

Similarity based and knowledge creating metaphors – a didactic framework for informing design

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Abstract

In this paper, it is shown how metaphors might inform didactic design at a course level as well as at a didactic methodological level. In doing so, I distinguish between a similarity based use of metaphors and a similarity creating use thereof. Similarity based uses of metaphors are shown to be particularly suited for framing the learning environment by making the unfamiliar familiar. On the other hand, introducing a similarity creating use of metaphors provides a tool for creative reflection, which might support a pro-active development of design strategies.

Keywords

Similarity based use of metaphor, similarity creating use of metaphor, didactic course design, didactic design strategies, designing for collaboration.

Introduction

Metaphors are pervasive in language and thought. Metaphors can imply a change in knowledge and thereby create insight. The concept of metaphors has been widely used in research on design and learning. For that reason, I wish to bring attention to a distinction between two ways of using metaphors: A similarity based use of metaphors, inspired by the works of Lakoff and Johnson (1980, 1999) and Sweetser (1992) and a similarity creating use (Black, 1962; Indurkha, 1992; Gordon, 1965). In addressing the metaphorical mechanism from these two angles, I argue that the similarity based use of metaphor is well suited for practical design purposes in connection to the development of course design. On the other hand, when occupied with methodological issues concerning didactic design, we, as designers, have to be avant-garde. To help us behave as front-runners, we need tools for reflection about our creative practice. Therefore, I argue that we might turn to the use of metaphors in a similarity creating manner, since this use of metaphor can facilitate the creative exploration of new ideas by which we gain insight into the unique qualities of virtual learning cultures and environments. In this setting, the similarity creating potential of the metaphor is brought into focus as a useful mechanism for reflection about design.

By means of a similarity based use of metaphors we can highlight certain features already dominant in a given source area in order to carry over a familiar understanding of a new environment. Making the unfamiliar familiar enables us to design a platform supportive of a given practice of learning, since a similarity based use of metaphor generates a conceptual fit between different areas.

By introducing a similarity based use of metaphors in design we are able to establish a platform that reflects and supports a given didactic practice. Different metaphors point to different ways of conceptualizing a situation and bring about different ways of acting. However, at the same time, we have to be careful in choosing metaphors in view of the fact that they also narrow down our perspective. The metaphorically based ability of highlighting certain aspects of a situation naturally results in constraining items deemed irrelevant in a given context. Thus, bearing the similarity based use of metaphors in mind; we see and act, supported by metaphors that recast an already existing practice or perspective in a new setting.

Therefore, I bring in a similarity creating use of metaphors, which might support a pro-active development of didactic design strategies within the field of networked learning. This use of metaphors

highlights their creative power in emphasizing the mechanism by which the juxtaposition of different objects and situations may provide for a very new understanding of a domain to emerge in revealing an aha-experience. From a methodological point of view, it makes good sense to move beyond the similarity based use of metaphors, since looking at how the new world resembles the well known is not sufficient to ensure a forceful development of a theoretically based framework on the topic of design strategies. As a first step, to promote creative metaphor building, one might force a creation of similarity by, in the first place, deliberately making the familiar unfamiliar. Thus, from this foundation, we might carry on and concentrate to see if we can create new links between domains without previous similarities. By a similarity creating approach towards metaphor building, we are provided with a tool that may enable us to reflect upon creative design ideas supportive of strategies for future didactic design.

A similarity based use of metaphors in course design

A metaphor can be explained for with reference to its ability to reveal an obvious picture and set a perspective by pointing to similarities between domains where material from a source domain is projected onto a target domain. According to Lakoff and Johnson (1980, 1999), metaphors are essential to human cognition and a source of all our concepts. Not only do we use them for understanding new areas described by means of other areas, our bodily based image schemata are also metaphorically based. Thus, for instance our early childhood senso-motoric experiences that stem from acting in the world leads us to a comprehension of “up” as reflecting “more”, and “down” as implying “less”, since as babies, when lying on the floor our worldview is restricted, later on when getting up, sitting or walking around we get a broader and better view. Such bodily experiences form the basis for our conceptualization and mental categories, which in turn shape our thinking and language. The metaphorical projection of bodily based schemata concerning spatial-temporal relations is linguistically expressed in conventional metaphors, such as “prices goes up”, “he felt down” “she was high on emotions”. In the same way, our embodied container schema reflects the experience of our bodily delimitation in the world. We experience ourselves as biological containers, with an inside-outside relation between our body and the surrounding world. This is reflected in metaphors, such as: “she boiled over with anger”, “his life is empty”, “She is filled with joy”. Through empirical studies, Lakoff et al. uncover consistent systems of metaphors relying on different bodily based schemata, which are claimed to be supportive of their idea that our very possibility for conceptualization and categorization is embodied.

