

12/27/01

EPISODE #1 INTRODUCTION CHAPTER

HOW PEOPLE LEARN:

INTRODUCTION TO LEARNING THEORIES

Developed by Linda-Darling Hammond,
Kim Austin, Suzanne Orcutt, and
Jim Rosso

Stanford University School of Education ¹

The Learning Classroom: Theory into Practice
A Telecourse for Teacher Education and Professional Development

¹ Copyright 2001, Stanford University

EPISODE #1: INTRODUCTION CHAPTER

HOW PEOPLE LEARN: INTRODUCTION TO LEARNING THEORIES

I. UNIT OVERVIEW

HISTORY OF LEARNING THEORY

I believe that (the) educational process has two sides—one psychological and one sociological. . . Profound differences in theory are never gratuitous or invented. They grow out of conflicting elements in a genuine problem.

John Dewey, In Dworkin, M. (1959) *Dewey on Education* pp. 20, 91

PHILOSOPHY-BASED LEARNING THEORY

People have been trying to understand learning for over 2000 years. Learning theorists have carried out a debate on how people learn that began at least as far back as the Greek philosophers, Socrates (469 –399 B.C.), Plato (427 – 347 B.C.), and Aristotle (384 – 322 B.C). The debates that have occurred through the ages reoccur today in a variety of viewpoints about the purposes of education and about how to encourage learning. To a substantial extent, the most effective strategies for learning depend on what kind of learning is desired and toward what ends.

Plato and one of his students, Aristotle, were early entrants into the debate about how people learn. They asked, “Is truth and knowledge to be found within us (rationalism) or is it to be found outside of ourselves by using our senses (empiricism)?” Plato, as a rationalist, developed the belief that knowledge and truth can be discovered by self-reflection. Aristotle, the empiricist, used his senses to look for truth and knowledge in the world outside of him. From his empirical base Aristotle developed a scientific method of gathering data to study the world around him. Socrates developed the dialectic method of discovering truth through conversations with fellow citizens (Monroe, 1925). Inquiry methods owe much of their genesis to the thinking of Aristotle and others who followed this line of thinking. Strategies that call for discourse and reflection as tools for developing thinking owe much to Socrates and Plato.

The Romans differed from the Greeks in their concept of education. The meaning of life did not intrigue them as much as developing a citizenry that could contribute to society in a practical way, for building roads and aqueducts. The Romans emphasized education as vocational training, rather than as training of the mind for the discovery of truth. Modern vocational education and apprenticeship methods are reminiscent of the Roman approach to education. As we will see, however, strategies to encourage cognitive apprenticeships combine the modeling inherent in learning by guided doing with the discourse, reflection, and inquiry that the Greeks suggested to train the mind.

When the Roman Catholic Church became a strong force in European daily life (500 A.D. to 1500 A.D.), learning took place through the church, through monasteries, and through their school system, which included the universities (12th century) the Church built throughout Europe. Knowledge was transmitted from the priest to the people (Monroe, 1925). Much learning was the memorization and recitation of scripture by rote and the learning of trades by apprenticeship. The primary conception of the purpose of education was transmission-based. Many classrooms today continue a transmission-based conception of learning as the passing on of information from the teacher to the student, with little interest in transforming it or using it for novel purposes.

The Renaissance (15th to the 17th centuries) revived the Greek concept of liberal education, which stressed education as an exploration of the arts and humanities. Renaissance philosophers fought for freedom of thought, and thus Humanism, a study of human values that are not religion-based, was born. By the sixteenth century the control of the Catholic Church was being challenged on a number of fronts, from Copernicus (1473 – 1543) who suggested that the sun rather than the earth was the center of the Solar System, to Martin Luther (1483 – 1546) who sought to secularize education (Monroe, 1925). The notions of individual inquiry and discovery as bases for learning were reinforced in the Renaissance. In a sense the recurring ideological debates over education for “basic” skills – the reproduction of facts and rudimentary skills – vs. education for thinking – the effort to understand ideas and use knowledge for broader purposes – replay the medieval vs. Renaissance conceptions of the purposes of education.

Rene Descartes (1596 – 1650) revived the Platonic concept of innate knowledge. Descartes believed that ideas existed within human beings prior to experience and that

God was an example of an innate idea. He recognized that the body could be appreciated and studied as a zoological machine, while the mind was separate and free from the body. He was one of the first to define precisely the ability of the environment and the mind to influence and initiate behavior. He also described how the body could produce unintended behaviors. Descartes' first description of reflex action was influential in psychology for over 300 years (Hergenhahn, 1976). While this findings supported the work of behavioral psychologists seeking to understand the genesis of behaviors, his focus on the mind also supported the work of later cognitive scientists who sought to understand the thinking process itself.

