

SOURCE REPRESENTATION AND FRAMING IN
CHILDHOOD IMMUNIZATION COMMUNICATION

by

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ABSTRACT

Research has indicated a strong interest in knowing who is being represented and how information is being represented in the communication about childhood immunization. This study uses a two-part analysis to look at source representation and framing in childhood immunization communication. A quantitative analysis of articles from the *New York Times* and *USA Today* were examined for their source representation, their use of fear appeals, through the Extended Parallel Processing Model (EPPM), and the use of frames, through the application of Prospect Theory. A qualitative semiotic analysis was conducted on 36 images that appeared on www.yahoo.com and www.google.com to find common themes for who is being represented and how information is being portrayed through the images. Results found a high prevalence of representation from the Center for Disease Control and Prevention, other governmental agencies and views from health/medical professionals in both the articles and images.

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TABLE OF CONTENTS

LIST OF FIGURES	VII
LIST OF TABLES	VIII
INTRODUCTION	1
Part One: Content Analysis	3
Part Two: Semiotic Analysis	4
Objectives	5
LITERATURE REVIEW	6
History of Immunizations	6
History of Immunization Communication.....	8
Effects of Immunization Communication	8
Celebrity Involvement	11
Framing Theory.....	12
Prospect Theory	15
The Extended Parallel Processing Model.....	24
Semiotics	28
Visual Literacy Theory.....	29
METHODOLOGY	32
Research Questions	32
Method: Quantitative Textual Analysis	34
Method: Qualitative Semiotic Analysis	36

DATA ANALYSIS.....	37
Quantitative Textual Analysis Results	37
Source Representation	39
Fear Appeal Usage	43
Gain and Loss Frame Usage	46
Outcome	49
Qualitative Semiotic Analysis Results	50
People Represented	51
The Use of Objects	52
Information Represented	53
Fear Appeal Usage in Images	55
Additional Important Observations	56
DISCUSSION AND CONCLUSION	58
Newspaper Articles	58
Images.....	60
Limitations	61
Future Directions.....	61
APPENDIX A: QUANTITATIVE CODING SHEET	63
APPENDIX B: QUANTITATIVE CODING SHEET APPENDIX	65
APPENDIX C: QUALITATIVE CODING SHEET	67
APPENDIX D: COHEN’S KAPPA FOR MULTIPLE CODERS	69
REFERENCES	71

LIST OF FIGURES

Figure 1: Theory Relationship Model	24
Figure 2: Source Representation by Year	42
Figure 3: Fear Appeal Usage by Year	45
Figure 4: Gain/Loss Frame Usage by Year	48

LIST OF TABLES

Table 1: Source Representation in Newspaper Articles.....	40
Table 2: Fear Appeal Usage in Newspaper Articles	44
Table 3: Gain/Loss Frame Usage in Newspaper Articles	47
Table 4: Dominant Themes in Online Images	51

INTRODUCTION

Textual and visual media can be credited with reinforcing public opinion as well as leading to a change in public opinion and behavior. By looking at how textual and visual media are being used in the information communicated about childhood immunizations, we can have a better understanding of how media may affect the behavior of parents/guardians to immunize their children and the effects of those behaviors.

With the media having a strong impact on audience behavior, it is important to explore how the media represents immunizations and how behavior may be influenced. McKinney and Rill (2009) looked at how messages can affect viewers. They interviewed 311 students from a large Midwestern university to examine the effects that viewing the presidential debates may have on younger viewers. Results found that when younger viewers watched both Republican and Democratic debates, they had a significant decrease in their amount of political cynicism that followed their exposure to the debates. This study is one example of how messages can contribute to public opinion.

Concerns have been expressed about immunization communication since 1990 when three vaccines (Diphtheria, Hib, and Hepatitis B) given to children from the current immunization schedule recommended by the Centers for Disease Control and Prevention, a United States federal agency commonly known as the CDC, contained 125 times the safe level of mercury (Cave, 2008). Concerns have dramatically increased since four new immunizations

have been implemented and recommended by the CDC since 2000: Rotovirus, Pneumococcal, Influenza, and Meningococcal (Smith, Ellenberg, Bell, & Rubin, 2008).

The media has been the main target of criticism in how it represents immunizations. Taylor (2006) has criticized the media for using sensationalized stories to scare parents/guardians and by having coverage with an anti-immunization bias. He has suggested that newspaper articles, specifically, are toxic to the influence on parents/guardians in whether or not to receive immunizations and are credited to the reason many parents/guardians have chosen not to give their children the immunizations recommended by the CDC. The decline in children who are currently immunized has been linked to various media coverage that has connected side effects, including Autism, Crohn's disease, and serious bowel infections to the Measles, Mumps, and Rubella (MMR) immunization (Abhyankar, O'Connor, & Lawton, 2008).

Taylor (2006) suggests that immunization communication has recently been largely anti-immunization, which may lead to a decline in immunization rates. The current national immunization rate in the United States for children is 76%, down 1.3% from 2007, with variances in different areas. The CDC has found rates as low as 28% in Dallas, 31% in Detroit, and 48% in San Diego (Salsberry, Nickel, & Mitch, 1993).

The CDC works to create a 90% immunity rate in order to create a sizeable "immunity wall," which is crucial in eradicating the diseases that the immunizations protect against (Salsberry et al., 1993). The "immunity wall" is a barrier that is created when enough children are immunized to create a barrier to protect children who are not able to be immunized due to age or immune system deficiencies. The choice of parents/guardians to not immunize their

children has a direct effect on other children because their children may be possible carriers of the disease and spread that disease to other children with whom they are in contact or to whom have close proximity. The choice of one parent/guardian may affect the community by affecting the “immunity wall” and infecting children who are not able to be immunized (Taylor, 2006).

This study will look at what sources and what information is being represented to parents/guardians who make the decisions about immunizations for their children. This research project will do this by conducting a two-part study, first on newspaper articles and second on Internet images.

Part One: Content Analysis

The first part of this two-fold study will conduct a quantitative study on newspaper articles from *USA Today* and the *New York Times* to find out who is being represented in the articles. It will then look at how the different messages are being portrayed through the application of two framing theories, the Extended Parallel Processing Model (EPPM), and Prospect Theory.

Torring (1999) believes that newspaper media can have both cultural and social significance to readers. He suggests that print media texts, in particular, are cultural products that act as agents of social behavior change. Print media may do this by contributing to cultural definitions and clarifying social meanings. Print media can present different views to the readers that help to explain phenomena and change the way that phenomena is understood by the reader (Gripsud, 2002).

Redman and Taylor (2006) looked at why smacking children was considered a legitimate part of parenting behavior for childhood discipline in the United Kingdom. They looked at how print media may have affected public opinion on such phenomena by analyzing 244 newspaper articles in 2004. They found that, over the previous twenty years, parental use of physical violence had significantly increased. Their findings led to the conclusion that media texts help to reinforce constructions of labels and that the views and positions of parents/guardians, as well as healthcare professionals, may be influenced by these representations (Redman & Taylor, 2006).

Part Two: Semiotic Analysis

The second part of this two-fold study will involve a semiotic content analysis (as part of the qualitative approach) and apply Visual Literacy Theory to analyze images that are used to represent childhood immunizations on the Internet through the top two Internet image search engines. As reported by Nielsen in 2008, the top two search engines are www.google.com and www.yahoo.com.

Visual cues can be as important as textual cues. A thorough investigation of semiotic analysis and Visual Literacy Theory will be explored to see how images can be used by the creator to create specific responses from the viewer. Lochbueler, Engels, and Scholte (2009) conducted a study that examined the direct effects of smoking portrayals in movies on cravings among smokers. The results of the pilot study showed that after being exposed to large quantities of pictorial cues, through smoking portrayals in movies, viewers had higher urges.

Objectives

The ultimate goal of this study is to reveal source representation, the use of fear appeals and frames in newspaper articles, as well as source representation and fear appeals in online images to see what information is being provided to the decision makers in immunization behavior.

A total of 87 articles from the *New York Times* and *USA Today* were examined, along with 36 images that appear on www.yahoo.com and www.google.com. Results indicated a strong presence of government immunization recommendations by the CDC and a strong use of both high and low fear appeals. However, intent to support or oppose immunizations was most often undetermined. Findings also indicated a strong use of gain frames in support of immunizations.

LITERATURE REVIEW

This literature review will first explore: (1) the history of immunizations, (2) the history of the communication about immunizations and how this has changed over the years, and (3) the effects that this communication may have on the behavior of parents/guardians to immunize their children. It will also examine celebrity involvement in this type of communication and the recent controversy surrounding the belief that celebrities and activist groups are being given equal credibility as governmental organizations and health experts by being provided with the same amount of coverage in the media. This literature review will then explore the history of the EPPM and Prospect Theory and how they have been previously applied to health communication and can be further applied to newspaper articles to understand how the information is being represented. A thorough review of semiotic analysis and Visual Literacy Theory will be presented to show how previous studies have utilized them in image analysis and how they can be used to understand the information represented in Internet images.

History of Immunizations

Plotkin, Plotkin, Orenstein, and Offit (2008) found that the first records of immunizations began in the 7th century, when Indian Buddhists would inject themselves with snake venom in an effort to immune themselves from its effects. Almost eleven centuries later, Edward Jenner

injected small amounts of cowpox into individuals to try and immunize them against smallpox, before he was forced to stop treatments due to contamination of the immunization. Later, the same technique used by Jenner was weakened and used to protect against rabies. Sabin and Salk later adjusted the technique further and immunized individuals to protect against polio (Plotkin et al., 2008).

The CDC is currently cited as being the primary United States government authority on healthcare decisions and practices. The CDC is a United States federal agency that works under the Department of Health and Human Services and seeks to develop and implement disease prevention behaviors. While the CDC is responsible for adult immunization recommendations, it is their recommendations for children who have come under the most scrutiny and criticism. Children under the age of 6 may be encouraged to receive 10 immunizations to protect them against 14 diseases (with a few immunizations protecting against more than one disease): Hepatitis B, Rotavirus, Diphtheria, Tetanus, Pertussis, Haemophilus influenza type b, Pneumococcal, Inactivated Poliovirus, Influenza, Measles, Mumps, Rubella, Varicella, and Hepatitis A. Some high-risk groups with weaker immune systems are not recommended to receive the immunizations while other high risk groups are encouraged to receive additional immunizations (Parent's Guide to Childhood Immunizations, 2007).

The CDC has introduced four new immunizations suggested for children between 2006 and 2008 (Smith et al., 2008). This increase in recommended immunizations has led to a public outcry of concerns over whether or not taking all of the recommended immunizations are safe for children (Cave, 2008). Concerns increased starting in the mid 1990s when children were given

almost 125 times the level of mercury deemed safe within three of the immunizations that are still administered today: DTaP, Hib, and HepB (Cave, 2008).

History of Immunization Communication

There has been a great amount of speculation on the media's role in affecting parental behavior in choosing whether or not to have their child immunized (Mansoor, Sarfati, & Durham, 1998). Many have expressed concern about how media reports may affect parental concerns of immunization safety (Mansoor et al., 1998). A Cochrane review published in 2005 found that the mass media can be considered a strong tool that may encourage and discourage specific health behaviors that have unproven effectiveness (Grilli, Ramsay, & Minozzi, 2005).

