The investigation examined health care professionals' perceptions of children's use of metaphor and literal statements about dental health in order to determine how the use of metaphor might be perceived during a health care interview. The use of metaphor is considered to be a useful tool for communicating abstract, unfamiliar, experiences that otherwise may not be communicated literally (Ortony, 1975; Fainsilber & Ortony, 1987). Metaphor describes linkages (e.g., resemblances) between two different kinds of objects or events. Three questionnaires were constructed using a standard Likert scale format in order to examine several issues surrounding the use of metaphor. All the questionnaires were developed from a pool of statements provided by six year olds (Augsbach & Dent, 1990) (see appendix A for examples of the three questionnaires).

Experiment 1

Experiment 1 examined Ortony (1975) thesis that metaphor is viewed as concise, expressive and attention grabbing to the listener; enabling a listener to process and remember a statement more easily than a comparable literal statement (Ortony, 1975; Sticht, 1979). Given these proposals about the use of metaphor in communication, the current investigation examined health care professionals' view of children's use of metaphor for the dimensions discussed by Ortony (1975).
200 pediatricians and pediatric dentists were solicited to participate through a mail survey, 47 health care professionals (15 pediatricians and 32 dentists) completed the survey. The survey was constructed from statements provided by six year olds within Augsbach & Dent (1990). Participants were asked to judge the statements on a variety of dimensions based on the benefits of speaking metaphorically as outlined by Ortony (1975) (see Augsbach, 1992). Analyses show that all of the attitudinal variables differ significantly between metaphorical and literal language. Specific results are as follows. (Note: higher scores on all questionnaires represent a less favorable opinion of the statement). Metaphoric statements (8.69) were considered more concise than literal statements (10.4894), F(1,39) = 13.45, p=.0007. The use of metaphor (6.98) was considered more expressive than the use of literal statements (9.25), F(1,39), p = .35.96, p=.0001. Finally, metaphoric statements (6.78) were considered more likely to grab and hold the attention of the participant, than literal statements (8.38), F(1,39) 22.16, p = .0001. There were no significant differences for profession (i.e. pediatrician or dentist), gender or for the interactions. These results confirm Ortony's (1975) thesis of the importance of the use of metaphor in communication.
Experiment 2

Experiment 2 addresses an issue raised by Augsbach & Dent (1990) raters' understood children's use of metaphor differently depending on whether the information was factual (i.e. a cavity is...) or experiential (i.e. a cavity feel like ...). Information about facts was understood better if the response was literal. Whereas information about experiences was understood better if the response was metaphorical (Augsbach & Dent, 1990).

The current investigation examined if there was a difference in health care professionals' attitudes towards metaphor and literal statements about facts and experiences. The survey included six year olds' statements about their factual knowledge and experiences with dental health. Many investigations have discussed the advantage of using metaphor as a tool to describe experiences (Gerrig & Gibbs, 1988; Asch, 1961; Davitz, 1969; Davitz & Mattis, 1964; Gaffney, 1988; Gaffney & Dunne, 1986; Whitt, Dykstra, & Taylor, 1979; Tesler, Savedra, Ward, Holzemer, & Wilke, 1988; Perrin & Gerrity, 1981).

Research also supports the lack of facilitation metaphor has for the communication of facts (Fainsilber & Ortony 1987; Gilbert, 1979 Augsbach & Dent, 1990). Thus, it appears that literal language can not communicate the personal and intangible nature of experiences, yet adequately explains facts which are more tangible and concrete.
For experiment 2, the survey was also constructed by statements provided by six year olds within Augsbach & Dent (1990). An additional 200 pediatricians and pediatric dentists were solicited to participate through a mail survey, 59 health care professionals (16 pediatricians and 43 dentists) completed the survey.

The analyses show that for experiential information, metaphoric statements (14.59) were considered more effective in describing the experience than literal statements (22.77) \( F(1,51)=464.55 \ p=.0001 \). In addition, metaphor (15.32) was also perceived as more demonstrative of understanding for factual information than literal statements (18.06) \( F(1,51)=80.56 \ p=.0001 \). There were no significant differences for profession, gender or for the interactions. Overall the results illustrate the communicative power the use of metaphor has in describing experiences. Further, contrary to past evidence metaphor was also useful in describing factual knowledge. The use of children’s statements as the stimulus may have influenced the health care professionals perceptions of fact information. Young children often have a difficult time communicating understanding of difficult factual information (Piaget, 1965). The use of metaphor may have allowed children to communicate their understanding accurately to health care professionals.
Experiment 3

Experiment 3 examines whether children's experiences with pain were perceived as more descriptive of the experience if described metaphorically or literally. Observations of figurative language within therapeutic discourse (Barish, 1977; Washington, 1971), and in situations where children and adults' describe their pain, have shown that communication was improved between physician or psychologist and patient or client (Gaffney, 1988; Gaffney & Dunne, 1986; Whitt, Dykstra, Taylor, 1979; Tesler, Savedra, Ward, Holemer, & Wilke, 1988; Perrin & Gerrity, 1981).