In dealing with how we make sense of the world by metaphors, Lakoff et al. approach the issue from a similarity based perspective, without taking any interest into the generative mechanism as such behind a good creative metaphor. Their focus is on uncovering metaphor systems that frame our being in the world. In next section, my focus will instead be on the creative potential of the metaphor, whereby we are able to force new perspectives onto a domain in order to restructure our design ideas in new ways. However, for now, I will be paying attention to the similarity based approach to metaphors.

A new usage may eventually create a convention, but pre-existing convention combined with universal human perception is the only possible grounding for any new usage, whatever the medium of expression. Returning to literature, we have overwhelming evidence (..) that literary metaphors are creative uses of precisely those metaphors that shape our everyday language and thought and that such metaphors are largely based on a shared human perceptual experience of the world. By this, I do not mean an experience shared because it is the objective nature of the experienced world, but one shared because we share human faculties of interpretation and categorization of our perceptual input. My viewpoint is thus neither objectivist nor subjectivist, but “experientalist”.(..)The immense power of everyday cognitive structure, language, and thought is that they shape and frame all of our experience, pervasively. The immense power of artistic usages is that they can draw on these everyday structures to make us notice them and perceive them differently. (Sweetser, 1992, p. 707)

We often employ metaphors to facilitate didactic considerations behind a given course design. In doing so, we can highlight the affordance of a learning environment either by setting an overall metaphorical framework for understanding a learning environment, or by conceptualizing different parts of its components by introducing metaphors. For instance, we might frame the overall picture by referring to a

virtual learning environment as a “community”. This emphasizes a philosophy of learning requiring a didactic design with focus on methods that sustain a participatory stance towards learning (rather than a goal and product oriented perspective). Here, learning is seen as construction of situated knowledge through ongoing negotiation in practice. According to Wenger, the promoter of the community metaphor for learning, our existence rests on our being in practice and living through taking part in communities of practice. Thereby practice is *about meaning as an experience of everyday life* (Wenger, 1998, p. 52). Communities of practice are formed by dimensions of mutual engagement (Who are we?), joint enterprise (Where are we heading?) and shared repertoire (How do we talk about matters that matter?). Our being in the world is about constructing meaning by negotiating meaning through a dual process of participation and reification.

In order to establish an environment that learners might easily adapt to within a community framework, it is useful to scaffold it by relying on a similarity based use of metaphors that can be conceptualized in relation to domains concerning human action, construction and communication. For instance, presence in cyberspace might be nurtured by means of metaphors such as “café” and “speakers corner”, suggesting a place to go to for informal discussion (Fontaine, 2002). Also, the well known metaphorical concept of a “road map” rests on a journey domain. As time goes by, these kinds of metaphors themselves often turn into conventional ways of understanding the domain they originally interpreted. They so to speak become “metaphors we live by” in interacting with the environment - to use an expression inspired by the title of one of Lakoff and Johnson’s early books on metaphors (Lakoff and Johnson, 1980).

On the other hand, we also find learning management systems with an inherent goal oriented perspective towards learning, where learning is about knowledge acquisition and accumulation. The dominating principle behind such systems is often supported by a container metaphor, where a content delivery and information handling approach is reflected in the system design. The metaphorically supported reproduction rests on a design practice, where the internet is simply seen as a faster way to distribute old familiar stuff (Bayne, p. 39, 2005).

Of course, technological environments are not to be viewed in separate. In adapting to a virtual learning environment, people are both subject to influence from the technology and at the same time, they reconstruct that technology. However, the affordances of a learning environment provide both learner and teacher with certain opportunities for action. In a community based environment the context is collaborative, whereas a learning management based environment invites to a more competitive use. In addition, we are also often able to reveal a mismatch in many learning management systems between espoused theories, learning systems claim their didactic design rest on, and the actually implemented design. Many community or collaborative learning systems comes with built in functionalities for monitoring student online activity (see for instance Black Board, LM). Such tools afford moves towards surveillance, and a teacher might without being conscious of it use a (so called) community based learning environment in a manner that promotes competition among learners rather than collaboration, which hinders the build up of trustful relations among learners and teacher, which are necessary in order to establish engaged collaboration.

The divergence between theories held and actual practice is pin pointed from a different, but yet related, perspective in a case study carried out by Leavy et al. (2007). They investigated metaphors about learning and teaching held by student teachers. All though the central assumption held in teacher education is that meaning is constructed, they found that the majority of student teachers interpreted teaching and learning from a behaviourist/empiricist perspective. This was expressed with metaphorical utterances, such as “*teaching is like cooking*”, “*if in the middle of cooking something, the cook finds something is lacking or slightly amiss, the cook can adjust.*” (Leavy et al., p. 1228, 2007). To facilitate the student teachers further exploration of their images of learning, Leavy et al. used metaphor construction as a tool to sustain reflective activities. As such, metaphors were proven useful to bridge the gap between theoretically held assumption and practice.

