

# Essays on Teaching Excellence

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## The Uses of Uncertainty in the College Classroom

*Virginia S. Lee, The University of North Carolina at Chapel Hill*

For many students and even some instructors the unspoken purpose of teaching and learning is the reduction of uncertainty. In a teacher-directed, content-oriented teaching approach--a conceptualization held by many instructors, the primary role of the instructor is the presentation of content in a clear and organized fashion primarily through the traditional lecture (Kember, 1997). According to Perry's well-known stage theory of intellectual development, many college students believe that knowledge consists of right answers and learning the memorization and reproduction of these answers, a notion quite compatible with the teacher-directed, content-oriented approach to teaching (Perry, 1970). An implicit but clear contract exists between teacher and student: "I'll tell you what you need to know, and you show me that you know it."

In contrast, a variety of sources suggest that genuine uncertainty and doubt are the natural provocations for real learning. According to Jean Piaget all human beings are amateur scientists whose cognitive development advances through continuous interaction with and exploration of our environment. Repeatedly new experiences cause us to question and ultimately modify our existing theories or "schemas" about how the world works and is organized. Similarly the foundation of American pragmatism and the later work of John Dewey, the philosopher and progressive educator, rests on the seminal work of Charles Pierce. An empiricist, Pierce characterized the rhythm of real thinking as corresponding to scientific methods of inquiry. Like Piaget, he asserted that "the action of thought is excited

by the irritation of doubt, and ceases when belief is attained". Each belief is at once a "stopping-place [and] a new starting-place for thought" (Pierce, 1878, p. 121).

Psychological research has corroborated the importance of uncertainty to learning at the psychophysiological level. Recent studies in brain dynamics have demonstrated that the brain manifests an inherent variability that increases with the presentation of new stimuli. This psychophysiological uncertainty plays a significant catalytic role in learning, It opens up the organism to experience, causing it to investigate the environment with enhanced receptivity, preparing it for different behavioral actions, and facilitating the central processing and encoding of information received from such renewed exploration. Searching, exploring, and trial-and-error behaviors indicate psychophysiological uncertainty and accompany the appearance of reorganization, stability, and progressive development or learning (Germana & Lancaster, 1995).

While strategies of traditional instruction like the lecture still have their place in the classroom, their exclusive use actually undermines the process of learning and incapacitates student inquisitiveness and initiative, the prime movers of real learning. As a result of traditional schooling, many students believe that uncertainty is undesirable because it implies a lack of understanding and fundamental intelligence. Consequently, uncertainty becomes a source of anxiety, rather than a natural provocation for learning. Instructors often reinforce these beliefs through the teaching methods and types of evaluation they use. Instead, there is a variety of strategies which instructors can use to incorporate uncertainty into their classrooms as a natural companion to learning.

### **Discussing the Process of Learning**

Because few students will understand the role of uncertainty in learning, teachers should make a point of talking explicitly with their students about the process of learning: its inherent "messiness" and the positive and even essential role uncertainty plays as a stimulus to inquiry and eventual learning. This discussion might include a review of students' prior learning experiences, both formal and informal. Teachers might ask students to recall a time when they taught themselves how to do something, what motivated them to do so, and

the nature of the learning experience itself. Most of these experiences will include several components not associated with traditional schooling: strong intrinsic motivation, curiosity, doing, messiness, frequent questioning, trial-and-error, sustained attention, practice, mastery, and deep satisfaction. Instructors should also encourage conversations about students' learning experiences in their own classrooms, the reasons for their design, and the way learning occurs through them. Various classroom assessment techniques can stimulate these discussions as well (Angelo & Cross, 1993).

### **Using Selected Teaching Methods**

Some teaching strategies such as discovery and problem-based learning incorporate uncertainty naturally as a source of intrinsic motivation and a stimulus to learning. They mimic the natural learning process and its refinement in the various methods of inquiry in academic disciplines. In discovery learning, rather than telling students a given principle, as is traditionally done, instructors prepare the conditions of the learning experience so that students can discover the principle for themselves. Stimulated by "the irritation of doubt" before the problem posed, students, like amateur scientists, form provisional hypotheses and test them through repeated confident of their mastery of the material or of their ability to compete in the classroom with sophisticated verbal and conceptual gymnasts. It is a question of ease in the world of ideas.

*Choice of examples.* The choice of examples that students (and teachers) use in academic discourse can be very revealing of class background. One story is told of a student who stated that the reason pianos had been such an important social feature in this country is that everyone has one. Another student's eyebrows shot up: clearly pianos were not in every household that he entered. This story is relatively benign; others can be hair-raising.

*Academic interests and perspectives.* Students from different class backgrounds can have very different reactions to material presented and very different interests in the material. Asking for students' perspectives or reactions can reveal a great deal about students and, as well, enhance everyone's understanding.

*Dress.* This is a deceptive category, because many upper class

students dress down, but often the quality of clothing and of jewelry can reveal class background.

### **Pedagogical Implications**

The first implication is the rule for all matters of diversity:

**Learn as much as you can about all groups, but NEVER make assumptions about an individual student based on the group to which you think he or she might belong.**

This is the way out of the dangers inherent in listing signals of class difference. A student's accent or silence does not necessarily mean he or she comes from the lower class, for example; and that he or she comes from the lower class does not necessarily mean a lack of academic preparation or sophistication. Similarly, an upper class background does not guarantee intellectual sophistication. One must never make assumptions but must always check out the situation with the individual student.

But beyond this caveat, what can we do to help level the playing field and include all students to the greatest extent possible in learning? Some suggestions are institutional, some curricular, and some pedagogical.

*Institutional suggestions.* Institutions might engage in college-wide discussions about what it means to be educated, about the purpose of the institution and the values it embodies and promotes, using class as one of the factors for reflection. They can develop better student support systems, safety nets, and specific strategies for welcoming students who come without the requisite academic background so as to provide them with the learning and system skills they will need not just for survival but for success in higher learning.

*Curricular suggestions.* At most institutions, more attention can be paid to class experiences both in courses offered and in the content of many syllabi. Is there a place for students to learn about class backgrounds other than their own, as well as about their own? Is material included from every class? Is the absence of material from some classes discussed?

*Pedagogical suggestions.* Modes of classroom operation can be

developed to enhance the learning of all students, regardless of their background. Specific suggestions applicable to many courses, and in some instances all, follow.

- Be very explicit about classroom norms and rules of operation. Let students know how to play the game, and help those who seem uncertain.
- Include readings from a wide variety of class perspectives.
- Use examples that come from every class.
- Acknowledge class differences and make class a topic for discussion. Look for class-based perspectives. Note value-laden language.
- Ask about student experience and about personal reactions to material; include these in content discussions.
- Get to know your students and their individual strengths and weaknesses. Teach to both.
- Vary the kinds of assignments, to include a variety of learning styles.
- Vary classroom activities, to include collaboration and small group work.
- Provide the opportunity for rewriting papers, as a way to teach students still learning to work in that mode.
- Protect the student who makes an unsophisticated comment.
- Model the acceptance of various class backgrounds.

### **Conclusion**

Class distinctions are difficult for everyone in this country. Our national belief is that we are a classless society and that class should not matter; but class is evident everywhere and matters immensely.

The disjunction between our held belief and reality makes this a difficult area to understand and accept. We need to be sensitive to the embarrassment discussion of class differences almost inevitably involves. Lower class people are often embarrassed about their position, upper class people about their privileges; the middle class often isn't aware of class at all. When talking about class, both tensions and triumphs arise. This is difficult work, but critical to the creation of an academic environment open to all its members.

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