Further research has suggested that the communication about immunizations in the media has been largely anti-immunization and has used celebrities and scare tactics, through fear appeals; to persuade parents/guardians not to have their child immunized (Taylor, 2006). The CDC has worked to lessen the fears of parents/guardians by informing them, through media campaigns, that the Institute of Medicine has routinely performed reviews on the safety of immunizations and have not found any truth in the arguments of those who oppose immunizations for children (Baker, 2008).

Effects of Immunization Communication

The measles, mumps, rubella immunization, also known as the MMR immunization, has been the target of extreme criticism after the reports that linked it to the sometimes deadly

conditions. The communication, media, and publicity surrounding the effects of the immunization have led to a decline in childhood immunization behaviors around the world. In Wales, there was a large amount of negative coverage during the summer months of 1997 in one of the local newspapers. Following the coverage, health officials found that there was a 13.6% decline in immunization uptake in the area around where the newspaper was distributed as opposed to only a 2.4% decline in other areas (Mason & Donnelly, 2000).

The United Kingdom introduced the immunization in 1988 when childhood immunization behavior was at a 92% high. Ten years later, Andrew Wakefield, a British physician, published a report questioning the safety of the MMR immunization and introduced its possible links to harmful side effects including Autism. The United Kingdom Government's Department of Health worked to reassure parents/guardians that the reports were inaccurate and assured the safety of the immunization, but parents/guardians still expressed concern and the rate of childhood immunization dropped to 82% by 2003 with rates of measles, mumps, and rubella outbreaks rising (Abhyankar et al., 2008).

In New Zealand, a dramatic decline in morbidity rates was reported for the nine diseases for which an immunization was recommended for children (Goodyear-Smith, Petousis-Harris, Vanlaar, Turner, & Ram, 2007). However, New Zealand still contains a low immunization coverage rate which has resulted in high disease rates in many illnesses such as measles and whooping cough which have added a significant burden on financial costs and health resources (Grant et al., 2003).

While newspapers and consumer magazines are credited with the decline in immunization behavior, many research studies suggest otherwise. In one study of 400 publication articles covering 2001 to 2003, Goodyear-Smith et al. (2007) found that there was a significant decrease in the number of articles that opposed immunizations from 2001 to 2003. They also found that articles were not likely to be anti-immunization, as previously thought, and that most communication in regards to anti-immunization were found within the Letters to the Editor. Results also showed that articles made a shift from being based on personal opinions to being based on facts and statistical information. While most of their research suggests that the media may not be as anti-immunization as previously proposed, many believe that these results are not applicable to the communication and articles that have been released since 2003 along with the addition of several immunizations to the recommended childhood immunization schedule. They also noted that their findings showed that there were different diseases and immunizations that were the focus of each year.

Financial burden is another concern of those who are fighting to increase the uptake of immunizations. For example, in the United States, a total of \$13.20 in medical and societal costs is saved for every dollar that is spent on purchasing the measles-containing disease immunization (Public Health Agency of Canada, 1999). Many of those concerned with the safety of immunizations have been found to believe that articles and representation of information in regards to immunizations have significant governmental bias and give them a voice of authority that is not granted to parent/guardian and celebrity activists working to introduce the cautions of childhood immunizations to the general public (Goodyear-Smith et al., 2007).

Celebrity Involvement

Celebrity activists have been credited with using their celebrity status to influence parental behavior on immunization. Baker (2008) believes that the decrease in immunized children is due to a “fading memory of vaccine-preventable diseases, adverse media coverage, misinformation on the Internet and litigation” (p. 244). For Goodyear-Smith et al. (2007), mass media outlets and the Internet are responsible for the increase in the ability for groups working to inform others about the anti-immunization movement to voice their opinions and that such outlets have increased their unjustified influence.

Celebrity Jenny McCarthy has openly expressed her distrust of immunizations and how her choice to immunize her son led to negative side effects for him, including Autism. Jenny McCarthy has expressed her anti-immunization views in her two books: *Louder than Words* and *Mother Warriors – A Nation of Parents Healing Autism against All Odds* (McCarthy, 2008). McCarthy’s first book reached number three on the *New York Times* best-seller list. In her writings, Jenny McCarthy talks about the emotional rollercoaster of the fight she encountered when trying to understand and deal with her son’s battle with Autism and its link to childhood immunizations. McCarthy has used her celebrity status to go on a promotional tour for her book and further publicize and share her views. She has made appearances on popular talk shows such as Oprah and The Ellen DeGeneres Show. McCarthy promotes her own story as well as the views of other mothers who share her beliefs (McCarthy, 2008).

Fisher (1999) has described the outcome of McCarthy’s promotional tour and the fight of other anti-immunization leaders as some of the most significantly successful public relations

stories in medicine. She asserts that immunizations cause more harm and chronic illness to children than the good they cause and are not as necessary as many believe. The opposition has fought to inform the public about the inaccuracies that have been portrayed. Smith (2008) has suggested that the concern for immunizations has been erroneously “fueled by television programs, celebrities and even presidential candidates” (p. 667). Goodyear-Smith et al. (2007) suggest that the media should start focusing on the infectious diseases to help lessen immunization safety concerns. Those who promote the use of childhood immunizations have suggested that celebrities and parents/guardians should not be given equal coverage in the media and that doing so gives them equal credibility.

The involvement of celebrities in the communication of immunization information and immunization practices has sparked a considerable amount of debate. Both sides of the debate are worried about how much authority and credibility is given to the other side and how this affects public opinions and public policies. Because immunizations are often considered mandatory for elementary-school-age children, many fear that policy change is needed while others fear that same change.

Framing Theory

While a clear and concise definition of framing has not yet been created, researchers have used framing to analyze how messages are represented to solicit specific responses. Erving Goffman introduced framing in 1974 as a way to explain how the same information can be represented in different ways to invoke different emotions and responses from individuals. When

Goffman introduced framing, he explained it as an everyday social experience that helps individuals and groups make sense of their surroundings, how to process information, and how to make decisions (Reese, 2003).

Framing has evolved to become known as the way that information is organized so individuals can make sense of it. While framing has sociological foundations, Hallahan (1999) has suggested its strong use by media professionals has been to help their audiences understand and organize information that is being presented. Framing asks its audience to believe in a certain way on an issue and it works to create reference points for its audience to help them organize information so they can understand it (Reese, 2003). Entman (1993) proposed how the framing process involves selection and salience and summarizes the goals of Framing Theory:

To frame is to select some aspects of perceived reality and make them more salient in the communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described. Frames, then, *define problems* – determine that causal agent ... – *identify the forces* creating the problem; *make moral judgments* – *evaluate causal agents* and their effects; and *suggests remedies* (p.55)

Framing has been used to explain how attitudes are changed or altered. Wigley and Zhang (2009) suggest that behavior and attitudes can be changed by repeated viewing of a consistently framed message. While some attitudes are more anchored in societal norms, others are more easily reformed. Sibley, Liu, and Kirkwood (2006) have worked to research how messages can be

tailored and how to differentiate between the attitudes that are generalized and anchored in society and those that are more easily altered.

Because science, societal norms, and information are constantly changing and evolving, attitudes and opinions on health topics are not yet anchored in society and are more malleable. Media professionals use this information about framing to understand the audience's role in framing and how their messages can be used to promote a specific view on health behaviors and attitudes.

Immunization communication utilizes framing in various ways. Abhyankar et al. (2008) suggest that message framing in health communication leads to an influence in the individuals' intent to perform the health behaviors. Abhyankar et al. (2008) have also found that framing is more effective on individuals who have strong prior intention to perform the behavior and have a positive attitude and past experiences with the behavior. Attitudes, subjective norms and past behaviors helped to predict behavior intentions.

Levin, Schneider, and Gaeth (1998) suggested that frame valence is affected by the method of framing and distinguished between three methods: *attribute*, *goal* and *choice frames*. *Attribute framing* focuses on the quality of the message being framed. *Goal framing* focuses on how performing the behavior or not performing the behavior is related to the preferred outcome. *Choice framing* gives the individual two options and utilizes a forced-choice behavior frame. Prospect Theory and the EPPM have helped to explain how framing is further utilized in health communication.

Prospect Theory

Prospect Theory is one type of framing theory that helps to explain how information and messages can be represented in different ways. Prospect Theory was established by Kahneman and Tversky (1979) to be used in situations where expected utility theory was experiencing disadvantages. Expected Utility Theory looked at how individuals made decisions when the decisions included certain risk conditions. Expected utility theory was not applicable to all situations and Kahneman and Tversky developed Prospect Theory to be used during these situations. Prospect Theory leads to a new understanding of how decisions are made for choices that involve certain risks (Kahneman & Tversky, 1979). It involves a two-step process of editing and evaluation, while explaining the reflection effect, certainty effect, and isolation effect and how an outcome can either be framed as a gain or as a loss.

Prospect Theory looks at how individuals will either view an outcome as a gain or a loss in relation to their personal reference point. Different reference points will lead some individuals to view an outcome as a gain while leading others to view the same outcome as a loss. The reference point may change over time based on experiences and changes in views and beliefs (Jervis, 2004). If the individual believes that the outcome is positive in correlation to their current reference point then the outcome is viewed as a gain in that situation. If during that situation the outcome is viewed as negative in correlation to the reference point then it is viewed as a loss outcome (De Dreu & McCusker, 1997).

The pattern of a message being changed from a gain frame to a loss frame has become known as the *reflection effect*. The *isolation effect* was used to explain how individuals focus on

the characteristics of two outcomes that differentiate them from one another while ignoring the characteristics that explain their similarity. The theory shows how individuals analyze the probability of specific outcomes in a situation and place more weight on an outcome that has a higher degree of certainty than outcomes that are only viewed as likely or probable. This event is known as the *certainty effect*.

The individual attaches a certain weight to the outcome in order to make a decision. The outcome with the higher probability of occurrence is given a higher decision weight than those with a low probability of occurrence. The outcome that would be most likely to be chosen across all situations would be an outcome with a large gain and a high probability of occurrence. The outcome that is the least likely to be chosen would be the outcome with a small gain, or loss, accompanied by a low probability of occurrence. However, if the former situation with the large gain is accompanied by a low probability of occurrence then it would be significantly less likely to be the chosen outcome (Kahneman & Tversky, 1979).

While utilizing the *reflection effect*, *isolation effect*, and *certainty effect*, Prospect Theory is divided into two phases. During the first phase, called editing, the individual makes an initial judgment about the prospects. During the next phase, called evaluation, the prospects are further analyzed and decision weights are applied to each outcome with the higher worth outcome being chosen. Decision weights differ from one individual to another based on the specific perceived reference point of the individual as well as their individual biases (Kahneman & Tversky, 1979).

