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Article

The Subjectivity Problem: Improving Triangulation Approaches in Metaphor Analysis Studies

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Abstract

Metaphor analysis procedures for uncovering participant conceptualizations have been well-established in qualitative research settings since the early 1980s; however, one common criticism of metaphor analysis is the trustworthiness of the findings. Namely, accurate determination of the conceptual metaphors held by participants based on the investigation of linguistic metaphors has been identified as a methodological issue because of the subjectivity involved in the interpretation; that is, because they are necessarily situated in specific social and cultural milieus, meanings of particular metaphors are not universally constructed nor understood. In light of these critiques, this article provides examples of two different triangulation methods that can be employed to supplement the trustworthiness of the findings when metaphor analysis methodologies are used.

Keywords: Metaphor analysis, triangulation, metaphor checking, dual-analysis approach

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Introduction

Metaphor analysis, as a qualitative research tool, allows researchers to examine the conceptual metaphors (CMs) invoked by metaphoric linguistic expressions (MLEs) articulated by speakers to provide some insight into their thought patterns and understandings of a given topic (Cameron & Low, 1999; de Guerrero & Villamil, 2002). Cameron and Low (1999) explain metaphor analysis as a method that involves "collecting examples of linguistic metaphors used to talk about the topic…generalising from them to the conceptual metaphors they exemplify, and using the result to suggest understandings or thought patterns which construct or constrain people's beliefs or actions" (p. 88). This is the goal of metaphor analysis—to try to get a glimpse of participants' conceptual metaphors, which consist of the socio-cognitive connections that enable them to relate one concept to another, through close analysis of the linguistic expressions with which they are systematically linked. As Jensen (2006) has commented, "Metaphors are a valuable research tool for gaining new insights into education practice and theory" (p. 13).

Metaphor researchers have provided well-delineated procedures for identifying and gathering metaphoric data since the 1980s (see, for example, Cameron & Low, 1999; Kovecses, 2002; Lakoff & Johnson, 1980; Low, 2003; Steen, et al., 2010b), although specific procedures for analyzing the data once collected are less often explicitly described. Scholars have noted the difficulties in making use of reports of research involving metaphor analysis procedures that do not include discussion of how the findings were triangulated or confirmed (see, Ritchie, 2003; Schmitt, 2005; Semino, Haywood, & Short, 2004; Todd & Harrison, 2008). Without transparency in the analysis stage, such research is subject to criticism from the broader research community (see, Dexter & LaMagdeleine, 2002). For instance, Ritchie (2003) called into question one of Lakoff and Johnson's (1980) more well-known conceptual metaphors ARGUMENT IS WAR,[1] by pointing out that many of the linguistic metaphors Lakoff and Johnson used to develop the conceptual metaphor could just as easily relate to a game of chess: "War is indeed often used as a metaphor for interpersonal argument, but argument is also sometimes used as a metaphor for war, and games are often used as a metaphor for both argument and war" (p. 132). Ritchie's (2003) point, which is grounded in Lakoff & Johnson's (1980) own theoretical positioning of metaphor within one's lived experience, is that metaphor interpretation must be contextualized socially and culturally. For example, he argues that because a much smaller percentage of the population has actually experienced war than has played chess, the ARGUMENT IS WAR conceptual metaphor actually falls short of Lakoff & Johnson's (1980) own theory of metaphorical grounding. Similarly, Steen et al. (2010a) acknowledge the functional variation in metaphor across social and cultural contexts:

> Even if linguistic forms may be the same across a number of contexts of usage, this does not mean that they necessarily function in the same way to the concrete individual participants in these various usage events. This issue affects the way in which cognitive linguistic approaches can be said to be the same as sociolinguistic, discourse-analytical and cultural linguistic ones. (p. 767)

In short, just as the CMs they represent, MLEs are formed through various social and cultural networks.

