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The Effect of Positive Verbal Information on Reducing Fears About Bats in School-Aged Children

Kimberly J. Williams
Walden University

Walden University

College of Social and Behavioral Sciences

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Kimberly Williams

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Review Committee
Dr. Brian Ragsdale, Committee Chairperson, Psychology Faculty
Dr. Yoly Zentella, Committee Member, Psychology Faculty
Dr. Rachel Piferi, University Reviewer, Psychology Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2014

Abstract

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MS, Eastern Michigan University, 1992

BA, Michigan State University, 1988

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

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Abstract

Many school-aged children fear certain animals. Fear tends to make children worry and exhibit anxious behaviors, and this can negatively affect many aspects of their lives. Rachman (1977) speculated that some children might acquire fear through receiving negative verbal information. Few studies have examined whether positive verbal information can influence children's fear beliefs about bats. Based on Rachman's Theory on the Acquisition of Fear Behaviors this experimental research study examined whether positive verbal information might relate to decreasing fears about bats. One hundred and seventy-two participants in Grades 2 through 4 completed the Fear Beliefs Questionnaire (FBQ) and the Bat Attitude Questionnaire (BAQ) and then were randomized to either a positive verbal information treatment group or a control group. Both fear and bat attitude measures were administered to 2 groups of children across 3 time intervals. During Time 1, both groups filled out the FBQ and BAQ. Group 1 then received positive verbal information while Group 2 completed a maze. During Time 2, both groups again completed the FBQ and BAQ. One day later, Group 2 received the positive verbal information, and during Time 3, both groups again completed the FBQ and BAQ. MANCOVA results revealed a difference between FBQ and BAQ scores scores for both groups across all times. Group 1 showed no significant difference in FBQ and BAQ scores following positive information, and Group 2 only showed a significant difference in BAQ scores. The results of this study may have implications for social change in clinical practice with children experiencing fear of animals. This experimental study suggests that psychoeducational programs and psychotherapy addressing fears in children could be enhanced with the use of positive verbal information.

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ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

Dedication

This PhD dissertation is dedicated to my father, who did not get to see the completion of the PhD on this earth but is watching from heaven. I can guarantee he is looking down with the same proud smile he showed me throughout my life. I miss my father a lot, but I know that his words and wisdom live on inside my heart!

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There are many people who I would like to thank for supporting me throughout this long journey. First, I would like to thank my committee chair, Dr. Ragsdale, for sticking with me through all of my worries and taking the time to discuss these with me. Second, my committee chair, Dr. Zentella, for all her knowledge and feedback regarding this dissertation. Third, my major professor at Eastern Michigan University, Dr. Allen Kurta, who set me up for success by teaching me how to be a great researcher.

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To all who have been with me through this process, thank you!

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Chapter 1: Introduction to the Study

In a 1984 study, Bowd documented that animals are a common source of fear for children. This finding has been affirmed in more recent studies (Fisher et al., 2006; Lichtenstein & Annas, 2000; Ollendick et al., 2002). Most of the time, these fears do not require serious attention (Bauer, 1976; Ferrari, 1986); however, in some cases, the fears become so chronic that they are recognized as specific phobias (American Psychiatric Association, 2000). Numerous studies have shown that some fears may be the product of indirect learning experiences (Rachman, 1977). Indirect learning experiences that enhance fear constitute verbal threat-related information. Indirect learning experiences that reverse fear constitute positive verbal information (Kelly et al., 2010).

Past studies have shown that verbal information can be used to create fear about animals unknown to children and then reverse an induced fear about the same unknown animals (Kelly et al., 2010). However, there have been no studies that examine whether positive verbal information can change children's fear beliefs about an animal already associated with fear, such as the bat. Bjerke and Ostdahl (2004) found that most people dislike invertebrates, bats, and rodents, and many people have phobias associated with bats. Bats are mammals that are already associated with fear, probably due to negative verbal information such as myths, movies, misinformation, and propaganda (Prokop, Fancovicova, & Kubiatko, 2009). Therefore, the use of positive information about bats might be beneficial in order to correct detrimental information that may have been heard (Kelly et al., 2010).

The effects of fear may be relevant in clinical practices that deal with anxiety

problems in children (Kelly et al., 2010). Kelly et al. (2010) stated that specific phobias influence a child's academic and social performance. The consequence of fear in a child's life is of significance for therapists working with children (Kelly et al., 2010), as understanding the etiology and bases for the fear can help the therapist work with the child. Therefore, Kelly et al. stated that the academic community should continue to focus on comprehensive models to understand (and reduce) fear beliefs.

This study may support social change if clinicians use the results to create preventive strategies related to the development of childhood fears. In finding that positive verbal information does indeed change negative beliefs, teachers and parents can provide children with more positive information on stimuli known to cause fear, thereby protecting children from developing fears in the first place (Muris et al., 2010). In addition, results of this study may have implications for children experiencing anxiety problems, fears, and phobias in clinical practice. Therapeutic strategies could be changed from multimodal interventions to techniques designed to diminish fears and phobias based on the origin of these fears (Kelly et al., 2010).

The next steps in evaluating how fears can be reduced in children include using positive verbal information with children who may be experiencing mild fear toward an animal already known to evoke fear: the bat (A. Field, personal communication, April 20, 2012). The study asked the question of whether correcting mild fears about an animal with associated prior negative beliefs, using positive verbal information, changed the level of fear. These variables had not been measured in the past and reflected an important gap in the literature (A. Field, personal communication, April 20, 2012).

