A Teaching–Learning Trinity: Foundation to My Teaching Philosophy

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ABSTRACT

This work represents a soil scientist's reflection (30+ years of teaching) on the connections between teaching and learning and portrays the foundation to my teaching philosophy on how an understanding of teaching and learning processes can increase teaching effectiveness and student learning. From working definitions of teaching and learning, I describe their interaction, not as a duality but a trinity; three processes linked as one: learning to learn, learning to teach, and teaching to learn. I describe how lifelong learners can be developed through understanding and successfully applying the processes within each segment of the teaching–learning trinity. I offer these comments in hopes they will inspire readers to develop their own journey toward mastering the teaching and learning processes in ways that improve teaching and learning outcomes.

An adage says, "It hasn't been taught until it's been learned." The implications of this adage have both guided and haunted my teaching. What if this adage is true? Then, when someone finds out that I am a teacher and asks, "What do you teach?" should my answer be based on content or outcomes? In addition, if it is true, what shall we call all the activities done in classrooms that do not result in any learning?

I have found the adage to certainly carry truth in its linkage of teaching and learning—the two processes fundamental to my teaching activities. Intuitively, educational success would seem dependent on, and best facilitated by, both teacher and learner understanding and knowingly invoking these processes and their interactions. However, my 30+ years of teaching experience in the college classroom suggests that such an informed exchange is both atypical and exceptional. In fact, failure by teacher and learner to understand learning as both a process and an outcome may be education's greatest shortcoming.

Most career-long teachers have been lifelong learners. At some point in these journeys, teachers need to develop a personal understanding of what learning and teaching mean. When students claim to have learned a lot, verification usually centers on outcomes, not the process essential to its repetition or expansion. Can teachers and learners participate in learning interactions without understanding the processes involved? Perhaps teaching and learning can happen without either participant's informed engagement, but is it then a haphazard action subject to unknown ends as opposed to a skill capable of being applied on demand?

Whereas knowledge of the teaching and learning processes would seem essential in most curricula, it classically shows inexplicable absenteeism. Any curriculum lacking instruction on the learning process denies students a valuable self-improvement tool. To omit knowledge of a key content area from the preparation of a student is illogical; likewise, to omit knowledge of key processes involved in student preparation seems indefensible. Many college teachers are products of this gap between content and process and the extent to which the gap has been closed has largely been through commendable personal efforts.

What follows here is not an expert's synopsis of the connections between teaching and learning. Rather, from a soil scientist's perspective, this work shares my philosophy on how an understanding of teaching and learning processes can increase teaching effectiveness and student learning. I will describe teaching and learning processes in fundamental terms, show my understanding of their interconnectedness, and finally describe how I see teachers and learners bringing that knowledge into the classroom for the benefit of both. This work represents personal and observational evidence I have used to develop my teaching philosophy. My hope is that my comments will inspire readers to develop their own journey toward mastering the teaching and learning processes in ways that improve teaching and learning outcomes.

THE TEACHING LEARNING TRINITY

The complexity of teaching and learning should not preclude their description. Although familiar terms often lack clarity among users, teachers and learners can benefit from working definitions of teaching and learning, especially ones that illustrate both their process and outcome components. In that light, experience has led me to describe teaching as behavior that *intentionally* produces learning. I view learning as acquisition and *command* of a realm of knowledge.

Working from those definitions, I have found it significant to visualize teaching and learning not as a duality but a *trinity*, a grouping of three processes linked as one. The components of this teaching–learning trinity are: learning to learn, learning to teach, and teaching to learn (Fig. 1). Arranging the three processes in a circular notation illustrates that (i) the activities are highly interconnected, (ii) their application is meant to be recurring, not linear, and (iii) failure to complete one of the processes leaves an unfinished product.

Linking teaching and learning as a trinity seems to best validate the adage, "It hasn't been taught until it's been learned." First, learning to learn leads to self-awareness of learning, described as the essential stage of knowing that guides both teacher and learner in mastering relevant content (Svinicki et al., 1996). Second, teachers learn about teaching so that content can be developed into learnable formats. Third, teachers knowingly combine the first two stages to maximize the opportunity for students to learn and develop as learners.

