# Metaphor Analysis as a Method for Holistic PIM Research

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## 1. Abstract

This paper introduces metaphor analysis as a potential method for studying personal information management, particularly as the nature of "personal information collections" (Jones, 2008) is becoming more complex with Web 2.0 and cloud computing. Metaphor analysis discovers underlying metaphors, and potentially multiple perspectives, of a phenomenon. For research, the evaluation of metaphors is primarily how effective they are as an analytical tool. An exploratory study is described to demonstrate the use of metaphor analysis for PIM research.

## 2. Introduction

The growing personal information management (PIM) research challenge is understanding PIM across the multitude of information channels and applications in which the user interacts (Jones & Bruce, 2005). Clifford Lynch (2003) encourages research "on the individual user, workgroup, or intellectual community of practice 'in the abstract' as a free-standing entity that chooses to employ (or not employ) a range of systems and sources (rather than in relation to a specific system)."

This is not a new idea, though the environment may be. Zweizig's 1973 dissertation asserts that we "have too long focused on the user in the life of the library. We need instead to focus on the library in the life of the user." The difficulty of conducting holistic research of users' behavior with information, particularly information as amorphous as personal information, has precluded more progress in this area.

We need to seek out new methods to investigate PIM from the user perspective. One potential method, which may prove fruitful, is metaphor analysis.

## 3. Metaphor Analysis

Metaphor analysis has been applied in organizational science and information systems literatures. It is particularly useful when a researcher seeks to provide a rich understanding of a phenomenon. Metaphor analysis enables the study a complex phenomenon as a coherent whole.

The essence of metaphor analysis is seeking to identify underlying metaphors of the phenomenon. A metaphor projects one schema from source domain onto another schema from the target domain (Indurkhya, 1992); the target domain is the researcher's interest. Thus, the researcher tries to identify source domain schemas that are applied to the phenomenon of interest. By discovering the metaphors the researcher increases her/his understanding of the phenomenon and the multiple perspectives involved with the phenomenon.

One of the unique strengths of metaphor analysis is that it enables, and even promotes, multiple perspectives of a single phenomenon. None of the metaphors are truer than the other. The metaphor lens merely highlights one aspect and hides others while the researcher tries to understand the one in focus. Most phenomena will have multiple metaphors. These metaphors help individuals, and the organizations they are a part of, understand complex phenomena. For example, if a group understands the systems development life cycle as a game, this game metaphor helps them conceptualize their role. They will try to win by following the rules and may think of the users as the opponents (Kendall & Kendall, 1993).

Koch and Deetz place interpretive techniques, such as metaphor analysis, within the context of inquiry. "Interpretive research methods do not add new facts to a cumulative base of knowledge. Rather they situate or contextualize bases of knowledge by explicating the implied possibilities inherent in current situations and endeavors (Koch & Deetz, 1981)." It is this context and rich understanding that make metaphor analysis a potentially exciting tool for researchers, especially in the area of PIM where context is so essential to understanding.

## 4. Metaphors

Metaphor is defined as, "an unconventional way of describing (or representing) an object, event or situation (real or imagined) as another object, event or situation (Indurkhya, 1992)." According to Turbayne (1970), a metaphor has three life stages. The first stage is when a metaphor is first introduced; it is rejected because literally it does not seem congruent. Stage two of a metaphor is when users suspend their disbelief and draw useful comparisons between the source and target schema. As the metaphor is adopted and used more, it will progress to stage three. In stage three the metaphor takes on a literalness, where the users do not consciously compare the schemas. The source and target are now associated unconsciously.

Lakoff & Johnson (1980) discuss the metaphor of "argument is war" which has reached stage three. "Our conventional ways of talking about arguments presuppose a metaphor we are hardly ever conscious of. The metaphor is not merely in the words we use – it is in our very concept of an argument." In their seminal book, *Metaphors We Live By*, Lakoff & Johson (1980) explain how metaphors are ubiquitous not only in our language, but, more importantly, in our conceptualizations.

Metaphors focus on particular aspects of a phenomenon. To use Morgan's (1997) well-developed metaphor for an organization, when we conceptualize an organization as a machine, we will think of efficiency as the goal and departments as interlocking parts of the centralized whole. However, this view is hardly complete. Lakoff & Johnson (1980) state, "In allowing us to focus on one aspect of a concept…a metaphorical concept can keep us from focusing on other aspects of the concept that are inconsistent with that metaphor." Clearly, there is no one complete metaphor, rather many metaphors should be considered and evaluated by if they are useful or if they are dominant within a particular subculture.

An empirical study on management problem-solving showed that depending on which metaphor the organization used to describe itself, subjects formulated dramatically different problems and solutions from the same problem statement (Boland & Greenberg, 1988). Subjects that were introduced to the organization as an organism focused on environment, growth, and decentralization, whereas those introduced to the organization as a machine focused on centralization and controlling growth.

The metaphors themselves do not illustrate the similarities between a source and a target domain, but actually create the similarities in a person's mind (Lakoff & Johnson, 1980). The person, thus, becomes aware of the similarities that may have always existed. Further, they ignore dissimilarities that would weaken the comparison (Morgan, 1997).

The power of metaphors, within both poetry and theory, is that they are vivid, compact, and they overcome the inexpressibility of unfamiliar phenomena (Ortony, 1975). When a researcher states that technology is considered to be like magic in subcultures of an organization (Kaarst-Brown & Robey, 1999), the image is vivid and lasting. Also, it is a rather compact way to portray the complex interactions between that subculture and technology. If a college student, who had never worked in an organization before, heard that the organization treated technology like magic, s/he would be able to understand the interaction even though s/he had no direct experience working.