Broadcast and print media has been criticized for using both positive and negative frames strategically and purposefully in an effort to alter the public's differing reference points by

creating a unified reference point for all viewers from which their decisions are made. This points and leads individuals to make specific subjective decisions that may affect public policy or behavior based on what is viewed in the media and gives the media considerable power to affect the decisions and behavior of its audience (Happich & Mazurek, 2002).

The theory was originally solely applied to monetary outcomes and suggested that a situation has a probability p and a yield of x . It has been adapted and used to explain health communication decisions and behaviors. Prospect Theory has been particularly useful in understanding how scare tactics, through loss-framed messages, have been applied to health communication in an effort to change the reference point and subsequent health decision. Prospect Theory also helps to explain the specific considerations made under the use of scare tactics and how effective they can be. It also helps to understand a particular patient's behavior and how their decisions are made.

Gain frames in health communication have been depicted as an improvement in overall health with a loss frame depicted as deterioration in overall health (Happich & Mazurek, 2002). Gain-framed messages have been found to be more effective on an individual unless the loss outcome will have a deeper impact than the gain outcome (Clough, 2007). Scare tactics are used in health communication by characterizing outcomes as having an extreme loss outcome, including severe illness or even death.

Because gain-framed messages utilize risk-aversion behavior in health communication while loss-framed messages utilize risk seeking behavior, Prospect Theory asserts that scare tactics are used in health campaigns as well as health communication in order to create loss

outcomes that change the individual's reference point and lead to certain health behaviors and decisions in an effort to avoid the extreme health loss. This tactic has been proven to be more useful and effective on decision making than if the health message contained an outcome with a health gain (Vamos, McDermott, & Daley, 2008).

Changing the reference point of an individual has a strong impact on the decisions made in specific situations. There have been conflicting results in answering whose preference should be used to conduct effective analysis and that the community preferences for health situations are the most useful for case analysis. Others disagree and maintain that the general public is not able to make proper judgments unless they have experienced the health conditions. Prospect Theory asserts that these deviating results are due to the differing reference points. It also asserts that the reference point can be looked at as being signified by risk attitudes in regards to health-related quality of life (Happich & Mazurek 2002).

An individual who is affected by the health situation has a higher gain perception of the outcome and will therefore choose more risk-seeking behavior. Those who are unaffected will view the same situation as having a lower gain value and will choose risk-aversion behavior. This explains the different perceptions that accompany the same health condition (Happich & Mazurek 2002).

Happich and Mazurek (2002) applied this theory to a study in order to find out if an affected person rates his or her own health state as less severe than those individuals who are unaffected by the health condition. They hypothesized that these inferences would be accurate. In addition, they hypothesized that unaffected individuals will choose risk-seeking behavior

while affected individuals will choose risk-averse behavior. They suggest that when an unaffected individual views a situation as having equal probable outcomes, he or she will choose risk-seeking behavior and favor a treatment. If the individual is affected, he or she is at a different reference point and will view the loss as having a higher value than the gain and will therefore choose the risk-averse behavior.

Happich and Mazurek (2002) looked at 210 tinnitus-affected (commonly known as ringing in the ears) individuals and 210 individuals unaffected by tinnitus. They conducted interviews with the participants from September through December of 2000 and found that their hypotheses were accurate and predicted their behaviors throughout the course of the study.

In the case of immunization, health communication gain- and loss-framed messages are used to solicit specific behavior from parents/guardians. There are two different types of gain and loss frames that have been used in immunization communication. Those in favor of having children immunized use a gain frame by showing how having a child immunized prevents them from disease and is a gain in their overall health. Those in favor also may use a loss frame by showing the extreme risks and effects that the child faces by contracting the disease when the child is not protected by the immunization.

On the other side of the debate are those who believe that receiving the immunization is not worth the risk of the side effects. These individuals may use a gain frame by showing how not receiving the immunization is at no loss to the individual's overall health. A loss frame would be utilized by showing the extreme deterioration in health that can be caused by receiving the immunization (Vamos et al., 2008).

Prospect Theory has been applied to many healthcare situations. Rothman and Salovey (1997) have suggested that detection behaviors in healthcare, including mammograms and blood tests are more likely to be effective when utilizing a loss frame, while disease protection behaviors including sunscreen use and exercise have been shown most effective when utilizing a gain frame. They believe that the effectiveness of the message will depend greatly on the amount of uncertainty and risk involved, but because the risk associated with immunizations is aimed at its purpose of preventing disease instead of protecting the individual from it, a gain frame should be the most effective type of message. Research, however, has shown a very different reality. Results of research on loss and gain frame usage in immunization communication has found that utilizing a loss frame has promoted greater intentions to immunize and that communication has been largely loss frame focused (Gerend, Shepherd, & Monday, 2008).

In a study of the immunization of the human papillomavirus, most commonly called HPV, which is targeted toward female teenagers, the researchers found that parents/guardians use moral, political, religious, economic and socio-cultural factors as well as skepticism of pharmaceutical company's role in the creation and promotion of the human papillomavirus immunization when choosing whether or not to have their teen immunized. They also found that utilizing loss frames was most effective when influencing parental behavior on having their teenager immunized from the human papillomavirus (Vamos et al., 2008).

While most disease prevention behaviors require regular and repeated action in order to be effective, almost all immunization behaviors are considered a low-frequency behavior and do not require regular and repeated behaviors. Immunization behaviors in particular have such

infrequency and are often a one-time behavior that research suggests that decisions on such behaviors are typically coupled with much uncertainty. Messages have focused on pairing the behavior with emotions instead of focusing on repetition (Gerend et al., 2008). This leads to the utilization of loss-framed messages in immunization communication instead of a gain-framed message like other disease prevention behaviors.

Gerend et al. (2008) found that, in a study of the effects of message framing on undergraduate females, participants were more likely to have an intent to immunize when they were exposed to a loss framed message that outlined the costs of not getting vaccinated and less likely to have an intent to immunize when exposed to a gain framed message that outlined the benefits of getting vaccinated. They also found that the effectiveness of the message was more salient when the frequency required to perform the immunization behavior was low and could be achieved in a single shot. When the frequency increased to six shots the loss framed message was as equally effective as the gain framed message on the participants' intentions to immunize. While these results suggest that the effectiveness of a message on a preventative healthcare behavior is partially dependent on the frequency of the behavior involved, they may not be able to be applied to other immunizations that are geared towards younger children. They are better served as acting as a guide to how parents/guardians may make their decisions in other immunization situations.

Parents/guardians may have varied reference points depending on a variety of different factors when making a decision about having their child immunized. Personal experiences and personal knowledge of the various immunizations have led to parents/guardians believing they

have a certain level of expertise on the topic of immunization and feel qualified to make a decision under certain risks regardless of the advice of healthcare professionals. The individual choice of the parents/guardians to not immunize their child may also influence other parents/guardians who either agree with the reasons to not have their child immunized or choose to have their child immunized. This action would be based on the fear that the immunization wall is being broken and that their child is now more susceptible to the diseases that the immunizations work to protect against (Smith, Yarwood, & Salisbury, 2006).

While many believe that loss-framed messages are the most effective form of immunization behavior influence, Heininger, Loos, Lorenz, and Rascher (2006) suggest that gain frames should be used in immunization information campaigns to raise awareness of the benefits of immunization. They suggest that doing so will increase the acceptance of immunization and will lead parents/guardians to comply with the CDC's suggested immunization schedule for children.

The *certainty effect* is utilized in immunization communication by persuading parents/guardians which outcome is most likely to occur. Those in favor of immunizations explain the outcome as being a safe and certain preventative measure while those opposed show the outcome as unsafe and uncertain (Gerend et al., 2008). Research shows that individuals do not want to take any responsibility for causing any harm and therefore will face higher risks of not performing a specific behavior when performing the behavior may cause harm. This has become known as the omission problem and is credited with why parents/guardians will make decisions that are not the survival-maximizing choice when that choice may cause harm to their

child (Zikmund-Fisher, Sarr, Fagerlin, & Ubel, 2006). This has led to scare tactics being a predominately used method of communication regarding immunization behaviors.

Those in favor of immunizations use scare tactics by showing how serious and even deadly the disease that the immunization protects against may be, while those who oppose immunizations show how serious and deadly the side effects of receiving the immunization may be. Scare tactics in immunization communication in particular utilize tragic personal stories that illicit severe emotional responses from parents/guardians who are making the health care decisions for their children (Vamos et al., 2008).

Prospect Theory can be applied to immunization health communication by analyzing the communication's likelihood to use loss frames in messages to maximize the effect of the message on the low frequency behavior. Loss-framed messages on immunizations also utilize scare tactics in an effort to appeal to the parent/guardian's emotional side and illicit specific emotions and alarm them of the dangers of their choice. The *certainty effect* is used by showing the most certain outcome and which choice has the greatest benefit to the child's overall health. Previous research on how Prospect Theory is used in health communication is largely based on health behaviors other than immunizations or on the human papillomavirus which is geared toward teenagers and not younger children, like other recommended immunizations by the CDC.

Witte and Allen (2000) suggest that a message is most successful when the outcome of the health situation gives the impression that it is more severe and has a higher level of certainty. These messages are made more effective and can motivate behaviors or intention to perform a specific behavior when they use scare tactics. Witte and Allen (2000) found that when a message

aroused more fear in an individual, the message was significantly more persuasive. This suggests a correlation between behavior or intent to perform the behavior and the severity of the message. While Prospect Theory looks at scare tactics through the use of loss-framed messages, the EPPM explains loss frames in fear appeals. Figure 1, below, helps to explain this relationship.

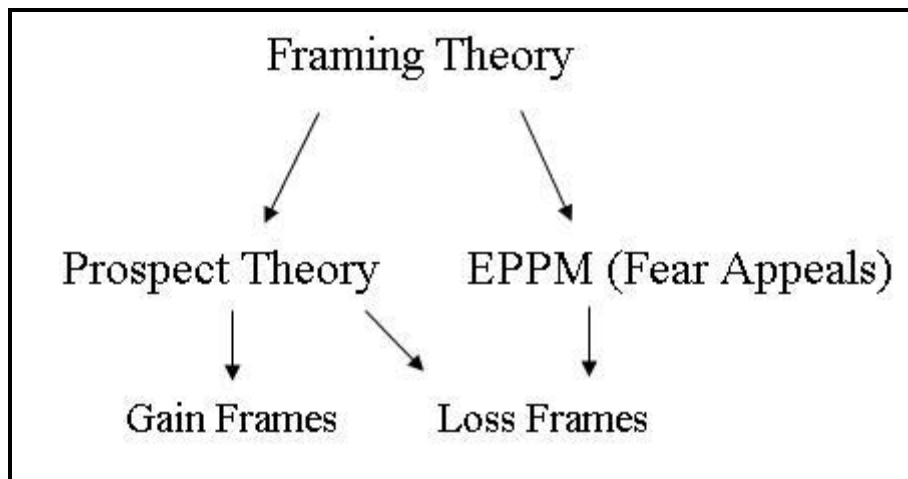


Figure 1: Theory Relationship Model

The Extended Parallel Processing Model

Witte (1994) developed a model to explain the influential process of fear appeals in health communication contexts. The EPPM theorizes that the effectiveness of the fear appeal is dependent on the perception of the amount of threat in comparison to the perceptions of effectiveness. Previous research has shown the use of fear appeals in various types of health communication, specifically communication about HIV/AIDS. Fear appeals have not been applied to communication in American newspaper articles that represent childhood

immunization information. Previous research has found that fear appeals can be especially effective in persuasive goals with the amount of persuasiveness depending on the audience and how the message is portrayed (Witte & Allen, 2000).