Additionally, some researchers have questioned whether a single, unique conceptual metaphor can be assigned to a specific linguistic metaphor. Koro-Ljungberg (2004) argues that identification of conceptual metaphors has to do with the epistemological perspective driving the methodological choice. For instance, she considers metaphor analysis from a poststructural

perspective, which rejects notions of objective truth and instead view truths as being "created within discourses" (p. 342). She later situates her discussion of the subjective nature of metaphor analysis in the context of a phenomenological study of Finnish professors' metaphors for creativity (see, Koro-Ljungberg, 2001). Her concern centered around veridicality and stability of her own interpretations, especially given the many metaphors—and potential interpretations—she found. Her point is that any positivistic or direct one-to-one correlations from target to source are not appropriate in a poststructuralist view of metaphor analysis. Instead, she claims:

> Any metaphorical interpretation is always a value statement and represents an individual viewpoint controlled by operating discourses once it calls for a specific understanding of the world instead of something generalizable or predictable […] A degree of uncertainty is always present in any poststructural readings of metaphors. (p. 357)

Her concerns echo those of Ritchie (2003), which we take to indicate that metaphor interpretation should be open to systematic exploration from a number of epistemological viewpoints.

We agree with these concerns and critiques, and acknowledge the subjectivity problem inherent not just in metaphor analysis, but essentially within any qualitative analysis approach. Nonetheless, we believe that metaphor analysis can be a valuable tool for uncovering participant conceptualizations, particularly for purposes of understanding learners' conceptualizations in educational settings.

In this article, we argue that qualitative approaches to metaphor analysis are most effective when an intentional plan for triangulation is built into the research design. To enhance a researcher's interpretation of linguistic metaphors and their entailments, it is necessary to have a system in place for verification (Schmitt, 2005). Further, we would echo Schmitt's summary of Flick's prior work: "Particularly worth noting is his remark about not (just) using triangulation to validate, but also to understand differences in the conclusion reached by the various evaluation methods as grounds or opportunity for additional theoretical explanation" (p. 382).

The following sections provide descriptions of two separate methods that can be developed during the research design process and implemented during data collection to ensure that metaphorical data are triangulated and systematically analyzed carefully and thoughtfully. Each of these methods has been used in recent studies by the authors of this article. Both studies were approved through Institutional Research Board procedures, and all participants in each study provided informed consent prior to participation. The first method, which we call *metaphor checking*, can be likened to ethnographic member checking (e.g., Lincoln & Guba, 1985) as it provides an opportunity for the researcher and participants to thoroughly discuss and examine the MLEs observed during data collection in order to establish a shared understanding of the underlying conceptualizations. The second method, useful in settings when interaction with individual participants is limited and metaphor checking cannot be as easily implemented, combines thematic analysis of extensive field-based observations with the metaphor analysis for purposes of triangulation.

Method 1: Metaphor Checking

Similar to member checking in ethnographic research (Lincoln & Guba, 1985), metaphor checking is a technique that can be used to help ensure the accuracy and reliability of a metaphor researcher's interpretation. Metaphor checking involves systematically checking researcher interpretations directly with the participants to ensure a common understanding. Metaphor

checking can be built into a single interview session, though it is perhaps more effective within a multiple-interview study design. That way, the researcher has an opportunity to do a thorough analysis, identify a participant's metaphorical linguistic expressions and potential conceptual metaphor and follow up with the participant in a later interview. Either way, in this conversation the metaphor and its entailments are checked against researcher interpretation and participant intent to verify the conceptualizations prompting the participant's choice of language. Metaphor interpretation – indeed, all language interpretation – is highly subjective; for this reason, the continued discussion and examples that metaphor checking allows can provide the researcher with a way to confidently interpret participants' metaphoric language.

Introduction to the Study

In a recent metaphor-analysis study (Armstrong, 2007) metaphor checking was used for investigating first-year college students' conceptualizations of writing within the context of a preparatory writing class. One example of a single interview metaphor-checking situation involves the following MLE, provided by one participant in the study: "It [academic writing] feels like eating spinach because those two things I don't like." Although this participant's overall attitude toward academic writing is clear, the nuanced meanings of this MLE might have been lost if not for the metaphor-checking process:

Participant:	"It's tough because I don't like writing. Um…It feels like eating spinach because those two things I don't like."
Researcher:	"It's like eating spinach? Academic writing is like eating spinach?"
Participant:	[laughs]. "I don't like writing. I don't like reading. Occasionally, I'll read, but it's not books that we would normally read in school."