In this chapter, background on the problem at hand and an explanation of the purpose of the study are provided. The theoretical framework of the study is discussed as it relates to the problem statement. Finally, the study's nature, methodology, definitions, assumptions, scope, limitations, and significance are outlined.

Background

Theories on the cause of childhood phobias support the conclusion that learning experiences represent an important function in the provocation of fear (Craske, 1997; Muris & Mercelbach, 2001). Sometimes, the fear comes about because of direct learning experiences (i.e., negative contact with the animal); however, in many cases, the indirect acquisition of information plays a role in the development of a fear (Muris et al., 2009). Rachman (1977) noted that because parents, teachers, and peers provide continual information to children, one might safely conclude that it is this exactly this information that constitutes the most common fears.

Research has supported this assumption. Field, Argyris, and Knowles (2001) presented children (7 to 9 years of age) with monster dolls that they had not previously encountered, and the children showed no fear of the dolls. However, after negative verbal information was administered, the children reported fearing the dolls. Additional research concluded that negative verbal material can be especially important in the formation of animal fears. For example, in 2003, Field and Lawson studied the effects of verbal information on three groups of children ages 6 to 9 years old. The researcher cautioned the first group about three unfamiliar Australian animals (the quoll, quokka, and cuscus), advocated for the same animals to another group, and gave the third group no information

about the animals. The results of this study showed that after listening to the unfavorable information, the children feared the unknown animal to a greater extent than after hearing positive or no information. This effect is now known as the Field et al. paradigm.

In 2003, Field et al. tested whether fear beliefs increased, decreased, or stayed the same after positive, negative, or no information about social situations children were already familiar with. The researchers found mixed results. When an adult told negative stories about each situation, there was little impact; when another student gave negative information on public speaking, fear beliefs were increased; and when a student offered positive information on public speaking, fear beliefs decreased. Otherwise, there were no significant differences found. Field et al. (2003) remarked that the results of this study might have been biased. For example, the social situations might have varied in novelty; children might be used to speaking and eating in front of peers but might have little experience with public speaking.

In another study, Field and Lawson (2003) controlled for word frequency in their stories; tested whether fear information affected behavioral avoidance using a "touch box," also known as the Behavioral Avoidance Task (BAT); and used a computerized instrument known as the Implicit Associated Task (IAT) to verify that the self-report measures concurred with questionnaires. For each child, positive, negative, or no information was given about the same three novel Australian animals (the quoll, quokka, and cuscus), and responses were measured on self-report questionnaires, the BAT, and the IAT. Results showed that self-report questionnaires measured fear in the children—that is, the questionnaires showed that negative information increased fear, positive

information decreased fear, and with no information, the level of fear remained the same. In the results of the BAT, negative information increased the time it took children to touch the box, positive information decreased the time, and no information had no significant effect on the amount of time it took children to touch the box. Results of the IAT indicated that students performed much more quickly in compatible trials than in incompatible trials; all results support Rachman's (1977) assumption that negative verbal information enhances fears (Field & Lawson, 2008).

Kelly et al. (2010) tested how verbal information may reverse prior fear beliefs and avoidance of animals. In this experiment, children between the ages of 6 and 8 years were administered verbal threat information about unknown animals, and fear beliefs and avoidance (during a touch box task; BAT) were measured. Results showed that both fear beliefs and avoidance behaviors increased. Children then received positive information, positive modeling (the children watched as the experimenter walked to the touch box and smiled as it was touched), or no intervention at all. The children's fear beliefs persevered after no intervention was given but significantly diminished after positive information and modeling.

The only literature I could locate concerning whether fear could be reduced after participants received positive verbal information was conducted by Kelly et al. in 2010. However, in this study, unknown animals (e.g., quoll, quokka, and cuscus) were used. There have been no studies concerning whether fear of an animal that is associated with prior biases can be changed. The paucity of literature on this subject suggests that further research was, and still is, needed.

The next step in evaluating how fears can be reduced in children include administering positive verbal information to children who may be experiencing mild fear toward an animal already known to evoke fear: the bat (A. Field, personal communication, April 20, 2012). This study asked the question of whether correcting mild fears about an animal with associated prior negative beliefs by using positive verbal information changed the level of fear. These variables have not been measured in the past and reflect an important gap in the literature (A. Field, personal communication, April 20, 2012).

Problem Statement

Despite the fact that fears are benign in most youths, there is a group of children who exhibit such elevated levels of fear that they are assigned a diagnosis of a phobia (Meltzer et al., 2008). It is now widely accepted that mild fears experienced in childhood may become severe and take on pathological properties, creating a phobia, although why this happens is not fully understood (Craske, 2003; Muris, 2007). The phobias children experience should not be discounted, as Field and Storkens-Coulson (2007) stated that phobias can cause anguish, anxiety, and interruption in a child's daily life. Meltzer et al. (2008) documented that these phobias may actually continue into adulthood.

There are numerous studies that show how phobias might be formed but much less research on how to prevent fears from developing in the first place (Muris & Field, 2010). Only one research study investigated whether induced fear of unknown animals can be changed with positive information (Kelly et al., 2010), and there has been no research investigating whether fear of an animal that has prior biases associated with it

can be changed. This study explored the effect of the use of positive verbal information on children's fears. The study examined the variables of fear and positive information within children enrolled in an Oakland County, Michigan school.

Purpose of the Study

Given that the effects of fear have ramifications for clinical practices that deal with anxiety issues and phobias that begin in childhood (Kelly et al., 2010), the use of positive information might be beneficial to counterbalance the negative information that children may hear throughout life. Phobias and fears can result in lower school performance and impede peer relationships (Kelly et al., 2010). Therefore, the commitment to further expand a theoretical model and clinical interpretation of fear beliefs is extremely important (Kelly et al., 2010).

