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Metaphors for Teaching and Learning

Ken Badley and Jaliene Hollabaugh

WHEN TALKING TO TEACHERS, students, or members of the public, you will hear people use a wide range of metaphors about education. Other chapters in this book focus on metaphors for teachers and learners, curriculum, assessment, and other aspects of schools and education. In this chapter we examine metaphors for the relationship between teaching and learning, arguably the key relationship in schools. Notice our language already. What if we had said that teaching/learning is the key *exchange* in education? The word exchange would already prejudge how teaching and learning connect as concepts. The term relationship does the same. We point this out to remind all of us of Lakoff and Johnson's argument (1980) about the importance of metaphor in our thinking. We have a hard time finding language devoid of metaphors to describe what takes place in education. So we ask, what kind of relationship do the two central activities of teaching and learning have to each other?

Many people have explored this question. Their answers, which range from hunches to research-based conclusions to worldview-based declarations, fill the education shelves in post-secondary libraries. We begin our exploration here with a survey of a few metaphors for the teaching/learning relationship, demonstrating their great variety. We will then examine three key metaphors in detail. There are, of course, many more, but for others we point you to academic library databases.

The three clusters of metaphors we explore in major sections in this chapter are transmission, facilitation, and catalyst metaphors. The

dominant class of metaphors for teaching and learning focuses on the transmission of information. Many educators also use the language of facilitation, guidance, and coaching to catch what transpires in teaching and learning. Here students set out to accomplish certain learning goals with teachers providing assistance. Finally, the catalyst metaphor suggests that the student learns best when facing cognitive dissonance, and where the teacher's job is to create that dissonance. Before treating those three clusters of images in more depth, we survey a few other metaphors for teaching and learning.

Some educators use medical and psychological metaphors. These range from dentistry (Fischer & Kiefer, 2001) to psychotherapy (Efron & Joseph, 2001). Generally, such metaphors portray teachers positively, as people who meet the needs of their students. However, Ivan Illich, a radical critic of schooling, used a medical metaphor negatively to argue for what he called deschooling (Illich, 1970, 1977). He wanted to remove teaching and learning from the institutions which, in his view, had monopolized it and defined it for their own purposes of social control. In Illich's metaphor, teachers are like doctors and teaching is like the practice of medicine. Students come to teachers for healing of what ails them—and what ails them is ignorance. Using this metaphor and a few similar ones, Illich built a rather detailed critique of schooling as part of his larger utopian vision for education and all of society. We disagree with Illich. We believe that ignorance exists independently of institutional solutions used by schools to treat it. On the other hand, we applaud Illich for calling as early as 1970—decades before the internet—for people to use computers to connect learners with those who could teach them what they wanted to know. The medical metaphor, whether used positively or negatively, illustrates the power of metaphors. For instance, Illich's metaphor may plant seeds of doubt about whether schools really do solve the problem of ignorance.

Historically, many educators have used military and agricultural metaphors to describe teaching and learning. Military metaphors generally project messages of toughness, conformity, and uniformity. This last aim—uniformity—was shared by the many educators (mainly in another era) for whom schools served as factories whose purpose was to produce uniform and productive people. In agricultural metaphors, students grow and teachers nurture. Besides these common metaphors, there also are a growing number of educators who view the school classroom as a place

of respite where people find hospitality, a biblical virtue (Anderson, 2011; Bennett, 2003; McAvoy, 1998).

The range of metaphors from which educators choose indicates something about the important role of metaphors in our thinking about education. This broad range also shows that metaphors for teaching and learning are somewhat tangled up with metaphors for teachers, metaphors for learners, metaphors for curriculum, and so on. You should keep that in mind as you read this chapter on metaphors for teaching and learning.