At this point, the researcher's initial field note entry was "writing is like eating spinach/elicited/☺," intended as a trigger for the researcher to remember the participant's metaphor and the approach used in collecting that metaphor. The emoticon code indicated the interviewer's personal response to the metaphor, a response clearly flavored by the researcher's preference for eating spinach–an interpretation that, as the metaphor-check excerpt below shows, was not shared by the participant. The follow-up questions and conversation that ensued demonstrate the metaphor-checking approach within a single interview session:

Researcher:	"OK, so are you saying spinach is not something you'd normally eat?"
Participant:	"Right. I'll eat it if it's in spinach dip, but that's about it."
Researcher:	"Like at TGI Fridays? They have good spinach dip."
Participant:	"I've never had it. My mom makes it. Like, I can deal with it, but it's not something I like."
Researcher:	"OK, so you can deal with academic writing the same way you can deal with spinach, but it's not something that you like?"
Participant:	"Right."

In addition to a personal preference for spinach, the researcher's interpretation may have also been shaped based on an understanding of the cultural significance of this MLE. Specifically, it may have been interpreted as an indication that, although the participant did not particularly care for academic writing, she viewed it as healthy, needed for growth, and good for intellectual nutrition. Through further discussion and additional analysis, however, it became clear that the

participant was not at all interested in the nutritional value of academic writing. Instead, her MLE was deliberately chosen to express her dissatisfaction with the forced nature of *academic* writing, which, like spinach, is something this participant thought of as forced upon her for her own good. In this way, this participant's spinach metaphor demonstrated not only her distaste for academic literacies, but also clarified that it was not necessarily writing and reading that she disliked, but, more specifically, school-based writing and reading. This metaphor-checking process, as part of the data-collection procedures, added richness to the researcher's interpretations.

In this research example, metaphor checking was applied as a deliberate and recurring process throughout the study, both within individual interview sessions, as described above, and across interview sessions for metaphor-checking purposes. For example, one participant provided the following elicited metaphor at the end of the first interview session:

Researcher:	"What about if I asked for like a metaphor for academic writing. Like academic writing is like... what is it like to you?"
Participant:	"Like a ton of bricks falling on me."
Researcher:	"So I guess that doesn't feel very good. Is that how it feels every time – every time you're writing an essay?"
Participant:	"Well, when I first start it because I'm confused, and I'm going, 'Oh, man, not again!' But then when I start writing it, it's like throwing off the bricks – throwing a piece of the brick off."

About three weeks later, during the second interview session with this participant, the researcher began by revisiting the "falling bricks" metaphor elicited during the initial session. In addition to explicitly asking the participant to explain the metaphor to verify the initial interpretation, the participant was also prompted to use one of her essay assignments to illustrate her comment:

Researcher:	"Last time we talked you mentioned that academic writing was 'a lot of work' and you described it as being 'like a ton of bricks falling on' you. So I'm wondering if you could walk me through this essay – your first essay of the quarter – and tell me where you see that happening – that ton of bricks falling on you. I mean, do you remember as you were writing this, where does this feel like a ton of bricks?"
Participant:	"No, just writing the whole thing period."
Researcher:	"The whole thing was like a ton of bricks?"
Participant:	"Yeah [laughs]."
Researcher:	"OK, like, could you give me an example of what that feels like? I mean I can imagine what a ton of bricks falling on someone would feel like, but what does that feel like in writing?"
Participant:	"Hard."
Researcher:	"OK."
Participant:	"Very stressful."
Researcher:	"OK. Do the bricks ever start coming off in this essay as you write? Have the bricks started coming off with this essay?"
Participant:	"Yeah. Well…when I finished it. [laughs]"

Even though the participant did provide specific indicators to allow for verification of the researcher's interpretation – "hard" and "very stressful" – her short responses prompted a more explicit statement of purpose:

Researcher:	"I'm just trying to get – I'm focusing on this so much because I'm trying to get at what you mean by 'a ton of bricks' and what that feels like for you. What if I asked you the same question today – what is academic writing? Have your views changed at all since you told me it was 'a lot of work' and 'like a ton of bricks falling on me?' Or would you like to add to that or change it at all?
Participant:	"No it's still very stressful."
Researcher:	"Is it getting easier? Do you see…"
Participant:	"No, it's not getting easier."
Researcher:	"Why do you think that is? How do you explain that?"
Participant:	"I don't know. Just, me and English just don't get along very well."