John Locke (1632 - 1704) revived Aristotle's empiricism with the concept that the child's mind is a blank tablet (*tabula rasa*) that gets shaped and formed by his/her own experiences. He believed the mind becomes what it experiences from the outside world. "Let us suppose the mind to be, as we say, white paper, void of all characters, without any ideas: How comes it to be furnished? ... whence has it all the materials of reason and knowledge? ... from experience" (Locke, quoted in Hilgard and Bower 1975). The mind gathers data through the senses and creates simple ideas from experience; these simple ideas combine to develop complex ideas. Locke believed that education should structure experiences for students and that one essential learning was the kind of discipline that could be developed through the study of mathematics (Hergenhahn, 1976). The idea that different disciplines provide qualitatively different mental experiences and means of training the mind undergirds the basis of the discipline-based liberal arts education.

Jean-Jacques Rousseau (1712 – 1778) was one of the first philosophers to suggest that education should be shaped to the child. He celebrated the concept of childhood and felt that children should be allowed to develop naturally. "The only habit which the child should be allowed to form is to contract no habit whatever." (Rousseau, quoted in Hilgard and Bower, 1975) In Rousseau's novel, *Emile* (Rousseau, 2000), the hero learns about life through his experiences in life. Complex ideas are built from simple ideas that are gathered from the world around him (Hilgard and Bower, 1975). The child-centered philosophies of Dewey, Montessori, Piaget and others follow in part from similar views.

Kant (1724 – 1804) refined and modernized Plato's rationalist theory with his suggestion that "a priori" knowledge was knowledge that was present before experience.

For Kant, awareness of knowledge may begin with experience but knowledge existed prior to experience. Kant espoused that these ideas must be innate, and their purpose is to create an organizing structure for the data that is received by the senses. Kant was also one of the first to recognize the cognitive processes of the mind, the idea that the mind was a part of the thinking process and capable of contributing to the thoughts that it developed. This learning theory opened the door to Piaget and others who would further develop the ideas of cognition (Monroe, 1925).

PSYCHOLOGY-BASED LEARNING THEORY

The nineteenth century brought about the scientific study of learning. Working from the thoughts of Descartes and Kant, and especially the influence of Charles Darwin, psychologists began conducting objective tests to study how people learn, and to discover the best approach to teaching. The 20th century debate on how people learn has focused largely on behaviorist vs. cognitive psychology. Psychologists have asked, “Is the human simply a very advanced mammal that operates by a stimulus response mechanism, or actually a cognitive creature that uses its brain to construct knowledge from the information received by the senses?”

Edward Thorndike (1874 – 1949) is considered by many to be the first modern education psychologist who sought to bring a scientific approach to the study of learning. Thorndike believed that learning was incremental and that people learned through a trial-and-error approach. His behaviorist theories of learning did not consider that learning took place as a result of mental constructs. Instead, he described how mental connections are formed through positive responses to particular stimuli. For Thorndike, learning was based on an association between sense impressions and an impulse to action. Thorndike favored students’ active learning and sought to structure the environment to ensure certain stimuli that would ‘produce’ learning (Hilgard and Bower, 1975).

The father of modern behaviorism, B. F. Skinner (1904 – 1990), further developed Thorndike’s Stimulus-Response learning theory. Skinner was responsible for developing programmed learning which was based on his stimulus response research on rats and pigeons in experiments that provided positive reinforcement for “correct” responses. He considered learning to be the production of desired behaviors, and denied

any influence of mental processes. Programmed learning gave proper reinforcement to the student, emphasized reward over punishment, moved the student by small steps through discrete skills and allowed the student to move at their own speed. “There are certain questions which have to be answered in turning to the study of any new organism. What behavior is to be set up? What reinforcers are at hand? What responses are available in embarking upon a program of progressive approximation that will lead to the final form of the behavior? How can reinforcements be most effectively scheduled to maintain the behavior in strength? These questions are all relevant in considering the problem of the child in the lower grades.” (Skinner, quoted in Hilgard and Bower 1975).

Behaviorist learning theory has had substantial influence in education, guiding the development of highly-sequenced and structured curricula, programmed instructional approaches, workbooks, and other tools. It has proved useful for the development of some types of skills – especially those that can be learned substantially by rote through reinforcement and practice. However, evidence has accrued that tasks requiring more complex thinking and higher mental processes are not generally well-learned through behaviorist methods and require more attention to how people perceive, process, and make sense of what they are experiencing.

