

Linking Premise To Practice: An Instructional Theory-Strategy Model Approach

Randall Bowden, Kaplan University

ABSTRACT

College and university teaching has come under intense scrutiny in recent years. Scholars agree that effective teaching is much more than the transmission of knowledge. However, they may disagree as to what effective teaching entails. This paper provides a perspective that effective teaching, and thus learning, is enhanced when appropriate instructional theories are clearly linked to correlated teaching strategies. It discusses the purpose of theories and models in that they explain and predict behavior. Furthermore, it presents the Instructional Theory-Strategy Model and demonstrates how theory and strategy are linked. If theory does indeed explain and predict behavior, faculty can increase learning opportunities by linking the appropriate instructional theory to its corresponding teaching strategy.

Past research on teaching in higher education has tended to center on three approaches to pedagogical activities. One tactic examines teaching as the transfer of information from a standpoint of which faculty understand their subject matter, relate it to their environment, and deliver the information (Akerlind, 2004; Bain, 2004; Kane, Sandretto, & Heath, 2002). A second consideration explores teaching from a learner-centered approach (Barr & Tagg, 1995; McKeachie & Svinicki, 2006; Vega & Taylor, 2005) as students construct, discover, and transform knowledge, whereby faculty “develop students’ competencies and talents” (Fink, 2003, p. 19). A third approach associates teaching as a change process from a transfer of knowledge framework to a student-focused context (Trigwell, Prosser, Marten, & Ramsden, 2005). These approaches require in-depth activity, such as preparing objectives and materials, understanding learning styles, and demonstrating curricular knowledge (Kreber, 2005), hopefully to enhance the learning environment. Moreover, according to Middendorf and Pace (2004), effective classroom teaching includes helping students overcome learning obstacles. Yet, before a faculty member even enters the classroom, considerable thought and work should be given to how instructional theory correlates to teaching strategies.

Teaching and learning effectiveness can be enhanced by critical links of theory and strategy. This paper proposes that whether a faculty member views his or her role as one who transfers information, designs learner-centered activities, or engages in a change process, teaching and learning can become more effective. This paper outlines the development of an Instructional Theory-Strategy Model to indicate the potential for increased learning when teaching strategies are linked directly to each of three major instructional theories. In the first section, the paper relates the background of instructional theory and discusses three major approaches: behaviorism, cognitivism, and constructivism. The second section presents the tenets of three general teaching strategies: discussion, lecture, and collaboration. The third section presents the Instructional Theory-Strategy Model and demonstrates how theory and strategy link.

INSTRUCTIONAL THEORY

Theory plays an important role in the teaching-learning continuum. Before instructional theory is further developed, a brief discussion of the purpose of theory and models provides a foundation for the development of the Instructional Theory-Strategy Model. Theory according to Dorin, Demmin, and Gabel (1990) involves five major components: (1) helps explain phenomenon over time; (2) can explain and predict behavior; (3) provides a general

framework for understanding observations; (4) can be modified; (5) should be tested for its utility. Models provide a picture to help understand what cannot be seen and are often depictions of theories. The model outlined in this paper views a teaching-learning continuum through correlating instructional theory with teaching strategies. In other words, it is suggested that when college teachers select the appropriate instructional theory and link it to its correlated teaching strategy, learning outcomes should be able to be explained and predicted with better precision. The basis of these instructional theories was synthesized by Mergel (1998). Mergel summarized three major instructional theories: behaviorism; cognitivism; and constructivism. These theories provide a context for the learning environment in distinct ways.