Transmission Metaphors for Teaching and Learning

Transmission is arguably the oldest and most recognizable metaphor for teaching and learning. The word *transmission* dates back to the early 1600s and connotes movement from one thing or being to another thing or being. For example, each society possesses its own stock of knowledge, and teachers, according to transmission metaphors, have the responsibility to pass part of that stock of knowledge on to the next generation. For many educators, the metaphor of transmission epitomizes the transactions involved in teaching and learning. All knowledge must come from somewhere, and when knowledge is shared by one person with another, the goal is generally for the other person to internalize that knowledge. Teachers have the professional responsibility to prepare for, lead in, and communicate knowledge from themselves to their students.

Transmission metaphors connect to an old educational debate about the Latin origins of the word education. Some point to the Latin word *educare*, which means to raise a child or animal, as etymological evidence that children are like clay which teachers shape. A quite different metaphor has children as growing plants in need of a gardener, a picture that fits better with the Latin term, *educere*, which means to lead forth, draw out or elicit (Scheffler, 1964; Zachariah, 1985). These contrasting possibilities illuminate the historical tension in defining the relationship between teachers and learners. The definition of education and the metaphors for teaching and learning consciously or unconsciously used in classrooms have an impact on what transpires and on how students perceive themselves as learners.

For example, picture the arrangement of desks in a classroom approximately one-hundred years ago. In this picture the straight rows

of desks are quite likely screwed to the classroom floor. This desk arrangement implies that the business of the classroom is for one person to transmit important information to a group of people. In other words, arranging desks for transmission reflects the Latin term *educare* (to train a child or animal). To use the most common language of a century ago, teachers were to *teach* pupils. Notice the etymological connection between the pupil in a classroom and the pupil in your eye; the function of both is to admit light. Also, notice the word *teach* that we italicized just above. A century ago, *teach* did not imply facilitating table groups, organizing jigsaws, telling students to engage in a quick think-pair-share, or directing students to fill out exit slips. Teaching meant telling, transmitting. Many educational terms flow from and support that metaphor, such as ideas come across, teachers try to get through to students, or teachers deliver content which students absorb. To this day, if you watch children playing “school” you will likely see the older one standing and instructing the younger one(s), a reason to believe that transmission may remain for many the default metaphor of teaching and learning.

Perhaps it is not surprising that transmission metaphors now carry strong negative connotations for some students and educators (for example, Reinsmith, 1992). At the surface level, transmission metaphors may imply that teachers simply relay information to students, a task that some today might argue can be done more effectively and at less cost by computers, tablets, or smart phones. True, lectures and rote memorization can be boring at times. However, both are essential for some forms of learning. For example, try getting by without knowing the alphabet, part of that unglamorous yet necessary foundation for other learning and for life itself. We are the first to admit that some teachers who function only in the transmission mode—especially if they understand transmission to involve mainly themselves talking—do it poorly and need to expand their repertoire of teaching strategies. Yet we challenge the view that developments in computer and phone technology imply that we can dispense with teachers. Also, we want to point to the many vibrant and engaging teachers who use transmission of knowledge effectively. Arguments that transmission of knowledge is *passé* or necessarily inferior pedagogically is simplistic.

One characterization of poor teaching often unfairly associated with transmission metaphors has teachers cramming vast gobs of information into students’ brains in short and limited blocks of time, usually through

lecture. Teachers and professors who adopt transmission metaphors may rightly think that their responsibilities include passing knowledge to students. But such metaphors do not offer a license for bad teaching. A common question often debated in discussions of transmission metaphors is whether the regurgitation of information demonstrates learning. At times, the regurgitation of information does demonstrate learning. We believe that transmission metaphors accurately represent what teachers should be able to do in their classrooms: have knowledge to transmit. However, there are boundaries to the transmission metaphor that, when crossed, reek of teacher ignorance at best and arrogance at worst—and fail in that students do not attain the stated or implied learning outcomes.

Unreflective teachers who work under the umbrella of transmission metaphors may consistently overlook the experiences, cultural differences, language barriers, and prior knowledge that students bring to the classroom. Arrogant teachers may think too highly of themselves and their own knowledge, coming to believe that they are the only light by which pupils learn. No teacher, no matter how bright, knows everything. The arrogant teachers we describe here implicitly demean students. Such teachers' interpretations and views both grow from and nurture a loss of appreciation for their human imperfections, for recorded history's imperfections, and for their students' rightful place as agents in their own learning.

