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New metaphors for teaching and learning in a university context

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Abstract: University teachers and university students often explain their beliefs about teaching and learning by using metaphors and, in a research sense, these metaphors have often been interpreted as indicators of individuals' educational beliefs. Critical reflection of these metaphors, provides insight into beliefs behind the practices of university teachers and students. This recent University study has uncovered some different metaphors from those commonly reported, which has provided the impetus for this paper. This paper aims to augment and extend existing research about the use of metaphor with investigative insights into individuals' beliefs and conceptions of teaching and learning. Two groups of stakeholders, university teachers and students, were interviewed and surveyed about their educational beliefs. After their responses were open coded, a set of themes and categories were established. The findings reported in this paper are based on those themes and focus on the metaphors used by participants to describe their beliefs about teaching and learning.

Keywords: educational beliefs, metaphors for teaching and learning

Introduction

The greatest thing by far is to be a master of metaphor. - Aristotle

Individuals frequently describe their beliefs, conceptual understandings and personal views in metaphorical terms. Such metaphors abound in everyday language:

I feel as fit as an ox.

That idea has a lot of punch.

This assignment is bigger than Ben Hur.

Teaching is like housework, it's a never ending cycle.

Because metaphors can be both very personal and very powerful, their analysis has featured in a range of fields. For example, the interpretation of metaphorical language has been used by some psychotherapists to access direct insight into their patients' thoughts (Lawley & Tompkins, 2000). So too, the act of interpreting metaphors can be used to access teachers' and students' thoughts and to assist our inference of their beliefs about teaching and learning:

Teaching is the delivery of information.

Understanding the intricacies of a concept is like peeling away the various skins of an onion.

> The learner is a builder of knowledge, choosing what bits to add and how to link them together.

> Knowledge is compact, it's able to be bundled up into a neat little package.

Based on the premise that metaphors facilitate the communication of ideas, the use of such metaphors has influenced educational practice in general and research in particular (Doolittle, 2001; Aubusson, 2002). Sfard (1998) even goes as far to suggest that "as researchers, we seem to be doomed to living in a reality constructed from a variety of metaphors" (p. 12). Hager (2004) also acknowledges that it is actually difficult to discuss learning without using metaphors. With these acknowledgements of the relationship between reality, symbolic likeness and communication in mind, the meaning adopted for "metaphor" within this study has drawn on Delbridge and Bernard's (1998) definition of a metaphor as "a figure of speech in which a term of phrase is applied to something to which it is not literally applicable, in order to suggest a resemblance" (p. 717). This definition was deemed to be useful for the exploration of abstract educational concepts.

Using metaphors in educational research to interpret beliefs

Educational researchers analyse the metaphors used by teachers and students as a means of accessing educational beliefs about teaching and learning. The teaching process has been variously described metaphorically as transmission, persuasion, nurturing, building, cultivation and coaching. Correspondingly, learning has been described as acquisition, participation, gathering, growth and construction. Transmissive views of teaching and reproduction views of learning have generally been associated with the metaphors of spoonfeeding and regurgitation (Palfreyman, 2002), whereas constructive views of teaching and learning have been commonly associated with metaphors of construction and growth (Hager, 2004). Specifically within the higher education context, McShane (2002) has identified a number of metaphors and beliefs expressed about the role of the university teacher including facilitator, mentor, coach, tour guide, social worker, performer, lamplighter and team leader. The investigation and reporting of such metaphors has been described by Murphy (2001, p. 225) as a "demanding, imprecise and tricky undertaking". Despite this cautionary acknowledgement, Murphy still maintains that researchers must, to use her own metaphor, "excavate" this area. This paper aims to further this excavation or, maybe, just to dig the hole a little deeper.

Reported metaphors for teaching and learning: Past research

Although this paper does not claim to present an exhaustive account of all of the metaphors that have been reported in explaining the processes of teaching and learning, the examples in Table 1 provide some indication of the metaphors that have been used to describe these processes in the recent past, reflecting metaphors associated with social interaction, change, construction, knowledge acquisition, participation and creative development.