Metaphors may hold an important key to assisting student teachers to understand themselves as teachers and for relation this understanding to their own practice. Through exploring their images of teaching, they may be assisted to reflect critically on the teaching decisions they make and monitor their own development and growth as teachers. (Leavy et al., p. 1230, 2007)

So far, I have illustrated how a similarity based use of metaphors reveals similarities in dissimilarities, and thereby enables us to recast an existing practice in a new domain. Through examples of different types of metaphors that guide course design of virtual learning environments, I have pointed out how metaphors frame our understanding of these systems. Thus, the usefulness of bringing in a similarity based approach to metaphors in the design of learning environments is inevitably. On the other hand, in order to develop the underlying principles of didactic design methodologies, it is important to bring forward the metaphor's creative potential for creating similarity. In what follows, I turn to a discussion of how we might be able to reflect design considerations by means of a similarity creating use of metaphors.

A similarity creating use of metaphors – a tool for reflecting about methodological issues in didactic design

According to Aristotle, if faced with something new, we are masters of metaphors if we intuitively can point to “similarities in dissimilarities” (Aristotle, Poetics, 1459a). However, contrary to the Aristotelian similarity based standpoint, the metaphor does not only serve as a tool for producing reducible comparisons between domains in a search for resemblances. Metaphors can also be used for reflection about how we may reshape our design practice.

The danger of metaphors in connection with virtual course design lies inherent in the fact that a metaphor decomposes ideas in a pre-existing practice and transfers them to a new practice still under cultivation in the virtual realm. Metaphors keep our understanding within the limits of former experiences held in real life, but now transferred to the virtual sphere. Thereby, the overall picture often turns out to be in favour of viewing the virtual environment as a technologically based compensating tool, rather than a facilitating learning environment taken on its own premises. Therefore, when we are engaged in didactic design activities we have to force ourselves into generating new ways of designing for learning processes to take place. This creative process can be facilitated by a similarity creating use of metaphors, where we first moves beyond the well-known by deliberately making the familiar unfamiliar - “*to make the familiar strange*” is to distort, invert or transpose the traditional ways of looking at, and responding to, the secure and familiar world. It results in achieving a new look at the same old world. (Gordon, 1965, p. 96). Next within the framework of this newly generated worldview, juxtaposition of different objects or situations may provide for a new understanding of a domain to emerge, thereby opening up towards a more creative outlook.

From a creative point of view towards the concept of metaphor, the dynamic behind a good metaphor involves more than comparing features of similarities between domains. It also provides for new insight that was not present before the creation of similarity, which the metaphor brought about. The target domain and the source domain interact in bringing forward a metaphor that may provide us with new insights and reveal an aha-experience. The interesting part is the dynamic that goes into the interaction between source and target domain in the creation of similarity:

In Stanley Kubrick's classic film *2001: A Space Odyssey*, the movement of a bone thrown in the air by Moon-watcher (an ape-man) is transformed into the movement of a space-ship in the twenty-first century by means of a cut that may well be one of the most dramatic cuts in the history of films. Though the cut seems to have the character of an unobtrusive join, for the movement of the spaceship is closely matched with the movement of the bone, its effect, on the contrary, is quite shocking [...]. We realize that they are both expressions of human technological prowess [...]. Thus, the similarities that the juxtaposition of the bone and the spaceship evoke go far beyond whatever you may have come up with earlier. (Indurkha, 1992, p. 44)

The tension that stems from a good metaphor reveals itself from the fact that an interacting source and target domain establish similarity, which opens our eyes for a new way of seeing. Yet, taken apart the source and target domain are different, and only in inseparable interaction do they create similarity and new insight. Also, in studies regarding creative problem solving, Schön points to the metaphors potential for creating insights by referring to it as *generative* (Schön, 1994). This is not the case with a similarity based metaphor, it reveals similarity between domains by mapping elements of already existing similarity

from source to target domain. We are handed over a template, reminding us how to interact with the environment: There is a discussion board named “café”, it’s for informal chats, like your real life coffee shop. This is “a learning community”, it’s resembles your real working life community, only this one is online.