Jean Piaget (1896 – 1980) was the first to state that learning is a developmental cognitive process, that students create knowledge rather than receive knowledge from the teacher. He recognized that students construct knowledge based on their experiences, and that how they do so is related to their biological, physical, and mental stage of development. Piaget spent years observing very young children and mapping out four stages of growth: sensorimotor (birth to about 2 years), preoperational (roughly ages 2 – 7), concrete operations (encompassing about ages 7- 14) and formal operations (beginning around ages 11 – 15 and extending into adulthood) (Hilgard and Bower, 1975). His work acknowledged the utility of some behaviorally-guided rote learning while also arguing that other activities that support students’ exploration are essential:

Generally speaking, since every discipline must include a certain body of acquired facts as well as the possibility of giving rise to numerous research activities and activities of rediscovery, it is possible to envisage a balance being struck, varying from subject to subject, between different parts to be played by memorizing and free activity. In which case, it is possible that the

use of teaching machines will save time... (Piaget, quoted in Hilgard and Bower 1975).

The Russian scientist Vygotsky (1896 – 1934) extended Piaget’s developmental theory of cognitive abilities of the individual to include the notion of social-cultural cognition – that is, the idea that all learning occurs in a cultural context and involves social interactions. He emphasized the role that culture and language play in developing students’ thinking and the ways in which teachers and peers assist learners in developing new ideas and skills. Vygotsky proposed the concept of the zone of proximal development (ZPD) which suggested that students learn subjects best just beyond their range of existing experience with assistance from the teacher or another peer to bridge the distance from what they know or can do independently and what they can know or do with assistance (Schunk, 1996). His work led to an emphasis on the deliberate use of discourse and cooperative learning in the classroom, and theories of assistance or “scaffolding” that help students learn in systematic ways. Following Piaget, the developmental learning theorists brought to education the ideas that teachers can be more effective if they organize learning so that it is responsive to the child’s stage of development, if they connect learning to the child’s prior knowledge and experiences, and if they use the social and natural environments as opportunities for learning.

PROGRESSIVE LEARNING THEORY

The Progressives embraced Piaget’s ideas about child development, Vygotsky’s ideas about socially situated learning and the construction of knowledge, and the age-old emphases on both experience and thinking or reflection as a basis for learning. They endeavored to establish child-centered schools for students to approach learning through their own experiences with the understanding that all learning is situated. They reacted to the rigidity of the late 19th century school with its focus on the transmission of knowledge. The debate of the Progressives, which continues today, is what is the proper balance of the traditional school’s focus on teacher transmission and the progressive school’s focus on the student learning from his or her own experience with guided opportunities to explore, discover, construct, and create.

John Dewey (1859 – 1952) agreed in part with Rousseau that education should not be separate from life itself, that education should be child-centered, guided by a well-trained teacher who is grounded in pedagogical and subject knowledge. Like Locke, he believed that structured experience matters and disciplinary modes of inquiry could allow the development of the mind, thus creating a dialectic between the child and the curriculum that the teacher must manage. The teacher's goal is to understand both the demands of the discipline and the needs of the child and then to provide learning experiences to enable the student to uncover the curriculum. Dewey believed that the ability of a person to learn was dependent on many things, one of which was the environment. Dewey, who established the first laboratory school, was one of the first to suggest that learning was a situated activity. Like Horace Mann (1796 – 1859), the first secretary of education for the state of Massachusetts and the founder of the common school, Dewey felt that education was the primary method of social progress and reform (Wirth, 1966). "When education is based upon experience and educative experience is seen to be a social process, the situation changes radically. The teacher loses the position of external boss or dictator but takes on that of leader of group activities." (Dewey, 1938)

In Italy, Maria Montessori (1870 – 1952), introduced a liberated concept of early childhood education that provided more opportunity for free expression, moving children away from their desks, providing them with activities, and respecting children as individuals. Like Dewey, she believed that students learn through carefully chosen activities. "The task of the teacher becomes that of preparing a series of cultural activities spread over a specially prepared environment and then refraining from obtrusive interference." (Maria Montessori, *Education for a New World*) Montessori went beyond Friedrich Froebel (1782 – 1852), who is largely responsible for the invention of Kindergarten (which was originally banned in his native Prussia), to create K-5th grade child-centered schools (Monroe 1925). Like Froebel, Montessori felt that the play of the child was an important aspect of their self-expression and their social and cognitive learning, and that teachers should be guides for their students instead of authority figures. Along with being the first woman in Italy to receive a medical degree, she was also nominated for the Nobel Peace Prize three times.

Building on the ideas of the progressives, Jerome Bruner (1915 –) further explored the notion that disciplines have certain structural elements – core ideas and approaches to knowledge and understanding – that should guide curriculum development in a manner that connects to the development of the child. Bruner developed the idea that if complex material is broken down into its essential ideas, any student can learn any subject matter. “Any subject can be taught effectively in some intellectually honest form to any child at any stage of development.” (Bruner, 1977) Bruner developed the concept of spiral curriculum which returns to the same subject matter with the student at periodic points in time, but at each “spiral” the material is substantially deeper in its intellectual demands (Hilgard and Bower, 1975). Many of his ideas would be used by Seymour Papert as a basis for Logo software in the 1980s.