For experiment 3, the survey was also constructed by statements provided by six year olds within Augsback & Dent (1990). An additional 200 pediatricians and pediatric dentists were solicited to participate through a mail survey, 55 health care professionals (17 pediatricians and 24 dentists) completed the survey.

Analyses demonstrated that metaphoric language (19.81) was viewed as more descriptive of pain than literal statements (21.81), F(1,48) 8.03, P=.0067. Confirming past research illustrating the usefulness of metaphor in describing painful experiences (Gaffney, 1988; Gaffney & Dunne, 1986; Whitt, Dykstra, Taylor, 1979; Tesler, Savedra, Ward, Holemer, & Wilke, 1988; Perrin & Gerrity, 1981).
Overall from the three experiments it appears that health care professionals do recognize the value of metaphoric communication. This is extremely promising for the implication of future research which incorporates metaphoric tools into the interview, diagnosis and treatment process of a health examination.

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References


APPENDIX A
EXAMPLES FROM EXPERIMENT 1

CONCISE VARIABLE

1. I asked the child, "What do your teeth feel like after you brush them?" The child told me, "They don't feel different at all, they feel like my strong teeth." LITERAL

| VERY CONCISE | 1 |
| CONCISE | 2 |
| NEITHER CONCISE OR UNCONCISE | 3 |
| UNCONCISE | 4 |
| VERY UNCONCISE | 5 |

2. I asked the child, "What does plaque feel like on your teeth? The child told me, "Plaque feels like you just licked a tornado, all sandy and gritty." METAPHOR

| VERY CONCISE | 1 |
| CONCISE | 2 |
| NEITHER CONCISE OR UNCONCISE | 3 |
| UNCONCISE | 4 |
| VERY UNCONCISE | 5 |

INTERESTING VARIABLE

1. I asked the child, "What does your loose tooth feel like once its gone?" The child told me, "When I lost my tooth it felt like I’d a broken window." METAPHOR

| VERY INTERESTING | 1 |
| INTERESTING | 2 |
| NEITHER INTERESTING OR UNINTERESTING | 3 |
| UNINTERESTING | 4 |
| VERY UNINTERESTING | 5 |
2. I asked the child, "What do loose teeth feel like in your mouth?" The child told me, "When I brushed my teeth it felt like they were getting closer and closer to each other and they rubbed together." LITERAL

VERY INTERESTING = 1
INTERESTING = 2
NEITHER INTERESTING OR UNINTERESTING = 3
UNINTERESTING = 4
VERY UNINTERESTING = 5

EFFECTIVE AND HOLD ATTENTION VARIABLE

1. I asked the child, "What do your teeth feel like after you brush them?" The child told me, "My teeth feel smooth after I brush, I can feel them with my tongue." LITERAL

THE STATEMENT IS EFFECTIVE AND WOULD CATCH AND HOLD MY ATTENTION.

STRONGLY AGREE = 1
MILDLY AGREE = 2
NEITHER AGREE OR DISAGREE = 3
MILDLY DISAGREE = 4
STRONGLY DISAGREE = 5

2. I asked the child, "What do loose teeth feel like in your mouth?" The child told me, "My loose teeth felt like I had piano teeth, I pushed it back and then pushed it with my tongue and it went dooing." METAPHOR

THE STATEMENT IS EFFECTIVE AND WOULD CATCH AND HOLD MY ATTENTION.

STRONGLY AGREE = 1
MILDLY AGREE = 2
NEITHER AGREE OR DISAGREE = 3
MILDLY DISAGREE = 4
STRONGLY DISAGREE = 5
EXPRESSIVE AND VIVID VARIABLE

1. I asked the child, "What does your mouth feel like when your loose tooth is gone?" He/she told me, "When I lost my tooth I could feel the slimy part of my jaw." LITERAL

   VERY EXPRESSIVE AND VIVID = 1
   EXPRESSIVE AND VIVID = 2
   NEITHER EXPRESSIVE OR UNEXPRESSIVE = 3
   UNEXPRESSIVE = 4
   VERY UNEXPRESSIVE = 5

2. I asked the child, "What do your teeth feel like when you brush them?" The child told me, "When I brush my teeth it feels like my teeth are in a carwash." METAPHOR

   VERY EXPRESSIVE AND VIVID = 1
   EXPRESSIVE AND VIVID = 2
   NEITHER EXPRESSIVE OR UNEXPRESSIVE = 3
   UNEXPRESSIVE = 4
   VERY UNEXPRESSIVE = 5

EXAMPLES FROM EXPERIMENT 2

FACT VARIABLE

THE FOLLOWING SECTION CONTAINS A SERIES OF ANSWERS SIX YEAR OLD CHILDREN PROVIDED TO QUESTIONS ABOUT DENTAL HEALTH. IN ADDITION THE QUESTIONS ELICITING THE ANSWERS ARE ALSO PROVIDE IN ORDER TO ILLUSTRATE THE CONTEXT OF THE INTERACTION BETWEEN THE CHILD AND ADULT. PLEASE READ EACH ITEM AND EVALUATE THE CHILD'S ANSWER FOR HOW WELL IT DEMONSTRATES UNDERSTANDING OF A DENTAL HEALTH ISSUE. PLEASE USE THE SCALE PROVIDED TO MAKE YOUR JUDGMENTS.

