METAPHORIC DISCOURSE AND THE EMERGENCE
FROM LITEREAL UNDERSTANDING AND CONCEPTUAL MAPPINGS

A Thesis
Presented to
the Faculty of the College of Science and Technology
Morehead State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

by
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April 25, 2016
Accepted by the faculty of the College of Science and Technology, Morehead State University, in partial fulfillment of the requirements for the Master of Science degree.

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The study explored and worked toward answering the question of where did metaphorical discourse come from and why it is necessary. Metaphor is taken from phenomenon to a common social utterance. Empirical evidence currently shows that metaphor is the product of one’s embodied conceptual mappings and experiences used to create new perceptions of the current reality (Feldman, 2006; Lakoff & Johnson, 1980a; Gibbs, 2011, Seitz, 2005). Ortony (1975) argues that metaphorical discourse is necessary as it captures what literal language cannot. The current study looked at the social necessity of metaphors and their common use in daily discourse. The study focused on the use of primary and deliberate metaphors in common conventional or social discourse. Common social discourse was investigated as metaphor research lacks empirical investigations into the use of primary or deliberate metaphors in social situations or daily discourse. The study utilized a persuasive introduction prior to each
participant answering an open ended survey with two question types. Each participant experienced either Condition One or Condition Two. Condition One discussed the importance of metaphorical language and Condition Two discussed the importance of literal language. Likewise, subject variables were recorded. Results showed that introduction type had a significant impact on the number of metaphors produced and novelty level. The metaphor introduction produced significantly more metaphors and more novel metaphors. Furthermore, metaphor questions elicited more metaphors and more novel metaphors as opposed to literal question type. The two different conditions and question type appeared to create a context that influenced the frequency of metaphorical language use and the level of novelty. This stands to exemplify how social context may influence the way one utilizes metaphorical language to express an idea or introduce a new concept.

Accepted by:    ______________________________, Chair
Dr. Lynn Haller

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DEDICATION

This Thesis is dedicated to my Parents, Grandparents and Myself. To my parents and grandparents for their continued encouragement, pushing me toward my goals, and continued faith that I would achieve those goals. This thesis is also dedicated to my friends and family for their encouragement and pushing me to move further with my education and achieving my goals no matter how long it takes me. This is also dedicated to my family friends for their assistance and patience with me during the time it took me to achieve this lofty goal.
ACKNOWLEDGEMENTS

Jaime Stepp for her support and assistance during data coding and charting responses from participants. Caitlin and Heather for their hours of dedication to documenting metaphoric responses from participant responses and coding. Dr Lynn M Haller for her continued support and guidance throughout the entire process. A great deal of gratitude toward Kent C. Nelson for his assistance in organizing the rater responses and to my Nine raters for their volunteered time and patience with the metaphor ratings.
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CHAPTER 1. INTRODUCTION

Metaphoric Discourse and the Emergence
From Literal Understanding and Conceptual Mappings.

The current study explored and answer the question of where did metaphoric discourse come from and why it is necessary. Scholar, Andrew Ortony began this conversation about metaphors in language in 1975. Ortony was fascinated with language understanding and the communicative functions of nonliteral language (Ortony, 1975). Ortony began the conversation of why metaphors are not just nice, rather they are “an essential ingredient of communication” (Ortony, 1975). Many linguists, psycholinguists, philosophers, etc. have followed in his footsteps since. Metaphors went beyond an object of fascination and became an integral conversation in discourse. Metaphor emerged into a phenomenon of discourse that became undoubtedly vital.

The following study furthered the conversation of how metaphors are used in daily conversation and interactions. There is a notable gap in the conversations about metaphorical phenomena and how metaphors emerge naturally and non-conscious thought and through conscious effort. The goals of the following study were to evaluate how persuasion (or context) and question structure influences the way individuals choose to communicate information regarding common health problems. This will likely reveal how individuals employ primary (common), deliberate, metaphors and/or how context may encourage (elicit) more novel metaphors. Furthermore, another goal of the following study was to evaluate how subject
variables influence the way individuals choose to communicate information regarding common health problems.

Evolutionary research discusses that metaphors emerged by means of necessary communication and need for change and innovation (Seitz, 2005). Early primates and humans, alike, employ metaphors relentlessly to convey new ideas, relate two things that would not otherwise be related, and to make connections in their existing consciousness. Metaphor is the product of one’s embodied conceptual mapping and experiences used to create new perceptions of the current reality (Feldman, 2006; Lakoff & Johnson, 1980a; Gibbs, 2011, Seitz, 2005). In order to create change, one must uncover new understanding and enhance current implications. This is why metaphors are indispensable and not just nice (Ortony, 1975).

Ortony (1975) states that metaphor is an essential ingredient of communication and consequently is of great educational value (p. 45). “Metaphors . . . are important tools of cognition and communication, providing us with unfamiliar ways of conceptualizing unfamiliar things” (Lakoff & Johnson, 1980a; Ortony, 1979a). “Metaphor highlights the phenomenon of semantic creativity, the capacity of language users to create and understand novel linguistic combinations that may be literal nonsense” (Paivio within Ortony, 1979a, p.150). That is, metaphorical language allows individuals to relate ideas and entities that are not otherwise viewed as being similar and it allows individuals to express ideas that would be much too verbose if expressed using literal discourse. The present study wants to find out why metaphors are so necessary and how do individuals utilize metaphors in daily discourse and conversation. Previous literature is further examined to determine how metaphors emerged, mature, and why they may be so crucial in language.
Conceptual Metaphor Theory (CMT) supports the notion that metaphoric expression is a part of ordinary thought, discourse, and communication. Max Black may think that metaphors came to CMT to die, but in the current study, no metaphor dies or disappears but rather has become inactive or frozen. Black in Ortony (1979a) contends that a dead or inactive metaphor is no longer a metaphor as it is no longer used for intentional metaphoric expression. Contemporary models of metaphor categorize inactive metaphors as frozen, because they are often viewed as literal language (Ortony, Reynolds, & Arter, 1978). Yet, Steen (2008) argues that a metaphor is deliberate when it’s used to make the recipient look at something from a “different conceptual domain” (p. 222). The current study utilizes a more conceptual and evolutionary model of metaphoric use and discourse. Because so many metaphoric statements have become frozen or inactive, individuals are not conscious as to how prevalent metaphor use is in their daily communication and cognition. People may not even realize they are using metaphor at all. Examples of frozen metaphors are phrases like they’re falling in love, he’s an open book, we’re spinning our wheels, or the cake was rock hard. These metaphoric phrases are prevalent and commonly implicit.

Metaphoric discourse may be more common and may seem less creative if there is a realization that metaphoric utterances are prevalent and common. The frozen metaphors; he’s an open book, you’re spinning your wheels, and he swept you off your feet are all common metaphoric utterances describing people, situations, or relationships. These are not literal turn of phrase, but they may be dead or inactive metaphors due to being rather ubiquitous. Metaphors are seemingly important and necessary nonetheless, as proposed by Fainsilber and Ortony (1987). Fainsilber and Ortony (1987) theorize and exemplify that metaphors may have “at least three communicative functions” in language. They proposed the idea that metaphors allow
individuals to express what is difficult or impossible with literal language, the compactness hypothesis, and the vividness hypothesis. Therefore, metaphors were shown to allow participants to express their emotions and ideas more successfully, that metaphors allow individuals to convey their ideas in fewer words with “chunks of information rather than discrete units” (p. 240), and that metaphors convey a “richer more detailed picture of our subjective experience than” with literal language (p. 241).

Gibbs (2011) furthers the importance of Conceptual Metaphor Theory (CMT) in that conceptual or dead metaphors are not dead at all, but rather active schemes of metaphorical thought. Idiomatic expressions give rise to other related idioms such that novel metaphors emerge from conventional metaphors and literal-conventional mappings. Conventional metaphors have been observed in nearly every language, throughout historical writing and hieroglyphical writing, etc. These examples support the notion that metaphorical expressions and conceptual metaphoric expression exists in all groups and since the evolution of language and discourse.

Moreover, novel metaphors do not necessarily rear their head until someone is asked to describe their thoughts creatively, concisely and vividly. A novel or active metaphor is one that is original, innovative, it is unique, it is noticeable, and is not part of daily language (Ortony, Reynolds, & Arter, 1978). Therefore, the type of metaphor created or presented may depend highly on the context of the situation, influences in the environment, and resources available for expression (i.e. lexical backbone and embodied experiences). Perhaps a more novel metaphor emerges or is created more readily when the subject is requested to do so and to express their thoughts creatively (much like the children in Dent & Rosenberg [1990]).
Literal discourse is argued to be just as essential to that of metaphoric. Literal discourse conveys a direct description or meaning for a situation or idea. A literal sense of the relationship between topic (item in question) and the vehicle (contrasting item) of the metaphor gives rise to the ground (likeness). Individuals’ social, cognitive, cultural, and embodied experiences give meaning to the items in comparison or interacting (Lakoff, 1987). Feldman (2006) discusses that all children (normally developing) children share common genetic heritage and developmental experiences. As the child enters and passes through their education, they further expand their lexical framework, spatial awareness, complex problem solving, and deductive reasoning through experience and taught examples. These literal schemas give the notion of metaphor creation, the proper tools to create an effective and strong metaphor. Because, in the end, it needs to make sense.

To date, there has not been such an experiment to exemplify how individuals utilize metaphor to convey their thoughts about well known notions, ideas, or things. A perfectly natural environment cannot be duplicated exactly to test the notion that metaphors are prevalent and context plays a vital role. However, when individuals are given certain structured information and an open ended survey; they may be able to exemplify how metaphors allow them to convey common circumstances. The current study utilizes structured information and questions to elicit metaphors and literal definitions. The study and employs an open ended survey to exemplify anticipated results of diverse metaphors and literal definitions.

The following experiment examined both metaphorical and literal discourse in order to find out how well individuals communicate their understanding of physical ailments. With the approval of the Institutional Review Board the experiment employed persuasive arguments as an introduction to the survey. One persuasive argument discussed why metaphorical language is so
important within communication and the other persuasive argument discussed why literal language is so important within communication. Half of the potential participant population received the persuasive argument for metaphorical language and the other half of the population received the persuasive argument for literal language use. Subsequently, an open ended survey was presented asking questions about physical ailments. The question structure urged participants to communicate using metaphorical or literal language. For example, one question asked, “What is arthritis or joint pain?”, and “What does arthritis or joint pain remind you of?” The purpose of the persuasive arguments was to see how influential the arguments were to how the participants communicated within their open ended survey. Question structure was also important as it was meant to elicit a literal or metaphoric response. Likewise, the differences in metaphoric responses will be assessed between the conditions (introductions) as the conditions present a certain contextual environment or thought pattern (proving that one type of discourse is better) and answers to the two question structures will be assessed for additional contextual influence.

Secondly, demographics were collected from each participant to evaluate whether they were a student, staff, or faculty member of Morehead State University. Demographic questions also asked whether they were male or female and what their major, area of study, or job title was and where they were originally from in the U.S. This demographic information was collected in order to evaluate how subject variables may influence their answers to the open ended survey.

Therefore, the goals of the following study were to evaluate how persuasion (or context) and sentence structure influences the way individuals choose to communicate information regarding common health problems. This will likely reveal how individuals employ primary (common) metaphors or how context may encourage more novel metaphors. Furthermore,
another goal of the following study was to evaluate how subject variables influence the way individuals choose to communicate information regarding common health problems.

The Primary Investigator (i.e. Researcher) was an active student in the Master of Science program for General/Experimental Psychology at Morehead State University. Three undergraduate students within the Psychology Department participated in coding, data entry, and assisted primary investigator in the progress of experimental design.

Primary Investigator built the experimental design based upon prior knowledge of research proposal design via coursework and creation and presentation of research proposals during research assistantship. Primary Investigator maintained integrity of the participant results by coding only one participant for each condition. Then the Primary Investigator instructed the undergraduate assistants how to code results. Likewise, the undergraduate assistants judged metaphors after Primary Investigator presented definition of terms and judgments needed for data analysis. Primary Investigator did not judge results and remained separate from the assistants during coding and judgments processes to maintain blindness and retain integrity of results without imposing any possible biases. After results were coded and judged by the research assistants, interrater reliability was performed.

