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Students' Metaphors as Descriptors of Effective and Ineffective Learning Experiences

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Abstract

The purpose of this study was to gain a better understanding of how college students characterise their learning experiences. A Scholarship of Teaching and Learning research project was undertaken in which students were asked to describe, and create metaphors for, effective and ineffective learning experiences. Our focus was on experiences explicitly and solely perceived by students (i.e., listening to their voices) rather than on outcome-based or performance-based measures. Data was collected from 142 U.S. students attending both four-year and two-year higher education institutions. Three categories to describe effective/ineffective learning experiences emerged from an analysis of the metaphors: Connection/Disconnection, Empowerment/Disempowerment, and Engagement/Disengagement. Implications for instructional practice and for the use of metaphor as a method to understand student voices in SoTL research are explored.

Key Words: Scholarship of Teaching and Learning, Learning, Metaphors, Student Perspectives

Introduction

Lee S. Shulman (2000), president of The Carnegie Foundation for the Advancement of Teaching, called fidelity "to the *learning of students* one is committed to teach and serve" a core professional commitment that must motivate Scholarship of Teaching and Learning (SoTL) research (pp. 95-96). Moreover, Shulman (1999) indicated that "to take learning seriously, we need to take *learners* seriously" (p. 12; italics added). One way to take learners seriously is to ask the *learners* themselves about their perceptions of the learning process. Although some SoTL researchers have focused their investigations squarely on the student-learning link (see Linkon, 2000; Morehead & Shedd, 1996 as exemplars), continued work in this domain is needed if we are to better understand the central role of students in the learning enterprise.

Hence this study examined students' own perceptions and characterisations of effective and ineffective learning experiences. Simple as this task appears on the surface, learning involves complex sets of emotions, perceptions, implied relationships, and

unspoken assumptions that can be hard for students to recount. So it is important for researchers investigating students' voices to encourage them to reflect, not only on intellectual aspects, but also on the social and emotional facets of those experiences. For these reasons, we thought that metaphors, more so than simple descriptions, might better capture the nuances of meaning and unspoken assumptions associated with learning.

"Metaphors," wrote Eubanks (1999), "not only index those assumptions but they participate in a complex conversation in which the rhetorical implications of our assumptions are played out" (p. 196). Moreover, when producing metaphor, the creator draws upon his/her own experience, culture, and context to shape the implied comparison between the dissimilar entities. In this way, students are free to choose any metaphoric comparisons and can produce rich, creative, and unique images.

We primarily are concerned with metaphors in the traditional sense of linking a tenor (a specific learning experience) with a vehicle (the comparison offered by the student). The tenor is the principal subject that the vehicle figuratively illuminates; so in "learning is a three-ring circus," learning is the tenor and three-ring circus is the vehicle (Franke, 2000; Richards, 1936, pp. 96-100). However, we offered students the option to use similes, and some used analogies.

In the following sections, we describe how we used metaphor to elicit student voices regarding effective and ineffective learning experiences. Our focus was on experiences explicitly and solely perceived by students (i.e., listening to their voices) rather than on outcome-based or performance-based measures. We first provide a conceptual framework for our project by identifying the significance of metaphor for understanding the learning process. We then provide the details of our research study and elaborate on the metaphoric themes that were generated from the students' experiences. Three themes for effective/ineffective learning were discovered in the metaphors: connection/disconnection, empowerment/disempowerment, and engagement/disengagement. We conclude with a discussion of the implications of our findings for teaching and learning and for the role of metaphor as a tool to illicit student perceptions in SoTL research.

Metaphor as a Conceptual Framework for Investigating Student Voices

Metaphors have long been studied as “an essential ingredient of communication and consequently of great educational value” (Ortony, 1975, p. 45). Ortony argued, “[M]etaphors, and their close relatives, similes and analogies, have been used as teaching devices since the earliest writings of civilised man [sic]” (p. 45). Publications that treat metaphor as a teaching tool or philosophical perspective on learning are plentiful (e.g., Cameron, 2003; Gossi, 1999; Taylor, 1984). Academics have also used metaphor to characterise various teaching styles and to extend the implications of teaching styles for education and student motivation (Grasha, 1996). In addition, metaphors have been used to describe students’ learning styles (Grasha, 1990), as well as the general experiences of being a freshman, being in college, or attending a particular type of higher educational institution (Jorgensen-Earp & Staton, 1993; Lattin, Kerssen-Griep, & Thede, 2002; McMillan & Cheney, 1996).