As an analogy, visualize these three stages of the teaching–learning trinity as a three-legged stool (Fig. 2). Take away any of the stool's legs and the stool does not stand. The *any-*

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body can teach if they know the material myth is exposed as a one-legged stool. Likewise, exemplary classroom style, organization, and practices are insufficient if they fail to produce learning. Finally, if content is only covered and learning has not progressed, or if the learner's skills have not been advanced, what has been gained? The inseparability of teaching and learning are demonstrated in this trinity model.

The trinity identifies two participants, teacher and learner. Teachers who master the three parts of the trinity would seem to be at the top of their profession, capable of utilizing the learning process to advance the progression of knowledge in their students (learners). Based on this model, successful teachers would be those who direct their intellectual energy and academic talents toward academic propagation, where one learner becomes many learners.

Despite the greatest understanding of teaching and learning by the teacher, learning can never be guaranteed. Teachers cannot learn for the student; the learner controls learning and may even choose not to learn for a variety of reasons. Excluding instruction on what learning means should not be one of those reasons. Neither should teachers who do not understand learning or are not effectual in its causation be a reason for not learning. The connections between learning and teaching should be evident to all parties involved in those processes. A blueprint for reaching this goal lies within understanding and successfully applying the processes of the teaching–learning trinity.

LEARN TO LEARN

If "learning how to learn is life's most important skill" (Buzan, 1999), then teaching others to learn is a teacher's most important gift. Learning is both a process and an outcome. Understanding learning as a process can enhance the effectiveness of both teacher and learner. Learners who understand learning can knowingly master content. Teachers who understand learning can intentionally pass along knowledge and measure its transfer. Many educational limitations are removed when all those involved understand the process of learning. Seemingly, our higher educational system does not cultivate this tenet but rather expects understanding learning as a process to be acquired through assimilation.

Typically, college curricula strive for an indepth, factual understanding of the discipline and, not surprisingly, undergraduates develop skills for acquiring content. Undergraduates become accomplished at viewing learning as an outcome, with perhaps vague, if any, knowledge of the processes involved. Graduate schools primarily reinforce this situation. Then, when a product of this system is asked to teach (i.e., produce learning), it quickly becomes apparent that being taught does not prepare one to teach. Teaching issues like breadth, depth, assessment, relevancy, and interdisciplinary interpretations, added to the volume of new knowledge being created in their science, can engulf the unprepared. Overwhelmed by these peripheral facets of teaching, and typically untrained in their application to learning, a new teacher's primary interaction with students can easily resort to mastery of content at the expense of the learning process. Thus, the cycle continues until the scientist's natural reasoning and inquisitiveness surfaces in the form of questions about whether students are learning the content being taught.

Pursuit of that inquiry to its logical end triggers a need to understand what learning means and how to test for supportive evidence. Learning some content does not imply an understanding of the process taken to generate the learning. For example, research shows that by solving problems, students do not learn problem solving (Woods, 1987). What does seem obvious, though, is that before a teacher can develop effective learning activities, he or she must understand learning as a process. From this status, then, examples, principles, relationships, theories, problems, and, yes—even questions in exams—can intentionally be applied to foster learning.

Learning how people learn, the process of learning, clearly seems fundamental to teaching and the advancement of knowl-