Behaviorism

Behaviorism seeks to alter a person's environment until the behavior becomes automatic and conforms to prescribed conditions. Two of the most recognizable theorists of behaviorism are Ivan Pavlov (1849-1936) and B.F. Skinner (1904-1990). Pavlov's experiments led to the belief that people could be conditioned to behave a particular way when the environment provided certain stimuli. In essence, learning could occur when specific conditions were present. Skinner's operant conditioning mechanisms suggest that behavior is tied to positive and negative reinforcements within the environment. Behaviors that have positive reinforcements are likely to be repeated, whereas escape from negative reinforcements would be repeated. Responses not reinforced produce behaviors not likely to be repeated. Moreover, if behaviors are punished, responses may be suppressed. Rogers (2003) provided a clarifying perspective. Learners are aware of tasks governing their behavior but may not be conscious of the learning. Through repeated behaviors they hopefully become aware of conceptual learning ascribed to the task. As applied to a learning environment, receiving positive reinforce could promote a behavior of continued study and learning (Mergel, 1998).

Behaviorism as an instructional theory is depicted along these lines. The teaching process establishes boundaries around information to which knowledge is gained by the type of feedback provided. Whereas the theory helps us understand how people conform to predetermined standards, the behaviorist approach fails to explain thought processes people utilize for learning.

Cognitivism

In the mid-1960s, with behaviorism being challenged, cognitivism emerged based on the work of Jean Piaget from the 1920s. It recognizes that learning occurs through mental associations. People develop schemas, which represent an internal knowledge structure. When faced with new information, they compare it to existing knowledge structures, whereby the schema may be altered to accommodate the information. Some information is simply sensory. This type of input is most likely assessed as to its immediate value. Much of this information decays or is replaced by new inputs. If the information processed is assessed as more valuable, it may be transferred to short-term memory (STM). STM stores roughly seven items for 20 or more seconds if rehearsed. Information transferred to long-term memory (LTM) stores it for extended periods of time. Rote memory items can be stored in LTM.

A more effective manner to retain information in LTM is by generating linkages between new information and old (Mergel, 1999). Furthermore, Anderson (1996) examined what knowledge a person might possess and the probability of its use given particular contexts. As applied to a learning environment, information deemed as meaningful stands a better chance of being retained than material that learners evaluate as boring.

Cognitivism as an instructional theory can be portrayed according to the following. The teaching process is a mental activity to where new information is to be linked with existing cognitive structures. Although valuable for intellectual development, the cognitivism approach does not account for people acquiring knowledge through their experiences.

Constructivism

The constructivism approach is based on the general concept that people construct their own reality. Notable constructivist theorists include John Dewey and Lev Vigotsky who explored the value of human activity as a critical function of gaining knowledge. Knowledge is as an extension of one's experiences, knowledge, and beliefs. When people encounter new situations, they filter the information through these reservoirs to interpret, evaluate, and store additional knowledge. Lave (1988) related that knowledge is a social construct from people's education, work, and recreation regardless of individual understanding. She further reported that restructuring thought through the social process is powerful for shaping and organizing individual knowledge, relationships, and reasoning behaviors.

Learning, then, is an active process. As people do things, they are exposed to stimuli to where they must continually evaluate them with previous experiences. They are able to construct new meaning and systems of meaning as they engage in the world around them. Learning becomes a social activity as students interact with family, friends, teachers, peers, and even acquaintances and strangers. The structure of interactions (experiences) determines the type of learning that occurs. It is largely contextual, which can lead to formal knowledge in higher education, as well as instilling fears, stereotypes, and biases from personal social interaction. As applied to a learning environment, learners are given activities and placed in experiential settings from which they rely on their reservoir to construct new knowledge.

Constructivism as an instructional theory can be characterized this way. The teaching process provides new experiential activities for learners, which interact with their existing body of knowledge. This often requires faculty to draw from a wide range of experiences to be able to place students in situations for them to construct new knowledge (Brophy, 2002).