Primary Investigator’s assumptions and biases were presumably minimal as metaphors in discourse were a new area of research. However, due to the purpose of a master’s program with a thesis project, it was assumed that the Primary Investigator would need to thoroughly and extensively research possible designs for the study. This was assumed as the subject matter was not well developed in research design for adult subjects. Previous research was predominately theoretical and literature based. The master’s level Primary Investigator was intrigued by the
challenge to create a study that exemplified how individuals use metaphors in daily language and communication.
CHAPTER 2. LITERATURE REVIEW

What came first, literal meaning in language or metaphoric expression as means of communication? The universe may never be able to fully answer this question. However, researchers may agree that early language began with physical expression (pantomime and physiognomy), noise, and images (Feldman, 2006; Seitz, 2005). Numerous linguists, cognitive linguists, psycholinguists and philosophers conceive that metaphor in communication may be a linguistic phenomenon. Metaphor is an interchange of concepts networking and establishing new ideas and insights. Metaphor has the power to establish new levels of awareness and alter perceptions. Metaphor may be a major component in linking concepts, objects and actions around all living beings, namely humans (Homo sapiens), as being explored here. One utilizes common or known concepts (perhaps broad or literal classification) to build an unconventional mapping. (Black in Ortony, 1979a; Feldman, 2006; Ortony, 1979a; Seitz, 2005) As Black in Ortony (1979a) explains that the “writer or speaker is employing conventional means to produce a nonstandard effect, while using on the standard syntactic and semantic resources of his speech community.” (p. 23)

Here, it is asked, why this is important. Individuals communicate and exchange discourse amongst one another each day of their lives. Individuals also utilize numerous languages in order to communicate amongst one another. One thing that continues to remain constant is that individuals employ metaphoric language in order to express their ideas, experiences, and objects.
The use of metaphoric language within communication is of great importance and is a powerful means for communicating effectively. Metaphorical language, likewise, allows one to express their ideas freely (Fainsilber & Ortony, 1987; Lakoff & Johnson, 1980a; Ortony, 1975; Ortony, 1979a; Paivio within Ortony, 1979a). The current study will further exemplify how individuals express their thoughts and ideas via use of metaphor and use them as a means describing something by use of something else.

The current literature review and study will further explore how individuals use metaphoric language to describe their view of an idea or their description of an event or object. The study will also exemplify how outside influences may have an effect on how individuals use and create metaphors. The literature here is used to build the backbone of what a metaphor is, and how it compares to literal discourse and meaning, where did metaphorical language come from, why metaphor is used, the contemporary theory of metaphor, and how do individuals utilize metaphors systematically. This inherently leads to how individuals use metaphors in daily discourse and the prevailing common use of metaphoric language.

**What Is Metaphor**

A metaphor is defined as a “word or phrase applied to an object or concept that it does not literally denote in order to suggest comparison with another object or concept” (Ortony, 1979b, p. 3). A metaphor creates relationships between entities that would not otherwise be grouped together or would not otherwise be associated with one another. Ortony (1975) quoted Aristotle’s forthright definition of a metaphor and what its components are:

[A] metaphor is a means of comparing two terms and . . . the relationship between them as the “tenor” (today often called the “topic”), of which something is being asserted, the “vehicle”, the term being used metaphorically to form the basis of
the comparison, and the “ground”, namely that which the two have in common.

(p. 45)

That is, the “topic” or “tenor” is characterized by an expression to which metaphors are produced (Šípoš, Plichtová, & Zelman, 1987, 39). For example, “metaphor is poetry. The “topic” or “tenor” is the word or noun, “metaphor”. The “vehicle” is the medium through which the metaphor is expressed and it is created by the word carrying the metaphoric meaning (Šípoš et al., 1987). For example, the “vehicle” is “poetry”. The “ground” in a metaphor is the connection or similarity between the topic and vehicle (Šípoš et al., 1987). For example, the “ground” of “metaphor is poetry”, is that both metaphor and poetry utilize discourse in order to relate two, otherwise dissimilar, entities. Another component of the phrase is the “tension” which consists of the contrasts between the tenor and the vehicle. The tension may create undeniable confusion for the recipient if the metaphor is a poor match.

Ortony (1979b) further proposes an alternative definition of a metaphor or metaphor utterance. He states that it is a phrase or expression that “should be pragmatically, or perhaps better, contextually anomalous” to a literal description (p. 10). The metaphoric phrase is used when a literal description is not adequate or fails to fit the appropriate “context”. As seen often in casual conversation, writing, or professional level discourse, literal descriptions or definitions still create confusion regarding the subject at hand. The presenter or speaker will need to add a metaphoric phrase to relate the relevant subject matter in a more comprehensible fashion. The metaphoric phrase must contain the current subject and be somehow related to an idea or item that is not literally related, or the relation may be factually impractical. And yet, the two ideas share something in common and the relation of the two is correlated to the situation in question. Therefore, “if something is a metaphor then it will be contextually- anomalous if interpreted
literally” (Ortony, 1979b, p. 11). Likewise, Fainsilber & Ortony (1987) labeled three communicative functions that metaphorical language serves. The three communicative functions are the inexpressibility hypothesis, compactness hypothesis, and the vividness hypothesis. This concept leads to the two general forms of metaphors.

Moreover, Ortony (1979b) reveres that to be a metaphor; the phrase must fit three conditions simultaneously (p. 12-16). It is discussed that the phrase must be a “contextual anomaly”, the metaphorical “tension should … be eliminable, and the metaphor “makes reference to the speaker’s intentions and his or her expectations about their recognition”. The expression shall be relevant, precise, apparent, and clear. The tension is eliminable due to shared features of the items in comparison. The tension is resolved as the mutual traits are obvious. Consequently, the recipient recognizes the speaker’s intent or association. Black’s, in Ortony (1979a), definition of a metaphorical idiom is parallel to that of Ortony (1979b) and he adds that how far the “interpretive response” of the hearer reaches, depends “upon the complexity and power of the metaphor-theme in question” (p. 26).

What the Metaphor Does

“Metaphors . . . are important tools of cognition and communication, providing us with unfamiliar ways of conceptualizing unfamiliar things” (Lakoff & Johnson, 1980a, Lakoff in Ortony, 1993). “Metaphor highlights the phenomenon of semantic creativity, the capacity of language users to create and understand novel linguistic combinations that may be literal nonsense” (Paivio within Ortony, 1979a, p.150). That is, metaphorical language allows individuals to relate ideas and entities that are not otherwise viewed as being similar and it allows individuals to express ideas that would be much too verbose if expressed using literal language. Metaphors likewise, assist individuals in conceptualizing and visualizing new ideas
and concepts in a more compact and descriptive way. For instance, the presenter may use a vehicle that is more familiar to the addressee in order to create a vivid relationship to the tenor (topic). Therefore, creating more familiarity with the novel tenor.

Andrew Ortony (1975), similar to Aristotle, believes that the use of metaphor is a mark of genius. The use of metaphor is a mark of genius because it takes so much conceptual precursors, semantic and representative flexibility, and experience to create a fitting metaphor. When an individual creates a metaphor they are using knowledge and experience from their culture, education, personality, imagination, cognitive mapping, and their overall capacity for creativity (Ortony, 1975). Metaphors have the ability to be semantically powerful and they allow individuals to see objects, ideas, and experiences from a different perspective.

Metaphorical and figurative language also allows people to effectively portray their intense emotions to others. Fainsilber & Ortony (1979) found “that descriptions of intense emotions did lead to greater use of metaphor than did descriptions of mild ones” (p. 247). The data from this study suggested that the “use of metaphorical expressions may vary with different emotions” (Fainsilber & Ortony, 1979, p. 248). As the emotional reaction intensifies it may become so deep and intense that it requires a stronger more striking metaphor in order to portray what the person was feeling at that very moment. This allows the reader or listener to better understand and empathize with the person portraying these controlling emotions.

Furthermore, Williams-Whitney, Mio, & Whitney’s (1992) research demonstrated that descriptions of feelings and emotions elicited more metaphors as opposed to the description of one’s actions. They found that more innovative or original metaphors were produced when individuals were describing their own intense feelings (Williams-Whitney et al., 1992). Likewise, Williams-Whitney et al. (1992) proposed that “the intensity hypothesis is based on the
notion that metaphors are used mainly because their vividness helps capture emotional intensity” accurately (p. 506). Metaphors are so powerful and descriptive that they allow individuals to describe their most intense emotions effectively (Williams-Whitney et al., 1992).

For example, poetry holds a similar aptitude for portraying intense emotions. A poem titled “Time Consuming Love” written by Wewak11 (2006) reads, “your happiness spills over new frontiers as passion pulses through you like a flood”. The author appears to be conveying that through one’s happiness the other individual in the relationship also feels this intense happiness, new intensities of passion, and love dominates the individuals’ emotions. The metaphoric phrase here intensifies the intent of the writer’s argument. Metaphorical language within poetry appears to successfully communicate one’s emotional highs and lows. The intensity hypothesis (Williams-Whitney et al., 1992) is undoubtedly employed in this example and frequently in poetry.

**Novel vs. Frozen**

Now that certain capabilities of the metaphor are known, it’s necessary to discuss two forms of a traditional metaphor. There are two primary or two universally known forms of metaphors. A novel or active metaphor is one that is original, innovative, it is unique, it is noticeable, and is not part of daily language. A novel metaphor is one that is likely to have just been created and is not one used in popular culture. Alternatively a frozen or dead metaphor is a metaphor that is well defined and widely used. A frozen or dead metaphor has surpassed its novel appeal. This type of metaphor has been used so often in general communication it is viewed now as being literal language. When individuals use frozen or dead metaphors they are usually unaware that it is even a metaphor because it is employed so often and extensively (Ortony, Reynolds, & Arter, 1978).
Black in Ortony (1979a) argues that a dead (i.e. frozen) metaphor is no longer a metaphor at all. He explains that a dead metaphor is so unoriginal or overused, that it is now a literal statement. Black considers the dead metaphorical statement to be “extinct” or “dormant”. Black in Ortony (1979a) focuses his argument of what constitutes a successful “metaphorical utterance” or phrase, is one that is active and encompasses “a high degree of implicative elaboration resonant” (p. 27). He feels as though a strong active metaphorical idiom must be meaningful, obvious, expansive, and create an association between the two entities being correlated. For the purpose of the current study, a frozen or dead metaphor will be categorized as such, seeing that the novelty levels will be assessed and possible influences on novelty.

Yet, what gives rise to metaphorical understanding? Quite possibly it’s fundamental partner in crime, literal meaning and awareness of the subject in question.

**What Is Literal Speech and Discourse**

Literal language, on the other hand, adheres to fact, or to ordinary construction or primary meaning of terms or expressions, is free from exaggeration or embellishment, and is concerned mainly with facts. Literal language is straightforward and concise, says exactly what it means, and avoids ambiguity. Literal language can also be defined as literal meaning or linguistic meaning. Katz (1977) defines linguistic meaning as being direct, grammatically specified, sentential, necessary, and context-free (p. 14). Literal understanding is the presenter’s and hearers current conceptual mapping of the idea, object, or interaction.

Literal language is able to be used as an appropriate backup to metaphorical language due to the fact that it involves logic and is direct. Literal language “contributes to the establishment of the final interpretation” (Ariel, 2002). Literal language would then also be a useful tool for when individuals are bridging the gap between language barriers. If an American woman was
speaking to a South African woman, such as the earlier example, the South African woman may be able to speak English fluently, but would not necessarily know American “slang”. This would also work in the opposite situation. For example, if the South African woman were to say “Is he rubbing you off?” she is only asking if the man is irritating the other woman. The American woman may misinterpret this and think to herself that the man is not rubbing her at all. The South African woman would then need to utilize literal language in order to explain what the phrase “rubbing off” means to individuals from South Africa.