For the most part, these past studies have focused on general characteristics of teaching and learning (e.g., teacher and student roles; students’ identities and cultural characteristics; the freshman experience; perceptions of grades and classroom environments) rather than on specific situated instances of perceived effective and ineffective learning. As Jorgensen-Earp and Staton (1993) pointed out, research on educational metaphors has paid little attention to student views, concentrating disproportionately on administrators and instructors (p. 127).

Yet asking students to metaphorically characterise effective and ineffective learning experiences may allow for description of complex, organised impressions that are difficult to articulate in more literal language. A metaphor "suppresses some details, emphasises others--in short, *organises* our view" (Black, 1962, pp. 39, 41). Lakoff and Johnson (1980) concluded that metaphors offer particularly well-rounded insights because they express both logical and non-logical dimensions through “an imaginative rationality” (p. 193). The metaphor tells at least as much about the user’s perspective as about the subject matter. “Each metaphor,” argued Edelman (1971) “intensifies selected perceptions and ignores others. Each metaphor can be a subtle way of highlighting what one wants to believe and avoiding what one does not wish to face” (p. 67).

Eubanks (1999) stressed the importance of considering a metaphor in its specific situational context rather than extracting it from the situation, as many studies of metaphor do. We implemented such an approach by asking students to recall their own metaphors for a single specific effective and ineffective learning experience from a previous class they had taken. This approach is especially important given Hardcastle, Yamamoto, Parkay, & Chan's (1985) finding that researcher-generated metaphors did not always match student-generated metaphors. Even more striking was the finding in the Hardcastle et al. (1985) investigation that the consistency of metaphors describing education was greater among students (even those from diverse cultures) than it was between researchers and students. Hence it is important to listen closely to students' own metaphors regarding their own specific experiences rather than assume or impose researcher-generated metaphors.

Relatedly, Grasha (1990) studied student-generated metaphors of effective and ineffective learning at the course-level. Although Grasha's findings are foundational to this investigation, we question whether the whole course is the appropriate level for studying students' perceptions of learning. Instead, we assume that students' metaphors will be tied more closely to *specific* learning experiences and that both effective and ineffective learning experiences can occur in a single course. We reasoned, therefore, that the complexity of learning warrants a more particularised unit of analysis such as the single learning experience so that students can more specifically and comprehensively identify effective and ineffective aspects.

Hence we asked students to describe a *specific* effective and a *specific* ineffective learning experience rather than asking them to consider the more general level of whole courses. After providing a detailed example, students were asked to characterise their two chosen experiences using a metaphor or simile. Finally, students were requested to explain why they chose that metaphor or why it was especially descriptive in that case. We reasoned that by using a more contained level of analysis (situated learning experiences); students would provide richer and more detailed descriptions and metaphors. These descriptions and metaphors offered us insight into students' actual learning experiences in all their complex subjectivity and provided important prescriptions for improving learning experiences for students.

Method

Collection Procedures

Students enrolled in classes at four different U.S. educational institutions (one two-year public college and three comprehensive/doctoral public universities) were contacted, either face to face or via an email message, and encouraged to answer the study questions which were available at an online survey site. Students were recruited both from the authors' classes as well as other classes at these universities where the authors had contacts and they were given extra credit for their participation. To avoid issues of perceived coercion, students were allowed to select out of the investigation without penalty and alternatives for extra credit were available All of the classes had a disciplinary mix of students, although the predominant major in all of the classes was Communication. Students were given instructions via email on how to access a website where they could answer a set of questions. Upon arriving at the website, the students were presented with a description of the study including its purpose. This opening page also contained an informed consent document (the Institutional Review Board disclosure and permission form). No student identification was requested, and data were downloaded into a file directly from the survey website. It was impossible for the authors to know which exact class experience students were describing in their responses (unless the student volunteered that information). In addition, authors did not see any of the data until final grades were submitted.