INSTRUCTIONAL THEORIES SUMMARY

One might consider these theories as explanatory or predictive of learning. A faculty member with a behaviorist approach to teaching would expect students to follow rules, guidelines, and appropriate patterns of responses to instruction. As students understand the conditions of the environment (rules), they learn the appropriate information needed to interact. However, a teacher who espouses a cognitivism approach organizes material in a manner for learners to associate it with existing knowledge structure. Students who are able to associate new information to existing schemas are able to acquire knowledge. Finally, instructors with a constructivist method design experiential activities centered on students' ability to engage in the performance. As students participate in a variety of activities, they assess these experiences in light of their previous understanding of the world and construct new knowledge. Effective teaching, then, relates to faculty being able to rely on all three instructional theoretical approaches and adapt their teaching strategies to the type of information they are conveying. This paper suggests that each of the instructional theories relates to particular teaching strategies.

TEACHING STRATEGIES

Teaching strategies relate to the design of instruction (Davis, 1993; Fink, 2003). If teachers design their instruction properly they can create an environment that is more challenging with greater learning as the outcome. Although there are numerous ways to describe teaching strategies (Baron & Sternberg, 1987; Davis, 1993; Fink, 2003; McKeachie, 2006; Meyers & Jones, 1993; Middendorf & Pace, 2004), they can cluster into three basic areas: (1) discussion; (2) lecture; and (3) collaboration.

Discussion

Discussion as a teaching strategy has a clear purpose. Many faculty may employ discussion in the classroom as an activity to get students to think about a particular topic. However, the purpose of discussion is to develop particular types of thinking skills (Davis, 1993; McKeachie & Svinicki, 2006). In education certain types of thinking are seen as necessary for breaking down ignorance, stereotypes, narrow-mindedness, and selfishness

(Baron & Sternberg, 1987). It can generate new ideas and challenge the status quo. The learning outcomes of developing thinking skills, which are particular to discussion as a teaching strategy, are critical, creative, and dialogical. Critical thinking relates to the judgment, authenticity, worth, or accuracy of something. The assumptive question becomes: How is the conclusion arrived at? Critical thinking judges and validates information.

Creative thinking pertains to a desire for something original. It values exploration and maintains flexibility. Creative thinking does not follow rules, it breaks them. Its fundamental question is: Where does a variety of information lead? Creative thinking seeks original information and develops new information as well.

Dialogical thinking challenges frames of reference and evidence. It examines information from a variety of viewpoints. These thinkers engage in opposing perspectives to expand one's horizons, to look beyond one's egocentric beliefs, and to understand the world better. The foundation of dialogical thinking is: Why do people believe a particular way? It is grounded in examining opposing viewpoints and valuing conflicting information. Just as discussion has a particular pedagogical outcome to develop thinking skills, so does the second strategy.

Lecture

Lecture as a pedagogical strategy extends beyond a common conception to transmit information. Its purpose is to develop conceptual frameworks about a subject matter (Davis, 1993). Because effective lecturers are writers, comedians, and entertainers as part of their teaching repertoire, they are able to stimulate students to explore the subject matter further. The specific learning outcomes of lecture as a teaching strategy particular to it are to stimulate interest; introduce new terminology; focus on what is important; present, analyze, and critique ideas; offer a new perspective; demonstrate how something works; and trace steps of a new discovery or creation (Davis, 1993).

Lecture's effectiveness as a teaching strategy does not attempt to overstep its purpose. Lecture does not lend itself to higher order cognitive processing as discussion does (McKeachie & Svinicki, 2006). However, kept within its intended purpose—to develop conceptual frameworks about a subject matter—and delivered with enthusiasm, examples, summaries, and periodic checks of students' understanding, the process creates an effective learning environment. Whereas lecture is intended to develop conceptual frameworks and discussion develops thinking skills, the third strategy is designed for yet another purpose.

Collaboration

Collaboration as a teaching strategy has an expressed purpose. The fundamental principle of collaboration is to solve important problems. It is founded in social psychology where meaning or interpretation that people give to interaction depends on their knowledge base. Kurt Lewin (1890-1947), considered the father of social psychology, studied group dynamics and investigated people's interactions about how they bring about change or resist it (Neill, 2004). Group life, he proposed, has several characteristics that drive the problems they are attempting to solve. First, characteristics involve conventions of laws and cultural standards. People tend to make decisions according to the laws and cultural norms that govern their interaction. Second, people tend to conform to group standards. Individuals sense a need to belong and will alter their behavior to fit in. Third, individuals act differently in different groups. As they associate with different groups, the decisions they make correspond to the norms of those assemblies (Neill, 2004). This theory grew into what Tubbs (1997) regarded as small group interaction.