A principal difference between literal language and metaphorical language is that literal language is retrieved relatively quickly. In contrast, metaphorical language takes more time and effort to access because it is “specialized” (Ariel, 2002). That is, metaphorical language may require a certain amount of decision making where the presenter makes a conscious decision regarding the point or meaning that they wish to convey. The presenter needs then, to make an appropriate, possibly creative, decision on what vehicle is most appropriate to compare to the tenor (topic). Steen (2008) asserts that a metaphor is a phenomenon that involves “cross domain mapping involving some form of comparison” (p. 214). What form of discourse is more important then, literal or metaphoric? The two forms of discourse may just complement one another in the end.

**Metaphor vs. Literal Expression**

As a considerable advocate for metaphor, Ortony (1975), states that metaphors can be quite difficult to comprehend. He asserts that metaphor has its faults in that individuals may misinterpret and may attribute inappropriate characteristics to the topic and will walk away with the wrong impression. Metaphors may be complicated and may use language that the reader or listener is unfamiliar with (Ortony, 1975). When a situation like this occurs an individual may
feel that it is most appropriate to use literal language in order to illustrate what the author is attempting to express with the use of a metaphor. Furthermore, factual or literal communication is so direct that it leaves little to be misinterpreted, unlike metaphorical language. Similarly, it is not uncommon knowledge that direct definitions of things leave little to be misunderstood.

Although these two forms of discourse seem to be quite different in intention and form, they are known to be interpreted similarly. Glucksberg (1989) explains that literal and figurative language interpretation and production both depend equally on contextual information and they both require contextual information to be interpreted and produced. Metaphorical language may be more precise and informative in one situation and just the same literal language may be more precise and informative in another situation.

Ariel (2002) also states that metaphorical language “is the sharply distinguished complement of literal” language (p. 362). Consequently, one can assume that both forms of communication are equally necessary and useful in all contextual situations and that one complements the other similarly. Metaphor is not necessarily the fundamental opposite to that of literal discourse, but rather an essential counterpart or partner for adequate comprehension and understanding. One inherently compliments the other. “One might say “whereof one cannot speak literally, thereof one should speak metaphorically.” (Ortony, 1975, p. 49)

Why Metaphor

Why are metaphors so important and unique and where did they emerge from? Metaphors are said to have developed as an evolutionary necessity in discourse or representation to discuss advancements in technology (i.e. tools) and/or when innovative notions emerged (Seitz, 2005). Seitz (2005) proposed that metaphors were preliterate (evolutionary, before written language), prelinguistic (developmental, before human speech), and extralinguistic
(neuropsychological, cognitive) as they emerged from early primates to Homo-sapiens. This notion began its development in early primates as a means to communicate in social interactions and activities. Abstract thought and metaphor use enabled change and progression of the Homo sapiens’ ancestors, as it was necessary to bring about new concepts and advancements. What didn’t necessarily exist previously was brought to fruition through metaphoric discourse and representation.

Ortony (1975) asserts that metaphor is an essential ingredient of communication and consequently is of great educational value (p. 45). Metaphorical language is valuable and crucial in many situations. Furthermore, metaphors facilitate communication of ideas to others in everyday conversation amongst colleagues, to portray emotions (Fainsilber & Ortony, 1979; Williams-Whitney, Mio, & Whitney’s, 1992), in delegating instructions (Boerger & Henley, 1999), in science (Knudsen, 2003), for cross cultural communication, in sharing ancestral stories, in teaching, when writing creative stories, in psychotherapy (Matthews & Dardeck, 1985; Young & Borders, 1998; Strong, 1989), in religious texts (Barker, Burdick, Stek, Wessel, Youngblood, 1995), in poetry, and in music.

**Introducing New Ideas and Creating Change**

Black in Ortony (1979a) suggests that “a metaphorical statement can sometimes generate new knowledge and insight by changing relationships between the things designated” (p. 37). Metaphorical utterances and discourse provide connections between things that are not otherwise related or ideas that have yet to be shared. Tourangeau and Sternberg (1982) support this notion as “metaphors generally involve seeing something … in one domain in terms of something …in a second domain, with resulting change in …both domains” (p. 214). Conceptual metaphors have been seen to relate one thing with another, create new insights into relationships or concepts,
create new contextual mappings between ideas that did not previously exist, and initiate new ways of knowing (Ortony, 1979b; Lakoff and Johnson, 1980a; Hoggan, 2014). For instance, when a student is learning about neurons and synapses in the central nervous system (CNS), it may be difficult to clearly picture how each of these systems literally work in the CNS. When two neurons meet at the synapse and create a connection it’s like when two kids playing telephone attach two cans by a very long string of rope. The rope between both cans represents the length of the synapse between the two neurons. And the signal (one child’s voice) that creates the sound from one can to the other is the neurotransmitter (chemical) that creates a signal through the synapse between the two neurons. When one child’s voice exits his mouth into the first can it signals through the rope via vibration and the other child on the other side may hear through the second can what the first child said. Just as when the first neuron fires its neurotransmitter through the synapse and it reaches the second neuron to signal an action or new information. A new connection is made and a communication has been successful.

Evolutionary and neural bases of metaphor suggest that metaphor emerged in early primate discourse, behavior, pantomime, and physiognomic expression to convey events that occurred, to assist tool-making, facilitate hunting, and teach use of tools and fire, etc. Likewise, the metaphorical behavior and utterances promoted social bonding through pantomimic rituals, extended social cues, and enabled improvement for securing food and necessary materials for survival (Seitz, 2005). As time progressed, these expressions evolved and improved in order to advance quality of living and ability to survive unforeseen obstacles (i.e. natural disasters or storms).

And important example of metaphorical communication has also been seen to be invaluable within psychotherapy and addiction recovery. Metaphorical language allows clients
or patients to reanalyze situations from a different perspective and explore what has never been expressed. Likewise, this has been implicated to help clients gain insights into their disorders, into themselves, and helps in their interactions with others (Matthews & Dardeck, 1985; Young & Borders, 1998; Strong, 1989). Shinebourne and Smith (2010) suggested that the use of metaphors in recounting “suffering and distress” allowed “participants to communicate indirectly negative emotions that may be too painful to express directly” (p. 67). The participants were recounted times when they abused substances to mask their negative feelings and escape their sentiments.

Metaphorical and figurative utterances, or descriptions, were used in a study by Hoggan (2014) to demonstrate the self-image changes that occurred for women who survived Breast Cancer. The participants utilized conceptual metaphors “to uncover tacit ways of thinking”, “to name their experiences” and “to imagine new possibilities” for their future (p. 137). Two participants uncovered tacit ways of thinking as they described their experiences post-radiation-treatment via conceptual metaphors and similes. The two participants gathered insight as to how their negative feelings about self-image emerged via descriptions such as they felt they were “damaged goods” following treatment. Eight participants then used conceptual metaphors to “describe particularly troublesome and challenging times during their cancer experience” (Hoggan, 2014, p. 138). One participant described the experience of being a cancer patient as a “whirlwind” event. By “naming” and describing their experiences, the participants may have obtained “a measure of control over their traumatic experiences” (Wissman & Wissman in Hoggan, 2014). Hoggan (2014) suggested that “by allowing the understandings from one concept to represent new and challenging experiences, conceptual metaphors become a vehicle for assimilating the new experiences into manageable cognitive categories” (p. 139). From there, the
participants were able to imagine new possibilities. For instance, one participant described her surgical scars as “battle scars”. However, once she assimilated the scars as something negative, she decided to herself they are something to be proud of rather, because she survived. She now wants to show the world her scars, such that of a trophy. Moreover, these participants were able to transform their negative feelings about self-image via conceptual metaphors, post treatment, into experiences they are proud to have survived. They transformed their viewpoint.

Black in Ortony (1979a) proposes that metaphorical utterances also create insight into “how things are in reality” (p. 40-41). They merely frame an analogy between two systems that already exist, but were not related in such an axiom previously. The presenter is merely creating an association of what is in existence already. “A metaphorical statement appears to be perversely asserting something to be what is plainly known to be” (Black in Ortony, 1979a).

Communicative Functions

Ortony (1975), Ortony (1979b), Fainsilber & Ortony (1987) propose that there are at least three communicative functions that metaphors may serve to eliminate the tension. The functions or theses are the inexpressibility hypothesis (or thesis), compactness hypothesis, and the vividness hypothesis.

The inexpressibility hypothesis proposes that metaphorical language allows one to articulate or communicate what is otherwise almost impossible to express using literal language (Fainsilber & Ortony, 1987). They believe that literal language is too exhaustive and is a great waste of breath in order to get a point across (Fainsilber & Ortony, 1987). Metaphorical discourse enables individuals to paint a picture through semantics and relate anything to something else. Literal language is restrictive whereas metaphorical language allows one to express their ideas freely. This was exemplified in Shinebourne and Smith (2010) when
participants (patients) expressed their painful experiences while abusing substances and addiction. The participants had difficulty recounting their experiences using literal descriptions only. The inexpressibility hypothesis shall, likewise, include dead or frozen metaphors as a literal utterance. This is because; even a conventional metaphorical phrase may be necessary to bring insight to a rather novel metaphorical idiom, or vice versa. Thibodeau and Durgin (2008) explain that “conventional metaphors, such as those identified by Lakoff and Johnson (1980b), can facilitate the mapping of relevant conceptual structures when interpreting novel metaphoric language” (p. 13).

The second possible function of a metaphor that Fainsilber & Ortony (1979) proposed is the compactness hypothesis. This proposition states that metaphors enable individuals to consolidate information into one concise statement (Fainsilber & Ortony, 1979). In this view they believe that with literal language one can only convey discrete units of information at one time. It would take too much time and effort to express what one is attempting to express when the language is comprised of so many discrete elements. However, metaphors allow people to convey “chunks” of information at one time and they allow people to “convey a great deal of information succinctly” (Fainsilber & Ortony, 1979; Boerger & Henley, 1999). Ortony (1975) precluded his own statement in saying that “what metaphor does is . . . allow large ‘chunks’ to be converted or transferred; metaphor constrains and directs particularization” (p. 47). Ortony (1975) believes that metaphorical language is “quick, concise and effective and it invites and constrains the particularization of the comprehender” (p. 48). Therefore, ideas, experiences, and objects are described metaphorically within a concise and consolidated statement.

Ortony (1975) also proposed the vividness hypothesis, which suggests that metaphors help to illuminate the brilliance of extraordinary experiences. Fainsilber & Ortony (1979) state
that metaphors “can paint a richer and more detailed picture of our subjective experience than might be expressed by literal language” (p. 241). In this hypothesis a metaphor allows one to paint a vivid picture semantically to others. Metaphors allow one to stimulate their senses with context rich phrases through imagery. The vividness hypothesis may give way to cross-modal mappings or descriptions of new ideas or new experiences. For instance, if an individual is recounting their experience of skydiving to a friend, they may need to use complex, vivid metaphors to assist the friend in picturing and feeling the experience. The friend may not be able to pull the exact experience from memory, but may be able to relate similar experiences. “My heart jumped into my throat, I was weightless, and the wind brushed my entire body”. The vividness of these metaphorical narratives, provide a mental and physical representation of the experience so to allow the friend to “picture” and “feel” the skydiving experience. The brain of the friend will, therefore, provide a mental image and physical memories of similar experiences. Otherwise, the friend may not be able to relate to the experience.

One can see there are strong implications for the metaphor strengthening communication and enriching discourse to convey ideas. Metaphoric discourse, communication, and action compliment what is already known in literal terms. Likewise, they attempt to link the already existing conceptual networks by creating new ones with new ideas and definitions through comparison and common ground.