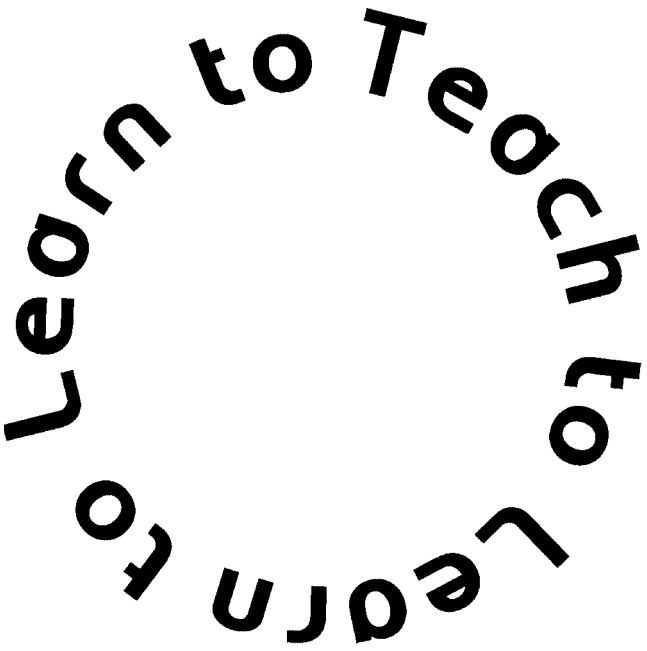

Fig. 1. Teaching and learning interact as a trinity, three processes linked as one: learn to learn, learn to teach, and teach to learn.

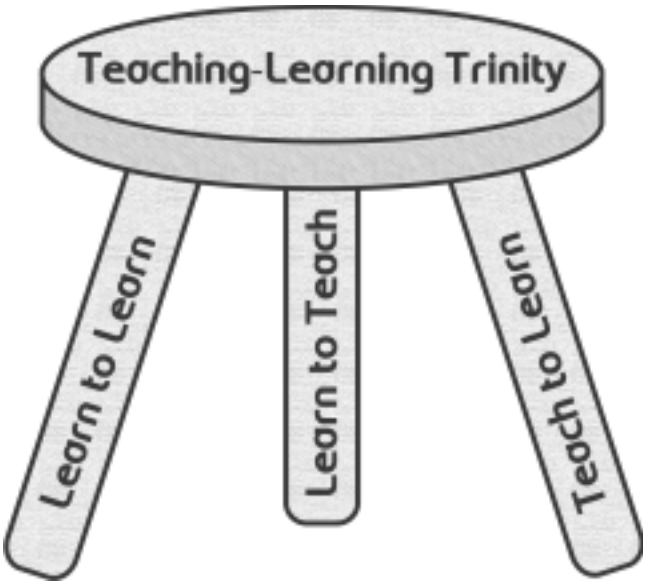

Fig. 2. A three-legged stool symbolizes the teaching–learning trinity. Take away any of the stool's legs and the stool does not stand.

edge. Learning to learn provides learners the tools needed for mastering content. Learning to learn, likewise, guides teachers in applying practices that foster learning in others. Teachers must know what learning means, apply it purposefully, and promote its intellectual development in students. My suggestions for how a teaching scholar incorporates knowledge of learning into teaching activities can be viewed at http://www.ksu.edu/agronomy/teaching_scholar/traits.htm (Thien, 2001; verified 15 July 2003).

Knowing how people learn allows teachers to apply informed instruction. Without knowing what learning means, teaching accumulates haphazard outcomes rather than systematic progress. If we design learning activities based on our discipline, as opposed to activities that cover our discipline, we can develop learners who not only know what is already known, but who are also capable of extending knowledge beyond today's subject matter. That, I would claim, is education's primary goal.

Teachers seeking knowledge of relevant theories and evidence related to how people learn will find no shortage of resources. Research into these areas will require an extension of one's learning abilities into unfamiliar disciplines such as cognitive science, neuroscience, constructivism, educational psychology, and deep learning, to name but a few. So much teaching and learning information abounds that its mass can be one of the biggest obstacles to learning about it, if you can get past an apparent lack of organization in these rapidly advancing fields of knowledge.

Notwithstanding learning's complexity, how people learn is becoming increasingly well understood. Also, the impact of various teaching techniques on learning is becoming even more widely documented. At the risk of predetermining your journey, let me suggest some excellent starting points. One is *How People Learn* (Bransford et al., 2000), authored by several committees within the National Research Council and copyrighted through the National Academy of Science. Another good starting point would be Robert Leamnson's *Thinking about Teaching and Learning: Developing Habits of Learning with First Year College and University Students* (Leamnson, 1999), or an article adapted from the book *Learning as Biological Brain Change* (Leamnson, 2000). These works, and others, demonstrate that teaching and learning are no longer mystical happenings but have the support of a solid research base.