Today teachers utilize a variety of classroom practices that are based on all of these ideas about learning. Contemporary learning theory recognizes the role that both experience and reflection play in the development of ideas and skills. Researchers and practitioners appreciate that reinforcement and practice play a role in the development of skills, and so do cognitive intent, effort, and reasoning. They acknowledge the importance of developmental stages; they also recognize that development can also be encouraged through social interaction and the structuring of experiences within the learners’ zone of proximal development or readiness sphere. Modern learning theories incorporate the role of culture and other influences on experience in views of how people construct their understandings and develop their abilities. Contemporary theories also recognize that the content matters – the nature of the disciplines has much to do with how they are learned and best taught. In large part because of differences in underlying views of the purposes of education, debates continue about “best” teaching practices. There is greater appreciation of the fact that different strategies are useful for different kinds of learning. It is most productive to think of these issues in terms of what kind of learning is sought in what contexts and then deliberate about what strategies may be most appropriate for those goals.

THE LEARNING PROCESS

“Inside the Learning Classroom: Theory into Practice” presents a body of learning theory for classroom teachers to use to support their students’ learning. This course addresses the relationships among fundamental aspects of the learning process, as we understand it today (PLT syllabus, 2001).

Through examples of teaching and learning in practice we will explore the range of ways people construct knowledge from experience, build on prior knowledge, and organize their own learning. Each segment highlights a particular feature of the learning process or set of ideas about how people learn, while the course as a whole represents a body of ideas that reinforce and connect with other ideas. All of these ideas can help teachers make sense of what is going on in their classrooms and provide lenses for understanding students’ growth, development, stumbling blocks, and successes.

The work of cognitive psychologists, neuroscientists and educational researchers as well as expert practitioners has provided us with a set of understandings about how people learn that have practical implications for teaching. Some of the key ideas about the learning process, which are highlighted within and across video segments, are presented here:

THE BRAIN PLAYS A ROLE

The mind is set up to process outside stimuli, to make sense of them, and to draw connections. We know that while there are critical periods for motor and sensory development, the development of the brain is lifelong, and not predetermined at birth or within in the first three years. However, psychologists have observed that individuals do progress through a predictable series of stages in their cognitive development. Learning changes the physical structure of the brain through the process of continuous interactions between the learner and the external environment. Differences in human processing and performance have been found to be related to different brain structures and functioning.

THE LEARNING ENVIRONMENT MAKES A DIFFERENCE

People learn by making sense of the environment and of stimuli around them. Greater perceptual development and learning occur in environments that are rich with stimuli and provide useful feedback in response to a learner's efforts to act upon the environment. The nature of the tasks confronted, the ways in which information is presented, and the expectations for the learner's involvement all impact the learning process. In addition, the nature of the social environment – whether and how learners have access to others who can model, describe, or provide feedback – shapes the learning process. Reinforcements from the environment and the nature of feedback from significant others can stimulate or undermine greater effort.

LEARNING IS BASED ON ASSOCIATIONS

Learning is a process of drawing connections between what is already known or understood and new information. Thus, prior knowledge is important to the learning process. People make connections and draw conclusions based on a sense of what they already know and have experienced. Learning can be viewed, in part, as a matter of encoding and storing information in memory, processing, categorizing and clustering material, and later retrieving this information to be applied at the appropriate times and situations. For learning to occur, facts, concepts and ideas must also be stored, connected to other facts, concepts, and ideas, and built upon. Knowing in advance what the big ideas are and how they relate to each other conceptually helps learners to make sense of information and to remember and use it more flexibly.

LEARNING OCCURS IN CULTURAL AND SOCIAL CONTEXTS

The associations people make and understandings they develop are dependent upon and influenced by what is valued and what is experienced at home, in the community, and within the classroom learning environment. Culture influences the knowledge and experiences people bring to the classroom, the ways in which they communicate, the expectations that have for how learning will occur, and the ideas they have about what is worth learning. The social context created within the classroom—the

ways in which communication, teachers' and students' roles, and opportunities for collaboration are structured—all influence the learner's understanding and construction of knowledge. The compatibility between cultural contexts, tasks, and modes of communication inside and outside of school influence the ease with which learners will be able to find and make connections to their experience, and hence to make sense of school-based learning experiences,

PEOPLE LEARN IN DIFFERENT WAYS

Identifying individual differences among learners can help us to better understand and guide the learning process. People can be seen as possessing a number of intelligences beyond the linguistic and logical-mathematical abilities typically emphasized in schools. Learners also possess inter- and intrapersonal intelligences, musical, kinesthetic, and spatial abilities. We also know that individual learners process information differently while they are reading or making mathematical calculations, for example. Learners have processing differences that influence how they handle visual, aural, or kinesthetic information. Information that is available through learning modalities or pathways that are better developed will be easier to understand and use.