Small group interaction is viewed as 3 to 20 people exchanging communication in an attempt to influence each other (Tubbs, 1997). For group interaction to be effective, Tubbs related that collaboration must be relaxed and informal, task centered, and free for expression. Moreover, conflicts must center on ideas not people. Decisions come from consensus not voting. Other tasks are assigned based on decisions made in the group. From group interaction theory, problem based learning (PBL) emerged, which serves as the consummate application of collaboration.

PBL was founded in Canada in the mid-1960s (Hendry, Frommer, & Walker, 1999). Problems, which are referred to as ill-defined cases, are presented to students since these learners are uncertain about the nature of the issues. Students engage in further study, with peers, and with faculty to resolve the problem. As a teaching strategy, collaboration residing in PBL relies on faculty members who clearly establish a problem. In addition, students in their groups agree on the goal to solve the problem. There must be individual accountability within the group and there must be a variety of knowledge represented. If a member of the group is an expert in the subject matter, there is no need for group interaction to solve the problem as the expert can address the issue, individually.

Collaboration's effectiveness as a teaching strategy is to engage students in a situation or series of situations where they can draw from their collective experience to solve a problem. The problem must be established to where it is beyond the scope of expertise of any one group member. Group interaction is applied to collective experience, beliefs, and knowledge for students to solve problems.

TEACHING STRATEGIES SUMMARY

Certainly faculty may employ these strategies to varying degrees, as well as combine them to create modified versions for discreet learning outcomes. Nevertheless, the three general pedagogical strategies—discussion, lecture, and collaboration—can encompass the majority of teaching approaches. When aligned with the three instructional theories—behaviorism, cognitivism, and constructivism—they can become a compelling force toward enhancing teaching skills and abilities. The following model presents the relationship among the theories and strategies.

INSTRUCTIONAL THEORY-STRATEGY MODEL

The call of stakeholders for faculty to become better teachers has been a national concern for over 15 years. Boyer (1990) brought the issue to the forefront of national concern when he wrote “the most important obligation now confronting the nation's colleges and universities is to break out of the tired old teaching versus research debate” (p. xii). The importance of teaching was further related by Davis (1993) in that it is central to the societal mission of higher education. More recently, Kreber (2005) identified the significance of teaching as it is aimed at enhancing its quality and recognition. This concept was reinforced by Richlin (2001) when she related that “a scholarly teacher selects the teaching method that has the best chance of helping students achieve the learning objective” (p. 60). Bain (2004) conceptualized the matter in these terms: “Teaching is engaging students, engineering an environment in which they learn” (p. 49).

These views suggest that effective teachers associate their beliefs about teaching with specific strategies. Fundamentally, they link theory to strategy. Since theory is explanatory and predictive of behavior, it stands to reason that certain theories match better with particular pedagogical strategies than others. The Instructional Theory-Strategy Model in Figure 1 presented below depicts the relationship between instructional theories and teaching strategies discussed above.

Behaviorism And Discussion

The tenets of behaviorism include establishing boundaries around behavior patterns to influence learning. As students understand the boundaries, they learn what to think and how to act given specified conditions. Consistent with behaviorism is the discussion strategy, a strategy to develop skills for critical, creative, and dialogical thinking. Davis (1993) wrote that thinking is “guided by or expressed through rules, often taking on the forms of scientific, mathematical, symbolic, geometrical, or linguistic reasoning” (p. 178). The process requires a special relationship to knowledge in order to generate the different types of thinking particular to one's area of expertise. Effective faculty understand the relationship of their domain specific knowledge and know how to structure discussions for engineering a learning environment.

