission: Educating for social, ethical, and intellectual development. In C. M. Reigeluth (Ed.), *Instructional-design theories and models*, Volume II, *A new paradigm of instructional theory* (pp. 511-536). Mahwah, NJ: Lawrence Erlbaum Associates.
- Martinez, M. (2002). Beyond classroom solutions: New design perspectives for online learning excellence. *Educational Technology & Society* 5(2). Retrieved April 19, 2003, from http://ifets.ieee.org/periodical/vol_2_2002/discuss_summary_january2002.pdf.
- Moncher, G. (2003, March). *An expanded vision*. Presented at Patten University Convocation, Oakland, CA.
- Patten College. (2002). *Fall 2002-Spring 2003 Bulletin*. Oakland, CA: Author.
- Reigeluth, C. M., Ed. (1999a). *Instructional-design theories and models*, Volume II, *A new paradigm of instructional theory*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Reigeluth, C. M. (1999c). What is instructional-design theory and how is it changing? In C. M. Reigeluth (Ed.), *Instructional-design theories and models*, Volume II, *A new paradigm of instructional theory* (pp. 5-29). Mahwah, NJ: Lawrence Erlbaum Associates.
- Reigeluth, C. M., & Frick, T. W. (1999). Formative research: A methodology for creating and improving design theories. In C. M. Reigeluth (Ed.), *Instructional-design theories and models*, Volume II, *A new paradigm of instructional theory* (pp. 633-651). Mahwah, NJ: Lawrence Erlbaum Associates.
- Ryder, M. (2003). *Instructional design models*. Retrieved May 9, 2003, from http://carbon.cudenver.edu/~mryder/itc_data/idmodels.html

- Seel, N. M. (1997). Models of instructional design: Introduction and overview. In R. D. Tennyson, R. Schott, N. Seel, & S. Dijkstra (Eds.), *Instructional design, Vol. 1., International perspectives* (pp. 355-359). Mahwah, NJ: Lawrence Erlbaum Associates.
- Siemens, G. (2002, August 22). *Lessons learned teaching online*. Elearningspace. Retrieved May 9, 2003, from <http://www.elearningspace.org/Articles/lessonslearnedteaching.htm>
- Snow, R. E. (1997). Individual differences. In R. D. Tennyson, R. Schott, N. Seel, & S. Dijkstra (Eds.), *Instructional design, Vol. 1., International perspectives* (pp. 215-241). Mahwah, NJ: Lawrence Erlbaum Associates.
- Small, S. A. (1995, November). Action-oriented research: Models and methods. *Journal of Family and Marriage* 57, 941-955.
- Smith, T. C. (2003, March). *Opportunities for leadership and organizational development during creation and development of a proposed online learning program*. Unpublished course paper, Capella University, ED 7504—Leadership in Instructional Design.
- Taylor, M. (2003, April 24). *U2D1*. Unpublished contribution to Cappella University ED 7620, Theoretical basis of instructional design.