**Where Did Metaphor Emerge From**

It is now known that simply, a metaphor is understanding one thing in terms of another (Lakoff and Johnson, 1980a). Metaphor is also known to be the embodiment of individuals’ conceptual mappings, experiences, and cultural framework. Metaphors are used universally to conceptualize new ideas in terms of familiar ones (Feldman, 2006).
Thought and language is a complex process that activates different areas and processes in the brain and central nervous system in the same moment. For instance, processing language about perceiving movement involves similar processes in the brain to that of the body actually moving. “Neural computation links our experience of hearing and speaking to the experience of perception, motion, and imagination.” Therefore, researchers need to know more about neural computation to further understand language. (Feldman, 2006) It is not one singular area in the brain that comprises understanding and processing of discourse, but rather several simultaneously. This processing ranges from literal expression to figurative. Take the example of “his kick is a weapon”. When someone (listener) hears and imagines how this man kicks, they are most likely picturing the man kicking something or performing martial arts. When the listener imagines the man kicking, this also stimulates the same area of the brain that controls movement in the body, but does not trigger an action. The listener imagines this to better comprehend how the man kicks and how powerful the kick may be. Hence, combining discourse and movement. This section will briefly discuss theory and evidence of where metaphorical language and expression emerged from.


Metaphors merely emerged from the need to explain abstract thought, conceptualizations, and new ideas. Metaphor is embodied experience being expressed in a new way to relate familiar things (or ideas) with less familiar things (ideas). Dent and Rosenberg (1990) show that young children comprehend simple visual metaphors and this improves between the ages of 5 and 7.
Between the ages of 5, 7, and 10 the children’s metaphoric similarity increased greatly when asked to creatively describe what they saw (visual stimuli in the study). By age 7 children were responding verbally to the visual metaphors, much like that of an adult. However, comprehension is seen as early as age 2 or 3. This exemplifies, that even at a very young age, children are able to begin to conceptualize similarities and express these similarities through action vehicles once they have experienced visual stimuli. When the children are asked to express what they saw, in a creative way, they produce a comparable vehicle to relate to the topic. Age related conceptualization patterns may be exemplified by the fact that age 4,7, and 10 frequently used action vehicles about events than objects, even when object vehicles were available.

Seitz (2005) asserts that early conceptual metaphors emerged automatically and unconsciously, even in early primate language and communication, in human development to link similarities in visual and contextual stimuli. Dent and Sternberg (1990) and Seitz (1998) support that metaphoric and similarity relations begin by age 2 or 3. Perhaps metaphors emerge as abstract thought emerges and metaphoric expressions are essential to express the internal thoughts of the individual. Evolutionary evidence of metaphor is exemplified through these examples of child development and comprehension. Furthermore, this evolutionary evidence is essential to conceiving that early primates (early hominids) learned and related in similar ways to convey they ever changing thoughts, feelings, discoveries, and relationships between ideas (Seitz, 2005). Early hominids needed metaphoric utterances to communicate where food and supplies were and to teach their less experienced brethren how to safely secure it.

This returns the literature to the adaptive nature of the metaphor and how it combines the known with the unknown or yet to be discovered.
The Modern Model of Metaphor and Prevailing Use

Metaphors are a sleight of tongue. The average individual may not realize they are employing metaphors prevalently and rapidly. The more ubiquitous metaphor will be that of a conceptual metaphor or primary (common) metaphor. The metaphor is indeed necessary and now seen to be a fundamental part of human thought and expression (Gibbs, 2011).

What if metaphorical communication was not necessarily genius in the greater sense, but rather adaptive and a natural part of interaction with others? That does not change the notion that metaphors are necessary in routine interactions. Metaphoric utterances are phenomenological in that they evoke change, development, and new insights into what already exists. They are genius when they are novel, clever, intelligent, creative and imaginative to create unique associations.

Contemporary Functions of Metaphor

For decades, linguists, psycholinguists, philosophers have proposed the multifunctional degrees of a metaphoric utterance or assertion. The many assumptions about metaphor’s relevance and function in interactions can be consolidated within Steen’s (2008) explanation of the paradox of metaphor and a three dimensional model. Steen (2008) presents three primary functions of a metaphor. Metaphor has a special relationship with language, thought and communication. He proposes that the language function is that of “naming”, where metaphor fills in the lexical gaps in the language system (p. 231). The conceptual function, metaphor in thought, of a metaphor is that of “framing”, where metaphor manifests a conceptual framework for ideas that require “partial indirect understanding” (p. 231). Lastly, metaphor’s communicative function creates “perspective changing” or merely “changing”. Metaphor in communication ‘produce[s] an alternative perspective on a particular referent or topic in a message” (Steen, 2008, p. 231). Steen’s (2008) presentation of a three dimensional model of
metaphor function does not assume that all functions are demonstrated at one time. But rather, the metaphoric usage may demonstrate dual functioning.

The linguistic and naming function of metaphor plays an integral role for novel, conventional and frozen metaphors. Metaphorical discourse resolves polysemy, namely with frozen or dead metaphorical utterances (Steen, 2008). The metaphoric statement stands to name the idea or object with well known comparisons or interactions to initiate a familiar relationship.

The conceptual and framing function of a metaphor is best illustrated with Lakoff’s (1987) view of metaphor in thought, is an exemplar of one’s conceptual mapping or cognitive models of experience. The conceptual knowledge builds a framework for the comparison or interaction being presented.

Both concepts of the metaphoric interaction naming and framing the idea, object, or relationship often generates change. The change occurs when the metaphoric communication creates a new conceptual mapping of the original topic. Likewise, the metaphoric comparison or interaction creates a new label or name for the original topic. For example, the ‘body is a machine’. The body is a machine because it possesses interconnections and multiple systems that connect into one greater system or being. This may be a novel relationship for the hearer, suddenly seeing the human body as a functional machine. This creates a new mapping or conceptual category in the brain as to what a human body is related to. This changes and expands the category of the body for this hearer. Likewise, the vehicle of machine attaches an additional name or label for the body. The metaphoric phrase, the body is a machine, exemplified these three essential functions of a metaphor and their fundamental interactions.
**Intentional vs. Unintentional**

Whether the presenter generates a metaphor intentionally or unintentionally, does not delineate from the fact that it appears metaphoric discourse is heavily embedded in language, thought, and communication. Steen (2008) uses Cameron’s (2003) educational discourse study to exemplify that the deliberateness of a metaphor lies in the context of the current circumstances. The metaphor is designed for a particular purpose on a specific occasion. The metaphor maintains its genius qualities; however, the level of novelty (or originality) may vary and is subjective. Once again, the novelty is subjective to the hearer.

Moreover, dead or inactive metaphors are so embedded in daily communication and interactions, the creator may not intentionally utilize such a metaphor to discuss a particular relationship. For instance, he is an open book, is nonetheless a metaphor, but widely used in common discourse (conventional metaphor). It’s often used to describe a person who has easily predicted behaviors and emotions such that an open book automatically reveals its contents. The presenter is merely sharing a concise description of the man, but did not intend to discuss his attributes with a metaphoric phrase. The presenter merely used a common turn of phrase. However, only the presenter can verify this intention. This hypothesis of unintentionality, presented here, bids need for further research.

It is suspected then, that more novel metaphors may emerge from intentional metaphorical utterances or communication. The intentionality hypothesis is presented here, as the more intentional the metaphor is, it will be more novel. This is postulated because when the presenter intends to build a relationship between the topic and vehicle, they are also eliciting imagery and conceptual networks of the connection between the two entities. This may include metaphors that are used purposefully in therapy, speeches, business presentations and marketing, etc. As these
metaphors are presented or published to stimulate imagery, evoke emotions, create new conceptual networks, and new relationships, etc.

*Common Metaphoric Discourse*

The current study stands to exemplify how the average individual utilizes common literal and metaphoric discourse to convey their ideas about common ailments. The current study will also assess individuals’ use of novel and frozen metaphoric utterances to convey their thoughts about common ailments. Likewise, how contextual cues may sway how they respond to the familiar question structure about ailments and what they remind the individual of.

*Theoretical and Conceptual Framework*

Metaphor theory and metaphor discourse began its true theoretical journey in the 1970’s. Andrew Ortony began the conversation of why metaphors and metaphoric language is so critical to people’s lives. Ortony in 1978 and 1979 began the discussion of how psycholinguists and psychologists need to begin empirical testing to provide evidence for the relevance and importance of metaphors in discourse and cognition. Steen (2011) describes Ortony’s Metaphor and Thought as the ‘cognitive turn’. That is Ortony wished to provide an organized conceptual framework for why metaphors are necessary and begin to provide empirical evidence for these concepts. Ortony (1975) pioneered the view that metaphors are not just nice, but rather they are necessary.

Much like Steen’s (2011) new contemporary metaphor theory researchers and theorists need to begin looking empirically at social aspects of metaphor. Empirical works began to evaluate how metaphors are utilized in advertising, therapy, etc. There is a continued need to evaluate metaphoric language use in daily communication and general discourse.
In the present study, the primary focus will be that of conventional conceptual metaphors. The study heretofore, was set up to elicit rather deliberate (likely unconscious) metaphors from an open ended survey. This concept or idea of a conceptual metaphor is taken from Lakoff in Ortony (1993, p. 245) and Steen in Fusaroli and Morgagni (2013). Since the beginning of study of metaphors, researchers and the public have identified metaphor as a complex organism that is seemingly multifaceted and yet simplistic due to customary use. Researchers have sought out to find out why they are so common and appear to be such a phenomenon all in the same. Likewise, they want to know where metaphors come from.

Metaphors, throughout time, have appeared and been described as a lexical phenomena. However, as metaphors are researched further, it is realized how necessary and deliberate metaphors are. How involuntary and spontaneous metaphors are as well. Likewise, they are an automatic utterance in daily discussions and negotiations (Lakoff in Ortony, 1993; Steen in Fusaroli and Morgagni, 2013).

Metaphors appear to have a grave purpose in language, discourse and communication. They may appear to be deliberate or even seemingly unapparent. They are necessary and important. Should metaphors be taken more seriously or must they be accepted as fantastic conceptual tools of figurative language that link many concepts and ideas in general discourse?

The difficulty with the study of metaphor in discourse and linguistics is there is much to be seen as to how and how often individuals employ primary and deliberate metaphors in common or conventional discourse (social settings). The current study set out to explore the social necessity and common use of the metaphor. That is to explore metaphor and metaphorical language as a common social entity in daily discourse that is no longer a phenomenon, but rather a vehicle used for better understanding of an idea or concept. Therefore, this study goes beyond
the theories of metaphor and applies contemporary and conventional use of metaphors to open ended questions.

The following study is a cross sectional between subjects design. Each subject experienced the same open ended survey. However, two conditions existed, half of all recruited participants received Condition One’s introduction (Metaphor Introduction) and the other half received Condition Two’s introduction (Literal Introduction). The separate conditions, respectively, discussed why metaphors are so important in language or why literal language is so important. Then the participants were presented with an open ended survey regarding common physical conditions or ailments. Common physical conditions were used for the survey due to the social familiarity of the conditions or ailments. Individuals often use metaphors, whether novel or conventional, to describe their physical state to others in order to convey a better picture to the audience of how they are feeling. For example, a person may tell their friend that they have a headache and state that it is a *pounding headache* to better convey the type of pain they are experiencing. The friend then, has a better idea of how this person is truly feeling. Open ended questions were used for the survey in order to obtain natural responses from the participants.

Furthermore, the following study had several goals that the methodology attempted to mimic from a natural environment. The two conditions contained different arguments regarding two types of language use as the study wished to evaluate how different social contexts possibly influence ones responses or language use. Condition One, having an introduction that argues why metaphorical language is so important, may elicit more metaphors to open ended questions. This is predicted to occur as the argument strongly suggests that metaphorical language is of most importance in daily discourse and creates a context for strong support of metaphorical
language. And vice versa for Condition Two that argues why literal language is of great
importance if not the most important form of daily discourse.

Secondly, the study wishes to see how sentence structure influences the participants’
answers. Each physical condition (ailment) has two questions attached to it. One question
structure predicts to elicit a literal answer or definition of the ailment. The second question
structure predicts to elicit a metaphoric answer to describe the ailment. The purpose of the
question structure is to also exemplify how social context may influence the way in which an
individual interacts or utilizes metaphors in daily discourse. The way in which one asks a
question, may influence the way in which the other person responds.