The next steps in evaluating how fears can be reduced in children include positive verbal information given to children who may be experiencing mild fear or anxiety toward an animal already known to evoke fear: the bat (A. Field, personal communication, April 20, 2012). The study was quantitative in nature and compared whether correcting mild fears about an animal with associated prior negative beliefs by using positive verbal information changed the level of fear. The dependent variables were the Bat Attitude and Fear Belief Questionnaire scores, and the independent between-subjects variable was group (Group 1 vs. Group 2). Each group consisted of children ages 7-9 years. The members of Group 1 examined a bat photograph, completed the questionnaires, received positive information about bats, and then completed the questionnaires once again. The members of Group 2 examined a bat photograph,

competed the questionnaires, worked on a maze, and then completed the questionnaires again. After 24 hours, Group 1 competed the questionnaires again, while Group 2 received the positive verbal information and then completed the questionnaires for a final time. The independent grouping within-subjects variables were times: Time 1 vs. Time 2 (immediately after the positive verbal information was administered for Group 1 or immediately after the maze was completed for Group 2) vs. Time 3 (24 hours after Time 2). These variables had not been measured in the past and reflect an important gap in the literature (A. Field, personal communication, April 20, 2012).

Research Questions and Hypotheses

Research shows that when children are given negative information about an unknown animal, their fear increases, whereas fear lessens when positive verbal information is given about the same unknown animal (Kelly et al., 2010).

When children were given negative information about familiar experiences, their responses varied, most likely because the negative information had to battle against prior experience (Field et al., 2003). Bats have biases already associated with them due to negative verbal information given in the form of television, movies, written information, and myths passed on from parents, other adults, peers, and even teachers (Kahn et al., 2008); therefore, this study examined the effects of positive information on an animal that may already be associated with mild fears.

This study examined two groups during three time periods. During Time 1, both Group 1 and Group 2 received the Fear Beliefs Survey Schedule for Children-Revised (FSSC-R) assessment; after this, a photograph of a bat was exhibited and the Bat Attitude

Questionnaire (BAQ) and Fear Beliefs Questionnaire (FBQ) were given. Group 1 then received the positive verbal information and Group 2 completed a maze. During Time 2, both Group 1 and Group again completed the BAQ and FBQ. After a period of 24 hours, positive verbal information was administered to Group 2 (Group 1 did not receive the positive information again). During Time 3, both Group 1 and Group 2 were administered the FBQ and BAQ once again.

This study was quantitative in nature and addressed the following questions:

Research Question 1: Are there significant differences in Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by Groups 1 and 2 and Times 1, 2, and 3?

H_0 1 (Null): There are no significant differences in Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by group and time after controlling for gender and the Fear Survey Schedule for Children-Revised.

H_a 1 (Alternative): There are significant differences in Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by group and time after controlling for gender and the Fear Survey Schedule for Children-Revised.

To assess Research Question 1, a one-within-one-between multivariate analysis of covariance (MANCOVA) was conducted to determine if, after controlling for gender and the Fear Survey Schedule for Children-Revised, scores showed a statistically significant difference by group and time on the Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores. The dependent variables in the analysis were the Bat Attitude Questionnaire scores and Fear Beliefs Questionnaire scores; the data were treated as

continuous. The independent grouping between-subjects variable was group (Group 1 vs. Group 2). The independent grouping within-subjects variable was time (Time 1 vs. Time 2 vs. Time 3).

Research Question 2: Are there significant differences in Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by Times 1, 2, and 3 for Group 1?

H_0 2 (Null): For Group 1, there are no significant differences in Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores by time.

H_a 2 (Alternative): For Group 1, there are significant differences in Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores by time.

To access Research Question 2, a repeated-measures MANCOVA was conducted to assess whether for Group 1, after controlling for gender and Fear Survey Schedule for Children-Revised scores, significant mean differences existed on the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores by time (Time 1 vs. Time 2 vs. Time 3). The dependent variables in this analysis were Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores; they were treated as continuous variables. The independent variable was be time (Time 1 vs. Time 2 vs. Time 3) for Group 1. The repeated-measures MANCOVA is used in research when subjects are measured on the same dependent variables that are administered to groups more than once (Tabachnick & Fidell, 2012)—in this case, on the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores for Group 1 at Times 1, 2, and 3.

Research Question 3: Are there significant differences in Bat Attitude Questionnaire and Fear Belief Questionnaire scores by Times 1, 2, and 3 for Group 2?

H_03: For Group 2, there are no significant differences in Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores by time.

H_a3: For Group 2, there are significant differences in Bat Attitude Questionnaire and Fear Belief Questionnaire scores by time.

To assess Research Question 3, a repeated-measures MANCOVA was conducted to assess whether for Group 2, after controlling for gender and Fear Survey Schedule for Children-Revised scores, significant mean differences existed in Bat Attitude Questionnaire and Fear Belief Questionnaire scores by time (Time 1 vs. Time 2 vs. Time 3. The dependent variables in this analysis were Bat Attitude Questionnaire and Fear Belief Questionnaire scores; they were treated as continuous variables. The repeated-measures MANCOVA is used in research when subjects are measured on the same dependent variables that are administered to groups more than once (Tabachnick & Fidell, 2012)—in this case, on the Bat Attitude Questionnaire and Fear Belief Questionnaire scores for Group 2 at Times 1, 2, and 3.

