



Teaching for Transformation: *From Learning Theory to Teaching Strategies*

NO MATTER WHAT you teach, you face the challenge of bringing students from point A— what they currently know—to point B—the learning goals of a course. In many courses, the distance between points A and B is huge, and the path is not obvious. Students must not only acquire new skills and information, but also radically transform their approach to thinking and learning. This newsletter explores theories and teaching strategies that address this universal teaching challenge.

THE CHALLENGE

Even though students may have no experience in your class or your field, they enter your classroom with a long history of academic training and life experience. For this reason, presenting new information is not enough to guarantee optimal learning. Students must recognize the limitations of their current knowledge and perspectives. This means that you cannot simply unload your knowledge on students. What is required is a true transformation of students' existing knowledge.

Instructors from all fields face this challenge. In the sciences and mathematics, it is common for students to have learned an oversimplified definition or approach in high school. Students making the shift from classical to modern physics, for example, cannot simply layer new information onto old understanding. In the humanities, students may, for the first time, be asked to develop original interpretations of texts or to consider conflicting interpretations of texts instead of seeking the one, instructor-approved, "correct" interpretation. This new approach must replace the approach that students have learned, practiced, and been rewarded for. In the social sciences, instructors often have the difficult job of helping students unlearn common sense beliefs that may be common but unjustified. In all these cases, students' previous knowledge must be completely

revised, not merely augmented.

TRANSFORMATIVE LEARNING THEORY

Transformative learning theory (see Mezirow, 1997) addresses this common teaching challenge. The theory describes the conditions and processes necessary for students to make the most significant kind of knowledge transformation: paradigm shift, also known as perspective transformation. Mezirow (1991, p. 167) describes perspective transformation as:

...the process of becoming critically aware of how and why our assumptions have come to constrain the way we perceive, understand, and feel about our world; changing these structures of habitual expectation to make possible a more inclusive, discriminating, and integrating perspective; and finally, making choices or otherwise acting upon these new understandings.

Transformative learning is in clear contrast to the more common process of assimilative learning, the type of learning that takes place when students simply acquire new information that can easily fit into their pre-existing knowledge structures. Whereas some college-level courses are aimed at assimilative learning, most courses require at least some level of transformative learning.

According to transformative learning theory, paradigm shift/perspective transformation is the result of several conditions and processes:

1. an activating event that exposes the limitations of a student's current knowledge/approach;
2. opportunities for the student to identify and articulate the underlying assumptions in the student's current knowledge/approach;
3. critical self-reflection as the student considers where these underlying assumptions came from, how these assumptions influenced or limited understanding;
4. critical discourse with other students and the instructor as the group examines alternative

ideas and approaches;

5. opportunities to test and apply new perspectives.

When these processes occur, students are more likely to revise their underlying assumptions, adopt a new paradigm, and apply this new paradigm (Cranton, 2002).

Transformative learning theory also recognizes that changing one's perspective is not simply a rational process. Being forced to consider, evaluate, and revise underlying assumptions can be an emotionally charged experience. Students have successfully used their current paradigms to excel in school and understand the world. They may reasonably be reluctant to abandon what they believe is the right way to think, create, and solve problems. Resistance to perspective transformation is common, even among students who are motivated to learn (Illeris,

see **TRANSFORM**, Page 2

Classes End Summer 2 - Aug. 4
Exams - Aug. 8
All Grades due - Aug. 10
Graduation Day (No Ceremony) - Aug. 12
Fall Classes Begin - Sept. 1

WHITE BOARD

2010-11 Publication Dates
First Monday of the Month

September 6	March 7
October 4	April 4
November 1	May 2
December 6	June 6
January 4	July 5
February 7	August 1

[Newsletters Archive HERE](#)

Center for Effective
Undergraduate Teaching
Carnel Learning Center, Suite 106.
Phone: 388-8426

TRANSFORM

Continued from Page 1

2003). For this reason, instructors who wish to facilitate transformative learning must create an environment that encourages and rewards intellectual openness (Taylor, 1998).

TEACHING STRATEGIES

The content of your teaching will necessarily make some strategies more suitable than others, but instructors of any field can make intentional use of transformative learning theory. Below, we consider strategies for each process involved in transformative learning and offer examples of what Stanford faculty members are doing to bring these strategies into their classrooms.

The Activating Event

The activating event can be anything that triggers students to examine their thinking and the possible limitations of their understanding:

- Understand your students' backgrounds. To create an effective critical event, you must anticipate what students believe and know. Invest some time at the beginning of each quarter to learn about students' backgrounds. In addition to basic classroom interactions, anonymous pre-tests, surveys, and early graded or non-graded assignments can all be effective tools.

- Provide conflicting viewpoints. Conflicting perspectives can motivate students to examine their own perspectives. You can provide these viewpoints in readings or in the classroom.