Often the process begins with the end in mind (Bain, 2004; Fink, 2003; McKeachie & Svinicki, 2006). Thus, if a faculty member intends a learning outcome tied to critical, creative, or dialogical thinking, he or she can work backwards to design discussion activities grounded in behaviorism theory. From the design, faculty should be able to predict and explain more precisely learning outcomes linked to thinking skills.

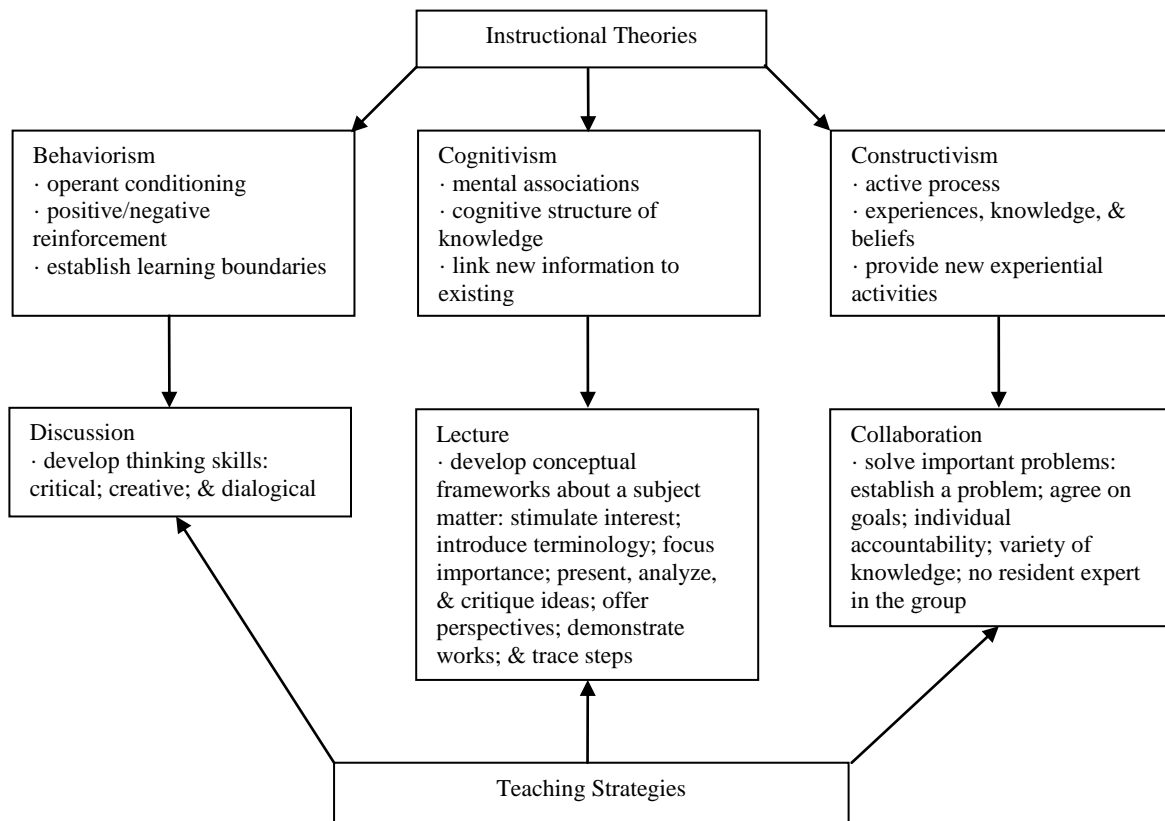


Figure 1. Instructional Theory-Strategy Model

Cognitivism And Lecture

The precepts of cognitivism surround the development of making mental associations. It is tied to “internal mechanism of human thought and the processes of knowing” (Cognitive Theories of Learning, para. 3). Cognitivism examines how information is stored, where it is stored, and how it is retrieved. Correlated with cognitivism is the lecture strategy. Lecture seeks to introduce new concepts, offer perspectives, stimulate ideas, and present, analyze, and critique ideas. The strategy engages students in cognitive inquiry as a sense of dialogue with the instructor in which he or she challenges current mental models of students. It is a type of Socratic method of dialectic inquiry: One which is incompatible with behaviorism and constructivism (Boghossian, 2006).