The following section of this paper reports on the findings of a recent study in which the educational beliefs of university teachers and university students were uncovered. While some of these newly reported metaphors from the study are similar to some of the metaphors cited from recent literature (see Table 1), others suggest new areas of interest, stronger perceived links between teaching and learning processes, a new awareness of the role of community in education and more varied levels of complexity.

Table 1: Some previously reported metaphors for teaching and learning

Type of metaphor	Metaphor	Research studies
Epistemological metaphors	Learning as a process of receiving knowledge. Knowledge as objects. Mind as a container.	Brownlee (1998, 2001), Dunkin and Precians (1992), Archer (1999), Chan (2000), Jehng, Johnston and Anderson (1993), Bereiter (2000)
Construction metaphors	Learning as pulling it all together. Learning as building understandings. Learner is a builder.	Munby and Russell (1990), Van Patten, Chao and Reigeluth (1986), Hager (2004)
Coaching metaphors	Teacher as coach. Learner as a player.	Hopper (1999), McShane (2002), Curtner-Smith (1997)
Acquisition and participation metaphors	Learner as a sponge, a collector Learner as contributor. Learner as participant.	Hildebrand (1999), Sfard (1998)
Interaction, change and persuasion metaphors	Teaching as persuasion. Learning is a process of conceptual change. Learning as growth.	Fives and Alexander (2001), Koschmann (1999), Hager (2004), McShane (2002), Murphy (2001)
Metaphors that cite teachers and learners as artists	Learning as creative construction and personal enlightenment. Teacher as performer.	Epp (1999), McShane (2002)

Revealed metaphors for teaching and learning: Findings from the study

The data gathered during this study were drawn from five tutorial-based groups of participants from a metropolitan university. Each group included one university teacher and approximately 20 to30 university students. A group of five interested teachers volunteered to be involved in the study from discipline areas including multimedia, computer science and education. Their students, representing a mixture of both undergraduate and postgraduate students, became involved in the study as a result of their teachers' participation but the students' participation was not compulsory. The data gathered throughout the study consisted of the participants' responses to an Educational Belief Inventory and the participants' comments expressed during a number of interviews over a semester period.

Overall, findings from this study suggest that the participants held educational beliefs that appeared more complex when compared to the beliefs reported in some previously reported studies. Furthermore, the beliefs expressed by the students in the study extended beyond the traditional locus of student concern and overlapped into areas that have typically been associated with teachers' beliefs. To further investigate these trends, the participants' use of metaphor was analysed from both their verbal and written language. Since the purposes of this paper were exploratory and did not purport to determine links between teachers and students from particular discipline areas, the analysis of the metaphors was conducted using a wholistic approach rather than analysing each group independently.

Findings from the analyses of the data revealed that the participants frequently used unprompted metaphorical language to express their beliefs about the concepts and processes associated with teaching or learning. Many of the participants used the more traditional metaphors associated with teaching and learning: "it's very much a learning curve", "I had to get my head around it", "I'm really making efforts to try to absorb that information", "being very much on the same wavelength", "throwing ideas around", "throw ideas down on the page" and "the teacher's really has their, their neck on the line".

In addition to these previously reported metaphors, the teachers and students who participated in this study expressed their beliefs about teaching and learning by employing a mixture of some previously reported, some less reported and some unreported metaphors. Analysis of these metaphors revealed five main categories, including belief metaphors about:

- the oscillating nature of teaching and learning processes;
- components of the teaching and learning processes;
- the linear nature of teaching and learning processes;
- the interconnections between teaching and learning processes; and
- the role of understanding and misunderstanding in teaching and learning processes;

Examples of each of these categories are provided in Table 2.

Observations about metaphors for teaching and learning revealed in the study

A number of patterns emerged from the group of metaphors that were revealed in the findings of the study, as reported in Table 2. Some of these patterns were parallel to recent findings from the studies mentioned earlier in this paper in Table 1, while other findings suggest new areas of metaphor use.