Theoretical Framework

It is understood that if children are given threat information about an unknown animal, their fear level increases and that positive information can be used to reverse an induced fear about a novel animal. Using the below-mentioned theory, then, it can be assumed that positive verbal information can change beliefs about an animal already familiar to children: the bat. The variables in this study were used to examine whether positive information can be used to change or decrease fear levels about an animal already associated with negative beliefs. The dependent variables in the analysis were Bat

Attitude Questionnaire and Fear Belief Questionnaire scores; the data were treated as continuous. The independent grouping between-subjects variable was group (Group 1 vs. Group 2). The independent grouping within-subjects variable was time (Time 1 vs. Time 2 vs. Time 3). Both variables are supported by Rachman's (1977) theory on the acquisition of childhood fears (Field, Argyris, & Knowles, 2001; Kelly et al., 2010). Therefore, the present study was an attempt to use Rachman's (1977) assumption that negative verbal information is an important component in the acquisition of a child's fear of animals and reversing this fear is possible with positive verbal information.

In 1977, Rachman developed an idea that fears and phobias could be acquired via three main routes or pathways. The first pathway Rachman proposed was through classical conditioning; the second was by modeling or vicarious learning; and the third pathway was through the communication of negative information. Rachman stated that negative verbal information probably has the biggest influence on the development of fears and phobias in childhood. Rachman's theory on the acquisition of childhood fears is explained in more detail in Chapter 2.

The Field et al. (2001) paradigm tested Rachman's (1977) theory of verbal threat information by examining whether children who were shown monster dolls and then later novel Australian animals, feared the stimuli after negative information was given. Each study indicated that indeed negative information induced fear. In a more recent study, Kelly et al. (2010) found that the induced fear of a novel animal could be reversed when positive verbal information was given.

The theory of Rachman's three pathways has been used in the choice of therapy

techniques for children with phobias. For example, if a child is afraid of a dog because of he or she has had a bad encounter with a dog in the past, introducing a child to a friendly dog may be the appropriate therapy. If a child has learned to fear dogs through modeling or vicarious learning, the therapist might model to the child that the dog is calm and not aggressive. However, if a child has learned through negative verbal information that a dog can be dangerous, the use of positive verbal information may be beneficial to undo learned responses. The concept of positive verbal information has not been explored fully in the past—that is, what is the prevailing belief about the dog, what is this fear based on, and how could the fear have been prevented? In this study, I explored the use of positive verbal information on a child's mild fear of bats. The hope was that we might begin to understand the effect that parents, peers, and media can have on the acquisition of fears and how positive information may help children to alleviate these mild fears or prevent them from acquiring fears in the first place.

Nature of the Study

In order to investigate fear of bats, I chose a quantitative research approach. The study concerned the question of whether positive verbal information changes children's (ages 7 to 9 years, enrolled in the Oakland County, Michigan public school system) level of fear. Based on previous studies examining the effects of information on fear of animals (e.g., Field, 2006b; Field, Argyris, & Knowles, 2001; Field & Lawson, 2003, 2008; Field, Lawson, & Banerjee, 2008; Kelly et al., 2010; Muris et al., 2010), the Fear Survey Schedule for Children-Revised (FSSC-R; Ollendick, 1983), the Bat Attitude Questionnaire (BAQ; Prokop & Tunnicliffe, 2008), and the Fear Beliefs Questionnaire

(FBQ; Field et al., 2001) revised for bats were administered to children. This research design had been used in the past and had proven effective in measuring fear beliefs both before and after an intervention such as positive or negative verbal information. The results of the FSSC-R were used as a potential covariate in this study. According to Ollendick (1983), the FSSC-R can be used to establish a general level of fear acuteness in both children and teens. Children who score high on the FSSC-R may be expected to show higher levels of fear both before and after the intervention. Gender (e.g., male or female) was also used as a potential covariate. The dependent variables in the study were the results of the FBQ and BAQ assessments, the independent grouping between-subjects variable was group (Group 1 vs. Group 2), and the independent grouping within-subjects variable was time (Time 1 vs. Time 2 vs. Time 3).

Results of both the Fear Belief Questionnaire (FBQ) and the Bat Attitude Questionnaire (BAQ) were used to measure fear beliefs before and after the positive verbal information. These assessments have been used in many studies and have indicated significant differences in fear beliefs after negative, positive, or no information was given to children. The BAQ specifically relates to past experiences with bats, as children with a higher knowledge base about bats showed lower beliefs in negative verbal information they might have been told (Prokop, Fancovicova, & Kubiatko, 2009).

The steps in this study followed the format established by Field and Lawson (2003). First, the Fear Survey Schedule for Children-Revised (FSSC-R) was administered to the children in both Group 1 and Group 2. Then, after all the FSSC-R questionnaires were completed, I showed both groups a photograph of a bat (in the study by Field &

Lawson, the photographs were of a quoll, quokka, and cuscus) and asked the students to fill out the Fear Beliefs Questionnaire (FBQ) and Bat Attitude Questionnaire (BAQ) while the photograph was exhibited. I gave the students verbal instructions on how to fill out the FBQ questionnaire and then administered it; I then gave instructions on how to fill out the BAQ and administered that questionnaire. The next phase differed by group: Positive verbal information vs. a minimum 24-hour waiting period before the positive information was given. Group 1 received the positive verbal information and then the students were asked to again fill out the FBQ and BAQ by myself. Group 2 did not hear positive verbal information at this time but were instead asked to fill out a maze and then complete the FBQ and BAQ. After a period of 24 hours or more, Group 2 heard the positive verbal information and completed the BAQ and FBQ for a last time. The members of Group 1 did not hear the positive information and were only asked to complete the BAQ and FBQ again. Field (2006) suggested that waiting a minimum of 24 hours is important in studies that examine before-and-after beliefs regarding animals. It may be important to note, however, that whether the periods of time between assessments were 24 hours (Field, 2006), 1 week, 1 month, 3 months, or 6 months (Field, Lawson, & Banerjee, 2008), the effects of verbal information were still seen.