This type of teaching is particularly salient for a specific outcome. The outcome of lecture is to develop conceptual structures about a subject matter (Davis, 1993). Maclellan (2005) wrote that “conceptual learning or learning through concepts is important because of its relationship to experience, to understand [sic], and to potential behaviour” (p. 136). Again, to begin with the end in mind, faculty can enhance the classroom environment for learning by linking constructivism theory to organize lectures for increasing conceptual structures in students.

Constructivism And Collaboration

The foundation of constructivism promotes activity based teaching. Faculty construct experiential ventures to where students rely on their experiences, knowledge, beliefs, and interaction with others for learning to occur. Vygotsky (1978) contended that knowledge is not an individual matter but a process of constructing information in a system firmly grounded in social relations. Connected with constructivism is the collaboration strategy. Collaboration requires group interaction—social relations—to accomplish its purposes. At the far end of

collaboration is problem based learning (PBL). Within the PBL framework, faculty construct a problem for groups to address. Group interaction requires individuals to define goals, assign tasks, draw from collective knowledge, and be individually accountable. The collaboration strategy, whether basic group work or PBL, engages students in social relationships to accomplish its purposes.

For faculty to employ this strategy, they must have a particular outcome in mind. The purpose of collaboration is to solve important problems (Davis, 1993; Maclellan, 2005). This approach to teaching is acutely vital as a strategy. Maclellan (2005) pointed out that students will need these skills to address the “unknown problems to be spawned in our complex, ever-changing world” (p. 144). Faculty, who understand that group interaction is not just an activity to examine information, can engineer a better learning environment by linking constructivist theory to the teaching strategy of collaboration.

INSTRUCTIONAL THEORY-STRATEGY MODEL SUMMARY

The act of teaching is not a matter of stringing together a series of strategies or camping on one exclusive approach. Teaching should involve the continuous evaluation of instructional theories as they are linked to teaching strategies. Teaching, then, becomes an eclectic activity by which faculty match strategies to theories to pedagogical activities to engineer the best possible learning environment. Marrone and Tarr (2005) refer to this as theoretical eclecticism. It refers to faculty intentionally drawing on specific theoretical constructs when making instructional decisions. They relate that the goal is to provide “students with the instructional support they need to be successful” (p. 7). The Instructional Theory-Strategy Model outlined in this paper is an attempt to achieve the goal expressed by Marrone and Tarr as well as others.

CONCLUSION

This paper proposed that teaching effectiveness can be based on how faculty link instructional theory to teaching strategy. It outlined the development of an Instructional Theory-Strategy Model to help gauge learning outcomes grounded in solid theoretical instructional approaches. If theory does indeed explain and predict behavior (Dorin, Demmin, & Gabel, 1990), faculty can increase learning outcomes in their students by linking the appropriate instructional theory to its corresponding teaching strategy. Ultimately, it takes a love of one’s subject matter, a love of students, and a love of teaching and learning (Fink, 2003) to be an effective college and university teacher.