One intriguing finding from this study that has not been a strong theme in recent literature is the emerging link between the metaphors used by participants for teaching and learning processes. Much of the past literature that has focused on educational metaphors has been associated with either the process of teaching or the process of learning (Fives & Alexander, 2001; Sfard, 1998; Lawley & Tompkins, 2000). However, the data collected during this study consistently reflected metaphors which linked the processes of teaching and learning. These metaphors are characterised by associated metaphors such as "percolation", "synthesis", "journeying" and "refinement". Whereas some of the metaphors reported in Table 2 have been reported in previous studies about teaching *or* learning, they have not typically been reported in conjunction with both teaching *and* learning. The tendency of the participants to use metaphors that linked these processes thus reflects a trend to explore teaching and learning within the same context that has only just begun to emerge in recent years in educational belief and metaphor research (Bryan, 2003; 2004; Greene & Zimmerman, 2000; Hancock & Gallard, 2004; McShane, 2002).

Throughout many of the metaphors documented in this study runs the vein, or artery, of complexity. Like McShane's findings (2002), the results reported in this paper indicate that the delivery metaphor for university teaching and the acquisition metaphor for university learning were no longer paramount in the minds of either university teachers or students involved in this study. Instead of relying on simplified delivery and absorption metaphors for teaching and learning, the participants tended to express their educational beliefs using metaphors that reflected more complex processes such as percolation, refining and enlightenment. The participants, both teachers and students in the study, acknowledged that teaching and learning are no longer viewed as simplistic processes. Dimitri, one of the teachers in the study, explains that teaching is "not sort of disseminating the gospel according to so-and-so". Similarly, Lionel, one of the students in the study, states that teaching is "not just hammering you over the head with a hammer, saying, learn it, learn it, learn it, memorise it!"

Table 2: Revealed metaphors for teaching and learning

Metaphor category	Metaphor	Examples of belief comments including metaphors
Oscillating nature of teaching and learning	Teaching as pushing, shoving, pushing ahead, giving a push start. Learning as pulling, pulling it together.	That's sort of been the push really: the belief is that unless the students need to do it, you know, they don't. And rather than wait until they get out in a couple of years' time, it's sort of been our push, and so we just pushed ahead. They're trying to shove so much information into your head at the same time that it, it scares you! I mean, I really was, like, slowing down, so it gave me a push start. First of all, they had to do a group reflection on their tasks and pull the whole thing together.
Components of teaching and learning	Knowledge as a commodity to give. Teaching as breaking down knowledge into bits and pieces.	It's important to give the knowledge to everybody around here. I think all these problems can be overcome by practise really, then breaking it down more and more, starting from the ground up. I believe effective learning is understanding each bit of information as it is given to you.
Linear nature of teaching and learning	Learning as a path. Learning as a journey. Learner as a traveller. Teacher as a guide. Teaching as providing a map.	Effective teaching is to guide the students on the right path. Effective learning is working towards developing ownership of my own learning journey, with support from the teacher. …it keeps me on track … … it's like a map. Some people just want to get to the destination by looking at the building and walking towards it but if you have a map, which is what Walter [teacher] gives us, you can just follow it and you'll get there.
Role of understanding and misunderstanding in teaching and learning processes	Learning as lights switching on. Learning as candles being lit. Learning as getting through the fog or over a wall. Learning as clouds opening and sunlight bursting through. Misunderstanding as a bridge falling down.	Mm, it's about the metaphor, about being in a fog and trying to get out of it. It's also like, for a while, it's like trying to get through a wall and then you step right back and you say, no, that's not what I should be doing, I should be finding a way around the wall so I've got to rethink the whole thing. If people don't learn the first time in one way of just repeating that same way, it's like the bridge is going to fall down into the same valley again. I'll be honest with you, I haven't had that sense of the clouds opening and the sunlight's bursting through. They have some little - little candle of self-awareness that'll glow somewhere along - that lights up - lights up some of their own personal understanding.
Connection between teaching and learning processes	Learning as synthesis. Learning as percolation. Teaching as refining knowledge presented. Teacher as search engine. Teacher and learner on the same page.	The brain takes time to subconsciously percolate the ideas. When he [the teacher] goes through a type of search engine or something like that, it's like a - a refinery or something type of thing, he percolates that knowledge so that - there's a huge knowledge. So he [the teacher] when he is preparing what knowledge to teach the students] will go through that refinery, like he will refine the answers his head, whatever in his brain, that's the thing. I've had instructors that were just not on the "same page" as the students as so you felt frustrated because you didn't feel like the instructor was understanding your problems and learning.