Learning starts when information takes root in a student's mind. Learning how information (as words, images, explanations, activities, and so forth) is transformed into knowledge should be part of every teacher's efforts to understand and impart understanding. Some key findings that have strong implications on how we teach include: meshing new knowledge with existing preconceptions; the role of an extensive knowledge base; how conceptual frameworks aid understanding, retrieval, and knowledge transfer; and how these overlapping processes culminate in awareness and control of one's own knowing (metacognition) (Svinicki, 1996; Bransford et al., 2000). At its most advanced level, learning enables us to understand our own understanding.

Curiosity about learning as a biological event can improve pedagogy. Recent technological advancements in neuroscience research, or the biology of learning, have allowed scientists to begin to understand how brain functions and learning interact (Leamnson, 2000). For example, they have shown that merely putting information into an isolated neuron (information storage sites in the brain) does not finalize learning until synapses (the connections between neurons) link with other information sites. These newly formed synapses are weak and labile. The more times a synapse passes a signal, the larger it grows and the more securely it links the two neurons. Repeated use can "hard-wire," or stabilize, a synapse. Thus, deep learning occurs when teaching activities cause a desired circuit of synapses to fire over and over again until they become stabilized. Surely, this concept can trigger ideas about its application in the classroom.

Another finding postulates involvement of the brain's limbic system as a neural explanation of the well-known phenomenon of learning being enhanced by emotional involvement with the content. People easily learn what readily captivates their imagination (Leamnson, 2000). Thus, a crucial part of teaching that supersedes the organization and presentation of content is doing something to get students emotionally focused on that content. That is not always easy, but perhaps teachers can be motivated by knowing there is a biological necessity for making content interesting and why inspiring curiosity in learners helps fix knowledge in the brain's network.

Exposure to learning theories can guide teachers to develop their own understandable model of learning. From that vantage, each can apply their acquired model of how people learn to their own discipline and transfer it into their own teaching activities. Understanding the learning process promotes confidence when guiding others, or ourselves, along the learning path.

An understanding of the learning process seems fundamental to teaching activities. Teachers quite accomplished in knowledge acquisition can direct their abilities to learn toward the learning process itself and how to intentionally promote it in others. Learning to learn is a crucial piece of the teaching–learning trinity.

LEARN TO TEACH

Learning to teach means learning how to produce learning. In this mode, teacher-centered instructional activities (e.g., organization, delivery style, classroom presence, clever techniques) cede primary focus to learner-centered teaching. This change, described as a paradigm shift in undergraduate education (Barr and Tagg, 1995), brings a concurrent need to transform teacher preparation. A well-documented book, *Learner-Centered Teaching* (Weimer, 2002), describes the theoretical foundation and steps for bringing learner-centered teaching into the college classroom.

Typically, teachers discover, employ, test, and adopt a collection of comfortable techniques about teaching that becomes their teaching style. Throughout our careers, we have learned to be ever vigilant for teaching improvement opportunities. We become knowledgeable about classroom techniques, interactive skills, technology, delivery formats, assessment, and so forth. We believe that teaching effectiveness advances by growing our knowledge of these teaching methods. That is why we attend and contribute to teaching improvement seminars and workshops. We talk about teaching with our colleagues, encourage and offer peer review, and sub-

scribe to journals that enhance our knowledge about teaching. Research, however, shows these traditional faculty development strategies aimed at teaching methods are ineffective in producing long-term change; one reason for this is based on their lack of connecting teaching inputs to learning outputs (Baiocco and DeWaters, 1998).

In learner-centered teaching, learning to teach focuses more on the process of teaching than on the activities of teaching. Books on how to teach abound; fewer are those resources that focus on teaching activities that produce learning (Menges and Weimer, 1996; Mentkowski, 2000; Boice, 1996). New knowledge about teaching should encourage us to try new ideas, change approaches, or resist change when appropriate. However, in our search for the perfect classroom activity, we must keep in mind the significant difference between learning about teaching and learning to teach. The trinity I am describing here focuses on learning to teach, or learning about teaching so you can foster learning. To gauge this difference, evaluate what you learn about teaching in teaching meetings as to teaching's impact on the learner vs. its impact on the teacher.