Fear appeals have been both effective and ineffective in motivating individuals to perform a specific behavior. The EPPM helps to explain the processes behind the success and failure of using a fear appeal in health communication. Witte (1994) introduced the EPPM to expand on previous fear appeal theoretical approaches including Leventhal's danger control/fear control framework and the protection motivation theory. It helps to explain how individuals process a threat by altering their attitudes about a behavior or intention to perform a behavior to prevent the threat. It shows how individuals deal with the fear of the threat emotionally by denying or avoiding the threat. The EPPM also adds to previous frameworks by giving a more balanced view of how fear appeals are processed with both cognitive and emotional factors and relates this to the effectiveness of the fear appeal (Witte, 1994).

Witte (1994) explains how the EPPM consists of two assessments. The outcome of which will either be dominated by either danger or fear control processes. The process begins by the individual being exposed to the fear appeal that suggests a threat and efficacy. Efficacy is the ability to effectively and easily respond to a threat and consists of *response efficacy* and *self-efficacy*. *Response efficacy* refers to the effectiveness of a response to a threat while the individual's ability to perform the response behavior is known as *self-efficacy*.

Once the individual is exposed to the threat and efficacy, they face their first appraisal prompt in which they assess the threat level. The greater the perceived threat level, the more

likely the individual is to be motivated to begin the second appraisal. During the second appraisal, the individual evaluates the effectiveness of the suggested response and their own ability to perform the behavior to achieve the suggested response. When the threat is inconsequential and unimportant to the individual they do not possess the motivation to further process the threat message. A low threat condition will result in the individual having the least amount of intent to perform the behavior (Witte, 1994).

Witte (1994) suggests that messages have the greatest level of acceptance when the individual perceives the level of efficacy to be greater than the threat perception. In this situation danger control, using cognitive processing, dominates and individuals recognize the danger involved, recognize *self-efficacy*, become motivated to protect against the danger and cognitively confront the danger.

Fear processing, using emotional processes, dominate when the individual believes there to be little threat or believes they cannot easily respond to the threat. A high threat perception combined with high efficacy conditions lead to the domination of danger control processes that focus on the control of external factors such as the threatening situation. A high threat perception combined with a low efficacy condition lead to the domination of fear control processes that focus on the control of internal factors such as emotions and physical reactions (Witte, 1994).

Two years after he introduced the EPPM, Witte (1994) expanded the model by adding more explanation to the role of emotion which was previously a more peripheral role and had been neglected due to research being focused on message acceptance and not message rejection which includes emotion as a central role. Witte (1994) found that emotion of fear was related to

message rejection but not message acceptance and that cognitive processes are associated with message acceptance but not message rejection. Results showed that when the perceptions of efficacy were strong, emotion may be indirectly related to message acceptance. Results also showed that in order for fear control processes to occur, fear must be present, while danger control processes can occur with or without fear.

The EPPM has been used to assist in understanding risk communication in a variety of studies on topics including skin cancer, HIV/AIDS prevention, teen pregnancy, genital warts and breast cancer. One study of the HIV/AIDS epidemic in Namibia looked at how fear appeals are used in the health campaigns that aim to prevent the spread of HIV/AIDS in Africa. Using methods based on the EPPM, results showed that there was little effect in using fear appeals to individuals who expressed high fear to the threat before exposure to the fear appeal. Results also indicated the fear can be lowered by the individual, who had high preexisting fear, being exposed to low level fear appeals (Muthusamy, Levine, & Weber, 2009).

Health messages are often about threatening subject matter that affects emotions and asks them to recognize their own vulnerability to a health issue. Millar and Houska (2007) looked the role of masculinity, as scored by the Bem Sex Role Inventory, on the individual's ability to accept their own mortality and respond to a health threat. They found that individuals high in masculinity respond with a greater intent to perform a health response behavior when they were exposed to a fear-reducing health message. This suggests that even when a person is engaged in fear control, motivation to perform a behavior can still occur.

The EPPM has been utilized in many studies on a variety of subject matters involving health threats to the individual, but has not yet been applied to how the model is utilized in textual content regarding immunization health concerns. The EPPM can also be applied to how images use low and high threat appeals to invoke cognitive and emotional processes.

Semiotics

Semiotics has been used to understand the fundamental structure and function of human signs, as well as the human thought and ideology that those systems possess. In the simplest of terms, semiotics was called “the study of signs” by French semiotician Guiraud. Signs look at the correlation between a signifier and the signified and are typically an action between pairs (Kim, 1996). Swiss linguist Ferdinand de Saussure (1986) described semiology as a study of the life of signs, which has become known as semiosis which, for Peirce and Welby (1977), is an influence of action on the sign, its object and its interpretant, which is not an action between pairs.

Umberto Eco (1984) took the general semiotic approach of signs as an action between pairs and illustrated how it is compatible with semiosis which is not an action between pairs. Eco looked at the sign as a labyrinth, which is consistent with the views of Peirce and Welby (1977) that described the sign as something that by just knowing provides more knowing and has an infinite number of processes of interpretations.

There are many ways of categorizing signs. Benveniste (1985) placed television images, pictures, photographs, and computer graphics into an iconic signs category. These types of images have two forms: internal, which arises in the mind and external, a physical entity outside

the mind. The process in which a physical image is inscribed on the mind is the perception of the image (Kim, 1996).

Perception is when the mind sees what it wants to see based on its knowledge of reality. The mind may interpret the image into a more clear view which will give the image less attractive power and slip out of perception. One example of this would be when one sees a photograph of something with fear appeal, like a dying child. The image sparks emotions and perceptions from the person viewing the image, however once the individual recognizes that the image is not real, the individual may lose the fear perception. However, the idea may still reside and lead to further thought (Kim, 1996). Semiotics has been applied to many mass media domains including television, film, photography and cartoons (Kim, 1996).

The intended signification of iconic images in mass media has been to metaphorically represent realities and has been seen as metonymies, which describes an incomplete sign. The image is a representation of something much larger than the image and is hidden to the viewer (Kim, 1996). Hidden meanings and representations of the images can be analyzed through a semiotic analysis when applying Visual Literacy Theory.

Visual Literacy Theory

Visual Literacy Theory looks at viewing images as a learned skill, much like reading. A viewer can learn to acquire the necessary skills to interpret an image for its visual accuracy (Heinich, Molenda, & Russell, 1982). A visual literate individual is trained to interpret and

articulate the visual meanings attached to images and signs and has a heightened conscious awareness of them (Messaris & Moriarty, 2005).

Visual literacy includes “analogical thinking” which gives the viewer the ability to interpret the similarities and differences between the images and gather insights into what those differences mean (Stafford, 1999). Visual similes and metaphors are also used in images when they juxtapose two events to imply likeness. Analyzing the goal of the creator of the image allows the viewer a better understanding of what the images represent (Messaris & Moriarty, 2005).

Photographs in particular have been difficult for readers to understand because of their implied reality. Viewers may believe that photographs are more “real” than paintings or other images because they are a snap shot of what “actually” occurred. Messaris and Moriarty (2005) look at digital manipulation of photographs as well as staged photographs to create photographic lies. They express that photography poses an important threat to its audience because it violates the traditional view that photographs are closer to reality than other images including paints and drawings.

Osborne (2006) suggests that images can be used to help individuals understand a healthcare aspect and are especially useful to those who may have a learning barrier due to literacy, age, disability, language, culture and emotion. Osborne (2006) shows how images consists of layout and design, photographs and cartoons, pain scales, maps, genograms and other diagrams to relay information.

The World Wide Web includes an innumerable number of images and is accessed by millions on a daily basis. During August 2009, www.google.com and www.yahoo.com are recorded by Nielsen Media Research as being the most accessed search providers. Both research providers offer image searchers that include all types of images from cartoons to drawings to photographs. These images are available to all Internet users and can have a significant impact on a viewer's understanding of a healthcare aspect.

METHODOLOGY

Research Questions

Previous research suggests a strong concern for who is being represented in the communication about childhood communication. Activists, including concerned parents/guardians, who question the safety of childhood immunizations, have expressed concern over information that shows a governmental and pharmaceutical company bias towards childhood immunizations. Others, including many healthcare professionals, have argued that parent/guardian and celebrity activists are being given equal credibility as health experts who are simply being quoted (equally) in childhood immunization communication. This study will conduct multi-method research through a quantitative and qualitative approach to find out who is being represented in articles and images about childhood immunization, as well as how information is being represented. The following specific research questions will be answered to find out who and what is being represented.

RQ1: Who is being quoted or referenced as a source in U.S. newspaper articles about childhood immunizations? Has this changed, and if so how, over the five year time period?

Articles were examined to see what labels were being attached to those quoted or referenced, including: parents/guardians, scientists, researchers, doctors, healthcare professionals, and spokespeople.

RQ2: What groups are being quoted or referenced in newspaper articles about childhood immunizations? Has this changed, and if so how, over the five year time period?

Articles were examined to see what particular organizations were being referred to including: governmental health agencies and parent/guardian activist groups.

RQ3: How are fear appeals being used in newspaper articles about childhood immunizations? Has this changed, and if so how, over the five year time period?

Articles were examined to see if fear appeals were being used and if so, if they contained a high threat level or a low threat level.

RQ4: How is Prospect Theory being utilized in newspaper articles about childhood immunizations? Has this changed, and if so how, over the five year time period?

Articles were examined to see if gain-framed messages or loss-framed messages were used and how often they appeared.

RQ5: Who/What is being depicted in images that appear during image searches on childhood immunizations?

Images were analyzed to see who is being depicted in images, including: children, parents/guardians, and health-professionals, as well as what objects are being represented.

Images were analyzed to see what information is being depicting in images through the use of graphs/charts, image title, image website and image text.

RQ6: How are fear appeals being used in online images about childhood immunizations?

Pictures were analyzed to see if fear appeals were used and if so, if they contained severe fear appeals or low fear appeals.

Method: Quantitative Textual Analysis

A quantitative content analysis was conducted on print versions of the *New York Times* and *USA Today* from January 1, 2005 through January 1, 2010. A five-year time period was chosen due to immunizations being a current issue with several controversial topics being recently introduced. These newspapers were selected based on wide-spread popularity, national distribution, and inclusion of wire articles. They were accessed through a Lexis-Nexis Academic search, due to its availability. *USA Today's* textual content was searched with the following key terms: "Children OR Childhood AND Immunization." Articles were then scanned and those that did not have a primary focus on childhood vaccinations were discarded. The total number of articles left for analysis was 43. The same search was conducted for the *New York Times* and results yielded 132 articles. To have a comparable number of results, every third article was analyzed, yielding a total number of 44 articles analyzed for the *New York Times*.