PEOPLE THINK ABOUT THEIR OWN LEARNING, AND THEIR FEELINGS MATTER

Both thoughts and emotions shape the learning process. Metacognitive skills—being able to think about and monitor one's own thinking—enable learners to manage their learning process, to learn difficult new concepts, and to problem-solve effectively. Good metacognitive thinkers are also good intentional learners; they are able to redirect the normal frustration that occurs when things are confusing or not initially productive into further learning. Emotions also play a role; students who are fearful, anxious, depressed, or distracted cannot focus to process information. Positive emotions—feelings of confidence and willingness to exert effort—help students to think, perform a learning task, and process new knowledge. Emotional intelligence—the ability to recognize and manage one's emotions, to solve conflicts, to motivate oneself, and to persevere in the face of difficulty—can also be taught.

WHAT TEACHERS CAN DO TO ASSIST LEARNING

Teachers can be more effective in their work if they teach in ways that are compatible with the natural processes of learning. How can what we know about learning help us to think about effective teaching? What is the teacher's role in student learning? The following points are emphasized throughout the series:

TEACHING IS A PROCESS OF ORGANIZING THE ENVIRONMENT

Effective teachers can organize the environment to provide students with active, hands-on learning and authentic tasks and audiences. Opportunities for “active” learning experiences, in which students are asked to use ideas by writing and talking about them, creating models and demonstrations, applying these ideas to more complex problems, and constructing projects that require the integration of many ideas, have been found to promote deeper learning, especially when they are combined with reflective learning experiences. Teachers can develop learning activities with real purposes, audiences, and activity structures that mirror those outside of school settings. By encouraging discourse among students about ideas, concepts, and relationships they can create environments where the teacher is not the only source of knowledge. Teachers can also organize reflection on activity and analysis of ideas and products that enables learners to transform activity into broader understandings.

TEACHING IS A PROCESS OF ORGANIZING KNOWLEDGE, INFORMATION, AND ACTIVITIES

Teachers can organize information in the environment by taking into account how people process information, and by linking learning to prior experience and prior knowledge. Learning with understanding is more likely to occur when students are provided with categories of understanding, or concepts, as opposed to an unrelated body of facts. By using advance organizers, teachers can help students structure knowledge and information so that the big ideas within a content area are clear. With an understanding of the structure of the discipline they are teaching, teachers can provide cognitive maps of the terrain to be learned, along with content-specific strategies, examples, analogies, and

diagrams to make material meaningful to students and to address common misconceptions. They can also teach students how to think about and monitor their own learning and performance by providing opportunities to practice metacognitive strategies.

Teachers can foster students' understanding and capacity to undertake complex performances by organizing a systematic process of modeling and demonstrating how experts approach the task, scaffolding steps in the learning process, coaching learners, and providing feedback. These roles and strategies can change over time in response to how learners develop and change.

TEACHING IS A PROCESS OF ORGANIZING PEOPLE

Much learning occurs in groups and among individuals engaged in tasks together. Students learn from each other and from adults outside the school as well as from their classroom teachers. Effective teachers organize learning opportunities in social contexts by enabling students to learn together. Teachers can create a sense of community within their classrooms by developing clear norms for behavior, creating an emotionally safe environment, encouraging collaborative learning, and having students teach students. This includes identifying roles for students as they interact with one another in group tasks, pairs, and other arrangements, fostering student discourse, and managing the complexities of multiple ongoing tasks and activities.

Teachers can capitalize upon the diversity within their classes by helping students make connections between their home experiences and school experiences, enabling them to teach each other about their experiences (thus expanding each student's knowledge base), and by providing choices for how to pursue learning activities in ways that work best for them.

Teachers can also organize adults in their environments to improve learning by creating more coherent curriculum across grade levels and classrooms, by sharing knowledge with one another to increase everyone's teaching repertoire and curriculum choices, and by collaborating with colleagues to encourage learning for understanding throughout their schools.

THE RELATION OF THEORY TO PRACTICE

The challenge of teaching may be viewed as the creation of bridges between the knowledge embodied in the subject matter, on the one hand, and the minds and motives of students, on the other hand. This course is designed to bridge the contested territory between theory and practice, where both perspectives are needed but neither can suffice. At a theoretical level, this course includes the contributions of many disciplines, such as psychology, sociology, linguistics, anthropology, and philosophy. At a practical level no two situations are quite comparable. Learning to teach thus demands that we weave delicate webs of the general and the particular, finding ways to enrich our personal experiences through studying the experiences of others, seeking theoretical insights that give meaning to what we do, or raising skeptical questions about what we think we know (PLT syllabus, 2001).

DEFINITION OF A THEORY

A theory is a way of thinking and a model of how things work, how principles are related, and what causes things to work together. Learning theories address key questions, for example, how does learning happen? How does motivation occur? What influences students' development? A theory is not just an idea. It's an idea that is a coherent explanation of a set of relationships that has been tested with lots of research. If the idea survives rigorous testing, that theory is said to have empirical grounding.