Effective teaching continues to mean understanding and incorporating learning objectives, new instructional designs, and progressive evaluation schemes, but doing so in ways that enhance learning. Effective teaching means more than adding the latest communication, motivation, interaction, reinforcement, discussion, and questioning techniques to your teaching inventory; it means applying them in ways that intentionally cultivate learning skills in your students. In learning about teaching, we find guidance for purposefully selecting class activities that promote learning. Whether your style reflects a teacher-centered or learner-centered approach can be assessed using the analytical techniques in *Becoming a Critically Reflective Teacher* (Brookfield, 1995).

For learner-centered teachers, teaching tips are those that advance learning and the best of these rely on theory-based applications. Instead of adopting a tip reputed "to work" in some particular setting, pursue evidence from various domains about why a certain practice affects learning (Donovan et al, 1999). Focus on resources that focus on learning (Menges and Weimer, 1996; Donovan et al., 1999; Bransford et al., 2000; Mentkowski, 2000; Boice, 1996).

Learner-centered teachers develop an informed teaching style that shifts emphasis from teaching to learning. No one universal best teaching practice accomplishes this goal. Asking which teaching technique is best is analogous to asking which tool is best—a hammer, a screwdriver, a knife, or pliers. In teaching, as in carpentry, the selection of tools depends on the task. Thus, if we agree that the primary task of teaching is not to teach, but to cause learning, then selection of a learning goal should always precede selection of a practice.

Effective teachers—ones that produce learning—do not evolve from or fit into any standard, easily recognizable mold. The fact that varieties of paths taken in our quest to learn how to teach yield a multitude of outcomes is okay. Individuality in teachers fosters adaptability by learners and prepares them to benefit from the multitude of learning situations they are likely to encounter. Students appreciate that learning can be packaged into many different formats. How boring it would be if learning were confined to a uniform context. Again, my suggestions for how a teaching scholar builds knowledge of teaching activities can be viewed at http://www.ksu.edu/agronomy/teaching_scholar/traits.htm (Thien, 2001; verified 15 July 2003).

Learning to teach means acquiring knowledge of teaching methods best suited for converting classroom activities into learning experiences. Using pedagogically tested approaches help us remove randomness in our efforts to guide learners to the intentional acquisition of knowledge.

TEACH TO LEARN

Teaching to learn completes the teaching–learning trinity. An understanding of the learning process applied through an informed teaching method produces a promising learning environment. This phase can be either the most difficult or the easiest of the three. With a good understanding of the learning process and teaching methods that produce learning (and a willing learner), content can be readily transformed into knowledge. However, a higher hurdle awaits teachers wanting to generate learning without understanding its two precursors—learning to learn and learning to teach.

Well-prepared teachers should be aware of two extrinsic obstacles that can impact success in this segment and, hence, the trinity's completion. One obstacle is that no one ever learns something for somebody else. Students who do not want to learn or those systemically conditioned toward passive learning present big hurdles. Secondly, an almost uniform scarcity of recognition and evaluation systems based on evidence of learning outcomes may pose a large risk for teachers in systems based on documenting teaching inputs. These challenges notwithstanding, teaching to learn does fill education's consummate role of preparing students to educate themselves.

If, indeed, "It hasn't been taught until it's been learned," then teach to produce learning. Design your classes to show students that using the mind to explore and discover elevates them above the status of information accumulator. When classes go beyond teaching a discipline to teaching *students* a discipline, students join the community of learners (Weiner, 1990). Teaching to learn demonstrates that learning is not a happenstance occurrence, but results from the intentional application of steps based on learning theory. Jensen (2000) describes excellent connections between teaching activities and brain-based learning research. Other examples of assignments shown to promote learning are increasingly being documented in the literature (Lowman, 1996).