Poetry uses metaphors to generate a gestalt with fused images, associations and emotions. Contrarily, with theory, metaphors provide a rational and somewhat reductionist understanding (Inns & Jones, 1996). With poetry it is common enough, and sometimes welcome, if readers have their own unique interpretations that are inconsistent with others'. However, when building theory, we need to ensure a degree of mutual understanding to have reliable findings (Inns & Jones 1996). Metaphor analysis in research does not aim to generate metaphors for the sake of inspiring creativity, but instead aims to discover metaphors that exist underneath the surface to enhance understanding.

Not every metaphor is useful. Evaluating metaphors within research is primarily how effective they are as an analytical tool. Does it increase understanding for the theorist? Does it provide insight for the people being studied? Literalizing a metaphor too much will backfire; a metaphor loses its power when it is forced.

Metaphors can serve the following functions within qualitative data analysis: data reducing devices, pattern making devices, de-centering devices, and theory development aids (Miles & Huberman 1984). Metaphors reduce data by enabling the researcher to say in a single word or phrase what one book of field notes might indicate. Metaphors can help the research find patterns by abstracting each particular situation into a similar conceptual understanding. The de-centering occurs when the researcher distances her/himself from the immediate phenomenon and tries to find a metaphor that may be completely novel to his/her past conceptualizations. Lastly, as a tool for abstraction, metaphors can help researchers develop theories, by combining reason with imagination (Miles & Huberman 1984).

## 5. PIM Exploratory Study

With the growth of Web 2.0 applications and cloud computing, limiting the study of PIM to the "personal information collections" (Jones, 2008) that an individual has complete control over has become more problematic. In real-world projects, individuals have a cadre of information items which they may consider their "own" at moments in time, though they are controlled partly or wholly by others (e.g., Google docs, wikis, project websites, general web). Metaphor analysis can help researchers develop new theories in this changing PIM environment and uncover user's conceptual thinking about the "personal information collections" they use.

This exploratory PIM study seeks to understand how students use a web-based course site (Blackboard), which they have minimal control over, to do their work for a college course. If the syllabus, assignments, and readings are on the Blackboard course site, do students merely

access the information on demand when they need it? Do they download the materials to manage these materials in their own "personal information collection" (in digital or paper form)? By using metaphor analysis, the researcher is able to identify the multiple perspectives the students have toward Blackboard and the PIM behavior shared by those who have the same metaphor.

Three college courses from different disciplines were selected and 5 to 6 students from each of the courses were recruited for a total of 16 participants. The students were interviewed twice during the semester and asked to give a guided tour of their personal information collections, including the Blackboard course site. The transcripts of the interviews were analyzed for metaphors-in-use and overarching metaphors that related to Blackboard.

The shared Blackboard metaphors that emerged are described below. Though sets of students shared these metaphors, the affective feeling toward the metaphor was not always the same. With the "Self-service Station" and "Tutor" metaphors, the PIM behavior depended on whether the student had a positive or negative association with the metaphor.

**Self-service Station**: Students felt that they now had to go to Blackboard once or twice a week to fill up and print materials for their own "personal information collections." They appreciated the autonomy, where they could decide which information items to access, and the anonymity of not having to ask the professor for something if they lost it. The majority tended to miss "full service" where the instructor would print and handout the material for them in class. The degree of loss varied from those who were resigned to it because it made the instructor's life easier to those who felt like the extra work was a "nuisance." The PIM behavior of these students was to acquire the material from Blackboard and integrate it into their personal paper systems (e.g., binders, folders). A minority of students who exhibited this metaphor had purely positive associations with the "self-service." These students preferred to use the digital versions of materials and were more organizing-neutral.

**Day Planner**: Students used Blackboard to identify what was due when, to see what was coming up, and to manage the multiple aspects of the course. These students tended use Blackboard in lieu of their paper syllabi. This metaphor was more common in courses where the instructor had a very clear structure to the course and his/her Blackboard site. Also, the students tended to be those who were organizing-neutral and had less of their own "planning" systems.

**Tutor**: Students saw Blackboard as a tutor to help them with assignments. They visited Blackboard when an assignment was due or exam was pending, and felt that Blackboard had all of the materials needed for them to succeed in the course. A few students had negative reactions to this extra content. They felt Blackboard was like a **Helicopter Tutor**, overwhelming them with so much material that they felt an added pressure that they "shouldn't screw up" and they were disempowered from "rigorous engagement" with the course content. These students "skimmed" the material online and did not acquire many items for their personally-managed collections. Other students had positive associations with Blackboard as a Tutor and incorporated the additional study materials into their own collections.

**Insurance**: Students did not actively use Blackboard, or large portions of the Blackboard course. Nonetheless, they felt less anxiety knowing it was there in case they needed some information, especially at 2am when they could not reach a friend or professor. These students did not feel that it mattered that they did not use Blackboard.

Several students had more than one metaphor for the particular Blackboard course site, demonstrating that multiple perspectives may exist within a single "personal information collection." The affective association with the metaphors and their distinct PIM behavior was a new discovery.

## 6. Summary
When trying to understand the complex nature of PIM in a constantly connected world with multiple information channels and applications, metaphor analysis can be a worthwhile methodological tool. Metaphors can serve as a data reducing device while retaining richness with holistic user-based studies. Further, metaphors can be used to spark new theories.

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