By providing this additional MLE, plus the explicit descriptors she gave previously, the participant allowed for a built-in confirmation of the researcher's interpretation of the initial 'brick' MLE. In addition, this metaphor check, in fact, enabled the researcher a deeper understanding of the participant's conceptualizations about academic writing.

Metaphor checking, as described above, is one step toward a carefully verified and transparent approach to metaphor analysis. Embedding such a step in a metaphor analysis study – through triangulation of data sources, data types, or analysis methods – allows researchers to check their interpretations and provide increased assurances of accuracy.

Method 2: Triangulation through a Dual-Analysis Approach

Not all research settings or designs enable researchers to have extensive one-on-one interaction with participants for the metaphor-checking procedures discussed above. Therefore, observations of discourse communities in action through qualitative methods and subsequent metaphor analysis may also be used to triangulate findings. As such, a second method for ensuring accurate representations of participants' conceptualizations is to embed more than one analysis procedure within the research design. For example, in order to fully understand a speaker's socio-cultural expectations and the situational norms surrounding the metaphors provided during data collection, and as a safeguard against participants providing what they believe the researcher expects or wants to hear, ethnographic methods of data collection and analysis (including participant-observations and immersion in the discourse community) can also provide effective avenues for triangulation of findings during metaphor analysis. Embedded in this approach, understanding and thick description (Geertz, 1973) of the classroom culture and community can provide a foundation for interpretations of participant MLEs, leading to a greater understanding of conceptual metaphors held at both communal and individual levels.

Introduction to the Study

The sample study described in this section employed a method for interweaving metaphor analysis and ethnographic procedures to ascertain findings accurately aligned within the context of the research (Davis, 2009). The purpose of the study was to identify the participants' conceptual metaphors for reading present in a scripted reading environment through two sources: first, through the language used by students and teachers in the secondary classroom where data were collected, and, second, through the events as they occurred.

During the observation period, data were coded and categorized based on metaphoric language and themes. Once a pattern of CMs emerged through preliminary analysis of metaphoric language, observational data and themes were compared to and contrasted against the metaphor analysis findings.

For example, multiple instances of language relating to the CM CLASSROOM AS FACTORY were documented during observations and interviews. Directions to students to "switch," or "rotate," between activities were documented consistently during observations. Efficiency and progress were encouraged as phrases like "We're moving faster. . . but still short on time," and "Follow directions and do as you're told," "Let's go," "Come on," "Move on," and "Keep up" were frequently recorded as were comments from teachers telling students what their "jobs" were, or describing themselves as "the boss" or "manager." During interviews, teachers and students described the reading class as "routine," with specific events occurring throughout each class period. Rarely did the teachers "go off-model" or deviate from the program design. During analysis, language indicating a factory or mechanical aspects of the class was grouped and coded. Following identification of the conceptual metaphor CLASSROOM AS FACTORY, thematic codes were reviewed for events that either supported or discounted the linguistic analysis that led to the identification of the CM. The excerpt from the field notes below provides an example of an event, coded as teacher-directed classroom activity, which supports the metaphoric language identified in the linguistic analysis that led to the identification of the CM.

In the following excerpt recorded in the field notes, students were told to watch a brief video about teenagers who are convicted of criminal acts. Following the video, students were asked to respond to questions appearing on the screen.

> T1 presses the remote button and question Number 2 appears on the television screen. Reads question to students from seat at the small group discussion table. "Do you agree or disagree with the following statement: All teens who commit serious crimes should serve time in adult prisons?" T1 says, "And then you write I agree/disagree with that statement because," and tells students to fill in their responses.