When a teacher attempts to become the sole transmitter and interpreter of knowledge (the *principal source and cause* of learning) within a classroom, meaningful learning is easily undermined. For instance, the perspectives and conclusions of students are devalued, and such transmission may also be used to promote and justify indoctrination. In the view of St. Thomas Aquinas, God is the only principal cause of learning, not the teacher or the student. Thomas' claim contains insight regarding any teacher's role as a transmitter of knowledge. Even those who question Thomas' claim will recognize that both the physical and social worlds are so complex that even an interdisciplinary genius such as Leonardo da Vinci lacked the capacity for complete understanding. Furthermore, we all depend on communal knowledge developed and deemed trustworthy over a period of time. So we conclude that teachers need to seek the path of humility. We work within paradigms that, as Thomas Kuhn (1970) pointed out, may well be flawed. They deal with issues where we struggle with apparently irresolvable paradoxes. Their interpretations of

phenomena are often ones that compete with a spectrum of alternate interpretations. If we believe, as St. Paul put it, that “now we see only a poor reflection” (1 Cor 13:12), then teaching and learning need to suggest awe, wonder, and even uncertainty about God’s world. The writings of both Thomas Aquinas and Thomas Kuhn suggest humility. And throughout Scripture, we are reminded that whatever we as teachers and students accomplish together we accomplish only by God’s grace.

Facilitation, Guidance, and Coaching Metaphors for Teaching and Learning

Course evaluation forms often include a statement such as “The teacher [or professor] facilitates student learning well.” If you think for a moment where we use the word *facilitator* in other contexts—a conference or meeting facilitator, for example—you quickly recognize the salient premise of the facilitation metaphor: learning comes primarily from within students but teachers seek to put in place optimal conditions for learning. As did transmission metaphors, facilitation metaphors imply roles and activities for both teachers and students.

Founded on this premise, Montessori classrooms are set up to encourage student learning by promoting an environment where students direct their own learning through exercising some freedom to choose what, when, and how they want to learn. Note the phrase *some freedom*; in Montessori classrooms, teachers do guide. For students who are already self-motivated, who recognize their inherent abilities to discover and create and who realize that they are the primary source of their learning, this view of teaching and learning can work well. We know that not all students meet the conditions we just named. We have observed, as have all teachers, that students who have a difficult time remaining self-directed need teachers who do much more than facilitate. Or, perhaps facilitation metaphors need to imply a greater degree of teacher-direction than many people often infer. We view teachers who guide well as those whose clear expectations and explicit directions create a structured and productive learning environment. It is difficult even for the most motivated learners to remain focused and engaged on the educational tasks at hand all the time. A good facilitator actively prepares for the distractions that will inevitably occur in any learning environment.

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Generally, teachers working within a facilitation metaphor see themselves as people who help their students discover knowledge, solutions, or processes on their own. They see themselves as “guides on the side.” Facilitators create the opportunities for students to learn. To aid understanding of facilitation in teaching contexts, however, we might recommend substituting the metaphorical synonym *prime mover* for the word *facilitator*. Prime mover language more openly recognizes the teacher’s dual roles of preparing the environment for student learning to occur and guiding the process as it unfolds. In addition, prime mover language counters a false and rather commonplace opposition between transmission metaphors and guidance metaphors. It would be nearly impossible, for example, for teachers to prepare for student learning to occur—whether working under transmission or guide metaphors—without some expert knowledge in the area which the students were to study. Hence, guidance metaphors must necessarily include space for aspects of transmission, and prime mover language better describes this necessary partnership.