Eliciting Metaphors

We chose primarily open-ended questions for data collection and qualitative methodology for data analysis. We selected this approach because we wanted students to have the freedom to express their metaphors and experiences without any constraints. In addition, the grounded theory method (described later) provided us with a way to capture the richness and detail in the students' descriptions of learning experiences that we considered essential.

A set of open-ended questions was used to collect students' metaphors and perceptions of effective and ineffective learning experiences. The first question asked participants to identify a specific effective learning experience from a college class. Then the

participants were asked to respond to a series of questions designed to elicit their perceptions of that effective learning experience, utilising the following prompts:

- Describe what happened that contributed to making this an effective learning experience.
- Why was this experience effective?
- How would you characterise this learning experience in terms of a metaphor, simile or analogy (i.e., this experience was like ….)?
- Please explain why you selected this metaphor, simile or analogy.
- How did this metaphor influence or explain your own communication choices (with the teacher, students, or others) and other behavior in the described situation?

In similar fashion, a second set of questions asked subjects to identify a specific ineffective learning experience from a college class. The same five prompts were provided and the word "effective" was replaced with "ineffective" (e.g. "Why was this experience ineffective?"). Finally, participants were asked to provide some demographic information (graduate/undergraduate status, major or intended major, number of credits earned to date, years of age, gender, college or university presently attending) which provided frequency data and were therefore analysed quantitatively.

Categorising the Metaphors

Students' responses were placed in a single database. A grounded theory approach (Annells, 1997; Parry, 1998; Strauss & Corbin, 1990, 1998) was used to analyse the student comments. Using this approach, data is coded into increasingly comprehensive aggregates of categories or constructs which are identified based on their properties or dimensions (Cutcliffe, 2000; Fassinger, 2005). It involves employing an iterative, constant comparison coding process until no new themes, categories, or relationships are discovered.

Hence, the first step in this study was to read all the students' responses to all of the questions. Following this reading, the first four authors began by independently identifying the multiple types of metaphors provided by the students. They then each

independently developed categories to organise the metaphors according to the relationships they perceived among and between the metaphors. Next they met to share their independently generated categories in a face-to-face session. At this session, the lists of categories were compared, contrasted, and debated with respect to the data. The four authors looked at the relationships among their sets of categories and discarded or combined any that overlapped. Through group consensus, a common and manageable set of categories useful for interpreting the metaphors was generated. This resulted in a set of seven categories (connections, empowerment, discovery, satisfaction, disconnection, disempowerment, and disengagement).

As this list of seven categories indicates, four categories were originally identified for effective learning experiences metaphors and three separate categories were identified for ineffective learning experiences metaphors. However in discussion of the categories and by comparing categories to each other, it became clear that the metaphors for effective and ineffective learning were essentially mirror images of each other. The satisfaction and discovery codes were combined to form an engagement category. We found that both satisfaction and discovery metaphors typically described engaging learning situations (i.e., learning was like: going to a concert, attending political discussions, embarking on field trips, visiting a museum, opening a window into a darkened room, turning on a light bulb). Moreover students often recounted satisfying experiences in classes as situations where “you were actively learning.”

So in the end, and after much discussion, the four authors determined that three sets of oppositional categories (connection/disconnection, empowerment/ disempowerment, engagement/disengagement) could be used to code metaphors for both effective and ineffective learning experiences. This set of three macro-level categories was then used by the third and fourth authors again working independently to code a set of metaphors from the data. These codes were reviewed, compared, discussed, and modified as necessary by the first four authors. Following this procedure, the categories were deemed both exhaustive and valid for this sample, and the remaining data was coded by the first and third authors. Finally, frequencies were computed for the demographic responses.

Analysis

Participant Information

Of the 142 subjects who participated, 36% attended 2-year colleges and 64% attended comprehensive/doctoral universities. In terms of gender, 32% were male and 62% female and 6% did not identify their sex. The average (mean) age was 22.38 years and ranged from 17 to 45 years old. The vast majority (97%) were undergraduates. Forty percent of the participants identified their academic major as Communication. The remaining 60% of the participants indicated a variety of academic majors with no single major from this group having more than 1% of the total. The number of credits earned by the subjects ranged from 0 to 123 with the mean being 49 credits.