When the students finished responding to the series of questions, the following exchange was recorded in the field notes:

> Group goes over Question 2
> S1: Agrees
> T1: "Good. What did you say, S2?"
> S2: Agrees
> T1: "Good" (indicates it's S3's turn to respond)
> S3: Disagrees
> T1: "OK. Good."
> S4: Disagrees
> T1: "OK. S5?"
> S5: Disagrees
> T1: "OK. S6? Same thing? OK." (Moves on to Question 3)

During responses to Question 3, the students and teacher continue the staccato interaction, wherein the teacher indicates it is a particular student's turn to respond to the question, followed by a brief response from the student. The entire discussion over all three open-ended questions took place in three minutes. Brevity of response was valued in the class because of time constraints imposed by the class design. Based on this instance, and several others noted during

observations, the CM of CLASSROOM AS FACTORY was supported both linguistically and through thematic analysis.

The CLASSROOM AS FACTORY CM example from this study serves as an example of how a dual-analysis approach involving metaphor and observation working in conjunction can support a finding. Another conceptual metaphor, also from this study, provides an example of ways that potential misinterpretations can be identified through dual-analysis. In the example that follows, the contextual aptness of the CM PROGRAM AS TEACHER, labeled by the researcher, is explored. Following linguistic analysis, the thematic analysis allowed the researcher to construct a richer understanding and amend the label accordingly so that it more appropriately represented the context.

The linguistic data from the study indicated that the locus of instructional control in the classroom centered on the reading intervention program. Some of the linguistic metaphors that emerged included the following:

- Student: "(The computer) senses that we're not comprehending."
- Student: "Click on the word (on the computer screen) and they'll say it for you"
- Teacher: "The computer will also move them up or down at times."
- Teacher: "It's my responsibility to offer (the students) what the program has offered me."
- Teacher: "We actually made sure we got all the supplementals that [the program] provided for us."
- One teacher indicated that when the program did not address state standards sufficiently, the teachers would "step in" and make adjustments.

Metaphoric words and phrases in these statements assigning anthropomorphic qualities to the computer (just one component of the entire programmatic intervention), including "senses," "they'll say," or the conceptualization that the software would automatically place students within a range for the instructional components it later delivered individually, all seemed to indicate a conceptualization of the computer as human, capable of making decisions and organizing thought in a way similar to a classroom teacher. The latter two examples, collected from the teachers, indicated a passive role on their behalf allowing the computer program to make determinations about student levels and instruction.

Based on the metaphoric language, the teachers did not seem to make the decisions about what the students worked on; the intervention program designers did. Through their language, the students and teachers in the class also indicated that, not only did they see the scripted intervention program determining the content and structure of the course, they saw it essentially supplanting the teachers. The tentative label for the CM that emerged was PROGRAM AS TEACHER.

Once the tentative label was identified, it was necessary to revisit the data as a whole to triangulate data and, to an extent, the conceptual metaphor label PROGRAM AS TEACHER was supported by a theme that emerged from field note data showing classroom discussions beginning and ending based on program-mandated time constraints, units and themes determined by the program guidelines, and the physical makeup of the classroom (e.g., where chairs and desks were placed). In other words, the procedures, structures, and day-to-day operations of the course were determined according to program-, and not teacher-design.

In addition to the theme of procedural structure guided by the program, a second theme emerged

from observational data that supported the PROGRAM AS TEACHER label. This theme related to teacher decision making. The topics of class discussions, as well as expected student responses, were derived directly from the scripted teachers' editions of the program manual, limiting the amount of teacher input and decision making during lesson planning and implementation. Interviews with the teachers also indicated that deviations from program design were discouraged by the administration, so teacher-instigated changes were rare and often minor (as in a verbal change to the scripted portion of the lesson).