The study followed this format (Table 1):

1. Time 1: Group 1 and 2 were administered the FSSC-R, a bat photograph was exhibited, the BAQ and FBQ were given.

   Group 1 received positive verbal information while Group 2 completed a maze.

2. Time 2 (immediately after Time 1): Both Group 1 and Group 2 completed the BAQ and FBQ.

   Minimum of 24 hours later: Group 2 received the positive verbal information while Group 1 did not.

3. Time 3: Both Group 1 and Group 2 completed the FBQ and BAQ.

Data were transferred into SPSS 18.0 for Windows for analysis. Descriptive statistics were conducted on the demographic variables. Frequency and percentages are presented for categorical data, including gender. Means and standard deviations are presented for continuous data, including FBQ, BAQ, and FSSC-R scores.

Table 1

Study Format and Time Span Between Group 1 and Group 2

Time	Group 1	Group 2
Day 1	FSSC-R Picture exhibited	FSSC-R Picture exhibited
Time 1	BAQ and FBQ given	BAQ and FBQ given
(Directly after Time 1)	Positive verbal information	Maze
Time 2 (Directly after positive verbal information or maze)	BAQ and FBQ given	BAQ and FBQ given
Day 2 (1 day after Time 2)	No additional information	Positive verbal information
Time 3	BAQ and FBQ given	BAQ and FBQ given

Operational Definitions

For purposes of the study, the following terms are defined and used in this study:

Bat: A mammal in the order Chiroptera (Latin for hand-wing). Bats are represented by over 1,000 species worldwide and are responsible for controlling insect pests, pollinating many species of plants, and dispersing seeds throughout tropical rainforests. In spite of the benefits of bats, they are among the most misunderstood, feared, and disliked animals on the planet. The reasons for fears and antipathy toward bats are based in myths, untrue stories, horror films, and negative—and many times misguided—media attention (Prokop, Fancovicova, & Kubiatko, 2009).

Bat presentation: The independent variable; some children received the bat presentation directly after questionnaires were administered and others 1 day later. The bat presentation was rich is positive verbal information and was given by myself. I have over 10 years of experience giving animal presentations.

Direct learning experiences: According to Rachman (1997), direct learning experiences are one way in which children learn fear. Direct learning experiences constitute traumatic experiences a child may have with the stimulus or situation. For example, if a dog bites a child, the child may then become fearful of dogs. This fear is caused by a direct learning experience.

Indirect learning experiences: Rachman (1991) proposed that indirect pathways play a larger part in acquiring fears, especially in childhood, than direct learning experiences play. Indirect learning experiences constitute learning fear through the verbal information or modeling behaviors children hear and/or see during their daily lives.

Fear: A displeasing emotion caused by the expectation of danger or concern ("Fear," 2012). Fear can be measured by verbal reports, physiological responses (i.e., increased heart rate), and/or outward behaviors, such as avoidance of the stimulus or situation (Kozak & Miller, 1982).

Positive verbal information: For the purposes of this study, positive verbal information is defined as any information that portrays the stimulus or situation in a positive light (Rachman, 1977).

Negative verbal information: For the purposes of this study, negative verbal information (also known as *verbal threat information*) is defined as any information that portrays the stimulus or situation negatively or in a threat-related manner. According to Rachman (1977), verbal threat information can be explained with reference to the idea that "children may become fearful when they hear or read that a stimulus or situation might be dangerous or have another negative connotation" (p. 385). Rachman conjectured that this route is extremely important in the formation of childhood fears and phobias.

Assumptions

In this study, the following assumptions were believed to be true. First, I followed the same written format when giving the positive verbal information. Each presentation was exactly the same as to the words used. Second, the Fear Survey Schedule for Children-Revised (FSSC-R), the Fear Beliefs Questionnaire (FBQ) revised for bats, and the Bat Attitude Questionnaire (BAQ) were reliable and valid instruments used with children. Fourth, the sample size effectively represented a general U.S. population of

children. Fifth, the students answered the questionnaires honestly and did not leave any answers blank, and written protocol was followed when giving students the questionnaires. Last, the selected variables accurately measured fearfulness of bats.

Scope and Delimitations

The scope of the study were students ages 7 to 9 years enrolled in public schools located in Oakland County, Michigan. This age group was chosen because it is the age at which the onset of animal fears is exhibited in children (Ost, 1987; Field & Davey, 2001).

In addition, only one classroom in Oakland County, Michigan was used. I could not control for the amount of information about bats the children experienced before the assessments were given. However, I asked both the teacher and principal if the classrooms had ever had a bat presentation (i.e., a presentation in which a person came into the classroom and gave positive verbal information on bats) in the past, and the answer was no.

Another delimitation was that the study only measured the fear levels in children residing in one school in Oakland County, Michigan. There may be a lack of diversity in children attending this school, and therefore the trends or results are not be generalized to populations outside this particular school.

Limitations

This study had limitations beyond my control. First, the study used a convenience sample, which is commonly used in psychological studies (Creswell, 2003). Convenience samples are both cost and time effective, but they may be biased by the ethnicity, socioeconomic status, and so forth of the population from which the sample is drawn.