Metaphors for Learning: Connections/Disconnections

One set of metaphors that students used to describe effective or ineffective learning experiences were metaphors describing the *connections/disconnections* that students saw with their instructors, fellow students, and the subject matter. In effective situations, students' metaphors described the classroom and subject matter as part of a web in which the teacher and students worked together to forge links between course material and real life. See Table 1 for representative examples of student metaphors.

Table 1. Representative Metaphors

Connection	Empowerment	Engagement
Spider's web	Acquiring the tools	Refreshing rain
Evolution	Umbrella in a storm	Breath of fresh air
Epiphinal flood	Light switch turned on	Butterfly emerging from cocoon
Two peas in a pod	Wake-up call	Performance at a play
Sitting in a coffee shop	Learning to ride a bicycle	Visiting a museum
Big happy family	Sailing and avoiding a storm	Arguing with the Pope
Family dinner table	Receiving a green light	Rising from a dusty tomb
Disconnection	**Disempowerment**	**Disengagement**
Headless chicken	Stripped of a voice	Watching paint dry
Ice skater on cement	Running blind in a marathon	Sleeping in
Boring slumber party	Traveling on a one-way street	Watching a turtle cross the road
Robot in assembly line	Out of control	Waiting in line
Talking to a post	Feeling like drowning	Sitting on the sidelines
Drowning in an ocean	Being in a train wreck	Broken record
Dancing around a question	Crashing into a wall	Waiting for a phone call

Some of the metaphors that students used to describe connections with teachers that contributed to effective learning experiences included describing the teacher-student connection as an evolution (i.e., a relational development over the course of the semester), an epiphinal flood (i.e., a strong and immediate connection with the teacher), and like "Jesus (teacher) going out to find lost sheep (students)." One student used the metaphor of "two peas in a pod" to describe her connection with her teacher and noted that "The way this teacher went about his class made me tune into him and not the things around me. … This teacher and I were alike. I understood him and his ways of teaching."

Students used metaphors to identify connections with classmates as important to effective learning experiences as well. For example, they indicated that effective learning experiences were like sitting in a coffee shop with friends or being a big happy family. One student used the metaphor of a family dinner table to explain how the use of small group discussion with other students helped him feel comfortable and contributed to an effective learning experience. Another student identified how connections with

other students in a classroom group contributed to an effective learning experience, indicating that "The teacher was not involved much, it was more about exploring independently how things work and learning to work as a team."

These students' metaphors and descriptions of connections among teachers and learners illustrate an implicit awareness by these students of the importance of community and relationships in forging effective learning experiences. On the other end of the scale, students also produced metaphors describing ineffective learning experiences that described multiple forms of disconnection from course content, other students, and the instructor. Their vivid metaphors included feeling like a "headless chicken" or "an ice skater on cement" or like attending a "boring slumber party where everyone just lays about." Students disconnected from classes in which they saw no value. One student, explaining his disconnection from the course content, wrote, "There was no value in the material for the real world (as I saw it). I did not try to get anything out of it, therefore I didn't." Another student, describing herself as a robot in an assembly line, wrote, "I felt detached from the material and I lacked a sense of purpose."

Students also spoke of their disconnection from instructors. One student described her feelings as follows: "The professor was just lecturing. He was using words that we did not understand…this [a decapitated chicken] is exactly what I felt like." Still another student indicated that her attempts to communicate with her professor were as futile as trying to talk to a post: "I could not find out the information I needed to know pertaining to his class because he simply would not talk to me." The emotional disconnection by professors left some students feeling numb and demoralised: "It left the majority of our class in a state of awe that the professor didn't care that nobody understood the material." Perhaps one of the more complex metaphoric statements was made by a student who felt as though she was drowning in an ocean: "The teacher danced around what we really wanted to know but never really answered our question…Information kept coming and no matter how hard you tried to understand it, you just couldn't learn how to swim."