REFERENCES

1. Akerlind, G.S. (2004). A new dimension to understanding college teaching. *Teaching in Higher Education*, 9(3), 363-375.
2. Anderson, J.R. (1996). ACT: A simple theory of complex cognition. *American Psychologist*, 51(4), 355-365.
3. Bain, K. (2004). *What the best college teachers do*. Cambridge: Harvard University Press.
4. Baron, J.B., & Sternberg, R.J. (Eds.). (1987). *Teaching thinking skills: Theory and practice*. New York: W.H. Freeman.
5. Barr, R.B., & Tagg, J. (1995). From teaching to learning: A new paradigm for understanding education. *Change*, 27(6), 13-25.
6. Boghossian, P. (2006). Behaviorsim, constructivism, and Socratic pedagogy. *Educational Philosophy & Theory*, 38(6), 713-722.
7. Boyer, E.L. (1990). *Scholarship reconsidered*. New York: John Wiley & Sons.
8. Brophy, J. (Ed.). (2002). *Social constructivist teaching: Affordances and constraints* (Vol. 9). New York: Elsevier Science.
9. *Cognitive Theories of Learning*. Retrieved November, 16 2005, from http://www.personal.psu.edu/users/w/x/wxh139/cognitive_1.htm
10. Davis, J.R. (1993). *Better teaching, more learning*. Phoenix: Oryx Press.
11. Dorin, H., Demmin, P.E., & Gabel, D. (1990). *Chemistry: The study of matter* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.

12. Fink, L.D. (2003). *Creating significant learning experiences*. San Francisco: Jossey-Bass.
13. Hendry, G.D., Frommer, M., & Walker, R.A. (1999). Constructivism and problem-based learning. *Journal of Further & Higher Education*, 23(3), 351-358.
14. Kane, R., Sandretto, S. & Heath, C. (2002). Telling half the story: A critical review of research on the teaching beliefs and practices of university academics. *Review of Educational Research*, 72(2), 177-228.
15. Kreber, C. (2005). Reflection on teaching and the scholarship of teaching: Focus on science instructors. *Higher Education*, 50(2), 323–359.
16. Lave, J. (1988). *Cognition in practice: Mind, mathematics and culture in everyday life*. New York: Cambridge University Press.
17. Maclellan, E. (2005). Conceptual learning: The priority for higher education. *British Journal of Educational Studies*, 53(2), 129-147.
18. Marrone, A.S., & Tarr, T.A. (2005). Theoretical eclecticism in the college classroom. *Innovative Higher Education*, 30(1), 7-21.
19. McKeachie, W.J., & Svinicki, M. (2006). *Teaching tips: Strategies, research, and theory for college and university teachers* (12th ed.). Boston: Houghton Mifflin.
20. Mergel, B. (1998). *Instructional design and learning theory*. Retrieved December 16, 2006, from <http://usask.ca/education/coursework/802papers/mergel/brenda/htm>
21. Meyers, C., & Jones, T.B. (1993). *Promoting active learning; Strategies for the college classroom*. San Francisco: Jossey-Bass.
22. Middendorf, J., & Pace, D. (2004). Decoding the disciplines: A model for helping students learn disciplinary ways of thinking. *New Directions for Teaching and Learning*, 98, 1-12.
23. Neill, J. (2004). *Field theory—Kurt Lewin*. Retrieved February 6, 2006, from <http://www.wilderdom.com/theory/FieldTheory.html>
24. Richlin, L. (2001). Scholarly teaching and the scholarship of teaching. *New Directions for Teaching and Learning*, 86, 57-68.
25. Rogers, A. (2003). *What is the difference? A new critique of adult learning and teaching*. Leicester: NIACE.
26. Samuelowicz, K., & Bain, J. (2001). Revisiting academics' beliefs about teaching and learning. *Higher Education*, 41(3), 299-325.
27. Trigwell, K., Prosser, M., Martin, E., & Ramsden, P. (2005). University teachers' experiences of change in their understanding of the subject matter they have taught. *Teaching in Higher Education*, 10(2), 251-264.
28. Tubbs, S.L. (1997). *A systems approach to small group interaction* (6th ed.). New York: McGraw-Hill.
29. Vega, Q., & Tayler, M.R. (2005). Incorporating course content while fostering a more learner-content environment. *College Teaching*, 53(2), 83-86.
30. Vygotsky, L. (1978) *Mind in society: The development of higher psychological processes*. Cambridge: Harvard University Press.