Alongside these listed goals, the study also wishes to see how individuals naturally use
primary metaphors in a conventional setting as well as novel metaphors to describe common
conditions. Likewise, the study wants to see how subject variables (i.e. age, education, etc.) may
also influence the types of metaphors that are used to answer questions about common
conditions. These variables also exist naturally in everyday social context and conversation. The
study wished to mimic natural social context as best possible, to exemplify how individuals
make use of metaphorical language in daily discourse.
CHAPTER 3. METHOD

Participants

One hundred forty three Morehead State University students, staff, and faculty members participated in the study. Twenty nine were male, one hundred four were female. Eighty one were undergraduate students, eleven were graduate students, twenty seven were staff, and fifteen were faculty. 58 participants were in age group one (18-24), 30 were in age group two (25-34), and 44 were in age group three (35 and up). Two participants did not report their age. In condition one, six participants were omitted for not answering questions in the survey portion. Three of those omitted gave demographics, but did not answer the survey questions; the other three submitted their survey, but the submittals were completely blank. In condition two, three participants were omitted for not answering questions in the survey portion. Two of those omitted gave demographics, but did not answer the survey questions; the other one submitted their survey, but this person left their submittal completely blank.

Potential participants were contacted and recruited by the use of the Morehead State University mass campus e-mail via the Information Technology Department.

Design

The current study is a cross-sectional between-subjects design to see how adults at various ages use metaphorical language and literal language in order to communicate their
experiences and ideas to others. This design is similar to that of Haller & Reeder (manuscript in preparation) in regards to the format of the open ended survey.

Potential participants were contacted and recruited by the use of the Morehead State University mass campus e-mail. The Information Technology (IT) Department randomly selected whom to send the survey to amongst condition one and condition two. With the three major categories (i.e. students, staff, and faculty) of participants at MSU, IT split each category of people in half. For example, if the staff is listed alphabetically in the MSU network, they divided each group by putting each odd person in condition one and each even person in condition two. This was done this way so that participants were evenly distributed amongst the two conditions.

Once the potential participants opened their campus mail from this investigator and IT, they saw an introduction or briefing to advise them of the study they may participate in. The briefing advised them of the Primary Investigator and Advising Professor that distributed this survey. The briefing also advised the participants that their identity will be protected and demographic information will not reveal their personal information, results will be stored and locked in an office, and that completion of the survey will not necessarily lead to extra credit within their coursework and if they do not wish to participate or refuse, that this will not have any penalty toward grades or benefits. The briefing also included contact information for Primary investigator and Advising Professor for any questions or comments.

Those who were assigned to condition one received a persuasive introduction to the survey. The persuasive introduction in condition one argued as to why metaphorical language is so essential within communication. Condition two received a persuasive introduction that argued as to why literal language is so essential within communication. Once each participant read the
introduction and selected the next page they were forwarded to the survey (refer to Appendix B for introductions).

Survey

The survey was created using SNAP.com, Copyright © 2003 Mercator Research Group Ltd. SNAP.com; survey software that enables individuals to convert their surveys for use by means of the internet. This survey was reviewed and approved for distribution by the Morehead State University Institutional Review Board for the Protection of Human Subjects in Research.

Following the condition introduction, the participants were given an open ended survey regarding common health conditions (ailments) (refer to Appendix B for survey). For every health condition there were two types of questions. One question directly asked the participant what the health condition is (literal question type) and the other question asked the participant what the health condition reminded them of (metaphor question type). The question that directly asked what the condition is, was meant to elicit a literal language response or direct definition of the ailment. The question that asked what the condition reminded the participant of, was meant to elicit a metaphorical or figurative language response.

Following the survey regarding common ailments the participants were then asked to identify some demographic questions that were multiple choice. Demographic questions were what their age is, gender, where they are originally from (State in the U.S. or Country), status at MSU (student, staff or faculty), major, department, or degree earned and highest level of education.

Coding

Each of the participants’ responses was received in the form of an e-mail through Microsoft Office Outlook. The Outlook account was only accessible by Primary Investigator and
Advising Professor. Each of the participants’ responses was then printed out individually. Each of the participants’ responses was further categorized as being a response to Condition One or Condition Two. The condition was known because each e-mail response indicated, automatically, which condition it had been sent from. In each individual condition, each e-mail response was numbered according to which condition it was from, for reference sake. For example, if a response was numbered, “1:28”; this would indicate condition one, participant number twenty eight.

The Primary Investigator and a Research Assistant transcribed results for the coders to better read and rate language use. Primary investigator and research assistant created a key for the raters so that they may differentiate survey answers and demographic question answers. The primary investigator and a research assistant did not code results due to awareness of the hypotheses, and having potential bias. Two Undergraduate work studies (a.k.a. research assistants; coders), who were blind to the hypotheses, coded the results. The coders/raters were two undergraduates in the department of Psychology at Morehead State University. However, discussion and consensus among primary investigator and all research assistants was utilized and practiced prior to official coding and judging to determine how to classify whether a response used metaphorical language or literal language. Likewise, primary investigator and all research assistants judged, in group consensus, how to classify whether a metaphor was frozen or novel. Primary investigator advised the research assistants of the definitions for each, and the group discussed examples of each. Real-world examples were presented to the coders to better clarify frozen and novel. For instance, “rock hard” is a frozen metaphor used often in everyday speech.

The criterion for classifying a metaphor was that it had to contain a metaphor’s basic components. Primary investigator trained the raters and provided literature to raters regarding the
definition of a metaphor, novel and frozen metaphors, and literal language. The criterion for classifying metaphorical language were that the vehicle had to refer to an object or event different in kind from the topic (tenor), but still had to contain some similarity to the topic. If the answer fit the criterion, each metaphor was either labeled as frozen (commonly used in everyday speech and has lost novel appeal) or novel (unique). Similes were also included in the definition of a metaphor and were judged just as the metaphors were judged because similes are defined in a synonymous manner to a metaphor. A simile is a figure of speech in which two dissimilar things are compared by the use of “like” or “as”.

Creativity Rating

Once all metaphors were identified and labeled, frozen or novel, an excel chart was created by the coders listing all metaphors and the corresponding subject number. In the chart where metaphors were listed, they were then rated based on a Likert scale per dimension of creativity (refer to Appendix C for creativity chart). The dimensions of creativity are the level of novelty, accuracy of grammar, level of clarity, level of liking, level of appropriateness, and level of richness. The levels for whether the metaphor was frozen or novel, had four levels. If the metaphor was frozen it was rated as a one, heard it before was rated as a two, hardly ever heard it or heard it once was rated a three, and never heard it before was rated as a four. Appropriate grammar, clarity, liking, appropriateness, and richness ratings had three dimensions of judgment. In addition, Appendix C includes the definition for each level of the Likert scale ratings and for each dimension of judgment. Inspiration for the dimensions of judgment came from Amabile (1996), page 56. Amabile (1996) utilized similar dimensions in her studies that rated creativity in writing samples, namely poems.
Judgments of the metaphors, by the coders, were conducted in a process nearly identical to that of Nominal Group Technique. Van de Ven and Delbecq (1971) created the Nominal Group Technique initially in 1968 (Harvey & Holmes, 2012), but defined it further in 1971 and has been used widely in business meetings, healthcare, behavioral science, and consumer research, etc. The Nominal Group Technique (NGT) is a structured, face to face, meeting or focus group. NGT is utilized for obtaining reliable qualitative information for a group during decision making or when consensus is functional or necessary. NGT was slightly modified during stage five to accommodate the structure of this study (Van de Ven & Delbecq, 1971; Van de Ven & Delbecq, 1974; Van de Ven, et al., 1975; Sink, 1983; Harvey & Holmes, 2012). Van de Ven and Delbecq (1974) explain the process of performing the NGT. NGT often utilizes experts in their field for participants or raters, dependent upon the subject matter being discussed or type of business involved. The current study utilized novice coders to eliminate bias or predisposition to the material. Amabile (1996) on page 61 discussed that expert raters or participants, or raters with special skills, may not be necessary to judge subjective creativity. She was unable to find a significant difference in ability to judge consensually between experts and non experts.

First the coders extracted all metaphors from each participant and placed it into the metaphor database categorized by what ailment they described. The coders, together, then took a metaphor, one at a time, that was created by a participant and silently wrote down whether they thought it was novel or frozen. The coders then shared in round robin, what they wrote down. If they did not respond, at first, in consensus, they would each share why they chose that answer. Discussion would remain open, in round robin fashion, to all until all decided on the same response (frozen or novel). If a metaphor was determined to be novel, the coders would then
again, write down the level of novelty in silence. The coders would then discuss, in round robin, what rating they chose and why. Coders would once again repeat this process for all other dimensions of creativity until consensus was achieved.

The NGT process allowed for all coders to share their opinion and experience equally, regarding levels of novelty. The goal of his process was to also eliminate bias and subjectivity for rating, as best possible. NGT was also utilized for this study as Van de Ven & Delbecq (1971), Van de Ven & Delbecq (1974), and Harvey & Holmes (2012) discuss that NGT allows for a face to face decision making process that is face to face, structured, completed in one session, has immediate dissemination, and promotes satisfaction between all raters or participants.

Interpretation of the Data

Due to the use of persuasive introductions, at the end of the coding and rating process, coders were also asked to judge whether the arguments may have influenced how the participants answered the survey. In the same respect, coders also judged whether they thought metaphorical language was used primarily, or if literal language was used primarily within the answers to the open ended survey in Condition One relative to Condition Two. They also judged whether metaphorical language was more unique or creative under Condition One relative to Condition Two. This was done for raw data purposes.

Coders used subject variables, that were transcribed and defined by the primary investigator, in order to further judge and analyze answers to the surveys to see how adults used metaphorical language and literal language in order to communicate their experiences and ideas to others within different age groups, departments, majors, levels of education, etc. Since participants were quite diverse in regards to age and education level, this allowed the researchers
(primary investigator and research assistants) to discover how people of all walks of life communicate experiences and ideas amongst one another using metaphorical and literal language. This demographic information was recorded as a part of the survey.

**Inter-Rater Reliability**

Primary investigator tested for inter-rater reliability. Nine novice raters reviewed and judged the 256 metaphors that the participants created to the initial survey. The metaphors were those previously extracted by the coders. The novice raters were random individuals from the population, who volunteered, and are from various occupations. Raters were blind to question type and condition and were only given the metaphors as identifiers. The raters judged the creativity level of each metaphor under the same six dimensions that the coders did. The dimensions of creativity are the level of novelty, accuracy of grammar, level of clarity, level of liking, level of appropriateness, and level of richness.

The primary investigator trained the raters similarly to that of the coders regarding what a metaphor is, definitions of the ailments, the different types of metaphors (i.e. frozen and novel), and the explanations for the dimensions of creativity. Since the metaphors were already extracted from the survey by the coders, the raters did not have to determine whether the statement was metaphoric. Raters were educated regarding what a metaphor is in order to assist the rating process, such that of frozen or novel and the level of novelty. Likewise, raters were given real world examples of the types of metaphors. For instance, “rock hard” is a frozen metaphor as it is used widely to characterize hard texture items. Raters were also given direction to rate all metaphors independently, with no consulting amongst other individuals to ensure independence of rating.
CHAPTER 4. RESULTS

The results reported for this study will be those that are significant or those that had curious differences between groups. This was done to avoid excessive reports on outcomes with respect to how many variables and subject variables that were utilized and analyzed in this study. Those variables and subject variables that were utilized and assessed in the analysis are the influence of Introduction, Question structure (a.k.a. Question type), Age, Sex, number of metaphors, and level of novelty.