Thus, the findings of this study suggest that, in the case of both the teachers and the students, the metaphors used for teaching and learning acknowledge the complex nature of each of these processes. This finding represents a progression beyond the more singular metaphors noted in previous literature. To use the vascular metaphor used earlier, the vein of complexity present in the educational metaphor literature to date features more as a major artery that runs

through the findings of this study. This movement away from the separate depictions of teachers' and students' metaphors that is evident in earlier literature about the use of educational metaphors has also been recognised during the last decade by Sfard (1998), Hildebrand (1999), Doolittle (2002) and Hager (2004) who describe such complexity as "critical activism" (Hildebrand, 1999, p. 8) and "complex constructivism" (Doolittle, 2002, p. 13). In such cases, teaching and learning are viewed as interdependent processes which take place within a community and with communities. The findings from this study reflect this level of complexity as well as the theme of community that is also beginning to emerge from recent literature (Cliff, 1998; Doolittle, 2002; Hager, 2004; Hildebrand, 1999; Meyer & Boulton-Lewis, 1999).

Although some recently reported literature has focused upon the community focus of some teachers' and students' educational beliefs (Åkerlind, 2004; Cliff, 1998; Meyer & Boulton-Lewis, 1999; Pratt, 1992; Purdie. Hattie & Douglas, 1996), this theme has yet to emerge as a feature of the literature which reports on the use of educational metaphors. Nevertheless, the analysis of the data gathered during this study indicated that the participants in this study held some community focused educational beliefs and, furthermore, expressed these beliefs in metaphorical language. The metaphors used by the participants reflected an awareness of teaching and learning as processes which involved a community of learners based on particular communal vales where the roles of teachers and students were not necessarily separated: "you're here to learn together". Emphasised throughout their comments was value of "group cohesiveness", "interaction between teacher and students", "gelling together", "being on the same page" and "group understanding". as well as the value of the and the idea that "you're here to learn together". Thus, the ideas that learning is more than just a participatory action, and that teaching is more than the facilitation of such participation, appear to be emerging from recent belief literature as well as being expressed as educational metaphors in the findings of this study.

Possible implications for practice

Due to the primarily exploratory nature of the study described in this paper, as well as the qualitative nature of most of the data gathered throughout the study, implications for practice are offered in relation only to the group of university teachers and students who constituted the participants in this study. Transference of these conclusions to similar situations is entrusted to the reader of this thesis.

With further research to confirm or refute the results of this study, the findings from this study may have implications for both university students and university teachers alike. When considered from the perspective of both students and teachers, these findings indicate that the contemporary university student in this study may be more aware of the complexities of teaching and learning processes than ever before. The implications of this finding may have relevance for designers of university courses and teachers of contemporary university students. Such students may appreciate being more involved in course design processes and negotiated curriculum practices.

The metaphors used by the teachers and students in this study frequently reflected views which merged teaching and learning processes. Such a finding suggests that the more traditionally singular view of teaching as a separate process from learning may be changing and becoming more complex and related. This finding urges teachers and students to consider

more overlap and similarities between their roles. Teachers should be viewed as lifelong learners and students as possible teachers of their peers and, perhaps even, their teachers.

Lastly, one of the trends that emerged from an analysis of the metaphors used by the participants in this study indicated that this group of contemporary university teachers and students believed that a sense of community and a range of communal values were relevant and integral to university teaching and learning processes. Such a finding suggests that university courses may become less insular and more community based than they have been in the past.

Conclusions

The collective use of metaphor indicated by the participants in this study demonstrates how they view the interconnections between teaching and learning processes, a theme not featured prominently in previously reported research about educational metaphors. The metaphors used by the participants to explain their beliefs about teaching and learning also serve to illustrate the complexity of the education business. Furthermore, the participants' metaphors reflect an emerging awareness of the interdependence of community, communal values and education, a trend that is also beginning to come to light in educational belief literature.

The metaphors documented in this study illustrate the wide-ranging views, often expressed metaphorically, about teaching and learning held by this sample of participants. The findings provide emerging evidence of the deep, complex, varied and parallel understandings held by these contemporary teachers and students about the processes of teaching and learning. The metaphors used by the participants are imaginative, intelligent and capable of allowing us to understand how these people view the teaching and learning process.

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