One educator (McKenzie, 1998) has developed a list of verbs to describe teachers who act as guides: circulating, moderating, validating, redirecting, trouble-shooting, observing, assessing, encouraging, modeling, questioning, challenging, motivating, and even disciplining. To the degree that McKenzie’s (1998) list is right, teaching as facilitating or guiding entails much more than simply allowing students to discover and learn on their own. Facilitating also involves constant assessment and recalibration in order to provide each learner with the support they need to complete the educational tasks in front of them. When we view facilitating learning as a highly active process, we see that guidance and coaching metaphors belong in the same discussion as facilitation metaphors. Also, when we view facilitation as more active, we also may partially solve the problem of those learners who don’t meet the three conditions we listed regarding Montessori schools.

It was not by mistake or oversight that we combined the facilitation and guidance metaphors in the preceding paragraphs. We recognize that some educational theorists keep them separated, in part because in our ordinary speech we recognize that the facilitator might not need as much knowledge on a given subject matter as a guide (Efron & Joseph, 2001; Rogers, 1969). For example, a guide shows us the highlights of a place and perhaps warns us about pitfalls and places to avoid. Guides often do

the driving, using their local knowledge of shortcuts, traffic patterns, and prices. Guides help travelers understand the relationship between the map and the actual territory. Many mountaineers know that without the help of guides, they would not get to the top at all. A facilitator, on the other hand, is not always expected to have the same degree of intimate knowledge on a subject. One can facilitate a large corporate business convention, for example, without the knowledge required to lead the breakout sessions. We want to combine both images and we believe that classrooms are best served by teachers who have the skills to serve as an active facilitator as well as the expert knowledge usually expected of a guide. One writer, in fact, has offered an understanding of the Latin root of the word education that we did not mention in the discussion of transmission metaphors above, an interpretation that seems to combine the roles of facilitator and guide. Rechtschaffen (2011) argues that the word education originates in the Latin *ex duco*, which means both from within and to guide. Especially in educational contexts, the metaphors of facilitation and guidance really should be together within the same discussion, in part because teachers should be expected to do both.

In facilitation metaphors, the teacher's role is to create opportunities for the student to learn. The guide's role is to possess knowledge of what the students need to learn. Coaching metaphors, however, encompass both facilitating and guiding, while adding a very important condition: the ability to motivate. Good coaches are able to inspire those they coach to perform at their highest level, whether in training, in competition, or in life experiences. In the classroom, the ability to motivate learners to perform at their highest level is especially important when teachers operate within facilitation or guidance metaphors. Teachers who view students as the primary source of their own learning will need to provide the external encouragement their students need to move toward their learning goals.

Coaching metaphors rightfully bring the thinking and methods of respected coaches into the academic realm that any teacher—coach or not—can use (more discussion of coaching metaphors appears in Austin, 2000). Successful coaches try to prepare their athletes both mentally and physically for competition. In a classroom, that competition could take the form of a test, an invention, a skill, or the acquisition and application of new knowledge. In the training of athletes, coaches allot time for both repeated practice of key skills and for the incremental development of new skills, while providing motivation and encouragement. However, the

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most powerful contribution of coaching metaphors may be the focus they place on students as participants in their own success. Athletic coaches may be talented, but individual athletes shoulder the primary responsibility for their performance.

Just as facilitation and guiding metaphors did, coaching metaphors involve both teachers and students as participants in the learning process. If someone told us that the teacher in the room we were about to visit worked within a coaching metaphor, we would enter that room expecting to see the teacher work within certain patterns consistent with the metaphor, as described earlier (e.g., an emphasis on practice, preparation, and encouragement). But we ask what we would expect to see if students were working within a coaching metaphor? Graves (2006) offers some examples of what we might see and suggests that several benefits accrue when students are able to embrace a coaching metaphor.

The most valuable component of having students think of a teacher as a coach is how they are forced to rethink their role in their performance. Sports is an arena still relatively unburdened by society's pervasive culture of blame. In defeat, coaches often take the blame, but players rarely permit them, repeating sports clichés like "Coach put us in a position to make plays, but we didn't make the plays and we lost." After a win, the players repeat, "We needed to step up and make plays, and we did that this time." Moreover, coaches are never blamed for the difficulty of the opposing team, and indeed players relish playing tough opponents. The sports attitude discourages the unexamined assignment of credit and blame often overheard in hallways after an exam (Graves, 2006, paragraph 8).

