What do you mean by learning?

To create partnerships across the academic community around how we assess student learning, we must first have some shared notions about what it means to learn. How can we talk about how to assess learning outcomes or use those assessments to improve the learning environment if we have no common ideas about what it means to learn? I am not suggesting that there need be only one tolerated version of learning, but I am suggesting that if we have nothing in common in how we think about learning, there will be little opportunity to forge partnerships across the academic community. Learning, as we know, can have a transformative influence on the learner, but it can also produce no substantial influence on the way students subsequently think, act, or feel.

Some classic studies of student learning have demonstrated that humans have the capacity to memorize large bodies of material without thinking about its implications, applications, or meaning. Surely, we can agree that such examples do not constitute meaningful learning. But what does?

In the last twenty-five years, we have had various discussions that can help us develop and refine some shared notions. I want to draw on those discussions, on the literature on deep and surface approaches to learning, and the ideas that emerged from the people I studied, to suggest both some possible ways of thinking about those shared notions and some of the roads we should avoid. How do people who foster the deepest and most sustained learning think about its meaning? And do their conceptions help them produce those results? I do not want to suggest "A model" for understanding learning, or one size fits all, but a variety of rich ideas that can inform our particular discussions. At the same time, we must recognize that there is considerable evidence that methods of assessment can influence how students approach learning. We must not forget that the academic community includes our students. They must also share our notions about learning. How we assess them, so the research suggests, will have a considerable influence on the way they think about the meaning of learning. Among the ideas we will explore together will include notions of critical thinking; deep and surface approaches to learning; conceptual learning; learning that has a sustained, substantial , and positive influence on the way that students subsequently think, act or feel; routine and adaptive expertise; and intellectual and personal development of students.

Literature has offered us some robust notions that can form the basis of our ideas about learning.

1. Learning as the process of constructing concepts

2. Learning as developing the ability to think critically

3. Deep and Surface Learning

4. Learning as personal development

5. Learning as developing adaptive expertise

Must also have a robust notion of how assessment can influence the results. Like some phenomenon in physics, the mere act of observing can influence it.

Know for example that the biggest single influence on whether students will take a deep or surface approach to their learning is the kind of assessment they will face. Steady diet of MCQ can foster surface or strategic learning? Steady diet of projects that ask students to apply and defend, to justify their thinking, more likely to foster deep

approaches to learning.

Best Teachers I encountered created natural critical learning environment in which assessment was

1. Primarily formative, giving students lots of opportunities to try, fail, receive feedback and try again, long before they are ever assessed for a grade.

2. Saw assessment as part of their attempt to create environment in which they and their students could best come to understand the nature and progress of the students learning--not just scoring. Thus lots of attempts to help students understand the criteria by which they assessed the students.

3. Asked students to engage in their own assessment, to make an argument about the nature and progress of their learning. Offer evidence.

4. Tried to base their assessment on where students were at the end of the process, not on some average of where they had been--supports that formative approach

5. Assessment based on a standard or levels of improvement, not on competition,

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Routine vs Adaptive Expertise

In the 1980's some Japanese theorists proposed that we distinguish between two different types of expertise. These are not levels of expertise, but fundamentally different types.

Routine experts know all of the routines of a discipline, profession, game, or whatever, and, in fact, they may know them so well that they might even be considered world class in their expertise. As John Bransford has written "Routine experts have learned a set of routines that can be very complex and sophisticated, and [they] become very skilled at applying them." They may be life-long learners, but, as Bransford points out, they simply become more "efficient at doing what they have always been doing, and perhaps of adding a few new tricks along the way."

Adaptive Experts, in contrast, also know all of the routines, but they also have the attitude and aptitude to recognize and even relish both the opportunity and necessity for invention. They enjoy exploring the unknown and thinking in different kinds of ways. They appreciate their own knowledge, but they also realize how little they know in comparison to all there is to know. They constantly question their own assumptions, and feel comfortable doing so, and they avoid strong emotional attachments to any set of beliefs.

Question: How do we foster adaptive expertise? The traditional approach has been to think of a single road that passes through routine expertise on its way to adaptive expertise. The learner must go down this road, in this traditional thinking, far enough to encounter adaptive expertise. Thus, we offer the learner a "capstone" experience to foster adaptive expertise only after routine expertise has been achieved. The traditional Ph.D. program is a perfect example of such a single road/capstone experience approach to education. The graduate student is first asked to master the field and take qualifying examinations. After conquering all of the set routines of the discipline, the candidate must suddenly become an adaptive expert, an original thinker who does publishable work in the field for the dissertation.

But is the single path model the best approach? Should we think instead about two roads that diverge very early? One leads to adaptive expertise, and the other, no matter how far you go down it, leads only to higher and higher levels of routine expertise. The roads diverge early

and the longer one is on the road to routine expertise, the more difficult it becomes to get on the other path.

In that model, the question then becomes, what is the nature of the path to adaptive expertise that makes it special?