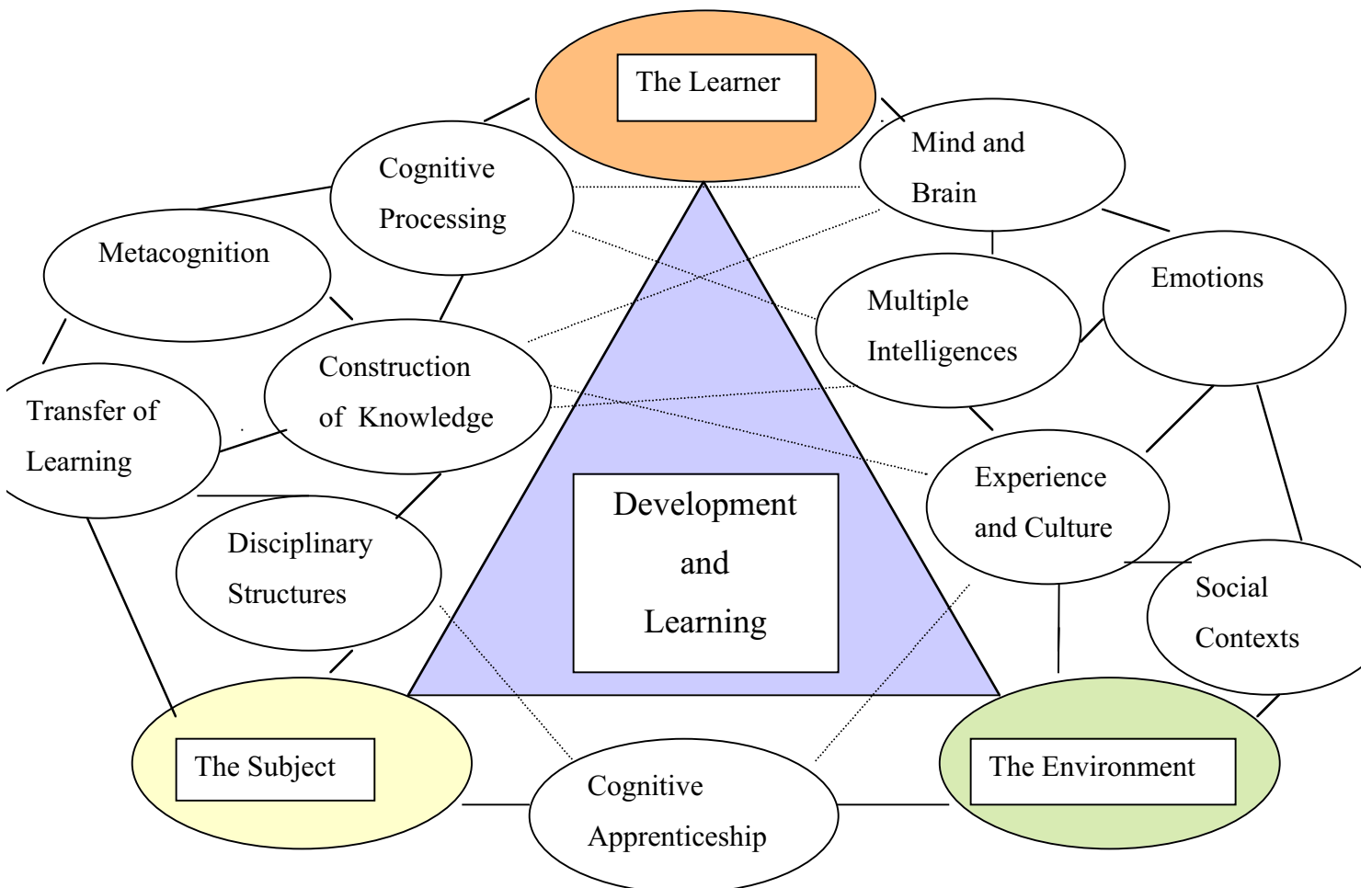
A theory is developed from practical experience as well as research. Any given theory is usually about one aspect of the learning process. For example, Piaget looked at the stages of cognitive development. He watched his own children and carefully observed how they learned things and what they could do. From his observations, he created an explanation or a theory of the different stages of development. Piaget's stage theory of cognitive development has been tested in thousands of subsequent studies.

A theory is modified over time based on the insights of practitioners as well as the work of researchers. Theories also intersect with each other. Other theorists have tested Piaget's ideas by examining his developmental stage theory from many different angles. There is a lot of support for the theory that children progress sequentially from one

cognitive stage to another. However, some have challenged Piaget’s methods and the limitations that result from studying a only small number of children. Others have critiqued the fact that he didn’t take into account the impact of the learning environment, the individuals’ motivation, and the nature of the social interactions involved in his work. Vygotsky, who was a secondary school teacher as well as a researcher, noticed aspects of his students’ learning that caused him to develop additional theoretical ideas that could be evaluated and tested by others. Vygotsky and other theorists have built upon Piaget’s theories by taking into account the larger social context of the learning process.