1. I asked the child, " How do we keep from getting cavities?" The child told me, " We keep from getting cavities by going to the dentist and get all the extra things off of our teeth." LITERAL

   DEMONSTRATES AN EXCELLENT UNDERSTANDING = 1
   DEMONSTRATES A GOOD UNDERSTANDING = 2
   NEITHER DEMONSTRATES UNDERSTANDING OR MISUNDERSTANDING = 3
   DEMONSTRATES SOME MISUNDERSTANDING = 4
   DEMONSTRATES COMPLETE MISUNDERSTANDING = 5
2. I asked the child, "What does a dentist do to peoples teeth?" The child told me, "My dentist scrapes the plaque off my teeth like my dad scrapes the ice off the car in the winter." METAPHOR

DEMONSTRATES AN EXCELLENT UNDERSTANDING = 1
DEMONSTRATES A GOOD UNDERSTANDING = 2
NEITHER DEMONSTRATES UNDERSTANDING OR MISUNDERSTANDING = 3
DEMONSTRATES SOME MISUNDERSTANDING = 4
DEMONSTRATES COMPLETE MISUNDERSTANDING = 5

EXPERIENCE VARIABLE

THE FOLLOWING SECTION CONTAINS A SERIES OF ANSWERS SIX YEAR OLD CHILDREN PROVIDED TO QUESTIONS ABOUT DENTAL HEALTH. IN ADDITION THE QUESTIONS ELICITING THE ANSWERS ARE ALSO PROVIDED IN ORDER TO ILLUSTRATE THE CONTEXT OF THE INTERACTION BETWEEN THE CHILD AND ADULT. PLEASE READ EACH ITEM AND EVALUATE THE CHILD'S STATEMENT FOR HOW EFFECTIVE THE COMMUNICATION WOULD BE IF YOU HEARD IT DURING AN INTERACTION WITH A CHILD. IN MAKING YOUR JUDGEMENTS OF EFFECTIVENESS INCLUDE HOW UNDERSTANDABLE THE STATEMENT IS COMMUNICATED. PLEASE USE THE SCALE PROVIDED TO MAKE YOUR JUDGMENTS.

1. I asked the child, "What did your loose tooth feel like once it was gone?" The child told me, "When I lost my tooth I felt a lot of air rushing through the hole and it was cold." LITERAL

VERY EFFECTIVE = 1
EFFECTIVE = 2
NEITHER EFFECTIVE OR INEFFECTIVE = 3
INEFFECTIVE = 4
VERY INEFFECTIVE = 5
2. I asked the child, "What does mouthwash feel like in your mouth?" The child told me, "My mouthwash feels like a flood; it floods out the cavities' home the way my basement got flooded." What did he/she mean? METAPHOR

VERY EFFECTIVE = 1
EFFECTIVE = 2
NEITHER EFFECTIVE OR INEFFECTIVE = 3
INEFFECTIVE = 4
VERY INEFFECTIVE = 5

EXAMPLES FROM EXPERIMENT 3

THE FOLLOWING SURVEY CONTAINS A SERIES OF QUESTIONS ASKED OF SIX YEAR OLDS IN ADDITION TO THE ANSWERS THE CHILDREN PROVIDED. PLEASE READ EACH ITEM AND EVALUATE THE CHILD'S STATEMENT FOR HOW DESCRIPTIVE THE CHILD'S EXPLANATION IS OF THE PAIN EXPERIENCED IN MAKING YOUR JUDGMENTS OF DESCRIPTIVENESS, CONSIDER HOW USEFUL THE STATEMENT WOULD BE IN TREATING THE CHILD'S PAIN. PLEASE USE THE SCALE PROVIDED TO MAKE YOUR JUDGMENTS:

1. I asked a child, "What does it feel like to have your teeth cleaned by the dentist?" The child told me, "When the dentist cleans my teeth it feels like a wire brush is scrubbing my teeth." METAPHOR

VERY DESCRIPTIVE = 1
DESCRIPTIVE = 2
NEITHER DESCRIPTIVE OR UNDESCRIPTIVE = 3
UNDESCRIPTIVE = 4
VERY UNDESCRIPTIVE = 5

2. I asked a child, "What does plaque feel like?" He /She told me, "It makes your teeth stick to your lips and the inside of your mouth, it hurts when you open your mouth." LITERAL

VERY DESCRIPTIVE = 1
DESCRIPTIVE = 2
NEITHER DESCRIPTIVE OR UNDESCRIPTIVE = 3
UNDESCRIPTIVE = 4
VERY UNDESCRIPTIVE = 5