If Graves is right, and we think he is, then coaching metaphors imply that students must take significant responsibility for their own learning. This is not a simple case of doing the math; teachers remain responsible for a thousand details related to the learning that is intended to happen in their rooms. Still, coaching metaphors can clearly bring an educational advantage to any classroom if they help students grasp their own responsibilities for learning.

Perhaps we take an unconventional route when we cluster the commonly recognized metaphors of facilitation, guiding, and coaching within the same family. We do so because we believe that each of the three metaphors overlaps the other two to such a high degree that they

are hard to pry apart. In a Venn diagram representing these three metaphors, the cross-hatched area would dominate the diagram. However, we want to point out some cautions and boundaries with these metaphors. If teachers working within facilitation, guidance, and coach metaphors stand too far to the side (speaking metaphorically), some students may never discover the rich resources of historical knowledge that they might discover in a classroom constructed around the idea of transmission. The potential for such gaps in student learning demonstrates why we have argued that this cluster of metaphors must include space for transmission and why teachers must have knowledge to transmit. Left to their own devices, some students will explore only what interests them, not what is in their interests. These metaphors, understood and applied correctly, do not get teachers off the hook for directing students to that which is in their interests to learn.

We raise another caution related to this cluster of metaphors: students who have not been initiated into the idea that they are the primary instigator of their own learning may resist or flounder in this model of instruction. Perhaps rightly so (given the usual expectations society and students have for schools), such students will wait for their teachers to give them the information they need. One researcher, who explored the language of teacher-centered and student-centered classrooms, concluded that many teachers try too hard to get out of the way of student learning (Santoro Gomez, 2005, 2006). Teachers must strive to find the balance that all students need (and most desire) between teacher-direction and self-direction. We know that the point of balance differs for each student, depending on various factors, including raw ability. Thus teachers need to build flexibility into their instruction and assessment plans so that students who struggle to get onto their educational feet can walk, while others are freed to fly. Effective teachers find the delicate balance between the time available for teaching and learning and the energy required to learn new knowledge thoroughly. Teachers who adopt facilitation, guidance, or coaching metaphors uncritically may create a classroom where student learning progresses too slowly due to a lack of purposeful planning, instruction, and encouragement. In recent decades, many teacher educators have focused unduly on facilitation, guidance, and coaching models as if transmission were never needed. Unfortunately for the pre-service teachers who graduate from some programs, facilitation is simply not enough. Transmission, when executed in the form of single-mode,

day-after-day, boring, direct instruction, may have earned a bad reputation for transmission metaphors. This is unfortunate because in the end, facilitation metaphors may not be sufficient in themselves. It turns out that highly effective teachers work in both kinds of metaphors and mix their instruction.

Catalyst Metaphors for Teaching and Learning

For some teachers, catalyst metaphors best catch the feature of teaching that leads most effectively to student learning: student engagement. In catalyst metaphors teachers stir students in their thinking—stir the pot, so to speak—perhaps by playing the devil’s advocates on some points of controversy (Efron & Joseph, 2001), or by disturbing students in some other way. Some educators, noting Socrates’ unrelenting use of questions, claim that he worked in a catalyst metaphor. The phrase *Socratic teaching* has connotations of lively to and fro between teachers and students. In the words of one educator, catalyst teachers start fires (Fenwick, 1996).

We call on another metaphor to illustrate this one. Whether natural or cultured, pearls result when the oyster coats a grain of sand with enzymes. In catalyst metaphors, teachers are to insert pedagogical grains of sand and thereby irritate their students’ thinking. Thus irritated, the students will coat the pedagogical irritants and ultimately produce educational pearls, so to speak. Teachers in this role consciously weave hard-to-answer questions into the course materials and instructional plans. A junior-high textbook project in which one of us was involved included questions at three different levels of difficulty. The easiest questions appeared under the heading Checkpoints and the moderately difficult questions were labeled Reflections or Activities. But the most difficult and demanding questions always appeared under the heading Brain Freeze. The point of these questions was that textbooks, which often fail to challenge all students in a given class, owe the brightest students questions capable of giving them a good (if metaphoric) headache. Interestingly, the editor had not previously heard of a brain freeze and accepted the usage only after her nephew confirmed that it was real language.