Metaphors for Learning: Empowerment/Disempowerment

In terms of empowerment/disempowerment, metaphors of effective learning experiences described how acquiring the appropriate tools and guidance allowed students to accomplish learning tasks. See Table 1. Many students recognised that one outcome of an effective learning experience is movement toward independent thinking. Some of the metaphors in this category compared effective learning experiences to an umbrella in a storm, a light switch turned on, a wake-up call, learning to ride a bicycle, being lit up like light bulbs, sailing on the sea while avoiding the storm, or receiving a green light. Another student's metaphor compared the experience to being asked to try smelly cheese and finding it actually tasted good. One student explained that his teacher contributed to his effective learning experience by encouraging discovery:

> *Though this was a solo project and I did all of my research alone, I still felt that by making this project a "big deal" the professor was encouraging us to discover. This experience was very effective because I was allowed to discover for myself what things truly interested me. . . .*

Conversely, student-produced metaphors of ineffective learning experiences centered on disempowerment, a sense that they had been stripped of a voice in their education. One student described himself as dirt beneath the feet of his professor, explaining that "the professor not only called us names, but would not stop to answer our questions. He treated us like we were so much lower than him in our intelligence. I didn't want to speak out in class at all, because I was afraid he would degrade me in front of the class." Finally, one student characterised an ineffective instructor as an abusive parent that keeps talking or yelling without waiting for a response. "It was a horrible experience, and it started my first day of college when the professor told our class that 'on average, ½ of all XX students fail XXX. There are 24 of you in class. This means that at least 12 of you will fail.' That was my first day of college. What a way to start!"

Other students described themselves as feeling out of control. One student compared the helplessness of the experience to drowning or being lost: "For the whole semester I felt like I could hardly keep my head above the water . . . I don't (sic) feel welcome to ask a lot of questions and I felt lost." In a similar vein, others indicated their ineffective learning experiences were like crashing into a wall, being in a train wreck, traveling up a

creek without a paddle, playing baseball without knowing how, running blind in a marathon, teaching themselves how to dance, climbing uphill wearing greasy, non-traction shoes, or traveling down a one-way street: "It was like hitting a road block in my education."

Metaphors for Learning: Engagement/Disengagement

Finally, many of the metaphors that were coded in the third category illustrated how engaged learning yielded moments of discovery (one of the original seven categories that was folded into this set). In short, active learning, including experiential activities, helped students develop new understandings. See Table 1. Some described engaged learning experiences as being like a refreshing rain, a fresh breeze, or a breath of fresh air. One student described an active learning experience as being similar to a butterfly emerging from its cocoon. Another student recounted how a biology class fieldtrip felt like "going on a vacation" because "you actually got to see the creatures alive and not in a glass jar in a lab," a comment emphasising the cross-over with recognising the material's relevance to the "real world". Another student described how an effective physics class was like a performance at a play when the teacher "was demonstrating voltage and to help us understand he placed a paper bag on his head with a picture of a light bulb on it."

Other students' metaphors described engaged learning as: going to a concert, attending public forums or political discussions, embarking on field trips, visiting a museum, viewing a beautiful painting, reading a good book, opening a window into a darkened room, turning on a light bulb, and going on archaeological digs. One student described an effective learning experience as similar to an AA meeting explaining how peer feedback engaged the students in a discussion that allowed them to discover that "all the other students and even the grad student had similar views and opinions" This comment, too, suggests a cross-over with the importance of peer relationships in effective learning.

Some students focused on spiritual or growth metaphors to describe engaging learning experiences. One described it as being like "arguing with the Pope;" another student suggested it was like rising from a dusty tomb to dancing spirits, yet another identified it

as a slice of heaven. One student recounted a satisfying experience in a class that used a great deal of discussion as a way to grow in her learning: “You didn't just sit back and listen to someone talk, you were actively learning.” A first year student explained how her teacher used various in-class exercises to get students comfortable with discussing: It was like “going back to kindergarten and being able to be open to new ideas without prejudice.”

Alternatively, metaphors used by students to describe disengagement and boredom included watching paint dry, sleeping in, waiting for that phone call that never comes, watching a turtle cross the road, waiting in line, and taking a field trip to a pencil factory (i.e., “It sounds good in principle, but actually being there is boring and a waste of time”). A freshman compared her ineffective learning experience to her junior prom: “Going …with the hopes of having a wonderful time and sitting on the sideline watching the disco ball go round and round while everyone looked at it…I felt like it was something I really wanted to experience but gained nothing from it.” One student viewed the ineffective learning experience as a broken record, noting that “it got redundant. It was doing the same thing every week. I guess I get bored with the same thing and like new things and ideas.”