- Create a disorienting dilemma. Specifically, challenge what students believe. You can do this with a case study, quote, experiment, picture, demonstration, or story that does not fit their expectations. The goal is to confuse and intrigue students and thus increase their motivation to learn whatever you will be presenting in class.

- Set students up for failure. Failure driven approaches to teaching recognize that students are most motivated to learn when their current knowledge is insufficient to solve an interesting problem. When students reach a problem-solving impasse, they should recognize that new information or a new approach is needed. It is not enough to hand students an unsolvable problem; you must convince them that the impasse can be resolved and create conditions that encourage their success. Instructors can present the missing piece in many ways; from a simple explanation to helping students derive an idea or approach themselves.

Identifying Current Assumptions

The best strategies for helping students identify their current assumptions all require that students explain their thinking:

- Use a critical questioning technique. Ask students to explain their reasoning and the reasons behind their reasoning. Help students identify their assumptions by offering counterexamples, alternative scenarios, or differing perspectives. Ask students to make a prediction about an experiment, event, or procedure. Have students explain their predictions, in discussion or as a quickly written exercise. This can be particularly effective when the actual outcome will provide a disorienting dilemma.

- Have students talk through their thinking or problem-solving strategy. This is particularly helpful if you use a failure-driven approach as the critical event. Give students a challenging question or problem and have them talk through the thought process. This can be done with partners, small groups, or through direct interaction between student and instructor.

- Ask students to evaluate a specific position, solution, or reading and justify their critique. This can be done as a small group discussion or as a written assignment. If you provide conflicting readings or alternative solutions, ask students to defend one and provide in-depth reasoning. Follow-up with a class discussion.

Encouraging Critical Reflection

- Transformational learning is both a social and solitary process (Taylor, 1998). The most solitary part of transformational learning is critical reflection, which requires that students privately examine their current assumptions. Critical reflection is likely to occur outside of the classroom, as the student absorbs and integrates what happened in the classroom. Writing assignments are an excellent way to invite students to engage in solitary reflection: Ask students to keep a class journal of questions, observations, and experiences.

- Encourage students to keep track of "Aha!" moments (when they suddenly understood a new concept or viewpoint), as well as conflict and confusion. To encourage participation, you can give students five minutes at the end of each class to write in their journals. At various times in the quarter, have students turn the journal in or exchange journals with a classmate.

- Ask students to respond to a specific class experience or reading. Provide a set of semi-structured questions to guide their reflection. For example, what surprised you and why? How does this experience/reading conflict with your previous experience or understanding about the subject? Does this experience/reading change your thinking about it?

- Ask students to create a "perspective history" timeline. For any given topic, from critiquing art to analyzing the ethics of business, ask students to reflect on life experiences and academic experiences that have influenced their current perspectives. When was the first

time they remember forming an opinion about this topic? What people and events shaped their assumptions? Have they changed perspectives over time? What people and events triggered this change?

Encouraging Critical Discourse

Critical discourse is the most social aspect of transformative learning. Create opportunities for students to reflect through conversation:

- When you introduce a new strategy, concept, or paradigm in class, ask students to analyze the approach and compare it with their previous assumptions. You can lead the discussion yourself or break the class into small groups for analysis or discussion.

- Make time during class for more extended periods of discussion and debate. Not all discussion is critical. For example, transformative learning is unlikely to occur when you allow students to use discussion to reinforce their existing perspectives or to persuade others of their viewpoint. All students need to have their assumptions respectfully challenged. You can invite a student to play devil's advocate—challenging everyone's assumptions—or you can play the role yourself. You can also ask students to explain and defend a viewpoint they disagree with. This will challenge students' thinking habits and bring to the discussion points that might not otherwise have been raised.

- Keep the conversations going outside of the classroom. Online discussion boards or email lists provide an opportunity for students to continue challenging assumptions and considering new perspectives.

- Group projects or study groups can encourage small-group critical discourse, especially when the assignment involves analysis, comparison, and integration of ideas, readings, or approaches.

Giving Students an Opportunity to Test a New Paradigm or Perspective

For transformational learning to move from thought to action, students need opportunities to apply new knowledge (Taylor, 1998). Create activities and assignments that empower students to apply new approaches with a high likelihood of success:

- Return to the disorienting dilemma or failure-driven exercise and have students approach it with their new knowledge.

- Give students one problem or assignment and ask them to approach it with multiple perspectives or problem-solving approaches. You can assign different approaches/perspectives to specific students and discuss the varying outcomes in class, or you can ask students to tackle the same assignment more than once.

TRANSFORM*Continued from Page 2*

- Create classroom exercises, such as role-playing or debates, that give students the opportunity to try on new perspectives.

- Ask students to observe and interpret events, experiments, readings, or experiences using their new knowledge. Journals, assignments, online discussions, and exams can all be used for this purpose.