Teachers wanting to justify catalyst metaphors will point to such benefits as higher student engagement with the learning materials at hand and thereby greater enjoyment of school overall. They may note

that catalyst metaphors make teaching more interesting for teachers as well. Admittedly, the Socratic method is not for everyone, and catalyst metaphors have an intuitive appeal to educators more inclined to risk and adventure. But anyone who would work with a catalyst metaphor in view needs to hear one disclaimer and recognize several constraints.

The disclaimer is simple. Highly engaging classes, whether underwritten by catalyst metaphors or by some other metaphors, do not necessarily lead to appropriate learning. Debating a contentious law, current event, or social policy, for example, may get the full attention of all the students in a classroom but meet none of the curricular objectives for the course. In the language of sufficient and necessary conditions, engagement might be necessary (or at least desirable) for appropriate learning to occur, but it is not sufficient.

First, teachers who habitually ask difficult, non-factual questions may be excellent at generating student engagement. However, such teachers must also learn to listen carefully to students' answers for appropriate learning to occur. Such listening allows teachers to engage students with the necessary secondary questions that check for understanding and push for clarification. Such listening also allows teachers to explore what students think might be some of the implications of their initial answers. Catalyst teaching thereby involves allowing—or sometimes forcing—students to see where their own ideas lead. Frequently, such freedom results in the expression of views contrary to what teachers might want expressed, requiring significant teacher self-confidence as well as confidence in the students, in the learning process and in God's Spirit. Besides all these forms of confidence, teachers who would build a portion of their program on catalyst metaphors will need exceptional classroom leadership and discussion-leading skills, as well as a commitment not to manipulate instruction toward their own desired conclusions (which students usually spot in a second anyway).

For students, seeing where their ideas lead is not always comfortable, and catalyst metaphors therefore imply two additional conditions for teachers. First, in catalyst teaching, teachers must recognize a boundary: how much pushing is appropriate for students, given their intellectual and emotional maturity at any given age? This is especially true when we recognize that most secondary students and almost all students younger than them have difficulty seeing the shades of gray in questions that, contrary to what they might prefer, simply have no right or wrong

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answer. Connected to this first condition of age-appropriate pushing, catalyst teachers (like all teachers) must provide an atmosphere of safety. A prerequisite to honest and sometimes blunt conversation is that those in the teaching-learning space function as a community of trust, to use Parker Palmer's language in *The Courage to Teach* (1998). Teachers who prefer catalyst metaphors must ensure that their students experience the learning/teaching space as safe. Students are willing to face hard challenges to their thinking if they believe they are in a safe place. But when students feel threatened, they will not be open to the new learning that their teacher may intend, a claim borne out by recent developments in neurology and especially research focused on the part of the brain known as the amygdala, which plays an important role in our responses to fear and anxiety (Cozolino, 2002). In short, once students learn that a room is unsafe they have trouble learning that it can be safe. Thankfully, the corollary of that statement is also true, reason enough to focus on building the community of trust that Palmer talks about before trying to create a Socratic academy.