Therefore, I would like to emphasize the capacity of metaphors for creating similarity. Here, the metaphorical process can be conceptualized as an interaction between inseparable thoughts who work together in bringing forward a new understanding of the given area. This knowledge creating potential of the metaphor is elaborated on by Black (1962) in his attempt to formulate ways in which metaphors bring about similarities, instead of simply relaying on existing similarities in making a metaphorical comparison by means of what is already present. Actually, he expressed his ideas by bringing in metaphor himself:

Suppose I look at the night through a piece of heavily smoked glass on which certain lines have been left clear. Then I shall see only the stars that can be made to lie on the lines previously prepared upon the screen, and the stars I do see will be seen as organized by the screen’s structure. We can think of a metaphor as such a screen. (Black, 1962, p. 41)

At first sight, the notion of a screen, acting like some sort of filter, intuitively represents an appealing explanation, but the image is problematic since a screen (as well as a filter) can only advance perspectives concerning already existing situations, but not create new perspectives. In this respect, the screen metaphor does not provide for a clarification of the knowledge creating potential in relation to metaphors. Black argues that the sky can form an infinite number of patterns and thereby the similarity organized by the filter can be looked upon as a created similarity. Nevertheless, a filter is only able to reveal what is already there, therefore this leaves us with no clear explanation of how the similarity is created, a similarity which might provide for new insights in a given area. If Black had known about Lego, he might have illustrated his ideas by introducing a Lego metaphor. In playing with Lego, the combining principle of the building blocks forms a structure, which we have to stick to – not anything goes in Lego. But if we follow the principles of construction, we are able to expand the framework of design. In the same manner, we follow certain rules of thumbs when we are engaged in creative processes in trying to expand the didactic design of virtual learning environments. However, as opposed to the “screen” or “filter” idea, the manifold possibilities for combining building blocks can be viewed upon as illustrating ways in which our thoughts can interact in bringing forward a new productive interpretation of the virtual culture under scrutiny. In this manner, we might enable innovation in design strategies and move beyond the simplistic comparisons of elements and conditions from an existing practice.

A similarity based and similarity creating use of metaphors in designing for collaboration

So far, I have only dealt with similarity based and similarity creating uses of metaphors in connection to overall design strategies regarding learning environments. I have illustrated how similarity based metaphors are useful in making the unfamiliar familiar, by introducing the learner to metaphors for sense and place making in a given virtual environment. Furthermore, I have stressed the importance of bringing in a similarity creating use of metaphors as a tool to support pro-active design strategies, by means of which we are able to suppress the limitations that otherwise might stem from recasting a pre-existing practice into a virtual practice still under development. Now, I turn to the use of metaphors as facilitators of collaboration. As earlier mentioned, we may use similarity based metaphors in order to support the learners navigation in a virtual environment, as these types of metaphors can be seen as an important prerequisite for collaborative activities to take place, since here norms for interaction are still up for negotiation among learners. In this way, access to similarity based metaphors make learners aware of their options for action.

Furthermore, a teacher might set the scene for collaboration to take place by presenting a similarity creating use of metaphors as a framework for organizing knowledge construction. From a bird’s-eye view, knowledge construction in virtual learning environments is situated in a cultural context of fragmented information, which learners, through negotiation in a specific context of learning, might agree upon finding useful for knowledge building purposes. It therefore becomes an important skill to

master a creative and critically view towards not only knowledge construction, but also towards knowledge deconstruction, since the knowledge created in one situation, all though being situated to a certain extent, might carry over to other contexts or might be reorganized so as to produce new perspectives in other situations. The notion of a similarity creating use of metaphor can be applied for collaborative purposes in situations where we ask students to reconstruct already constructed knowledge in order to reflect about how they actually carry out knowledge construction. In practice, we might realize this by introducing:

- Global online montage techniques where learners seek information (Google, databases, virtual communities such as YouTube) that, when placed together, shape an understanding of a given subject matter. Here the learners have to bear in mind that verification of information is an important prerequisite for any further knowledge construction to take place.
- Online brainstorm techniques carried out in chats and/or discussion boards where we encourage learners to try to make the familiar unfamiliar in order to reconceptualise a given subject.
- Local online montage techniques, where learners revisit existing information in the form of their own products of reification (for instance threads of discussions in a discussion board, portfolios, mind maps, documents) from their learning environment. Hereby, learners can grow an awareness of how products of reification can be used to create new knowledge – by putting together information produced in different contexts of learning and for different purposes; learners might reshape the current context for reflection.

Within this kind of collaborative metaphorically based framework, learners can get insight into their learning processes and reflect about knowledge construction from a similarity creating perspective.

Concluding remarks

In this paper, I have pointed towards two different ways of using metaphors, which can be brought to play with different purposes in connection to didactic design. By a similarity based use of metaphors one is able to project ideas from a pre-existing practice of learning in order to frame the practice of a virtual learning environment, thereby making the unfamiliar familiar. The similarity based use of metaphors is important in order to facilitate ways in which learners can make sense of a new virtual environment. However, if we distinctly tend to conceptualize possibilities for action in the virtual realm in terms of possibilities for action in real life, there is a risk that we might conceive of the virtual environment from a compensating perspective. Hereby, it is viewed as a technologically based tool rather than a virtual environment for learning. Since we are in fact dealing with a new environment, we must not overlook its unique qualities. In order to avoid this, I call attention to a creative perspective towards metaphors, thereby underscoring the metaphorical mechanism that lets domains interact in bringing forward new insight, which was not present before the metaphor revealed it.

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