Theories are interconnected. Various theories describe different, interrelated parts of a more comprehensive learning process. Below is a visual that illustrates some of the ways in which learning theories are related, and how the chapters and video vignettes in this course are intended to form a more connected whole.

FIGURE 1



APPLYING THEORY TO PRACTICE

To apply learning theories to instructional practices, we need to understand them as principles that have been tested and that have some power to explain how things work across different situations and contexts. These theories can give us some consistent ways of looking at classroom practice and some rational explanations for what occurs. However, the events in classrooms are influenced by many different variables, and no single theory explains how they will all come together under different circumstances. The teacher has a complicated job. She has to consider the various sources of knowledge and theory that exist, take into account the very specific classroom situation and students she is facing, and determine when and how theory can inform her practice.

Teachers in the classroom experience what Dan Lortie (1975) called the “multi-dimensionality and simultaneity of teaching.” Every student, for instance, brings his/her idiosyncratic, individual unique challenges, personality, and ability to the classroom. As a teacher you experience your students’ individual differences. Even if there are some similarities in the developmental processes experienced by 7-year olds, or some commonalities in how high school students process information, every classroom, school year, and set of curricular demands is distinct and unique in certain ways. Teachers need to acknowledge these differences and build on students’ prior knowledge, languages, and cultures if the teacher is to build a bridge from where students start to the curriculum goals schools would like them to reach. The importance of these differences and means of addressing them are informed by an understanding of sociocultural and other learning theories (Oakes & Lipton, 1999:370).

For these reasons there is not a one-to-one correspondence between theory and practice. Integrating theory into practice involves an iterative process of developing a deep understanding of how people learn and what influences motivation, what influences development, what counts in the social context, and how family and culture and teaching all make a difference. For teachers, theory provides some guidance in making decisions about curriculum and teaching strategies. Perhaps more important, it supports some sensitivities that enable a teacher to ask useful questions about what may be going on

with his students and some indications about hypotheses that might be helpful in solving particular problems. Theory doesn't give teachers a simple, direct answer to Johnny's problem or a recipe for how to teach on Monday. It provides some lenses and some insights to help a teacher determine what could be going on with Johnny and how the teacher might plan the next lesson, given what the field has learned about learning and teaching and what she knows about her own teaching context. What the teacher does is to dip into a deep basket of intersecting theories, research, and personal as well as professional knowledge and decide how they come together for his or her classroom.

THE TEACHER IS ALSO A THEORIST

The teacher has to do his or her own research as well. Good teachers have a kind of “personal practical knowledge” that enables them to understand what's going on with their students. By watching students, observing them in action, examining their work, and talking and listening to them, teachers learn about what makes their students “tick” as learners. This knowledge has to be merged with other knowledge about learning and learners in general and in different contexts.

Piaget's research will not tell a teacher what to do exactly with Samantha who has not yet learned to read by the age of seven. Piaget's work may suggest that most children are ready to read by the age of seven and that the teacher should look into the matter further to see what else may be worth knowing. Other theorists will tell the teacher that there may be aspects of the teaching that Samantha has experienced, or the language background that she has had access to, or the motivational elements or social elements that influence her learning that are influencing her process of learning to read. They may enable the teacher to assess learning difficulties and they may suggest specific teaching strategies for working with Samantha. The teacher will take into account a wide range of learning theories to develop the right approach for teaching Samantha how to read.

The teacher has the job of bringing together what the profession, researchers, and other professionals have come to know about what matters and what works under different situations. The teacher has to apply theories judiciously with careful decision-making, informed by her own inquiry, and relying on her own understanding of the situation at hand. Marilyn Cochran-Smith & Susan Lytle (2001), Lee Shulman (1993),

Gordon Wells (1994), and others describe “teacher-researchers” as both individual teachers who use inquiry to make sense of their own practice, and “communities of scholars” working together to create new “practice-based knowledge” about learning and teaching.

In these ways, the teacher is also a theorist. Roland Barth (1990) suggests that all teachers and principals work from an “organizing principle” or “framework; they are “theory makers” and they are “theory consumers” (p.107). The teacher is theorizing about what is going on in the social dynamics of the classroom and what is going on with individual children and their particular learning process. The body of work contributed by researchers gives them more tools and resources to do this classroom theorizing and inquiry.

II. UNIT SYLLABUS

UNIT QUESTIONS

- How have philosophers, psychologists, and educators thought about the learning process over the course of history?
- What is the relationship between learning theory and teaching practice?