We cannot simply breeze by the importance of safety in catalyst metaphors of teaching and learning. Researchers in the last couple decades have deepened our understanding of the role of the affective dimension (feelings) in learning. We now know, for example, that simply being in the same place that one previously experienced stress can induce new stress at levels sufficient to measure with an MRI (Cozolino, 2002). While Vygotsky (1978) called for a measure of dissonance to induce learning, we need to remember as well that what he labeled the zone of proximal development has both a lower limit or threshold and an upper limit or ceiling. Good teachers seek to push students across the threshold but they also honor the upper limit so as not to threaten students' sense of classroom safety. At its simplest, we are saying that if a catalyst metaphor leads teachers to ignore the ceiling of students' capacity for dissonance (the upper limit of Vygotsky's zone) then those teachers need either a different metaphor or some improvement in their skills in recognizing age- and cognitive-level appropriate teaching. In fact, research into library anxiety suggests that stress beyond the upper limit of Vygotsky's zone actually causes learners to focus on their stress itself rather than on the task in front of them (Mellon, 1986). If we take seriously both recent brain research and the substantial body of research on anxiety, we will recognize

the serious constraint placed on educators wishing to work with catalyst metaphors.

We have raised several cautions about catalyst metaphors. Nevertheless, just as oysters produce physical pearls after the insertion of an irritant, students often produce educational pearls after someone irritates them. Used in appropriate ways and in an appropriate mix with other approaches to teaching, catalyst teaching and learning can be a means of much learning. In our view, highly effective catalyst teachers can produce thought-provoking questions—brain freezing questions—related to all manner of subject matter, not only to the controversial and insoluble social questions raised on any given day in the news.

Conclusion

We began this chapter with a survey of some of the metaphors for teaching and learning. Then we focused on three of the main clusters of metaphors: transmission metaphors, metaphors related to guidance, coaching and facilitation, and catalyst metaphors. Our purpose has been to show how powerfully these metaphors shape our thinking about what transpires in classrooms. We hoped to show that when teachers work within any given metaphor certain ways of teaching and learning will end up in the foreground. Missing from our chapter are detailed examinations of factory and agricultural metaphors. While we did briefly note their importance, we believe that opening up just the three clusters of metaphors as we did still provides powerful insights into the power of our teaching/learning metaphors and therefore the importance of thinking carefully about them. We believe that our treatment of the three clusters we chose illustrates how important it is that educators be able to work with more than one metaphor. Bluntly, teachers know things that learners need to know; we should not apologize for viewing schools as venues to transmit a culture's heritage. Just as bluntly, as they mature, students need to take an increasing degree of responsibility for their learning, giving us a warrant for facilitation, guidance, and coaching metaphors. Teachers have a corollary responsibility in those metaphors: to plan instruction that allows students to grow into their responsibility. Such instruction implies less teacher-directed grow into this responsibility. Such instruction implies less teacher-directed transmission and more student activity

and discovery. Finally, teachers must always find good ways to engage students' interest in their learning tasks. Catalyst metaphors offer a way to frame instruction that, at its best, addresses this need.

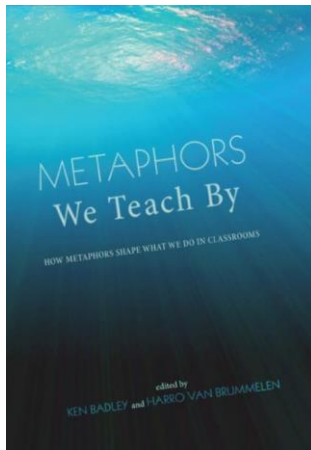
The Bible, significantly, uses all three clusters of metaphors. The first five books of the Bible, often referred to as the Torah, transmit the truth with authority and certainty. The books of wisdom such as the Proverbs are much more facilitative, presenting generalizations that call for personal thought and response for one's life, with some generalizations even being at odds with each other (e.g., Prov 26: 4–5). And in the Gospels Jesus often was a catalyst: asking questions and telling obscure stories which created dissonance in his listeners in order to elicit response. The teaching/learning relationships relationship requires more than the explicit or implicit uses of such metaphors, of course. But they do function in important ways for all teachers. As Wineberg notes in his chapter in this volume, we need a multiplicity of images to work effectively as educators. So we end with this question: What cluster of metaphors anchors the teaching/learning relationships in your classroom?