Multivariate Analysis of Variance (MANOVA) was performed to analyze the relationship between Introduction (metaphor or literal) and Question type (literal or metaphor) on the number of metaphors that were produced by the participants. There is a main effect of Question, on the number of metaphors produced, amongst the two introductions under Hotelling’s Trace, $T^2 = 0.542$, $F(1,132) = 71.61$, $p = .001$. There is a significant interaction between Introduction and Question type, under Hotelling’s Trace, $T^2 = 0.053$, $F(1,132) = 7.02$, $p = .009$. When Introduction was the only independent variable held against the number of metaphors produced, Introduction type had a significant effect, $T^2 = 0.107$, $F(2,131) = 7.01$, $p = .001$. Between subject effects show that introduction had a greater effect on metaphors produced to metaphor questions, $F(1,132) = 11.03$, $p = .001$. Introduction also had a significant effect on the number of metaphors to literal questions, $F(1,132) = 7.37$, $p = .008$.

A Multivariate Analysis of Covariance (MANCOVA) was then performed between the number of metaphors created and independent variables of Introduction, Age, and Sex. Question
type still had a significant effect on the number of metaphors created, across all independent variables, under Wilks’ Lambda, \( \lambda = 0.717, F(1,119) = 47.04, p = .001 \). There was also a significant interaction between, Question, Sex and Introduction when Age is held constant, \( \lambda = 0.941, F(1,119) = 7.46, p = .007 \). Under the tests of between subjects effects, there is a significant interaction between Sex and Introduction, when Age is held constant, \( F(1,119) = 7.28, p = .008 \).

When Age and Introduction were analyzed against the number of metaphors created there is still a main effect of Introduction, \( \lambda = 0.908, F(2,125) = 6.33, p = .002 \). Between subjects, there is an interaction between Introduction and Question type. Across all metaphors to metaphor questions, \( F(1,126) = 9.39, p = .003 \). The interaction between Introduction and the number of metaphors to literal questions is also significant, \( F(1,126) = 7.37, p = .008 \).

When Sex and Introduction are the only independent variables analyzed against number of metaphors created, there is a significant interaction between Introduction and Sex across Question type, \( \lambda = 0.942, F(2,128) = 3.91, p = .022 \). When looking at between subject effects, there is a significant effect of Question type on the number of metaphors created across Introductions and Sex, \( F(1,129) = 7.82, p = .006 \). One reason this may occur, is because there are more females than males that completed the survey in the current study. This is why there may be a significant difference in number of metaphors between the sexes.

There is an uneven amount of male, as compared to female, participants in the present study. Therefore, a separate MANCOVA was performed against males then females and number of metaphors created across introductions and Age groups. When a MANCOVA was perfomed where only males are considered, there is a main effect of Question type across introductions and Age groups, \( \lambda = 0.522, F(1,23) = 21.06, p = .001 \). When a MANCOVA was performed where only females are considered, there is a main effect of Question type across introductions and Age
groups, $\lambda = 0.678$, $F(1,96) = 45.67$, $p = .001$. There is also an interaction between Question and Introduction, $\lambda = 0.899$, $F(1,96) = 10.77$, $p = .001$.

Table 1

*Effect of Variables on Number of Metaphors*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Test</th>
<th>$df_E$</th>
<th>$df_H$</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td>$T^2 = 0.542$</td>
<td>1</td>
<td>132</td>
<td>71.61</td>
<td>.001</td>
</tr>
<tr>
<td>Introduction * Q-Type</td>
<td>$T^2 = 0.053$</td>
<td>1</td>
<td>132</td>
<td>7.02</td>
<td>.009</td>
</tr>
<tr>
<td>Introduction</td>
<td>$T^2 = 0.107$</td>
<td>2</td>
<td>131</td>
<td>7.01</td>
<td>.001</td>
</tr>
<tr>
<td>Introduction; Age constant</td>
<td>$\lambda = 0.908$</td>
<td>2</td>
<td>125</td>
<td>6.33</td>
<td>.002</td>
</tr>
<tr>
<td>Question; A, S &amp; Intro held constant</td>
<td>$\lambda = 0.717$</td>
<td>1</td>
<td>119</td>
<td>47.04</td>
<td>.001</td>
</tr>
<tr>
<td>Question * Sex * Introduction; Age constant</td>
<td>$\lambda = 0.941$</td>
<td>1</td>
<td>119</td>
<td>7.46</td>
<td>.007</td>
</tr>
<tr>
<td>Question; Introduction &amp; Age held constant for Males †</td>
<td>$\lambda = 0.522$</td>
<td>1</td>
<td>23</td>
<td>21.06</td>
<td>.001</td>
</tr>
<tr>
<td>Question; Introduction &amp; Age held Constant for Females †</td>
<td>$\lambda = 0.678$</td>
<td>1</td>
<td>96</td>
<td>45.67</td>
<td>.001</td>
</tr>
<tr>
<td>Question * Introduction; for Females †</td>
<td>$\lambda = 0.89$</td>
<td>1</td>
<td>96</td>
<td>10.77</td>
<td>.001</td>
</tr>
</tbody>
</table>

*Note:* $\alpha = .05$, $\lambda =$ Wilks’ Lambda, $T^2 =$ Hotelling’s Trace, $df_E =$ error degrees of freedom, $df_H =$ hypothesis degrees of freedom, † males and females were analyzed separately, ** Stats regarding sex and number of metaphors may be skewed as there were significantly more females in this study than males.
Table 2

Effect of Variables on Number of Metaphors Between Subjects Effects

<table>
<thead>
<tr>
<th>Variable</th>
<th>df</th>
<th>df$_E$</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction * Met Questions</td>
<td>1</td>
<td>132</td>
<td>11.03</td>
<td>.001</td>
</tr>
<tr>
<td>Introduction * Lit Questions</td>
<td>1</td>
<td>132</td>
<td>7.37</td>
<td>.008</td>
</tr>
<tr>
<td>Introduction * Sex</td>
<td>1</td>
<td>119</td>
<td>7.28</td>
<td>.008</td>
</tr>
<tr>
<td>Introduction * Met Qs; Age constant</td>
<td>1</td>
<td>126</td>
<td>9.39</td>
<td>.003</td>
</tr>
<tr>
<td>Introduction * Lit Qs; Age Constant</td>
<td>1</td>
<td>126</td>
<td>7.37</td>
<td>.008</td>
</tr>
</tbody>
</table>

Note: $\alpha = .05$, df = degrees of freedom, df$_E$ = error degrees of freedom, *males and females were analyzed separately, **Stats regarding sex and number of metaphors may be skewed as there were significantly more females in this study than males.

Metaphors to metaphor questions were extracted and an ANCOVA was performed on high-novelty metaphors (metaphors rated a 3 or 4 on novelty) with the independent variables of Sex, Introduction, and Age. There was a main effect of the Introduction on high-novelty metaphors to metaphor questions between subjects, $F(1,65) = 9.47$, $p = .003$. 49 High-novelty metaphors were produced to the Metaphor Introduction as opposed to 28 to the Literal Introduction. Likewise, metaphors to metaphor questions with the novelty rating of four, were extracted. ANCOVA with metaphors rated at the highest novelty (rating of four) with independent variables of Sex, Introduction, and Age showed that Introduction still had a significant effect on novelty. The significance across all independent variables is fair, $F(1,65) = 9.07$, $p = .004$. Under a MANCOVA, Introduction still had a significant effect on all metaphors rated four from both Question types, $\lambda = 0.912$, $F(2,118) = 5.68$, $p = .004$. Between subjects, across both introductions, metaphor questions had a significant effect on novelty-level 4 metaphors, $F(1,119) = 11.29$, $p = .001$. 
Question type also had a significant effect on high-novelty metaphors overall. A MANOVA showed that Question type had a significant effect on high novelty, $F(1,18) = 8.753$, $p = .008$, $N= 19$. For the high-novelty metaphors to literal questions, $M = .01$ and $SD = .038$ and for high-novelty metaphors to metaphor questions, $M = .30$ and $SD = .427$.

Table 3

*Variable Effects on Novelty Level*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$df$</th>
<th>$df_E$</th>
<th>$F$</th>
<th>$p$</th>
<th>$\lambda$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction on High Novelty Metaphors to Metaphor Qs</td>
<td>1</td>
<td>65</td>
<td>9.47</td>
<td>.003</td>
<td>-</td>
</tr>
<tr>
<td>Introduction on Novelty 4 Metaphors Metaphor Q; A &amp; S constant</td>
<td>1</td>
<td>65</td>
<td>9.07</td>
<td>.004</td>
<td>-</td>
</tr>
<tr>
<td>Metaphor Questions on Novelty 4 Metaphors; Introduction held constant</td>
<td>1</td>
<td>119</td>
<td>11.29</td>
<td>.008</td>
<td></td>
</tr>
<tr>
<td>Introduction on Novelty 4 Metaphors For Met and Lit Questions</td>
<td>2</td>
<td>118</td>
<td>5.68</td>
<td>.004</td>
<td>0.912</td>
</tr>
</tbody>
</table>

*Note:* $\alpha = .05$, $df =$ degrees of freedom, $df_E =$ error degrees of freedom, $\lambda =$ Wilks’ Lambda.

Age groups did not show any major differences in the number of metaphors or novelty levels.

Separately, an Intraclass Correlation Coefficient (ICC) was performed between the nine independent raters to determine inter-rater reliability and consistency between the raters on the level of novelty for each metaphor. There is strong evidence to support the reliability of this measurement between the nine raters. The ICC across average measures = 0.859 with 95% CI(0.83, 0.88), $p = .001$ supporting strong consistency between the raters regarding the novelty of each metaphor. Two metaphors were omitted from the analysis for unknown reasons. ICC
across average measures was then performed between the raters for the other five dimensions of creativity. The Appropriateness of the metaphor also had very high inter-rater reliability. Appropriateness had an ICC = 0.826 with 95% CI(0.79, 0.86), p = .001. Likewise, Clarity of the metaphor’s ICC = 0.823 with 95% CI(0.79, 0.85), p = .001. Liking of the metaphor’s ICC = 0.810 with 95% CI(0.77, 0.84), p = .001. Richness of the metaphor still had high inter-rater reliability but ICC = 0.720 with 95% CI(0.67, 0.77), p = .001. Grammar of the metaphoric phrase, inter-rater reliability, was moderately significant with the ICC = 0.649 with 95% CI(0.58, 0.71), p = .001.

Table 4

Rater Reliability on Metaphor Creativity

<table>
<thead>
<tr>
<th>Creativity Dimension</th>
<th>ICC</th>
<th>95% CI</th>
<th>p</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novelty</td>
<td>0.859</td>
<td>[0.83, 0.88]</td>
<td>0.001</td>
<td>254</td>
</tr>
<tr>
<td>Appropriateness</td>
<td>0.826</td>
<td>[0.79, 0.86]</td>
<td>0.001</td>
<td>256</td>
</tr>
<tr>
<td>Clarity</td>
<td>0.823</td>
<td>[0.79, 0.85]</td>
<td>0.001</td>
<td>256</td>
</tr>
<tr>
<td>Liking</td>
<td>0.810</td>
<td>[0.77, 0.84]</td>
<td>0.001</td>
<td>256</td>
</tr>
<tr>
<td>Richness</td>
<td>0.720</td>
<td>[0.67, 0.77]</td>
<td>0.001</td>
<td>256</td>
</tr>
<tr>
<td>Grammar</td>
<td>0.649</td>
<td>[0.58, 0.71]</td>
<td>0.001</td>
<td>255</td>
</tr>
</tbody>
</table>

Note: ICC = intraclass correlation coefficient, CI = confidence interval, amongst 9 raters.

A Multivariate Analysis of Variance (MANOVA) was performed between the 9 raters regarding the effects of the Introduction (Condition) on Novelty alone and the effects of Question type (i.e. Metaphor vs. Literal) on Novelty alone. Introduction had a significant effect on the level of novelty of the metaphor amongst raters, $\lambda = 0.872$, $F(9,244) = 4.00$, $p = .001$. 
Question type also had a significant effect on the level of novelty amongst raters, $\lambda = 0.850$, $F(9,244) = 4.77, p = .001$. When Age was analyzed as the only independent variable, and Question type as the covariate, there was a main effect of Question, $T^2 = 0.169$, $F(9,241) = 4.53$, $p = .001$. When Sex was analyzed as the only independent variable and Question type as the covariate, $T^2 = 0.176$, $F(9,243) = 4.76$, $p = .001$.