Two undergraduate coders were trained to analyze the articles along with the researcher, yielding a total of three coders. Coders were provided with a coding sheet for each article as well

as a coding instruction sheet for explanation of definitions and terms expressed in the coding sheet. The coding sheet consisted of eight questions regarding who is being quoted, how the EPPM was applied and how Prospect Theory was applied. The coding sheet and the coding instruction sheet were developed using previously established operational definitions and questions.

For the five questions regarding who is being quoted, coders looked for five possible groups: celebrities, scientists/researchers, doctors, healthcare professionals, parents/guardians, and spokespeople. Individuals were considered to be part of that group when they were labeled as such or in the case of healthcare professionals, when they were referred to based on their qualifications but were not specifically labeled. Celebrities were considered celebrities when they were labeled as such or were referred to (based on their position of power or fame).

The EPPM was applied by looking at how often fear appeals were used in the articles. Fear appeals were further coded as either low or moderate appeals and definitions of each were provided to coders and based on the previously well-established definitions of Kim Witte (1994) and Muthusamy, Levine, and Weber (2009). Fear appeals were further coded into whether the appeal was used in support of immunizations, in opposition to immunizations, or when the specific intent was not recognizable.

Prospect Theory was applied by analyzing how often a gain framed message or a loss framed message was used. Definitions and examples were provided to all coders and were based on the previously well-established definitions of Happich and Mazurek (2002). The gain and loss frames were further coded into whether the frame was used to support immunizations, to oppose

immunizations or if the intent was not recognizable. Coders met for a pilot testing and analyzed five articles and compared results to ensure coder reliability and that all definitions and explanations were understood.

Method: Qualitative Semiotic Analysis

Visual images can be an important aspect of health communication. By analyzing the images that are being represented in health communication, we can understand what is being communicated and the implications the communication has on the viewer. The World Wide Web has become a strong tool for individuals to gather information on all topics including health communication. While it may include credible resources, it does not distinguish between what is credible and what is not. This often leads to viewer confusion as to what is reality and what is not.

A qualitative semiotic analysis, which looks at common themes within objects, was conducted on images that appear on the World Wide Web. The search engines www.google.com and www.yahoo.com were ranked as the top two Internet image search providers by Nielsen Media Research, a respected market analyst company, in August 2009 (SEW Staff, 2009). Images that appear on the first page of both www.google.com and www.yahoo.com were analyzed with the search criteria “Childhood OR Children AND Immunizations.” A qualitative coding sheet, developed through the established methods within Visual Literacy Theory, was used for each image to analyze images, through Visual Literacy Theory, by looking at common themes, objects, and persons.

DATA ANALYSIS

In part one of this two-part study, a qualitative analysis of 44 *New York Times* newspaper articles and 43 *USA Today* newspaper articles was conducted to examine source representation, fear appeal usage, and gain/loss frame usage in all 87 newspaper articles. For part two of the study, a qualitative semiotic analysis of 18 images from a www.yahoo.com image search and 18 images from a www.google.com image search was used to observe common themes in the representation of people, objects, graphs/charts, image titles, image websites, and image text, as well as the use of fear appeals throughout the total 36 images analyzed..

Quantitative Textual Analysis Results

A total number of 87 articles from the *New York Times* and *USA Today* were examined. First, the articles were analyzed for source representation to answer the first two research questions: Who is being quoted or referenced as a source in U.S. newspaper articles about childhood immunizations? Has this changed, and if so how, over the five year time period?

Secondly, they were analyzed for fear appeals to answer the third research question: How are fear appeals being used in newspaper articles about childhood immunizations? Has this changed, and if so how, over the five year time period?

Finally, articles were examined for their use of gain and loss frames to answer the fourth research question: How is Prospect Theory being utilized in newspaper articles about childhood immunizations? Has this changed, and if so how, over the five year time period?

Inter-coder reliability is an important part of content analysis in mass communications research. Inter-coder reliability, which has also been termed inter-coder agreement, measures the agreement between separate individuals on decisions evaluating the same characteristics of a message (Lombard, Snyder-Duch, & Bracken, 2002). Without inter-coder reliability, results cannot be determined as valid. For this study, two undergraduate students, in addition to the graduate researcher, used a coding sheet to analyze source representation, fear appeal usage, and Prospect Theory usage (See Appendix A). A coding sheet appendix that explained how information was to be evaluated was based on previously established definitions, terms and ideas (See Appendix B). Coders were trained using the coding appendix sheet as well as the theory information provided in the literature review.

All items from all three coders were measured for inter-coder reliability by finding Cohen's Kappa. Cohen's Kappa is used to measure for the possibility of agreement by chance alone (Lombard et al., 2002). While acceptable levels of agreement vary depending on what is being researched, a level above .90 is considered fully acceptable, .80 to .90 is considered generally acceptable, and below .80 is a sign of disagreement (Lombard et al., 2002). Cohen's Kappa for multiple coders was found using software provided by cosmion.net, an online resource provided by Jeroen Geertzen, a postdoctoral researcher from the University of Cambridge. Results of inter-coder reliability showed highly reliable coding from all three coders. For 20

items, 15 items showed a reliability level above .90, three were between .80 and .90, and only two fell below the .80 reliability level (See Appendix D). Overall, results are considered reliable and fully acceptable for both source representation and fear appeal usage.

Source Representation

Source Representation in Articles

Articles were examined for their source representations. Eight groups were analyzed based on the number of times they were referenced or quoted throughout the 87 articles, the individual and group categories included: celebrities, scientists/researchers, doctors, healthcare professionals (qualifications are referenced, but do not fall into any one of the other seven categories), parents/guardians, governmental or professional agencies, activist individuals or groups, and spokespeople.

Individuals were considered referenced when referred to by name or quoted in the article. In cases where a person who was quoted or referenced fit into more than one of the eight categories, all categories that applied to that individual or group were marked for representation. Table 1 (below) shows how many times each of the eight source categories were given representation throughout the 87 newspaper articles.

Table 1: Source Representation in Newspaper Articles

Source	Number of Times Represented in Articles
Celebrities	0
Scientists/Researchers	9
Doctors	37
Other Healthcare Professionals	57
Parents/guardians	13
Governmental or Professional Agency	161
Activist Individual or Group	9
Spokesperson	12

Results of the source representation in newspaper articles showed that governmental and professional agencies were quoted and referenced at the highest rate of 161 times throughout the articles. The Center for Disease Control and Prevention, the Food and Drug Administration, the Advisory Committee on Immunization Practices and the World Health Organization were the top quoted and referenced agencies. Other agencies often quoted were the National Foundation for Infectious Diseases and the Infectious Diseases Society of America.

The second most referenced or quoted group was health professionals with 57 representations, followed by doctors with 37 representations. Healthcare professionals were individuals who were referenced or quoted based on their qualifications, but were not labeled as a doctor, or any of the other seven categories. Healthcare professionals were often referenced as being from hospitals, other medical facilities, or related organizations. In many cases, when a

doctor was labeled, he or she was also referenced as being from a governmental or professional agency, in which case both doctors and governmental/professional agencies were counted as being represented.

Parents/guardians and spokespeople were given fairly equal representation with parents/guardians having 13 representations and spokespeople having 12 representations. Spokespeople were most often from state health departments and were labeled as a spokesperson. Examples of such cases include: “Dawn Thomas, a Health Department spokeswoman,” and “Jeffrey W. Hammond, a spokesman for the State Department of Health.” Other spokespeople were from healthcare aid organizations including “Claire Hajaj, a spokeswoman for UNICEF.”

Scientists/researchers were given equal representation as activist groups and individuals, with nine representations each. Scientists/researchers were most often labeled as “epidemiologists.” Activists were either labeled as an activist or, and in most cases, referenced as “anti-immunization activists.” There were no cases where the activist individual or group was referenced as being in support of immunizations. It is a significant note that celebrities were given no representation throughout any of the 87 articles.

Source Representation by Year

Overall source representation showed that governmental and professional agencies, as well as doctors and healthcare professionals, were most often quoted. Figure 1 (below) shows how source representation was distributed over the five year time period analyzed from 2005-2010.

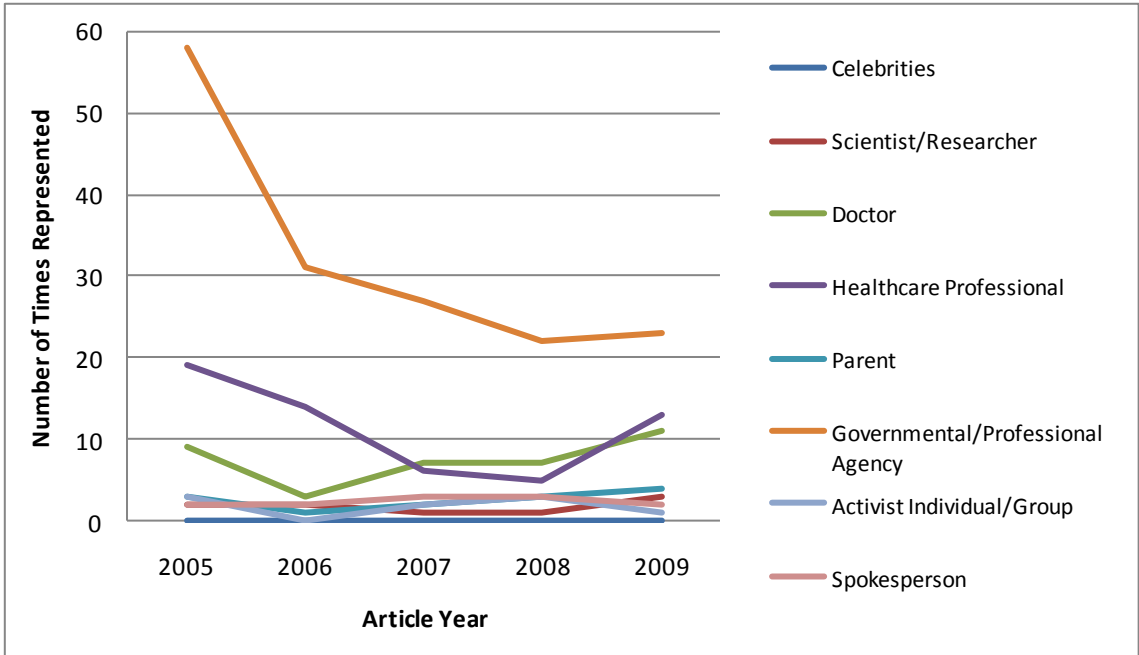


Figure 2: Source Representation by Year

Of the articles analyzed, 26 were from 2005, 18 from 2004, 17 from 2009, 14 from 2007 and 12 from 2008. For the five-year time period analyzed, there were more articles for 2005 than any other year, which may account for the higher representation of all categories in 2005. Trends remained fairly consistent with minor shifts in representation. The drop in overall representation after 2005 and increase in overall representation in 2009 may be attributed to the drop in articles after 2005 and increase in the number of articles in 2009.