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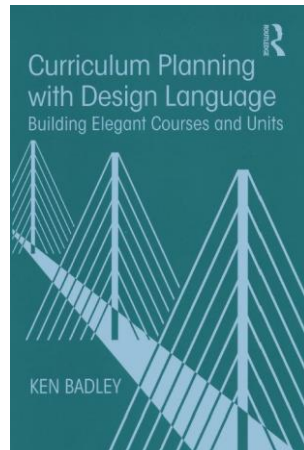
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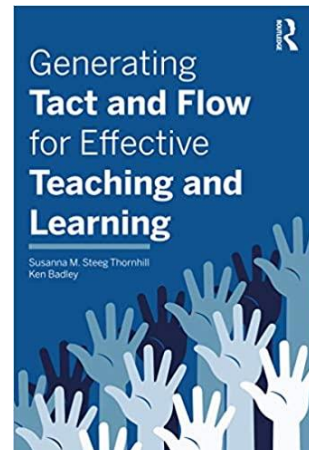
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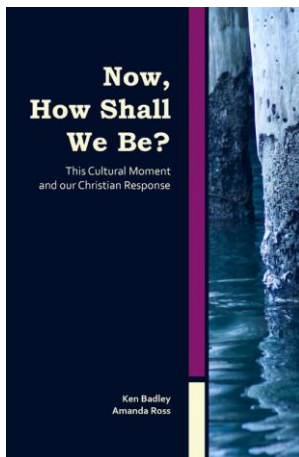
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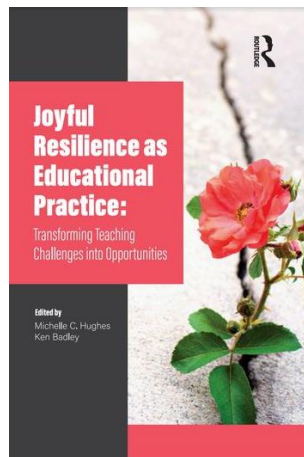
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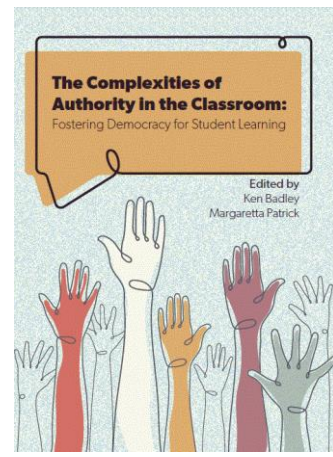
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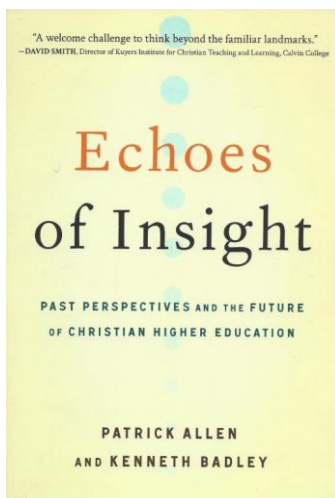


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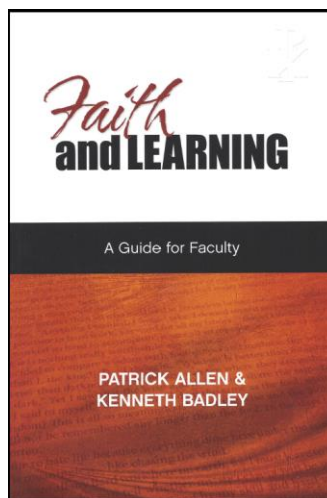


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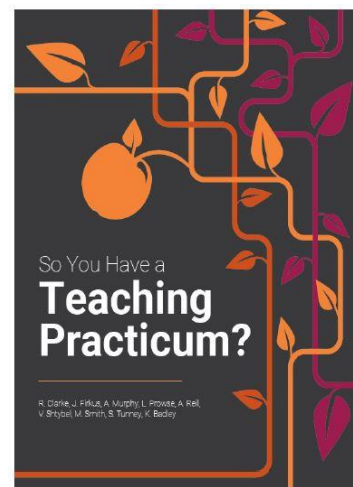


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