Finally, a further support of PROGRAM AS TEACHER occurred when one substantial deviation from the program design, implemented by the classroom teachers, was revoked. The previous year the classroom teachers determined that the program did not provide sufficient writing opportunities, so they developed and incorporated additional writing prompts for the students. However, after student reading scores failed to improve to the same degree as the scores of the students during the previous year, the teachers removed the additional writing. According to one of the teachers, the focus of the program was on reading, thus "we probably don't need to do the writing right now." Although the students during the second year had initial reading scores that were generally higher than their predecessors, according to one of the teachers, their relatively smaller reading level increases were attributed to less time reading and more time writing, and the instructors returned to the original program design as a result.

The PROGRAM AS TEACHER conceptual metaphor, however, had multiple limitations based on the observational data. While the language used by the participants indicated teachers and students often deferred to guidelines and expectations set forth by the program publishers, the program did not assume all of the roles generally expected of classroom teachers. Drawing on theories from Eisner, Dewey, and others, Ivie, Roebuck, and Short (2001) describe teaching as an art – a human act that combines knowledge, style, creativity, personal judgment and intuition: "Teaching is a complex activity; it fosters a high degree of uncertainty and ambiguity" (p. 527). Furthermore, frequently a teacher must be satisfied with "doing not what he (sic) knows is right, but what he thinks or feels is the most appropriate action in a particular situation" (Jackson, as cited in Ivie, Roebuck, & Short, p. 527).

Observational data from this study indicated that, while the program often directed the formal lessons and instruction, it was the classroom teachers who routinely graded student work, communicated with parents and administrators, and ultimately, were responsible for the daily operations of the classroom. They interacted with the students on a personal level, building relationships with them and their families in a way that is often expected of teachers, but which an inanimate program cannot. Finally, while other factors, including administrative demands, may have lead to the classroom teachers' decision to follow the program specifications, that instructional decision was their own. As a result, PROGRAM AS TEACHER, based on classroom observations, was determined not to be an appropriate conceptual metaphor for the study. The CM label was revised to PROGRAM AS INSTRUCTOR, indicating that though the program had a large role relating to lessons and teaching within the classroom, it was limited to in-class activities and, ultimately, did not fulfill the broad range of activities and expectations associated with the label of teacher. Following re-application of the dual-analysis procedures described above, PROGRAM AS INSTRUCTOR was determined to be a more appropriate label for the conceptual metaphor held by participants in the study.

Discussion

Although specific triangulation procedures will most certainly need to be tailored to a particular research design and situation, the examples provided in this article allow for some general

procedural implications. To that end we make the following suggestions to researchers considering a metaphor analysis approach.

It is important to intentionally build in a triangulation step in the overall study design. Depending on how metaphors are gathered – whether elicited, spontaneously generated within an interview, or observed – this triangulation may take a number of different forms and can be included at various points throughout the data collection and analysis processes.

A Process for Metaphor Checking

The metaphor-checking approach described in this article can be implemented throughout a standard metaphor-analysis research protocol. Generally, metaphor analysis studies include the following aspects:

1. Gather metaphorical linguistic expressions from participants
2. Identify source and target domains
3. Identify source features
4. Map source features onto the target
5. Develop conceptual metaphors based on the resulting mappings
6. Identify entailments of the conceptual metaphor source
7. Identify hidden features of the conceptual metaphor source
8. Identify themes in patterns of conceptual metaphors

Metaphor checking, as an intentional triangulation element, can be incorporated at a number of different stages in this process. For instance, during the initial stage (step 1 above) of gathering MLEs, a researcher using metaphor checking can insert a basic reiteration question that turns the participant's stated MLE into a question for verification purposes: "So are you saying that teaching is like gardening?" Likewise, during the preliminary stages of data analysis (steps 2 and 3 above), researchers can begin to verify a common understanding of a given source: "Can you talk a little bit more about what you were referring to when you said gardening?" Once the mapping process is underway (steps 4 and 6 above), the metaphor-checking process becomes more focused on an interpretation: "What would you say are the most important aspects of what you were thinking when you said teaching was like gardening: the process of gardening, the outcome, or something else?" Such checks should, of course, cause the above stepwise procedure to become more recursive and messy. Once researchers are confident that the CM accurately reflects the participant's intention, they may choose to share some alternate, or hidden, features (step 7 above) with the participant: "I was thinking that your gardening metaphor might also mean that teaching is a lot of hard work and time consuming. Would you include that in what you were thinking when you said, 'Teaching is like gardening,' or is that not something you would include?"