While results show that governmental and professional agencies have been consistently represented more than the other eight categories, doctor representation was higher than

healthcare professional representation from 2007 to 2008, with the other three years showing healthcare professionals with more representation. The other five categories were fairly consistent throughout the five year period, with slight shifts in representation.

In 2005, spokespeople and scientists/researchers were given the lowest, and equal, amount of representation, while parents/guardians and activists saw slightly higher and equal representation. In 2006, an increase in spokespeople and scientist/researchers was seen, leaving parents/guardians with less representation than spokespeople and scientist/researchers and activists with no representation. Results for 2007 showed a consistent increase in spokespeople, parents/guardians, and activists, with scientist/researchers showing a drop in representation. 2008 showed consistent results from 2007 in scientist/researchers and spokespeople with both parents/guardians and activists increasing. Finally, 2009 showed a drop in representation of spokespeople and activists, with a rise in parents/guardians and scientist/researchers.

Fear Appeal Usage

Fear Appeal Usage in Articles

Articles were observed for their use of fear appeals. A fear appeal was recognized using the previously established definition by Kim Witte, with high and low fear appeals recognized based on the previously established definitions of Muthusamy et al. (2009), that suggest a high fear appeal uses vivid language, including death, while low level fear appeals use neutral language while still evoking a fear emotion (see Appendix A). Table 2 (below) shows the number of times high and low representations are used, both in support of immunizations and in

opposition of immunizations. High and low fear appeals were also recognized when the intent was not apparent.

Table 2: Fear Appeal Usage in Newspaper Articles

	Number of Times Used		Total
	High Fear Appeal	Low Fear Appeal	
Fear Appeal in support of Immunizations	4	4	8
Fear Appeal in opposition of Immunizations	3	3	6
Fear Appeal where intent is not recognized	38	27	65
Total	45	34	79

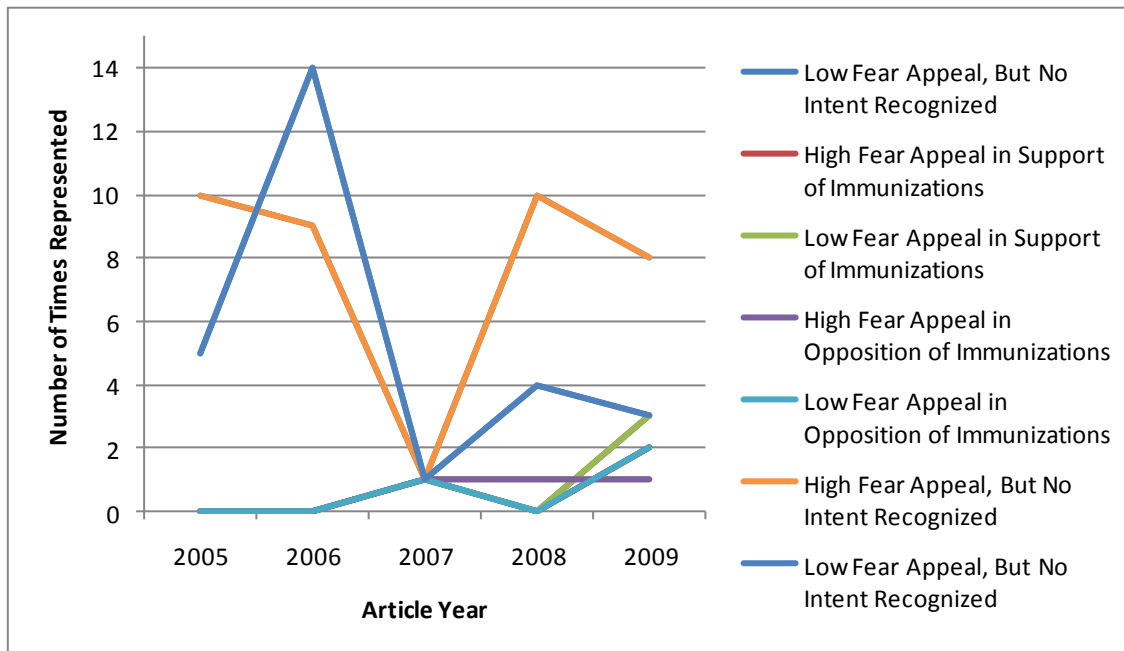
Findings showed that, while both high and low fear appeals were often used, the intent of the fear appeal was rarely recognized. A total of eight appeals were seen in support of immunizations, six in opposition to immunizations and 65 fear appeals where no intent was recognized. Of the total number of fear appeals used, 79, those without a recognized intent accounted for 65, or 82.28% of them. High fear appeals were used 57%, with low fear appeals accounting for 43% of the fear appeals.

In support of immunization, four high fear appeals and four low fear appeals were observed. Similar results were found for the number of fear appeals used in opposition of immunizations which included three high fear appeals and three low fear appeals.

It should be noted that both high and low fear appeals were distributed equally among those where intent was recognized. When intent was not recognized, high fear appeals were seen more often than low fear appeals with 38 high fear appeals observed and 27 low fear appeals observed.

Fear Appeal Usage by Year

High and low fear appeals with no recognized intent were considerably higher overall, as well as consistently higher over the five year times period. Figure 2 (below) shows the



distribution of high and low fear appeal usage from 2005-2010.

Figure 3: Fear Appeal Usage by Year

High and low fear appeal usage, where intent was recognized, saw an increase in usage after 2006 with a drop in 2008 in all recognized intent categories except for high fear appeals in opposition of immunizations which remained the same. After 2008, all recognized intent categories saw an increase in usage except for high fear appeals in opposition of immunizations, which again remained the same. For high and low fear appeals where intent was not recognized, both categories showed consistently higher rates of usage in all years except for 2006 where all categories saw the same usage. High fear appeals, with unrecognized intent were used more than low fear appeals with unrecognized intent during 2005, 2008, and 2009, with low fear appeals with unrecognized intent showing more usage in 2006 and equal usage in 2007. These findings confirm Witte's (1994) premise of the Extended Parallel Processing Model (EPPM) that the effectiveness of the fear appeal depends on the perception of the degree of threat in comparison to the perceptions of effectiveness.

It should also be noted that there was an increase in fear appeal usage, 15 to 23, in 2006, while the total number of articles had actually decreased from 26 to 18. There was a total number of 15 fear appeals used in the 26 articles in 2005, 23 fear appeals used out of the 18 articles in 2006, 6 fear appeals used out of the 14 articles in 2007, 15 fear appeals used out of the 12 articles in 2008 and 19 fear appeals used out of the 17 articles in 2006.

Gain and Loss Frame Usage

Gain and Loss Frame Usage in Articles

Gain and loss frames were observed in the articles and found based on the previously established definitions of Hapich and Masurek (2002) that show a gain in support of

immunization as an improvement in health, a gain in opposition to immunizations as no improvement in overall health, a loss in support of immunizations as a loss in overall health when immunizations is not received, and a loss in opposition to immunizations as a loss in overall health when immunization is received (see Appendix A). Gain frames and loss frames were observed in support of immunizations, in opposition to immunizations, and when a frame was observed but no intent was recognized. Table 3 (below) shows the usage of gain and loss frames, with and without intent, in the newspaper articles.

Table 3: Gain/Loss Frame Usage in Newspaper Articles

Type of Frame	Gain Frames	Loss Frames	Total
Support of Immunizations	64	17	81
Opposition of Immunizations	6	22	28
No Intent Recognized	0	1	1
Total	70	40	110

Gain and loss frames in support of immunizations were far more prevalent (with 81, or 74% of the observations) than gain and loss frames in opposition of immunizations (with 28, or 25% of the observations). Intent was often recognized. There was only one case, out of 110, in which intent was not recognized.

When in support of immunizations, gain frames were more likely to be chosen (79%) than loss frames (21%) in support of immunizations. In contrast, frames that were chosen in opposition of immunization were more likely to be loss frames (79%) than gain frames (21%).

Gain and Loss Frame Usage by Year

Throughout the articles of the five years analyzed, gain frames in support of immunizations were used more than every other category. Figure 3 (below) shows the distribution of gain and loss frame usage over the five year time period from 2005-2010.

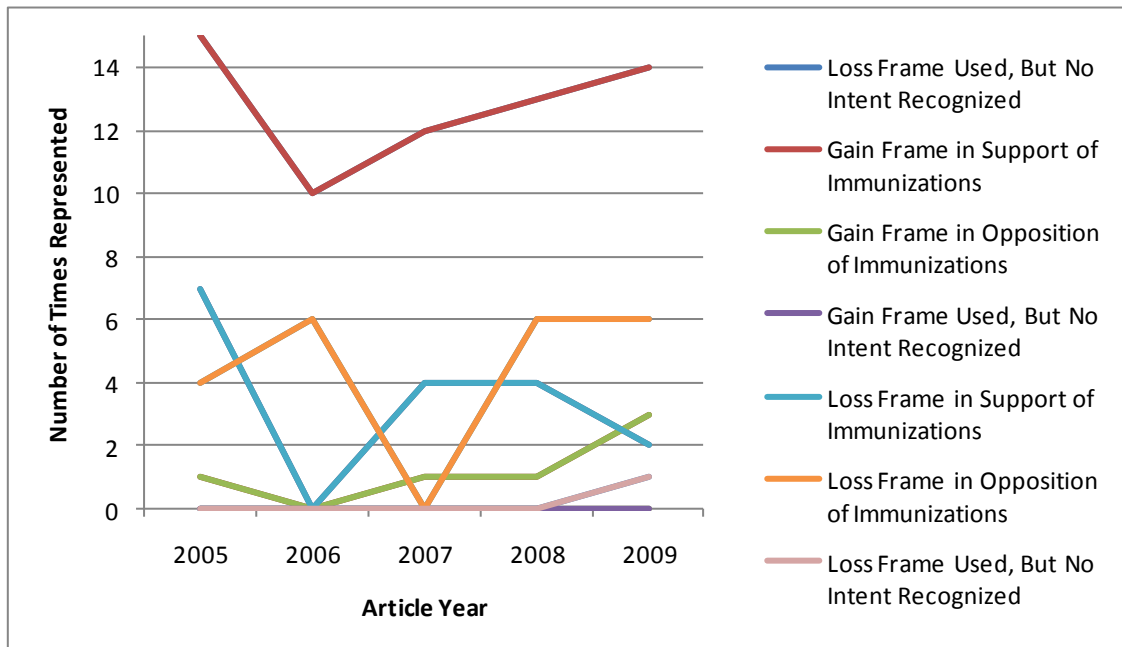


Figure 4: Gain/Loss Frame Usage by Year

Gain frames in support of immunization were consistently higher than the other five categories, with gain frames used with no recognized intent consistently having the lowest

usage. Loss frame usage with no recognized intent was consistently not seen during 2005-2008 with a slight increase in usage in 2009. Loss frames in support of immunizations were consistently higher than gain frames in opposition of immunizations. Loss frames in opposition of immunizations were the second highest used category during 2006, 2008, and 2009, with the third higher usage, under loss frames in support of immunizations, in 2005 and the lowest amount of usage in 2007, below all other categories.