Reflective summary

In general, we found students’ metaphors of both effective and ineffective learning experiences to be complex, informative, and richly descriptive. There were wonderful pictures of engaged, connected, and empowered learning environments in these data. Unfortunately, the metaphors of ineffective learning experiences were more painfully vivid and emotionally charged than those that described effective learning experiences. Is it perhaps the case that students recall, and remember, their ineffective learning experiences more vividly than those experiences that are more effective? Our data hint that this may be the case as students’ ineffective learning metaphors recalled disconnections from teachers, course material, and classmates. Students felt disempowered and without tools to succeed. They felt disengaged and victimised. These experiences seem to leave an imprint just as powerful as--maybe more powerful than--the satisfaction of the effective experiences described by the same students. If that is indeed the case, these findings have important implications for retention

programs, student success initiatives, and the coaching we give new students on how to interpret the impact of their classroom experiences.

Implications

Overview of Findings

Three categories of effective/ineffective learning emerged from our analysis of the student generated metaphors: (a) connection/disconnection, (b) empowerment/disempowerment, and (c) engagement/disengagement. The students' metaphors described effective learning experiences that included connections with professors and fellow students, empowerment to discover and learn independently, and engagement in learning. Conversely, student metaphors painted ineffective learning experiences as places of disconnection between instructors, other students, and the course material. They resented instructors who merely took them along for a ride, and they rejected course material that they viewed as boring and irrelevant to their lives. The implications of these metaphors for instructional practice are explored next, as well as how metaphor analysis might be fruitfully used by instructors to listen more closely to student voices in SoTL research.

Implications for Instructional Practice: Connection

Students in this study perceived a clear difference in connections between effective and ineffective learning situations. These results urge us to build connection into our classes to promote learning. We can turn to past research on teaching and learning for examples of how to accomplish this. The vast body of research on group-centered learning provides strong support for the role of student-to- student connection for effective learning. Research shows that group-centered learning develops students' communication, conflict management, and problem solving skills (Colbeck, Campbell, & Bjorklund, 2000; Herbster & Hannula, 1992), increases liking among students (Slavin, 1991), improves students' self-esteem (Johnson, Johnson & Taylor, 1993), and promotes interaction among diverse student populations (Johnson & Johnson, 1981). Perhaps most importantly, in post-secondary education research, studies have shown a

consistently positive relationship between group-centered learning and student achievement (Considine, Meyers, & Timmerman, 2006; Doran, Sullivan, & Klein, 1993; Felder, Felder, & Diets, 1998; Herbster & Hannula, 1992; Tlusty, McIntyre, & Eierman, 1993).

Moreover, there is a large body of research demonstrating that the more immediate (or highly connected) a teacher is to students, the more likely students will be motivated to learn (Witt, Wheeless, & Allen, 2006). Immediacy describes interaction behaviors that produce a perception of physical or psychological closeness. A recent meta-analysis (Witt et al.) showed a meaningful relationship between teacher immediacy behaviors (verbal or nonverbal) and overall student learning. As verbal and nonverbal immediacy increase on the part of the instructor, affective learning meaningfully improves. In addition, students like more highly immediate (connected) instructors and perceive that they learn more in their courses (p. 161). This perceived learning may well translate into greater motivation to keep learning, to complete a program of study, and remain in college.

The importance of connection not only applies to the instructor-student relationship in the classroom, but more recently, research has demonstrated that out-of-classroom communication (OCC) connections between students and teachers (e.g., email, office visits, telephone calls) is vital to effective learning experiences (Aylor & Oppliger, 2003; Jones, 2008). Researchers have discovered that out-of-class communication has a direct and positive influence on students' academic performance (e.g. Pascarella, 1980; Spady, 1970; Theophilides & Terensini, 1981). These studies find that more out-of-classroom interaction between students and instructors leads to greater educational aspirations as well as improved grade point averages (Nadler & Nadler, 2001). In addition, past research has reported a large number of additional benefits to students who engage in more OCC with faculty members. These benefits include improved academic and cognitive development (Terensini, Pascarella & Blimling, 1996), better developed career plans (Pascarella, 1980), higher educational aspirations (Pascarella & Terensini, 1991), greater levels of academic integration into the university (Milem & Berger, 1997), more satisfaction with college experiences (Astin, 1977; Pascarella, 1980), better intellectual and personal development (Pascarella, 1980), and increased feelings of affirmation, confidence, and self-worth (Kuh, 1995).