Therefore, I was not able to extend the results of this study outside the Oakland County, Michigan area. Second, the Fear Survey Schedule for Children-Revised (FSSC-R), Bat Attitude Questionnaire (BAQ), and Fear Beliefs Questionnaires (FBQ) are self-reports. This may have created bias, as the study's participants might have tried to present themselves in a favorable light to me, especially after the positive verbal information was given (Creswell, 2003). Phillips and Clancy (1972) stated that there is little one can do in self-reports to alleviate this problem. The need for approval is based on many factors, including the personality traits of the participant. These personality traits, along with testing situations, may determine the participant's need for approval from myself, or others seen as authority figures (Phillips & Clancy). Some children may want to represent themselves as not being afraid of bats to impress their teachers, and boys may be less likely than girls to disclose that they are afraid of bats (Muris & Rijkee, 2011). The FSSC-R assessment should address the problems of this limitation. And last, attaining a large enough sample size to increase reliability and validity may have been a limitation of this study. I recruited students from schools in Oakland County, Michigan to obtain a sample size of at least 158 students, which should have alleviated this limitation.

Significance

There are many sources of threat information that are substantial contributors to the onset of fear (Rachman, 1977, 1991). These sources of information include stories, television, movies, the everyday dialogue of families (Muris & Field, 2010), and the media (Comer & Kendall, 2007). Usually, these fears go away naturally; however sometimes they persist for long periods of time and cause long-term distress (King,

Eleonona, & Ollendick, 1998).

Recent theories reflect an understanding that common fears set the groundwork for specific phobias (Craske, 2003; Muris, 2007); therefore, studies that examine the antecedents of these phobias are important in promoting positive social change (Muris & Field, 2010). Research has shown that that verbal information may have fear-enhancing and fear-reducing effects. Muris and Field (2010) stated that they believe it is time for researchers to test the Field et al. paradigm under more natural conditions. This study was an attempt to add to a body of literature that documents how fears are formed and how fears can be reduced, either before they become phobias, or as a strategy for preventing phobias in the first place, thus helping a large population of children.

Phobias of animals are so widely recognized that they are included in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 1994). The DSM-IV also states that children may not understand that these fears are excessive and may express them in ways that adults interpret as defiant behaviors such as crying, freezing, tantrums, et cetera. Prevalence rates of clinical childhood phobias range from 2.3% for severe phobias, to 14.5% for moderate phobias, and to 22.2% for mild phobias (Milne et al., 1995). In addition, although longitudinal studies are lacking (King, Eleonona, & Ollendick, 1998), adult sufferers of animal phobias have stated that their anxiety concerning animals began in childhood (Ost, 1987).

Lang (1977) stated that children exhibit up to three responses to their animal fears or phobias. The first are cognitive responses. These responses have been documented by

King et al. (1989) and include negative thoughts and self-deprecatory thoughts about being afraid of an animal. The second are physiological responses such as increased heart rate and breathing due to being in close proximity to the animal. The last are outward behaviors such as thumb sucking and avoiding the animal or situations where the animal may be encountered. Silverman and Rabian (1994) stated that in severe animal phobias, all three responses might be seen.

King, Muris, and Ollendick (2004) revealed that children with phobias have overactive senses and continuously watch their environment for cues that threat or danger might be near (see Vasey & Daleiden, 1996). Although these biases might have served a past function to avoid a dangerous situation, they persevere even in the absence of real cues. This may lead to anxiety, physiological arousal, and avoidance of certain situations or objects. Therefore, if the origin of these phobias is threat-related information, once present, they are likely to perform a crucial part in the maintenance and increasing severity of the phobia (King et al., 2000). According to King et al. (2000), the identification and measurement of these phobias are then very important.

This study may support social change if the results are used to develop a strategy to prevent children from acquiring fears in the first place. Finding that positive verbal information does indeed change negative beliefs in a natural environment, teachers and parents can provide children with more positive information, thereby protecting children from developing fears (Muris et al., 2010). In addition, results of this study can help children experiencing anxiety problems, fears, and phobias in clinical practice. Therapy could be expedited through finding the source of the fear and providing therapy from this

point, such as by using positive information in children experiencing fear or phobias due to negative information (Kelly et al., 2010).

Summary

In 1977, Rachman stated that there are three pathways in the acquisition of children's fears: conditioning, modeling, and threat information. Kelly et al. (2010) investigated whether fear can be unlearned through Rachman's pathway. The authors examined the effects of positive information and modeling with novel animals to determine if positive information can assist children in changing negative information that was previously told to them. As the authors hypothesized, fear beliefs significantly decreased in children who received positive information about the animals.

Chapter 2 includes detailed information about how existing literature was found and how Rachman's (1977) theory on verbal threat information served as the theoretical foundation of this study, as well as a literature review regarding normal childhood fears, past studies on threat information as a pathway to childhood fears, and how the Field et al. (2001) paradigm was used to study Rachman's pathway.

Chapter 2: Literature Review

Introduction

There are numerous studies that show how phobias might be formed but much less research on how to prevent fears from developing in the first place (Muris & Field, 2010). Only one research study investigated whether induced fear of unknown animals can be changed with positive information (Kelly et al., 2010), and there has been no research investigating whether fear of an animal that has prior biases associated with it can be changed. This study was an attempt to show that positive verbal information can have an effect on children's fears. The study examined the variables of fear and positive information within children enrolled in an Oakland County, Michigan public school.

As stated, numerous studies have shown that verbal information can be used to create fear about an unknown animal, create affinity toward an unknown animal (Field et al., 2001), and reverse an induced fear about the same unknown animal (Kelly et al., 2010). However, there have been no studies that examine whether positive verbal information can change children's fear beliefs about an animal already feared due to negative verbal information that may have been administered in the past. The purpose of this study was to investigate whether positive verbal information changes children's fear beliefs about an already feared animal, such as the bat.