Outcome

Source representation saw a higher level of quotes and references of governmental and professional agencies, overall and throughout the five years analyzed. Doctors and healthcare professionals followed with slight increases and decreases throughout the five years analyzed. Parents/guardians, activists, spokespeople, and scientist/researchers were among the lowest representation of the groups, both overall and throughout the five years. Celebrities were consistently given no representation.

On the whole, fear appeal usage was consistent with fear appeal usage throughout the five years. High and low fear appeals, with no recognized intent, were at the highest rates of representation, with the other four categories given similar representation with slight increases and decreases.

Gain and loss frame usage saw similar overall usage to usage by year. Frames regularly showed an intent, leaving loss and gain frames with no intent recognized as the lowest used frames. Gain frames in support of immunization and loss frames in opposition of immunizations

were among the top two types of frames used overall. However, a yearly analysis showed that 2007 showed a drop in loss frames in opposition of immunizations, which increased in 2008.

Qualitative Semiotic Analysis Results

A semiotic analysis of 36 images that appear on www.yahoo.com and www.google.com was conducted. Images were analyzed for commonalities in representation of people, objects, graphs/charts, image titles, image websites, and image text to answer the fifth research question: Who/what is being depicted in images that appear during image searches on childhood immunizations? An analysis of fear appeals through the combination of individuals, text, and implied emotional appeal was conducted to answer the sixth research question: How are fear appeals being used in online images about childhood immunizations?

Results showed that the most dominant theme in who was represented was immunization recipients with information represented being the use of graphs and charts. A Fear appeal analysis resulted in the observation of minimal, if any, fear appeal usage throughout the 36 images analyzed.

Table 4: Dominant Themes in Online Images

Categories	Dominant Themes
People	Children
	Immunization Recipients
	Healthcare Professionals (gloved hands only)
Objects	Syringes
	Immunizations
Graphs and Charts	CDC Recommended Immunization Guide
	Immunization Rates Map
	Immunization Rates Statistics
Image Title	Recommendations
	Numbered Titles
Image Website	Medical/Health
	.org, .com and .gov
Image Text	Statistics/Information
	Government Recommendations
	Center for Disease Control and Prevention

People Represented

While the majority of images did not consist of people, those that did include people appeared to be photographs dominantly represented by young children that were receiving shots

in the image, representing immunization recipients. The children's facial expressions and body behavior seemed to be equally split between children characterized as calm, asleep or awake without crying and those that were visibly showing upset emotion through crying or cringing from the receipt of the shot.

While the individuals giving the shot were not typically shown in the image, gloved hands were often shown, representing the shot being in the care of a healthcare professional, possibly a doctor or nurse.

Images of children possibly suffering physical immunization side effects was noticeably absent from all images. An image found during the www.yahoo.com image search of a protest being conducted appeared to be out of place when compared to the other images. However, the purpose of the protest could not be detected by the image, hosted website, or image title.

The Use of Objects

While most images did not include objects, those that did included objects such as syringes and blister packets being injected into children in an effort to symbolize immunization. Other objects often found in the images were toys around the child. Gloves appeared on almost all of the hands of the person who was giving the shot, symbolizing that the shot is being given in a sterile setting and possible by a healthcare professional such as a doctor or a nurse. One image included objects in the faded background that appear on a shelf next to a sink that would appear in a doctor's office. This further symbolizes that the giver of the immunization is most likely a doctor or nurse.

Information Represented

Graphs/Charts

The use of graphs and charts was the most pervasive of all data collected on the images. The majority of all images that appeared did not include people, but instead included charts and graphs giving recommendations in immunization schedules and statistics about the rates of immunization uptake.

It is significant that the graphs and charts were consistently the immunization schedules recommended by the Advisory Committee on Immunization Practices of the Center for Disease Control and Prevention and the Department of Health and Human Services or consisted of statistical data that was sponsored by the United State Government, often a state health department. A common theme throughout the graphs and charts was the use of headings and captions that helped to explain what the graph or chart consisted of and where the information came from. Some commonly referred to sources included the National Immunization Survey, Florida Department of Health, National Health Interview Survey and the American Journal of Epidemiology. Some common supporters of the data included the American Academy of Pediatrics and the American Academy of Family Physicians.

Graph and chart text often included wording that implied a pro-immunization stance. Examples include: “Year 2000 Target,” “Recommended Immunization Schedule,” “Recommended Childhood and Adolescent Immunization Schedule,” “Immunization Timing,” “Childhood Immunizations (Higher number is better),” and “Healthy People 2010 Goal is 80%.”

While most graphs and charts consisted of immunizations schedules and statistical data about immunization intake, there were a couple of anomalous graphs and charts. Anomalies are also important to note because only 18 images appear on the first page of each image search and each image is as likely to be viewed individually. One anomaly included a public opinions poll, with another including a chart of the number of immunizations that have been added by year, and was color coded to inform the viewer on what type of virus (live or dead) was included in the immunization.

Image Website

The majority of the websites associated with the websites consisted of name that implied a medical or healthcare context. Examples include: “centralhealth,” “Medscape,” “saintvincenthealth,” “emedicinehealth,” “health,” and “grangermedical.” Domain names were consistently top level domain names (those in the highest level of the Domain Name System) and included: “gov,” “com,” “org,” and “edu.” The domain “com” was the most consistently used domain name.

Image Title and Image Text

Image titles, exactly as it appears on the search image page, were analyzed for common words and themes. The majority of image titles consisted of numbered titles without words. Images that did consist of words were typical those in the search phrase: “immunization,” “children,” and “childhood.” One additional common word included in the image titles was “recommended” or “recommendation,” which typically appeared next to one of the search terms.

Text that appeared on the images, without being within a graph or chart, was rarely seen. The one image that did include text was a comic strip that is discussed below.

Fear Appeal Usage in Images

Fear appeal usage did not appear to be prevalent throughout the image search. However, there was one stand out image that utilized fear appeals. During the yahoo image search, an image appears in the middle of the search page that includes two photographs, one with a topless, possibly naked, man (top only shown) holding a naked baby with a woman in the background and another of a clothed women (top only shown) holding a naked baby, possible symbolizing vulnerability. The text of the image includes English as well as a language using Asian symbols. Text in this image includes “Whooping cough is a serious disease in infants,” “You may unknowingly infect your infants with whooping cough,” and “Complications of Whooping Cough includes pneumonia, brain damage and even DEATH,” with “death” appearing in all caps. Additional text include “Protect your infants,” “Vaccinate yourself and close contacts living with your infant,” and “Talk to your doctor today.” These examples are consistent with the definitions of fear appeal explained by Muthusamy et al. (2009), which are characterized by “...depicting a personally relevant and significant threat...” (p. 41). Witte (1994) outlines how this use of fear appeals is used to illicit specific behavior, in this case, to increase immunization uptake behavior.

Additional Important Observations

There are two images, not previously discussed that included a combination of text, titles and images that are significant to note. There is also additional text during the www.google.com image search that should be identified.

One image that appeared during the www.google.com image search was a comic strip with six scene windows. In each window, one figure is talking to another figure that is sitting at a desk wearing a suit, symbolizing the boss. The message of the comic is mostly within the text, as the figures do not change until the last scene. In the first window is the title, the following 4 consist of the first figure telling the figure at the desk about problems they are having, including “bodies are missing from the morgue,” and “a surgeon amputated the wrong leg.” The figure at the desk has captions above his head that include “(yawn),” and “anything else?” The “boss” is seemingly bored with everything the first person is saying until the very last window in which the first figure says that “a parent refused to have her child vaccinated.” The boss suddenly changes his expression and has his arms up in the air as he is yelling (indicated by the increased text size and wide open mouth) “WHAT? CALL THE POLICE! CALL PUBLIC HEALTH! SEIZE THEM!” The interpretation of the comic is that the previous statements about problems in healthcare would appear to be more severe than parents/guardians not having their children immunization. The boss, however, would appear to be taking the last statement too seriously. The only other text that appears in the comic is that of “vaxworld 6,” possibly letting the viewer know that this is a series of comics about a world of vaccination.

A second image that is unlike the others but may be important to note is one crying small child on someone's lap, whose face is not shown. The child has dirt on his face and is receiving some type of liquid from a blister packet being given by a second adult who is not wearing gloves and whose face is also not shown. There is a bucket to the side with the writing "[D]onated by UNICEF." The image combined with the image title "fieldnotes" implies a sick child, possibly from a developing country and receiving care from somewhere that is not a sterile healthcare setting.

Finally, it should be mentioned that the web page that appears during the www.google.com search consists of more than the images, their titles and their websites. It also includes text at the top of the page with the title "Sponsored Links." There are three links including and they appear with larger bold and highlighted text above the images. The three sponsored links included fluvaccineinfo.org with the tag sentence "You Can Help Your Doctor Prepare For Next Flu Season Learn More." The second was from www.responsibilityproject.com and included the tag sentence "Is it irresponsible for parents to not immunize their kids?" The final link is from sounds.of.pertussis.com with the tag sentence "Whooping Cough is Not a Disease of The Past. Protect Yourself and Others," which is a gain frame in support of immunizations. While the second sponsored link has an unrecognized intent in opinion of immunizations, the other two include a pro-immunization stance and have calls to action within their tag sentences.

DISCUSSION AND CONCLUSION

It is important to know what sources are present and how information is being represented in the communication about childhood immunization to the parents/guardians who are making the decisions about immunization behavior. Smith et al. (2006) have suggested that parents/guardians use the different information they have on childhood immunizations to create a reference point to base their decisions. Their choices then have a domino effect on the decisions of other parents/guardians to immunize their children. Baker (2008) has expressed concern about the effect that parent/guardian opinions may have on the public which in turn may affect public policy.

Newspaper Articles

This study has found that in newspaper articles, governmental and professional agencies are the most referenced resource for information; the use of this information is pervasive throughout the articles. This information takes a pro-immunization stance and encourages readers to comply with the CDC's recommendations for childhood immunization. Baker (2008) has suggested that the recent decline in immunization levels is due to the celebrities using their celebrity status to gain media coverage and misinform their audience. For the articles covered in this study, no celebrity representation was present. This suggests that there may not be a strong

presence of celebrities and parents/guardians being used as sources of information within newspaper articles.

Fear appeals have been commonly used in HIV/AIDS health communication. Witte and Allen (2000) found that fear appeals are effective in persuasive goals depending on the audience and how the message is portrayed. While results of newspaper articles' use of fear appeals shows a strong use of fear appeals, intent is repeatedly unrecognized. While readers may experience emotional responses through fear appeals, they may not translate this information into performing a specific behavior. This may suggest that fear appeals are not a persuasive tool to be used in media content with a health behavior message. Without an intent being recognized, it is not likely that the reader will perform the intent the message had wished to portray.