Certainly data from this investigation, and past research, make a strong case for connection within, and outside, the classroom. This may be even truer today than it was a decade ago because our current traditional students (often called millennials) are especially interested in student-to-student and student-to-faculty linkages. For this generation, connectivity is ubiquitous, and living in a fully connected world means that millennials participate in real-time conversations at any time, in any place, with anybody. Additionally they are used to spending time in groups, real or virtual (Howe & Struass, 2000; Lancaster & Stillman, 2002). Many millennials like collective action and feel less pressured individually when they are working with a group. In short, they often want to be part of learning communities, with hubs and spokes of learning, rather than a one-size-fits-all approach (Frand, 2000). Those expectations provide a setting ripe for continued development of connected classrooms and learning experiences.

In terms of specific instructional practices, these findings strongly encourage us to find ways to make connections both within and outside the classroom. How can we best accomplish that? Simple efforts like arriving at class early to talk with students informally before class, encouraging students to visit in your office, responding to students' email, setting up classroom learning activities that promote student connections (dyadic interactions, small group experiences, whole class discussions, etc.) all stimulate and encourage connections between students as well as between students and instructors. Each instructor has a unique way of connecting with students through verbal, nonverbal, or written channels. It seems that the form for establishing connection is not nearly as important as is the practice of connecting itself.

Implications for Instructional Practice: Empowerment

The student voices in the second category of metaphors on empowerment identified discovery and independent thinking as important for effective learning experiences. What does this mean for teaching and learning in our classrooms? Although most instructors believe (and much of the literature argues) that clarity and transparency is vital to effective instruction (McCroskey, Richmond, & McCroskey, 2006), there is also an important role for ambiguity in our teaching practices for promoting independent discovery. As Pascale & Athos (1981) stated, "Explicit communication is a cultural assumption; it is not a linguistic imperative" (p. 102). Moreover, past theory in many

disciplines has argued for the centrality of ambiguity to interpersonal, group, and organisational contexts for encouraging creative thinking, discovery, and innovation (Baxter & Montgomery, 1996; Berger & Calabrese, 1975; Salvatori & Donahue, 2005; Smith & Berg, 1987; Weick, 1979).

Theories of ambiguity and paradox suggest that we live in a world of "both/and" rather than "either/or". The tension between clarity and ambiguity is inherent and ubiquitous and cannot be eliminated. Therefore, it must be managed. How might this tension be managed in our classrooms to empower students and motivate learning? The idea of *strategic ambiguity* which is the purposeful use of ambiguity by instructors to orient toward multiple goals to help students learn may prove useful here (see Hufford, 1966; Eisenberg, 1984; Olson, 2001). Clarity and ambiguity must co-exist in the classroom in such a way that students feel secure enough (buoyed by clear instructions and explanations) to take risks in learning that moves them toward independence (to grapple with the ambiguity). In other words, clarity is important as a foundation for learning, but ambiguity offers the greatest potential for deep understanding. The discomfort and disorientation that accompany strategic ambiguity (when framed by clear expectations and explanation) may enable students to find their own voices.

What does this finding suggest for instructional practice? We think it emboldens us to build puzzles and mysteries and dilemmas into our classroom learning activities. That is, instead of providing students with comprehensive parameters for an assignment, we might instead establish a general framework of acceptance that allows students to create, imagine, and produce their own projects within those more general guidelines. We can move away from instructional practices that tell students exactly what they need to do to get an "A" toward a culture where *they discover* what it is they need to do to get an "A." This may be a difficult struggle and transition for students as well as instructors, but our data suggest that students favor discovery and independent thinking. If so, as instructors, we might best encourage those characteristics by providing less structured certainty and more puzzles as we construct learning activities and assignments.