Bats are mammals that are already associated with fear, probably due to myths, movies, misinformation, and propaganda (Prokop, Fancovicova, & Kubiatko, 2009). Bjerke and Ostdahl (2004) found that most people dislike invertebrates, bats, and rodents, and many people have phobias associated with bats due to negative beliefs about them.

The effects of fear can affect a child's schoolwork and ability to interact with peers (Kelly et al., 2010). Given that the consequences of fear have significations for therapists working with children who have anxiety problems (Kelly et al., 2010), the administration of positive information concerning the antecedents of specific phobias may be beneficial in order to contravene the negative experiences that can take place in a child's life. The need to continue fostering a model of fear that incorporates all means by which fears can be formed is consequential (Kelly et al., 2010).

Normal fears are part of childhood, and most children will grow out of them (Ollendick, King, & Muris, 2002). However, in some cases, these fears turn into phobias having long-term negative effects on children (Gullone, 1996). Rachman (1977, 1991) stated that there are three main ways in which fears may be acquired. The first pathway is through classical conditioning; the second route is through modeling or vicarious learning; and the third is through the transmission of verbal threat information. The hypothesis that verbal threat information plays a part in the transmission of fears is based on the idea that children may develop fear beliefs when they hear or read about a potentially dangerous situation or object (Muris & Field, 2010). Researchers have attempted to study the verbal threat pathway to determine exactly how threat influences fears (e.g., Cantor & Nathanson, 1996; Graham & Gaffan, 1997; Harrison & Cantor, 1999; King et al., 1997; Mezies & Clark, 1993b; Ollendick & King, 1991; Valkenburg et al., 2000; Van der Molen & Bushman, 2008).

Parent and self-reports were and still are commonly used in these studies, including the Phobic Origins Questionnaire (POQ; Ost & Hugdahl, 1981) and the Fear

Survey Schedule for Children-Revised (FSSC-R; Ollendick, 1983). However, many researchers (e.g., King et al., 1998) have stated that there are various problems with using retrospective techniques to study fear, including the notion that people may not remember where or how their fear originated.

Field, Argyris, and Knowles (2001) developed a paradigm in an attempt to deal with the problems of retrospective studies. Numerous studies using this paradigm (e.g., Field, Argyris, & Knowles, 2001; Field et al., 2002; Field & Lawson, 2003; Field, Lawson, & Banerjee, 2008) showed that when children were given threat information about an unknown animal, the children reported that they feared the animal to a greater extent than before the threat information was given. In addition, if these same children were then told that the information they heard about the unknown animal was false and told positive information about the animal, the children tended to change their previous fear beliefs—that is, they feared the animal less than after the negative information was given (Kelly et al., 2010).

The next steps in evaluating how fears could be reduced in children included a low-level intervention with children experiencing negative beliefs toward an animal already known to evoke fear: the bat (A. Field, personal communication, April 20, 2012). This study asked the question of whether correcting mild fears about an animal associated with prior negative beliefs, using positive verbal information, changed the level of fear. These variables had not been measured in the past and reflect an important gap in the literature (A. Field, personal communication, April 20, 2012).

This chapter provides a discussion of Rachman's (1977) theory concerning the

acquisition of childhood fears, as threat information appears to be the most probable of the three pathways (Rachman, 1977). Normal childhood fears are then discussed. Gullone (1996) stated that understanding normal fears is important, as understanding their developmental pattern, intensity, and duration helps in identifying and understanding the etiology of pathological fears. The chapter then delves into how threat information works as a pathway to fear, including the role of negative media, parental, and peer information. Field, Argyris, and Knowles (2001) designed a paradigm in order to study the effects of threat information, and much of the remaining chapter describes experiments based on this paradigm. These experiments have shown that verbal threat information does indeed increase fears toward novel animals and that positive verbal information helps children to change these fear beliefs. The chapter culminates with a synthesis of current literature relating to childhood fears, the effects of these fears, and how this study was designed to fill a gap in the literature.

Literature Search Strategy

The literature review for this study was conducted through Walden University's electronic databases held within the EBSCO host for the years of 1997 through the present, which included PsycARTICLES, PsycINFO, SocINDEX, and the Mental Measurements Yearbook in Full Text. The use of certain books was necessary for this dissertation because the American Psychiatric Association criteria are listed there. Examples of the books used for this study are the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 2000). Search terms included but were not limited to *bats, bats and fear, fear, fear of animals, animal fears,*

childhood fears, children's fears, childhood phobias, anxiety, child anxiety, adolescent anxiety, adolescent fears, adolescent phobias, media and childhood fears, Rachman's pathways and childhood fears, verbal threat information, Field et al.'s paradigm, and *disgusting animals.*

Theoretical Foundation

Rachman's Theory on the Acquisition of Fear Behaviors

Rachman (1977, 1991) hypothesized that fears and phobias can develop within three main routes: classical conditioning, modeling, and verbal threat information. Studies have documented the effects of classical conditioning (Davey, 1997; Field, 2006a; Mineka & Zinbarg, 2006; Ohman & Mineka, 2001; Watson & Rayner, 1920), modeling behavior (see Askew & Field, 2008, for a review), and threat information in the development of fear (Field, 2002). Rachman (1977, 1991) stated that verbal threat information might be the most important component in understanding childhood fears, as children receive constant and continuous information from parents, teachers, and peers during their formative years.