A Multivariate Analysis of Covariance (MANCOVA) was then performed regarding novelty between the raters. When Introduction (a.k.a. Condition) was held as the independent variable (or Fixed Factor) and Question type was the Covariate, Introduction had a significant effect on novelty with $\lambda = .873$, $F(9,243) = 4.717$, $p = .001$. And Question type had a significant effect as a covariate to Introduction, $\lambda = 0.851$, $F(9,243) = 3.94$, $p = .001$.

A MANCOVA was performed with Introduction as the Independent Variable and Age and Sex added as covariates. There was no significant impact on variance when Age and Sex were added as covariates. Introduction continued to have a significant effect on novelty amongst raters, $\lambda = .863$, $F(9,242) = 4.28$, $p = .001$. Similarly when Question type was the Fixed Variable Independent Variable and Age and Sex were covariates, $\lambda = .855$, $F(9,242) = 4.55$, $p = .001$.

A MANCOVA was performed with Introduction, Sex and Age as fixed independent variables and Question type was the covariate. Question type continued to have a significant effect on novelty across all raters, $\lambda = 0.851$, $F(9,231) = 4.48$, $p = .001$.

A MANCOVA was then performed with Introduction and Sex as independent variables and Question type was the covariate. Condition had a main effect on novelty across raters, $\lambda = 0.895$, $F(9,241) = 3.13$, $p = .001$. Question type also had a significant effect on novelty, $\lambda = .0849$, $F(9,241) = 4.77$, $p = .001$. Introduction was then paired with Age as independent variables.
analyzed with Question type as the covariate. Question type was the only variable with a main effect on novelty, $\lambda = 0.854$, $F(9,237) = 4.50$, $p = .001$.

In a MANCOVA where Introduction is the Independent Variable and Question type, Sex, and Age were covariates, the covariates did not appear to impact the variance significantly. For the condition, $\lambda = .862$, $F(9,241) = 4.298$, $p = .001$. And Question type still had a significant effect on novelty, $\lambda = .854$, $F(9,241) = 4.572$, $p = .001$.

Table 5

*Effect of Independent Variables on Metaphor Novelty Across Raters*

<table>
<thead>
<tr>
<th>IV &amp; Covariates</th>
<th>$\lambda$</th>
<th>$df_E$</th>
<th>$df_H$</th>
<th>F</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>.872</td>
<td>9</td>
<td>244</td>
<td>3.990</td>
<td>.001</td>
</tr>
<tr>
<td>Introduction w/ Q-type Covariate</td>
<td>.873</td>
<td>9</td>
<td>243</td>
<td>3.939</td>
<td>.001</td>
</tr>
<tr>
<td>Introduction w/ Sex held constant As other IV, Q-type Covariate</td>
<td>.895</td>
<td>2</td>
<td>241</td>
<td>3.134</td>
<td>.001</td>
</tr>
<tr>
<td>Intro w/ A &amp; S Covariates</td>
<td>.863</td>
<td>9</td>
<td>242</td>
<td>4.279</td>
<td>.001</td>
</tr>
<tr>
<td>Intro w/ Q-Type &amp; A &amp; S Covariates</td>
<td>.862</td>
<td>9</td>
<td>241</td>
<td>4.298</td>
<td>.001</td>
</tr>
<tr>
<td>Question Type</td>
<td>.850</td>
<td>9</td>
<td>244</td>
<td>4.773</td>
<td>.001</td>
</tr>
<tr>
<td>Q-Type w/ A &amp; S Covariates</td>
<td>.855</td>
<td>9</td>
<td>242</td>
<td>4.554</td>
<td>.001</td>
</tr>
</tbody>
</table>

*Note: $\alpha = .05$, $\lambda$ = Wilks’ Lambda, $df_E =$ Error df; error degrees of freedom, $df_H =$ Hyp df; hypothesis degrees of freedom, $A =$ age, $S =$ sex.*
Table 6

*Effect of Question type as Covariate to Independent Variables, When IVs Held Constant, on Novelty Across Raters*

<table>
<thead>
<tr>
<th>IVs</th>
<th>Test</th>
<th>$df_E$</th>
<th>$df_H$</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>$\lambda = 0.851$</td>
<td>9</td>
<td>243</td>
<td>4.717</td>
<td>.001</td>
</tr>
<tr>
<td>Age</td>
<td>$T^2 = 0.169$</td>
<td>9</td>
<td>241</td>
<td>4.533</td>
<td>.001</td>
</tr>
<tr>
<td>Sex</td>
<td>$T^2 = 0.176$</td>
<td>9</td>
<td>243</td>
<td>4.758</td>
<td>.001</td>
</tr>
<tr>
<td>Introduction * Age</td>
<td>$\lambda = 0.854$</td>
<td>9</td>
<td>237</td>
<td>4.498</td>
<td>.001</td>
</tr>
<tr>
<td>Introduction * Sex</td>
<td>$\lambda = 0.849$</td>
<td>9</td>
<td>241</td>
<td>4.774</td>
<td>.001</td>
</tr>
<tr>
<td>Intro * Age * Sex</td>
<td>$\lambda = 0.851$</td>
<td>9</td>
<td>231</td>
<td>4.480</td>
<td>.001</td>
</tr>
</tbody>
</table>

*Note:* $\alpha = .05$, $\lambda =$ Wilks’ Lambda, $T^2 =$ Hotelling’s Trace, $df_E =$ error degrees of freedom, $df_H =$ hypothesis degrees of freedom.

Table 7

*Effect of Question type as Covariate to Fixed Variable of Introduction Across Raters*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\lambda$</th>
<th>Error df</th>
<th>Hyp df</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question Type</td>
<td>.851</td>
<td>9</td>
<td>243</td>
<td>4.717</td>
<td>.001</td>
</tr>
<tr>
<td>Under Introduction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question Type</td>
<td>.854</td>
<td>9</td>
<td>241</td>
<td>4.572</td>
<td>.001</td>
</tr>
<tr>
<td>Under Introduction w/ A &amp; S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note:* $\alpha = .05$, $\lambda =$ Wilks’ Lambda, Error df = error degrees of freedom, Hyp df = hypothesis degrees of freedom.

Those subject variables that were recorded in the study but that were not used in the current analysis, quite possibly may be used in a second study (i.e. Region or Occupation). This would give more time and space to evaluate the other subject variables and their influence on how the subjects answered their survey questions. All raw data is organized to make future data
entry, for an ANOVA or MANCOVA, relatively simple. The potential investigator that may evaluate the remaining data may be this primary investigator or a successor that may have not been originally involved in this study. Raw data was set up simply for further analysis.
CHAPTER 5. DISCUSSION

Summary

The current study investigated the social aspects of metaphoric discourse. The study examined literal and metaphoric discourse when describing common, well-known, physical ailments to mimic general, organic, conversation between individuals. The study was a cross sectional between subjects design. Each participant received a persuasive essay that preceded an open ended survey. Each participant received either the metaphor essay introduction (Condition 1) or the literal language introduction (Condition 2). Following the introduction each participant completed an open ended survey that featured two questions regarding seven different physical ailments. Each participant answered two question types per ailment. For instance, “what is a headache” and “what does it remind you of”. Subject variables were also requested by each participant such as age, gender, education, occupation, etc.

The study evaluated how individuals use primary metaphors when involved in a particular context and presented with particular sentence structure to elicit a specific answer-type. The study also evaluated how subject variables may influence each participant’s answers to the open-ended survey and their discourse type.

Summary of Findings and Conclusion

Three hypotheses existed prior to analyzing the participant results. The Primary Investigator’s hypotheses were strongly validated via analysis of variance amongst the
participants. However, there were some limitations as there were significantly less male participants as compared to female participants. This is discussed in detail below.

The first hypothesis believed that condition type would have a strong influence on number of metaphors produced as well as level of novelty. This investigator believed that Condition One (Metaphor Introduction) would begin participants’ metaphor thought processes and would influence or persuade the participants to produce more metaphors to all questions as it created an influential environment. This was validated as Condition type strongly influenced metaphor production and novelty level as more metaphors and more novel metaphors were produced in Condition One (metaphor introduction). Analysis of variance revealed that number of metaphors alone were strongly influenced by the Condition type, \( T^2 = 0.107, F(2,131) = 7.01, p = .001 \). Analysis of variance also verified that Condition type and Question type together had a strong influence on number of metaphors (\( T^2 = 0.053, F(1,132) = 7.02, p = .009 \)) and novelty level of metaphors, those rated 3 or 4 (\( F(1,65) = 9.47, p = .003 \)). Introduction alone also had a significant impact on high novelty metaphor (those rated level 4), \( \lambda = 0.912, F(2,118) = 5.68, p = .004 \). Between subject effects show that introduction had a significant effect on metaphors produced to metaphor questions, \( F(1,132) = 11.03, p = .001 \) and a significant effect on the number of metaphors to literal questions, \( F(1,132) = 7.37, p.008 \). These results follow the trends in thought that social context and environment strongly influence how individuals use metaphorical discourse to express their thoughts and feelings.

The second hypothesis believed that question type would strongly influence how each participant answered the survey questions and that Participants would be more likely to produce metaphors to the metaphor questions. The second hypothesis more specifically believed that the metaphor questions would elicit more metaphors from the participants (i.e. what does __ remind
you of?) and they may be more novel. This hypothesis was validated as the participants produced more metaphors to metaphor questions and metaphors appeared to be more novel to metaphor questions. There was a main effect of Question type on the number of metaphors produced, amongst the two introductions under Hotelling’s Trace, $T^2 = 0.542$, $F(1,132) = 71.61$, $p = .001$. Question type had a significant effect on the number of metaphors created, across all independent variables, under Wilks’ Lambda, $\lambda = 0.717$, $F(1,119) = 47.04$, $p = .001$. When only females were considered, there was a main effect of Question type across introductions and Age groups, $\lambda = 0.678$, $F(1,96) = 45.67$, $p = .001$ and when only males are considered $\lambda = 0.522$, $F(1,23) = 21.06$, $p = .001$. Metaphor questions had a significant effect on metaphors created with the highest novelty (rating of 4), the significance across all independent variables was $F(1,65) = 9.07$, $p = .004$. These results verify that question type does impact the way individuals choose to use metaphors in conversation and to express their thoughts. The structure of the sentences likely created a certain context and elicited certain thought processes or cognitive mappings related to what the question type intended to obtain.

The third hypothesis believed that there would also be a trend with Age and high novelty to all metaphors produced. This was hypothesized because as age increases so may individuals’ life experience, increased exposure to novelty, and may have a higher level of education creating a higher rate of creativity or expanded vocabulary. However, there were no major significances when the age groups were analyzed separately on high novelty metaphors, novelty level four metaphors, or number of metaphors. This hypothesis should be tested again to further analyze total number of novel metaphors amongst higher age groups and higher novelty metaphors and their occurrence amongst the age groups.
It was difficult to see sufficient trends between genders with this sample of Participants as there were 104 Female Participants and only 29 Male participants. Due to the low percentage of male participants in this study, this created a limitation in identifying trends or differences between genders. Future research may want to target a larger sample group to provide a more sufficient, or larger, population sample to eliminate this limitation. Results showed that amongst females and males there was a main effect of question type but that there was only a significant interaction between question type and introduction amongst females. It is hypothesized that either the male participants did not read the introductions or possibly their language use happens to be more literal than figurative. These analyses would need to be replicated with a larger sample of men to exemplify more accurate trends.

Intraclass Correlation Coefficient was tested amongst nine novice raters following metaphor-extraction and coding. This was done to verify the consistency of the novice raters while evaluating creativity levels of each metaphor. Raters had high rater-reliability when evaluating Novelty (ICC = .859), Appropriateness (ICC = .826), Clarity (ICC = .823), Liking (ICC = .810), Richness (ICC = .720), and Grammar (ICC = .649) of the metaphor. The inter-rater reliability was consistent across all aspects.