FOSTERING INTELLECTUAL OPENNESS

For transformative learning to occur, the instructor must strike a careful balance between support and challenge. Trust among students and the instructor is especially important in any course that uses writing and discussion as a primary strategy for critical reflection and discourse. On the other hand, Cranton (2002, p. 66) argues that although student empowerment and support are important, an “environment of challenge” is the central ingredient for transformative learning. Students must have their beliefs and assumptions actively challenged. Boyd and

Myers (1998) recommend that instructors practice “seasoned guidance” and “compassionate criticism.” Push too hard and students resist; push too little and the opportunity for learning quickly fades. To be an agent of change, you must understand the process of change and provide both the catalyst and support necessary for transformative learning.

Bibliography

Boyd, Robert D. and Myers, J. Gordon. “Transformative Education.” *International Journal of Lifelong Education*, 1988, no. 7, 261–284.

Cranton, Patricia. “Teaching for Transformation.” *New Directions of Adult and Continuing Education*, 2002, no. 93, 63–71.

Illeris, Knud. “Towards a Contemporary and Comprehensive Theory of Learning.” *International Journal of Lifelong Education*, 2003, no. 22, 396–406.

Mezirow, Jack. *Transformative Dimensions of Adult Learning*. San Francisco: Jossey-Bass, 1991.

Mezirow, Jack. “Transformative Learning: Theory to Practice.” *New Directions for Adult and Continuing Education*, 1997, no. 74, 5–12.

Taylor, Edward W. “The Theory and Practice of Transformative Learning: A Critical Review.” *Information Series No. 374*. Columbus: OH: ERIC, 1998.

The Adolescent Brain

THE ADOLESCENT BRAIN undergoes dramatic changes of a magnitude paralleled only by changes that occur shortly after birth. Millions of new synapses (connections between brain cells) appear in the frontal lobes between ages 9-10 or 10-11, followed by a massive pruning of these that starts a year later and continues into young adulthood. The brain consolidates learning by pruning the least-used pathways and keeping the most useful ones.

At this same time, myelination is occurring. In this process, a fatty sheath forms around certain axons and nerve fibers. This coating allows electrical impulses to travel more smoothly and efficiently. The last neurons to undergo myelination (to mature) are the ones in the frontal lobes. The prefrontal cortex—the brain’s “CEO,” the home of higher-level functions such as logic, abstract reasoning, goal-setting, and impulse control—isn’t mature until the person’s early 20s.

In the past, irrational, impulsive adolescent behavior was attributed solely to puberty/hormonal changes. We now know that the amygdala also changes dramatically during adolescence—it both grows and prunes. These changes, combined with a prefrontal cortex that isn’t yet mature, increase risk-taking behavior and reduce impulse control.

The amygdala is in large measure in the driver’s seat until about age 18, and then this begins to level out. When you ask a teenager, “What in the world were you thinking!?” and he or she replies, “I don’t know,” it’s because the teen really don’t know. There’s a gap between what adolescents rationally know and using the knowledge when making decisions.

Teens’ brains have been described as functioning like Internet dial up service: The parts don’t operate together smoothly. This means that adolescents’ reasoning is a more labored process; it doesn’t happen as automatically as it does in adults. (Adults’

brains are like high speed DSL or T3 Internet service, with the parts of their brains working together relatively smoothly and efficiently.)

Adolescents tend to misread facial expressions. This means they are quick to see insult, derision, and anger, even when they aren’t there. Worse, teens tend to react quickly and emotionally to those misinterpreted triggers.

In contrast to adult brains, adolescent brains require more stimulation to activate the reward center (get a pleasurable feeling). It takes more alcohol for adolescents to feel the effects, which may in part explain binge drinking.

The human brain craves novelty, and adolescents’ brains have a particularly high appetite for it. This is compounded by the fact that it takes more to give their brains the stimulation it craves. This leads to risky behavior, such as driving unsafely or dangerously, going on night adventures, drinking, being truant, and engaging in unsafe sex. Compared with any other time period in life, there’s a staggering 200% increase in the likelihood of death and disability during adolescence.

When you consider all of this, it’s remarkable that most young people make it safely through this tumultuous period in their life and the life of their brain.

FOR ALL THE REASONS ABOVE, COLLEGE PROFESSORS NEED TO TALK WITH STUDENTS ABOUT THEIR BRAINS. IT’S EMPOWERING AND COMFORTING TO STUDENTS, AND IT HELPS THEM UNDERSTAND MORE ABOUT THEMSELVES.

Janet Elder, Ph.D.,
The Adolescent Brain, Papers
 [<http://www.readingprof.com/papers.html>]
 July 12, 2011.

CAMPUS VIEW



Kelly McGonigal, Ph.D., “Speaking of Teaching,” *Spring 2005*, [<http://www.stanford.edu/dept/CTL/cgi-bin/docs/newsletter/transformation.pdf>], July 12, 2011