Information framing has been used to help individuals make sense of the information they are given (Reese, 2003). Fischer, Jonasa, Freya, and Kastenmüller (2008) found that behavior and attitudes may be influenced by this information and repeated use of it. This study suggests that framing is present in newspaper articles and that when used; framing, usually in the form of gain frames, is most commonly used to support immunization behavior. Abhyankar et al. (2008) found that health message framing influences parent/guardian's intent to perform a behavior. A consistent message framing in support of immunizations in newspaper articles may influence parents/guardians to perform the specific behavior of having their children immunized.

The average newspaper article examined during this study appeared to predominately use governmental organizations, including the CDC, as a source of information through references and quotes. While the average article used both low and high fear appeals, the intent was often

unable to be recognized. However, the use of gain frames in support of immunizations was prevalent in the typical article, with all other types of frames being used rarely.

Images

Consistent with the findings of source representation in newspaper articles, online images were similarly rife with information presented or supported by governmental agencies, including the CDC. The use of graphs and charts, consisting of the CDC's recommended immunization schedule, was a dominant theme in images from both www.yahoo.com and www.google.com.

Kim (1996) proposes that images may have hidden meaning that is not present to the viewer. These meanings can be understood when applying Visual Literacy Theory, which looks at the differences and similarities between images and develops awareness into the meaning of those differences and similarities (Messaris & Moriarty, 2005). Throughout the course of this study, it was found that images were more consistently similar than dissimilar, with governmental information at the forefront of all information present. The use of "recommended" and "suggested" in the use of the presentation of the data implies the pro-immunization stance.

A typical image that appeared during this search consisted of charts and graphs with support from the CDC or other governmental agencies, including state health departments. The most common image that appeared was CDC's recommended schedule for childhood immunizations. However, with images, when one image is so common the search page, it makes the other anomaly images stand out more that they may have if they were not surrounded by the

images that were the same. Fear appeal usage appeared to be present in the anomaly images and not in the typical image.

Limitations

While this study looked at a good portion of articles from two newspapers over a five-year period, it is always beneficial to have a larger amount of articles. Childhood immunization is a current topic of debate. However, this study is still limited by its five-year time span. A larger time span may show more significant differences in how information has been represented throughout the years.

Future Directions

For future research, it would be interesting to examine a larger range of newspaper articles over a longer period of time and throughout additional newspapers. It might also be useful to continue investigating source representation and the use of framing in additional media (e.g., magazine articles) about childhood immunizations and television news pieces, especially those with predominately female readership. Scholars should look at other sources of information on childhood communication that may be available to the decision makers of immunization behaviors. By the same token, the processes through which gain-frame or loss-frame messages affect decision making and behavior have not been described to a full extent. Therefore, scholars should work on establishing such processes in order to improve both the theoretical foundations of message framing effects and the capacity to give people information

that is very persuasive. How can message framing be used to encourage and sustain continuing childhood immunizations?

This study has reached its ultimate goal by revealing source representation in newspaper articles and online images. It has also enlightened readers about the use of fear appeals and framing in newspaper content, as well as the use of fear appeals in online images. This information can be used in understanding current trends in communication about immunization behavior and how parents/guardians are being informed on the controversy surrounding the decisions they face in immunizing their children. Finally, it is my hope that this thesis has informed the general public about the information that is being communicated through newspaper articles and online images about childhood immunization.

APPENDIX A: QUANTITATIVE CODING SHEET

Quantitative Coding Sheet – Newspapers

Source: USA Today New York Times Article Date ___/___/_____ Page # _____

Article Title _____

Who is being quoted?

How many times is a celebrity referenced or quoted? _____

How many times is a scientist/researcher referenced or quoted? _____

How many times is a doctor referenced or quoted? _____

How many times is a health-professional referenced or quoted? _____

How many times is a parent/guardian referenced or quoted?

How many times is a government or professional agency referenced or quoted? _____

How many times is an activist individual/group referenced or quoted? _____

How many times is a spokesperson referenced or quoted? _____

How is information being represented?

Extended Parallel Processing Model

How many times is a fear appeal used in support of immunizations? High _____ Low _____

How many times is a fear appeal used in opposition of immunizations? High _____ Low _____

How many times is a fear appeal used, but intent is not recognized? High _____ Low _____

Prospect Theory

How many times is a gain frame used in support of immunizations? _____

How many times is a gain frame used in opposition of immunizations? _____

How many times is a gain frame used, but intent is not recognized? _____

How many times is a loss frame used in support of immunizations? _____

How many times is a loss frame used in opposition of immunizations? _____

How many times is a loss frame used, but intent is not recognized? _____

APPENDIX B: QUANTITATIVE CODING SHEET APPENDIX

Coding Sheet Appendix:

Celebrity

Individual quoted or referenced is referred to based on their position of power or fame.

Scientist/Researcher

Individual quoted or referenced is labeled as a scientist or researcher.

Doctor

Individual quoted or referenced is labeled as a doctor.

Health Professional

Individual quoted or referenced is referred to based on their qualifications but is not labeled as a Scientist, Researcher or Doctor.

Parent/guardian

Individual quoted or referenced is referred to as a parent/guardian.

Governmental or Professional Agency

Group quoted or referenced is a governmental or professional agency

Activist Individual/Group

Individual/group quoted or referenced is referred to as an activist group that consists mostly of parents/guardians.

Spokesperson

Individual quoted or referenced is referred to as a spokesperson.

Fear Appeal

As defined by Kim Witte (1994)

“A fear appeal is defined as a persuasive message that attempts to arouse the emotion fear by depicting a personally relevant and significant threat and then follows this description of the threat by outlining recommendations presented as feasible and effective in deterring the threat (Witte, 1992a). The three key constructs in fear appeal research are threat, efficacy, and fear.”

Fear Levels as used by Muthusamy, Levine and Weber (2009)

Low Level Fear Appeals

- Characterized by showing innocuous photographs including shots, graphs, and cartoons.
- Uses neutral language.

High Level Fear Appeals

- Characterized by using graphic photographs including: pain, effects of receiving the immunization, the effects of not receiving the immunizations.
- Uses vivid language.

Gain frame as defined by Happich and Mazurek (2002)

Message depicts the outcome of either performing the behavior or not performing a behavior as an improvement in overall health.

- Support for Immunizations Behavior
 - Gain – Immunizations show an improvement in overall health.
- Oppose Immunization Behavior
 - Gain – Immunizations will not add to your overall health.

Loss Frame as defined by Happich and Mazurek (2002)

Message depicts the outcome of either performing the behavior or not performing a behavior as a deterioration in overall health.

- Support for Immunizations Behavior
 - Loss – Not getting an immunization will lead to deterioration in overall health.
- Oppose Immunization Behavior
 - Loss – Immunizations cause side effects that lead to a deterioration in overall health.

APPENDIX C: QUALITATIVE CODING SHEET

Qualitative Coding Sheet – Internet Images

Source: Yahoo Google Retrieval Date ___/___/____ location # _____
Image Title _____

Who is represented?

What are the physical characteristics (of all persons represented)?

What are they wearing?

What are they doing?

What is their facial expression/position?

What objects, signs and symbols are in the image and what do they represent?

What else can be seen in the image (i.e. logos) and what does this represent?

What similarities does this image have to other images?

What differences does this image have in comparison to the other images?

What words are in the image or associated with the image and what does this represent?

What are the goals of the image?

APPENDIX D: COHEN'S KAPPA FOR MULTIPLE CODERS

Cohen's Kappa for Multiple Coders

Variable	Coder1+Coder2	Coder1+Coder3	Coder2+Coder3	Cohen's Kappa
Source Representation				
Celebrity	PA=1.00 PE=1.00 K=nav	PA=1.00 PE=1.00 K=nav	PA=1.00 PE=1.00 K=nav	K=nav*
Scientist/Researcher	PA=1.00 PE=0.81 K=1.00	PA=0.99 PE=0.82 K=0.93	PA=0.99 PE=0.82 K=0.93	K=0.96
Doctor	PA=1.00 PE=0.50 K=1.00	PA=0.95 PE=0.51 K=0.91	PA=0.95 PE=0.51 K=0.91	K=0.94
Health Professional	PA=1.00 PE=0.41 K=1.00	PA=0.92 PE=0.44 K=0.86	PA=0.92 PE=0.44 K=0.86	K=0.90
Parent/guardian	PA=1.00 PE=0.75 K=1.00	PA=0.95 PE=0.71 K=0.84	PA=0.95 PE=0.71 K=0.84	K=0.89
Gov/Professional Agency	PA=1.00 PE=0.21 K=1.00	PA=0.84 PE=0.21 K=0.80	PA=0.84 PE=0.21 K=0.80	K=0.86
Activist	PA=1.00 PE=0.81 K=1.00	PA=0.99 PE=0.82 K=0.93	PA=0.99 PE=0.82 K=0.93	K=0.96
Spokesperson	PA=1.00 PE=0.78 K=1.00	PA=0.99 PE=0.79 K=0.95	PA=0.99 PE=0.79 K=0.95	K=0.96
Fear Appeals				
High in Support	PA=1.00 PE=0.96 K=1.00	PA=0.95 PE=0.91 K=0.49	PA=0.95 PE=0.91 K=0.49	K=0.66
Low in Support	PA=1.00 PE=0.93 K=1.00	PA=0.95 PE=0.89 K=0.58	PA=0.95 PE=0.89 K=0.58	K=0.72
High in Opposition	PA=1.00 PE=0.93 K=1.00	PA=1.00 PE=0.93 K=1.00	PA=1.00 PE=0.93 K=1.00	K=1.00
Low in Opposition	PA=1.00 PE=0.93 K=1.00	PA=1.00 PE=0.93 K=1.00	PA=1.00 PE=0.93 K=1.00	K=1.00
High with no intent	PA=1.00 PE=0.54 K=1.00	PA=0.97 PE=0.55 K=0.92	PA=0.97 PE=0.55 K=0.92	K=0.95
Low with no intent	PA=1.00 PE=0.60 K=1.00	PA=0.95 PE=0.63 K=0.88	PA=0.95 PE=0.63 K=0.88	K=0.92
Gain/Loss Frames				
GF in Support	PA=1.00 PE=0.38 K=1.00	PA=0.98 PE=0.38 K=0.96	PA=0.98 PE=0.38 K=0.96	K=0.98
GF in Opposition	PA=1.00 PE=0.87 K=1.00	PA=0.98 PE=0.87 K=0.82	PA=0.98 PE=0.87 K=0.82	K=0.88
GF no intent	PA=1.00 PE=1.00 K=nav	PA=1.00 PE=1.00 K=nav	PA=1.00 PE=1.00 K=nav	K=nav*
LF in Support	PA=1.00 PE=0.74 K=1.00	PA=0.99 PE=0.73 K=0.96	PA=0.99 PE=0.73 K=0.96	K=0.97
LF in Opposition	PA=1.00 PE=0.72 K=1.00	PA=0.98 PE=0.72 K=0.92	PA=0.98 PE=0.72 K=0.92	K=0.94
LF no intent	PA=1.00 PE=0.98 K=1.00	PA=1.00 PE=0.98 K=1.00	PA=1.00 PE=0.98 K=1.00	K=1.00
* K=nav - observations in which all coders where in agreement that the variable observation was 0				

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