How can you teach to learn? As stated earlier, this phase should represent a natural extension of the concepts from the other two segments of the trinity. Knowing how people learn and being armed with an arsenal of methods to advance learning, your content becomes the delivery vehicle. Learning integrates new knowledge from your discipline (e.g., information, skills, relations, procedures) into a student's existing knowledge base in a manner that makes it accessible when applied to future activities. A four-item checklist might guide your first steps in this direction:

1. Establish learning goals
2. Create learning environments that achieve these goals
3. Assess outcomes to verify learning
4. Modify goals as necessary to promote success

Learning Goals

Goals direct teaching inputs toward desired outcomes (learning). Goals focus attention on expectations. Goals provide guidelines for both the teacher and learner to monitor learning paths and progress.

The global nature of goals can be subdivided into a series of specific learning objectives, communications describing the intent of individual educational activities. For the teacher, learning objectives assist in planning, designing, implementing, and assessing educational activities. Learning objectives describe expected behavior of the learner. Well-designed learning objectives, when shared with the learner, can direct them toward a desired outcome and help them to recognize their own learning progress. Through objectives, learners develop self-awareness (metacognition) of learning and have a tool to assist in their self-assessment of learning—two traits characterizing those achieving lifelong learner status (Leamnson, 2000).

Learning Environments

Teachers are perpetual learners. They create conditions within themselves and around themselves that foster learning. However, students do not necessarily recognize the application of those environments, nor do they become learners by merely being in class with teachers. Teachers can illustrate how learning occurs by describing the intent of their techniques. By sharing how internal learning processes are targeted by classroom activities, teachers convey that learning occurs best when an appropriate learning environment is in place. Teachers can illustrate their intentions to promote learning by relating how class activities are designed to: (i) transfer learning tasks to the learner; (ii) substitute discovery for description; (iii) design "work" to be a learning experience; (iv) model how new material is learned; (v) promote relevant, lifelong learning skills; (vi) motivate learning; and (vii) use graded assignments developmentally (Weimer, 2000).

At the core of teaching to learn are those actions that convert the student into a learner. Educational research can guide and improve teaching to that end (Menges and Weimer, 1996). Using our content, our style, and our knowledge of learning, each of us can teach in ways that consciously promote the overlapping internal processes that compose learning (paraphrased from Svinicki et al., 1996).

1. Motivation. Learning begins with an intention to learn. Motivation activates an interest to acquire knowledge. Learners show increased motivation when: (i) the teacher develops a high expectancy of success, (ii) the learner's goals are consistent with the learner's interests, (iii) application of the content is apparant, (iv) the task is challenging, and (v) the task is presented in a novel or interesting manner.

2. Attention. Learning something requires the learner's attention. Teachers should demonstrate that learning is an intentional act of the mind. Concentration is needed to separate the target from accompanying "noise." A variety of external (teacher) and internal (learner) techniques that can help focus one's attention on a task are described in Svinicki et al. (1996).

3. Prior Knowledge. Teachers should be aware of and involve a student's prior knowledge in learning tasks. New learning adds to prior knowledge, that existing framework of complex interconnections between ideas, skills, procedures, impressions, facts, and all other manners of information. Prior knowledge influences both motivation and attention and determines how information is perceived, interpreted, and processed. Faced with little prior knowledge, teachers must first ensure that learners acquire sufficient new information so that further structuring and understanding can occur. In addition, teachers should eliminate erroneous prior knowledge that can hinder subsequent learning.

4. Encoding and Organization. Encoding represents the essence of what is meant by learning. To be learned, information must be incorporated (encoded) into the existing organization of one's memory in a way that it can be retrieved later when needed. Teachers can aid this step by knowing that information stored in some structured format (e.g., 3 basic principles, 10 steps) is easiest to recall. Like a computer hard drive, information can be stored at any one of many places within your prior knowledge framework. Thus, any activity that promotes an organization structure that accommodates retrieval on demand enhances learning.

5. Active Processing and Feedback. Actively processing new information places it deeper into one's personal knowledge structure and promotes better learning. This is a mindful step requiring the learner to actively apply the information to some task and monitor feedback from its use. Incorporating active learning, repetition, and integration into the design of problem sets can promote this step in the learning process. Each such event registers more connections throughout the existing knowledge structure and strengthens the learning.