A Multivariate Analysis of Covariance (MANCOVA) analysis was conducted against the impact of the Introduction and the Question Type on the Novelty ratings. A MANCOVA was conducted to ensure Introduction and Question type continued to effect the level of novelty of the metaphors amongst the raters judgements. Introduction, alone, significantly effected the novelty level of the metaphors. Likewise, Question Type, alone, significantly effected the novelty level of the metaphors. When Introduction was fixed and Question type was a covariate, they both appeared to impact the level of novelty. Age and Sex did not appear to strongly
influence how the Introduction or Question type effected the level of novelty. It can be ascertained that the Metaphor Introduction and Metaphor Question type influenced the participants by producing metaphors with significantly higher novelty.

A replication of the current methodology would require more male participants as the male population was not necessarily appropriately sampled in this study. This made it difficult to see sufficient trends within the male population. Furthermore, variables that were recorded in this study but that were not discussed in results were demographics such as number of years of education, where the participant is originally from (i.e. Eastern Kentucky or another area), and area of study. These variables and demographics were not discussed as data analysis did not indicate any significant findings. This investigator would also add a question on the survey asking the participant if they read the entire introduction prior to answering the questions. This question would be placed at the end of the survey. This may give the investigator a better understanding of what truly impacted the participants’ answers to the survey.

**Implications and Recommendations**

Further research shall investigate the intentionallity and unintentionality hypotheses of metaphor creation. Did the presenter or creator (i.e. participant) intend to produce a metaphorical statement? This should perhaps be asked of the participant. The study shall still have double blind coders and raters of the metaphors so they cannot create bias with knowing condition, question structure, or intentionality. Then the investigator shall see if the metaphorical statements were more often novel with intentional metaphors as opposed to more frozen novels when unintentional. This may begin to shed further light on the awareness of metaphorical discourse.

Future research may include interpreting what portion of the brain is in use when the participant is reading the introduction and then answering the survey, by simultaneously having
the participant in a PET Scan. This may give the investigator a better understanding of where and how the participant initiated their thought process prior to answering the survey (i.e. systems activated). Benedek and Beaty et al. (2014) began this work in 2013 to discover trends in activation of the left hemisphere with metaphor production. Benedek and Beaty’s et al. (2014) work was one of the first of its kind as they discovered the “left angular gyrus, left middle and superior frontal gyri-corresponding to left dorsomedial prefrontal cortex-and posterior cingulate cortex”. They also found that the dorsomedial prefrontal cortex was more active during higher creative quality of figurative language production. Research has historically tested where in the brain the participant is most active when reading or comprehending figurative or literal language (i.e. Lai and Curran, 2013). However, further research may want to continue to investigate the creation of figurative language and literal language as answers to a questionnaire and how the structure of the introduction and questions may influence answer type. This may also give rise to contextual mappings once the participant has been exposed to a persuasive statement.
APPENDIX A: COVER LETTER AND INFORMED CONSENT

Cover Letter

Alena Hromish, Graduate Assistant, and Dr. Lynn Haller, Associate Professor of Psychology, at Morehead State University in Morehead Kentucky are conducting a cross-sectional study regarding adults’ experiences with physical health and how they communicate these experiences or ideas. This protocol has been reviewed according to federal guidelines and approved by the Morehead State University Institutional Review Board for the Protection of Human Subjects’ in Research. If you choose to participate you will be completing an open-ended survey that requests descriptions of physical health experiences. You will first read an introduction to the study. You will then be asked fourteen open-ended questions. The survey will take approximately 30-45 minutes to finish. All your answers will be kept strictly confidential. Prospective participants are free to refuse to participate or refuse to answer any question or to withdraw from involvement at any time. Refusal to participate or withdrawal from the project will involve no penalty or loss of benefits to which the participant is otherwise entitled. The project does not offer any remuneration or extra credit for any course. The interview will be stored in a locked office. Although, this study cannot guarantee complete anonymity due to the fact that we will be asking for very specific demographics. Your strict identity (i.e. your name) will never be used. We may use your answers and demographics as examples within a published narrative, but only with your explicit permission as described below. A hypothetical report would state, “A broken bone reminds me of a broken branch of a
“Tree” was written by “a female undergraduate student in the biology department”. However, all answers will be held strictly confidential. All participants must be 18 years of age or older. This study has been reviewed to determine that participants’ rights are safeguarded and there appears to be no more than minimal risk or discomfort associated with the completion of the survey. Participants may contact Alena Hromish, graduate assistant, at 606-783-9426 or at akhrom01@morehead-st.edu, or Dr. Lynn Haller at (606)783-2989 or at l.haller@morehead-st.edu for answers to questions about the research project. We thank you for your participation and your participation is of great importance. If you feel the need to speak to a mental health professional you may contact the University Counseling Center located at 112 Allie Young Hall, 606-783-2123, fax 606-783-5005, or their e-mail address is ke.king@morehead-st.edu. Outside of Morehead State University is Pathways who you may also contact for counseling. Pathways is located at 321 Main Street, Morehead, KY, they may be contacted at 606-784-4161.

The Office of Research, Grants and Contracts is located at 901 Ginger Hall on Morehead State University Campus. They may be contacted for questions regarding your rights as a participant within the research by phone at 606-783-2010 or by fax at 606-783-2130. Dr. Laurie Couch, Chair of Institutional Review Board for the Protection of Human Subjects in Research, may also be contacted by phone with questions at 606-783-2950 or by e-mail at l.couch@moreheadstate.edu.

By completing the survey I am acknowledging that I am at least 18 years of age, that I have been fully informed of my rights and welfare, that I understand the nature and purpose of the project, and freely consent to participate. Clicking “agree” to this statement at the bottom of this page will act as your signature for consent to participate. Choosing to “agree” will take you to the introduction of our survey and then to the survey itself. We appreciate your participation.
If you wish to participate and are willing to allow us to use your answers as examples within a published narrative, please click “you may use my answers”. If you wish to participate, but you are not willing to let us use your answers as examples in the published narrative, please click “you may not use my answers”.
APPENDIX B: INTRODUCTIONS AND SURVEY
SURVEY

1. What is a headache?
2. What does a headache remind you of?
3. What is arthritis?
4. What does arthritis or joint pains remind you of?
5. What is a cavity?
6. What does a cavity remind you of?
7. What is acid reflux or heartburn?
8. What does acid reflux or heartburn remind you of?
9. What is gingivitis?
10. What does gingivitis or inflammation of the gums remind you of?
11. What is a tumor?
12. What does a tumor remind you of?
13. What is a muscle strain?
14. What does muscle strain or muscle soreness remind you of?
Condition 1: Metaphor Introduction (Condition)

Introduction

Discourse can be communicated both literally and figuratively (such as metaphors, similes, analogies), in order to convey meaning. Specifically, metaphorical language can be very effective in that it creates vivid imagery in an effort to communicate a given topic. Such language allows others to relate the topic and to build a picture within their minds. Ortony (1975) believes that metaphorical language is of great use and that it “is an essential ingredient of communication” (p. 45). He argues that metaphorical language is more useful and eliminates the boredom brought on by and the lengthy explanations conveyed in literal speech. Ortony (1975) states that communication is used “to convey what is usually some kind of continuum by using discrete symbols. It would be surprising if a discrete symbol system were incapable of literally capturing every conceivable aspect of an object, event or experience that one might wish to describe . . . this deficiency is filled by metaphor” (p. 46). Ortony (1975) argues that these experiences and ideas cannot be captured via literal language effectively.

Please consider Ortony’s (1975) arguments as you answer the following questions about physical ailments. You will be presented with fourteen open ended questions. Thank you again for your participation today.

Reference

**Condition 2: Literal Introduction (Condition)**

Discourse can be communicated both literally and figuratively (such as metaphors, similes, analogies), in order to convey meaning. Literal language is an essential form of communication because it conveys an idea, experience, or an object directly. Literal language is concise, straightforward, and assumes very little ambiguity (Giora, 2002).

In other words, factual or literal communication is so direct that it leaves little to be misinterpreted. It is not uncommon knowledge that direct definitions of things leave little to be misunderstood.

Ortony (1975) agrees that direct language “is quick, concise and effective and it invites and constrains” the discourse event to its direct meaning (p. 48). Therefore, often, it is better to directly explain what one is trying to convey in order to eliminate the chance of ambiguity.

Please consider Ortony’s (1975) and Giora’s (2002) arguments as you answer the following questions about physical ailments. You will be presented with fourteen open ended questions. Thank you again for your participation today.

Reference


APPENDIX C: CREATIVITY RATING SCALE

Creativity Rating Scale for Judges/Raters

Frozen/Novel: The degree to which the metaphor is widely used or if the metaphor has never been heard by the judge/rater before.

1: Frozen
2: Have heard it before
3: Hardly ever heard it or heard it only once
4: Never heard it before

Grammar: How well grammar was used properly.

1: Many errors
2: Few errors
3: No errors

Clarity: What the participant is explaining compared to what the researcher thinks; the degree to which the metaphor is expressed clearly.

1: Not clear
2: Somewhat clear
3: Very clear

Liking: How well the metaphor is liked by the judges/raters.

1: Not very likeable
2: Somewhat likeable
3: Very likeable

Appropriateness: If the metaphor was a proper comparison for the ailment.
1: Hardly appropriate if at all appropriate

2: Somewhat appropriate

3: Very appropriate

Richness: The degree to which vivid imagery is used.

1: Hard to picture

2: Somewhat builds a picture

3: Builds a vivid picture
APPENDIX D: IRB APPROVAL LETTER
MSU Institutional Review Board for the Protection of Human Subjects in Research

NOTIFICATION OF PROTOCOL REVIEW

Principal Investigator/Researcher:
Name: Valena Hromich, Lynn Haller
Title: Graduate Student, Associate Professor
Campus Address: 601 GH
Campus Phone: 3-2089
Department: Department of Psychology

Purpose:
Title of Project/Course: Metaphor and Literal Language: Both Have Their Place of Importance with Communication
Funding Source/Agency: MSU Faculty Grant
Period of Project/Course: From: 5/1/06 To: 4/30/07

Protocol Review Number: 06-04-42

Initial Review X Continuing Review __

The human subject use protocol described above has been reviewed by the MSU Institutional Review Board for the Protection of Human Subjects in Research with the following results:

The IRB determined the project, as stated, is exempt based on federal regulation 46.101(b)(2). Federal regulations require that the IRB be notified if anything in the research changes, as additional review may be necessary.

Yes ☑ No ☐ Approved, may proceed as written

The following are suggestions from the IRB and not a requirement for approval.

Both Cover Letters:
1. First Paragraph: Delete the second sentence "We thank you for your participation today."
2. First Paragraph, Fourth sentence: Add "If you choose to participate" before "You will be completing an open..."
3. First Paragraph, Sentence number fourteen beginning with "Your strict identity...": Change to read "Your strict identity (i.e. your name) will never be used. We may use your answers and demographics as examples within a published narrative, but only with your explicit permission as described below."
4. Second Paragraph: Delete the email address for Carole Morella.

Abstract, Confidentiality:
1. First sentence, second word: Change "interview" to "survey."

5/1/06 - 4/30/07 Approval Period
4/30/07 Approval for Continuing Review must be received prior to date shown
Yes ☑ No ☐ N/A ☑ Regulatory requirements have been met for the waiver of informed consent
Yes ☑ No ☐ N/A ☑ Regulatory requirements have been met for the waiver of documentation of consent

Signed: [Signature]
Date: April 21, 2006
Chair, Institutional Review Board for the Protection of Human Subjects in Research

Please refer to the protocol review number in any future references to this protocol. Principal investigators of research projects with durations of more than one year should submit yearly to the IRB completed Form C; if any revisions are made to a project or if any unforeseen risks arise during an investigation, the principal investigator must submit Form C to the IRB, fully explaining all changes or unexpected risks; upon completion or termination of a research project, principal investigators must again submit Form C.
REFERENCES