UNIT OBJECTIVES

1. Acquaint students with the central debates and major concepts in the history of learning theory
2. Introduce students to the main themes of the course and key ideas about the learning process and teacher assisted learning
3. Discuss the relationship between theory and practice

PRIMARY READINGS

Bransford, J.D., Brown, A.L., & Cocking, R.R. (1999). *How people learn: Brain, mind, experience, and school*. Washington, D.C.: National Academy Press.

Chapter 1: Learning: From speculation to science

- Oakes, J. & Lipton, M. (1999). *Teaching to change the world*. New York, NY: McGraw-Hill College.
- Chapter 2: Traditional learning theories: Transmission, training, and IQ (pp. 39-65)
- Chapter 3: Contemporary learning theories

SUGGESTED READINGS

- Dewey, J. (1968, [1900]). *The school and society*. Chicago: University of Chicago Press.

III. ACTIVITIES AND ASSESSMENT

IV. REFERENCES

- Barth, R. (1990). *Improving schools from within: Teachers, parents, and principals can make the difference*. San Francisco, CA: Jossey-Bass Publishers.
- Bruner, J. (1960). *The Process of education*. Cambridge, MA: Harvard University Press
- Cochran-Smith, M. & Lytle, S. (2001). Beyond certainty: taking an inquiry stance on practice. In Lieberman, A. & Miller, L. (Eds.). *Teachers caught in the action: Professional development that matters*. New York, NY: Teachers College Press.
- Dewey, J. (1938). *The Experience of education*. New York, NY: Simon & Schuster
- Hergenhahn, B.R. (1976). *An Introduction of theories of learning*. Englewood Cliffs, Prentice-Hall, Inc.
- Hilgard, E.R. & Bower, G.H. (1975). *Theories of learning*. Englewood Cliffs, Prentice-Hall, Inc.
- Lortie, D. (1975). *Schoolteacher: A Sociological study*. Chicago, IL: University of Chicago Press
- Monroe, P. (1925). *A Text-book in the history of education*. New York, NY: MacMillan Company.
- Oakes, J. & Lipton, M. (1999). *Teaching to change the world*. New York, NY: McGraw-Hill College.
- Rousseau, J.J. (2000). *Emile*. London, UK: Everyman.

- Schunk, D. H. (1996). *Learning theories*. Englewood Cliffs, Prentice-Hall, Inc.
- Shulman, L. (Nov./Dec.,1993). Teaching as community property: Putting an end to pedagogical solitude. *Change*. P. 6-7.
- Wells, G. (1994). *Changing schools from within: Creating communities of inquiry*. Portsmouth, N.H., Heinemann
- Wirth, A. (1966). *John Dewey as educator*. New York, NY: John Wiley & Sons

ADDITIONAL REFERENCES

- Cole, M. & Wertsch, J. (1996). Beyond the individual-social antimony in discussions of Piaget and Vygotsky. Retrieved September 6, 2001, Massey University , New Zealand, The Virtual Faculty Web site:
<http://www.massey.ac.nz/~alock/virtual/colavyg.html>
- Funderstanding (1998-2001). About learning. Retrieved September 6, 2001, from
http://www.funderstanding.com/about_learning.cfm
- Kurzweil, R. (1996) The Age of intelligent machines "Chronology". Retrieved September 6, 2001 from <http://www.kurzweiltech.com/mchron.htm>
- Maria Montessori: A brief biography. Retrieved September 6, 2001, from
<http://www.montessori-namta.org/generalinfo/biog.html>
- Learning theories and models. Retrieved September 6, 2001, from
<http://www.personal.psu.edu/staff/j/l/jll191/knowledgebase/theories/theories.htm>

V. WEB SITES AND ORGANIZATIONS

Center for Dewey Studies

<http://www.siu.edu/~deweyctr/index.html>

Based at the Southern Illinois University at Carbondale, this center provides extensive information and history about John Dewey's life and research. Discussion groups and links are included.

Explorations in learning and instruction: The Theory into Practice Database

<http://tip.psychology.org/>

Entries from the learning theory sections of the online JSU Encyclopedia of Psychology. Organized by theories, domains, and concepts. Provides resources to other web sites.

About Learning

http://www.funderstanding.com/about_learning.cfm

This site provides an overview of major learning theories from Funderstanding. Includes information about constructivism, behaviorism, Piaget, Vygotsky, and others.

Issues and debates: Educational theory links

<http://www.und.ac.za/users/murrell/classrm/theoryed.html>

A collection of links to web sites that cover a number of topics in educational theory and history from Interactive Instructional Material Research and Resources.

The School Improvements Program (SIP)

<http://www.ed.gov/offices/OESE/SIP/>

School.Improvement@ed.gov

Sponsored by the U.S. Department of Education, SIP consists of a number of freestanding organizations that support education reform.