Implications for Instructional Practice: Engagement

Although there are many contributing factors that constitute effective and ineffective learning situations (i.e., learning styles of students, previous learning experiences,

students' abilities to adapt, the learning environment, assessment methods, instructor enthusiasm, motivation, among multiple other factors), the results of this study show that students found classes in which they were actively engaged to be better learning experiences overall. Engaging students is no small task. Many of us experiment with a variety of educational strategies or techniques to accomplish this task. The results of this study suggest those efforts are appropriate. Interestingly, none of the student-generated metaphors revealed any single type of educational strategy or technique as inherently more or less engaging. Our data, which cut across different courses, disciplines, and instructors, indicated that many different instructional strategies or methods were viewed as engaging or disengaging. Some respondents' effective learning experiences centered on lectures while others found lectures very disengaging. Others described effective learning experiences that involved groups or active learning, while other respondents' ineffective learning experiences centered on those very same instructional methods.

Students did not consistently identify single instructional strategies as either engaging or disengaging. Students from the same class sometimes found the very same version of an activity engaging while others found it to be less so. Perhaps instructional strategies or methods that match (or fail to match) individuals' learning styles or preferences may explain these differences. But the good news for instructors seems to be that it is not the instructional method alone that influences student perceptions of effective and ineffective learning experiences. That is, a lecture, a small group discussion, or a hands-on activity can all be engaging or disengaging, depending on the learner, so employing a mixture of learning strategies is likely the best way to reach the most students.

Finally, the students' engagement/disengagement metaphors that related to satisfaction or dissatisfaction with the course should not necessarily determine the shape or content of a course. Blunsdon, Reed, McNeil, and McEachern (2003) found that students' level of enjoyment dominated their short-term evaluations of learning (i.e., students who enjoyed an experience believed that they had learned more) as well as outcomes such as expressed willingness to enroll in a related course; yet it did not necessarily lead to longer-term changes in cognitive ability or improvement on performance-based learning assessments (also see Miller, Wilkes, Cheetham, & Goodwin, 1993). Abbott (2006)

discovered that providing certain learning materials or experiences that increased individuals' satisfaction (as measured by a decrease in student complaints or positive student feedback) did not improve student learning (as measured by exam scores). In the end, more research is needed to determine exactly what it is that makes any instructional method effective or ineffective for different students. It may well have to do with the presence (or absence) of the previously mentioned experiences of connection, empowerment, and engagement.

Metaphors as Method

This study also demonstrates that situated, student-generated metaphor may be a valuable tool for understanding how students conceptualise their role in the learning process. As a general rule, teachers are not in the habit of probing the subjective experiences of students. Yet students in this investigation were able to offer quite sophisticated metaphors for describing their learning experiences.

In addition, as teachers we may need to clarify and articulate for our students our own metaphors and expectations for effective and ineffective learning. A mismatch between the metaphors of teachers and learners can result in learning experiences that fail to meet learners' and teachers' expectations (Mills, Ayre, Hands, & Carden, 2005). Mills et al. concluded that faculty misperceptions of students learning styles, for example, contributed to an active conflict between instructors' well-meaning teaching choices and their students' optimal learning. Such mismatches can affect students' motivation and interest and may result in attrition. Sharing with and listening to each others' metaphors for effective and ineffective learning promotes understanding that may help improve all parties' experiences.

In like manner, differences in instructors' and students' metaphors of effective learning situations could result in instructors selecting strategies that fail to recognise their students' expectations. For example, some students do not perceive lectures as connecting, engaging, or empowering. Certainly lectures have the capacity to be all of these things, but compared to many other active learning strategies, lecturing may promote passive, individual, and dependent learning. If this is the metaphor for learning and the strategy preferred by the instructor and it is opposite that of some students, then there could be a strong disconnect in the learning process, and students are likely

to be unmotivated or disinterested. By listening to our students' voices and by taking their expectations into account, we can potentially provide better tailored environments that result in more effective learning.

Conclusion

Results of this investigation display a breadth of student-generated metaphors that describe learning in all its variety and complexity This information allows us as their teachers to gain a better understanding of how students value learning experiences. Abbott (2006) implies that challenging students' or teachers' one-dimensional metaphoric views of good education and so, ideally, of learning experiences is essential. He notes the importance of avoiding being locked into any particular metaphor for learning (e.g., conduit, container, journey, disease), whether educator or student. By attending to the wealth of student-generated metaphors and the themes they suggest, perhaps we can better design and develop effective learning experiences. The metaphors created by the students in this investigation provide a starting point for that task.

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