6. Awareness and Control. Completion of the previous steps brings the learner to an understanding of their own understanding. Teaching should encourage learners to evaluate their own knowing (metacognition) as this step leads to control of learning. Then, as learners are faced with different contexts, they will know when and how to apply the most appropriate learning strategy. At this stage, learners possess the active awareness and self-interest that puts them in control of their own learning. In short, they know what learning means.

Learning Assessment and Modification of Goals

Learning benefits from assessment techniques that compare learning goals and outcomes and assess student achievement against these criteria (Cambridge, 1996). Recall is recognized as a minimum level of achievement. Higher levels of learning should be encouraged, desired, required, and assessed accordingly as students progress through their curricula. In this structure, students come to know higher learning as not being attained by chance, but resulting from intentional design and effort.

When teaching emphasizes learning and content, not just learning of content, it recognizes that students forget content long before they forget process. In the context of one learning theory—Bloom's learning taxonomy (Bloom, 1956)—learning can be gauged by assessing a student's progression from the rudimentary levels of learning (knowledge and comprehension) to the more advanced levels of analysis, synthesis, and evaluation. Assessed against these hierarchical levels of learning, students can gain confidence in their development toward being a self-directed, lifelong learner.

The assessment of learning is more difficult than grading mastery of content. Fortunately, assistance is available in strategies like the American Association for Higher Education's *Nine Principles of Good Practice for Assessing Student Learning* (Astin et al., 1996) or the *Seven Steps to Fair Assessment* (Suskie, 2000).

Well-designed assessment activities provide evidence for goal modification. Imagine being a car designer charged with creating a new model without having any feedback on what customers are buying. This person would never know whether his or her best efforts were having any impact or what changes would constitute an improvement. To me, that image is analogous to a teacher incorporating a new lesson without assessing what has been or will be learned. Where do you start, what do you change, what was working, what was not, and why?

A natural extension of learning-based assessment in the classroom might find application in faculty evaluations. Could teaching performance be more thoroughly evaluated if evidence of learning (outcomes) was emphasized over subject matter coverage, organization, preparation, delivery style, and so forth (inputs)? Further appropriateness of assessing student performance based on learning might find application in institutional evaluations as well.

Teaching has been described as providing students with the skills necessary to become lifelong learners. Current teaching assessments that focus on teaching inputs do not match well with learner-centered teaching and would necessitate some institutional-level changes. Change is difficult. Resistance to change can be staggering. There is tremendous momentum to overcome, but the reasons for change are paramount.

SUMMARY

My teaching philosophy contains elements of inspiration, guidance, and challenge. I visualize teaching as more than simply ordering and transferring terms, concepts, relationships, and processes in my discipline. While mastering this basal phase of learning must precede further learning, it seldom inspires either the good teacher or the good student. As I unravel complex ideas into bits of discernible scholarship, I should also illuminate the analyses and deductions involved in ways that stimulate the interest and whet the curiosity of learners to develop their own understanding. I should facilitate this development by encouraging students to look beyond the product of their learning activities to an understanding of the teaching–learning process involved. My gift to them will be multiplied into a lifelong tool of far more benefit than the facts of the moment suggest.

My philosophy drives me to understand teaching and learning so that I can cultivate thinking skills useful to my students' needs in some unknown future. Society advances by adequately preparing the next generation to learn the unknown. Perhaps I can teach in ways that illustrate higher-level learning, praise its appearance in the classroom, and produce an environment that expects that level of achievement.

As a teacher, I must be a model of the learning process, showing how doubt, intellectual curiosity, and uncertainty are essential complements to knowledge. I must convey the attitude that studying and remembering what other people have learned is not an education, but is rather one of its tools. If I can teach students to learn by cultivating their intellect, they will have acquired a lifelong tool of unknown but immense worth. I think the blueprint for reaching this goal will have pages labeled something like: learn to learn, learn to teach, and teach to learn. That excites me. That makes my every encounter with a student self-invigorating. That is why I enjoy teaching.

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