In this approach, because the metaphor checking involves the participant, it can be embedded throughout data collection and analysis, depending on the researcher's access to the participant.

A Process for a Dual-Analysis Approach

One of the great benefits of ethnographic research is the amount of time that a researcher is able to spend in the field with the participants (Spradley, 1980). This time is also useful for metaphor analysis research as it enables researchers the opportunity to observe and reflect on both metaphors and events as they are gathered, returning to the site for clarification and additional data. Researchers using this process should frame their analysis through the question: "Are the

conceptual metaphors emerging from the analysis consistent with the observational data?" Below is a suggested approach for combining metaphor analysis with thematic analysis that includes a reflexive process wherein preliminary analysis is used to direct subsequent observations and analysis:

1. Begin to gather field notes, making note of metaphoric utterances occurring alongside thematic and event observations
2. Separate metaphors from field note data in separate databases or files; keep a running record as observations continue
3. Begin preliminary analysis of events and observations, looking for possible themes
4. Begin preliminary analysis of metaphors, grouping by common targets and sources
    a. Identify source features and map to targets
    b. Develop potential CMs based on mapping
5. Identify any observational thematic evidence that supports the CM
6. Revisit the data from a holistic perspective, looking for confirmation or disconfirmation of emergent CMs and themes
7. Identify metaphoric entailments and determine when and where CMs break down in relation to observational themes

In this approach, data collection is intertwined with preliminary analysis, as a process allowing the researcher to validate MLEs and CMs as they emerge. Throughout the process, the researcher may use a variety of tools and techniques for confirmation or disconfirmation of interpretations for metaphors collected including frequency of utterances of a metaphor source or target, and/or informal interviews with participants based on emergent themes and conceptual metaphors.

Limitations

As with any approach to data analysis, triangulation in metaphor analysis has some potential limitations. First, the nature of the triangulation is dependent upon the overall research design. In this article, we have provided two exemplar approaches that represent two different research designs. Additionally, because triangulation inherently involves pursuing a line of questioning that will often rely on explicit references to a metaphor used (as in the gardening example above), this approach may not be appropriate for all populations without some discussion of what constitutes a metaphor.

Additionally, as many scholars have noted (see, Ritchie, 2003; Schmitt, 2005; Steen, et al., 2010a), it is important for researchers to acknowledge the social and cultural situation when analyzing metaphors. Schmitt writes:

> Naturally, the process of assessment, in being able to see one aspect of a metaphor as 'highlighting' and another as 'hiding,' requires a subjectivity that is able to draw on a culture that has been lived in and is understood. It is therefore dependent on the discriminatory ability of the person undertaking the interpretation. (p. 377)

Given the situated social and cultural nature of metaphor, it is imperative that metaphor researchers acknowledge the subjectivity involved in any interpretation.

Conclusion

Metaphor checking and thematic triangulation are, of course, just two ways to build in researcher checkpoints throughout the metaphor-analysis process; however, triangulation of metaphor data

should be done strategically depending on multiple factors, including the researcher's access to the participant and the timeline of the investigation.

As so many metaphor scholars have acknowledged, metaphors, like all language forms, are not universally interpreted or understood. Likewise, as Ritchie (2003), Koro-Ljungberg (2001, 2004), and others have noted, there is no single interpretation possible for any given linguistic metaphor. However, metaphors do provide rich information about a speaker's conceptualizations of a given topic and within a given situation, and are thus extremely valuable to educational researchers, especially in situations like those described in this article wherein why learners do what they do is as important as what they do.

For researchers to continue to expand use of metaphor analysis to new fields and areas of study, we must take heed of the criticism of the methodology and design studies that allow for accurate, usable findings by systematically building in check points. Such triangulation procedures insure that participants continue to provide input even beyond the data collection aspects of a study, and are, in fact, a voice in the analysis as well.

Notes

1. In this article, we follow traditions of representing conceptual metaphors in all-caps (Lakoff & Johnson, 1980).

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