Numerous studies have been conducted in an effort to experimentally assess Rachman's three pathways by asking children and adults to remember the onset of their fears. In the first study, Ollendick and King (1991) asked 9- to 14-year-old children to complete questionnaires concerning the level of fear they felt toward the objects of 10 common childhood fears. The questionnaires also asked if the children could remember a negative experience (direct conditioning) or an individual exhibiting fear (vicarious conditioning), or if they were ever told frightening information about the situation or

object (verbal threat information). The results of this investigation indicated that a significant number of the children identified vicarious learning experiences and verbal information factors (56% and 39%, respectively) with the onset of their fears. Only 37% of the children suggested that direct conditioning experiences had led to their current fear beliefs.

Muris et al. (1977) reported on a study of children living in the Netherlands. These children were asked whether a frightening experience, a person acting afraid, or negative verbal information had any impact on their fear and if they thought that any of these experiences had caused their fear. Most of the children in the study (88%) stated that they were told alarming information about the feared item at some point in their life. Some children reported that modeling (50%) and conditioning (61%) influenced their fear as well. When the children were asked if they believed these experiences had anything to do with the formation of their fears, 40% said the inception of their fear had to do with conditioning, 27% cited information, 1% reported modeling, and 33% stated that they did not remember what started their fear belief (Muris et al., 1977). Muris et al. hypothesized that how fears were reported might depend on how the question is phrased. Important here are that the results of this research endorse Rachman's theory.

There have been two studies that specifically tested Rachman's theory of fear with the fear of dogs (Doogan & Thomas, 1992; King et al., 1997). Doogan and Thomas (1992) asked 15 boys and 15 girls, ages 7-12 years, to rate their fear of dogs. Results indicated that 11 children scored their fear as "high" and 10 children scored their fear as "low." After this, each child was questioned about his or her experiences with dogs.

Doogan and Thomas found that there was a significant number of children with high fear levels who reported that direct conditioning had an effect on their fears (i.e., a dog had jumped up on them). In addition, a significant number of low-fear children reported that they were anxious about negative information they had heard about dogs (i.e., stories about dog attacks and parents cautioning about dogs). The authors found no significant distinction between the groups in regard to modeling behaviors by the parents (i.e., the parent showed dislike of dogs).

King et al. (1997) surveyed the parents of 30 children enlisted from a phobia clinic who reported an extreme fear of dogs (16 girls, 14 boys; ages 5-14 years). Parents were given a survey with statements formulated from Rachman's theory that might suggest how their child's dog phobia had initially formed. The results of this study showed that a significant amount of the parents documented that the child's phobia came from one of Rachman's three fear pathways. Of the responses, 27% of the parents stated that direct conditioning experiences, such as being bitten by a dog, were the primary reason for their child's fear; 53% affirmed modeling as the most consequential factor; 7% reported that their child might have heard negative information about dogs; and 13% stated that they did not know the reason for the onset of the phobia.

Interestingly, many parents told the researchers that they had been afraid of dogs from a very young age and at the time still had anxiety when near a dog, but only 7% of the parents concluded that the transmission of information had an effect on their child's phobia of dogs. According to Muris et al. (1997) and Ollendick and King (1991), the finding that only a few parents indicated that information had an effect on their child's

fear may mean that verbal warnings were not as influential as expected in the development of clinical phobias. I might add that the parent(s) may not have been aware of how relevant negative information was in the development of their child's fear. Nonetheless, the findings of the study showed that at least one, if not more, of Rachman's three pathways were consistent with the children's fear.

Field, Argyris, and Knowles (2001) originated a paradigm in order to study Rachman's verbal information pathway. In their first study, the authors used two monster dolls never before seen by the children in the study and administered the Fear Beliefs Questionnaire (FBQ) and the Fear Survey Schedule for Children-Revised (FSSC-R). After the assessments were given, half the children were told negative verbal information about the dolls, half were told neutral information, and the assessments were administered once again. Field, Argyris, and Knowles found that after the negative verbal information was given, children were significantly more afraid of the dolls than before they received information or after neutral information was given. The Field et al. paradigm will be discussed in more detail under Literature Review.

If fears can be learned through negative verbal information, it is assumed that fears can be unlearned with the use of positive verbal information. As a matter of fact, Rachman (1977) stated that his idea of fears being acquired through the informational pathway was based on Bandura's (1969) and Rachman's (1972, 1976) ideas concerning fear reduction by indirect means (i.e., verbal information). Rachman (1977) postulated that many people do not become fearful of fear-invoking stimuli because they learn and are taught to deal with these challenges.

The theory of Rachman's three pathways has been used as a working model for the identification of the treatment needed for specific phobias or anxiety (King et al., 1998). For example, a child who has been classically conditioned to fear dogs may benefit from desensitization or flooding procedures, while a child who fears dogs because of indirect pathways may benefit more from modeling and cognitive restructuring (King et al., 1998). I would add, then, that a child who fears an animal due to threat information might also benefit from exposure to positive information about the animal.

In summary, in 1977, Rachman stated that he believed that there were three main ways in which fears and phobias could be learned. The first pathway may be through classical conditioning, the second through modeling or vicarious learning, and the third through negative verbal information. Verbal threat information can be explained as the notion of children becoming afraid of an object or situation when they see, hear, or read that it might be hazardous. Rachman wrote that the verbal threat information pathway might be specifically important in discerning how fears and phobias develop. For example, Rachman noted that because parents and peers provide continual information to children, one might safely conclude that it is this exactly this information that constitutes most common fears.

Literature Review

Normal Childhood Fears

According to King, Hamilton, and Ollendick (1988) and Morris and Kratochwill (1983), *normal fear*, described as a standard or ordinary response to threat, is an important and adaptive characteristic of human development. Normal fears can be

differentiated from *clinical fears* or *phobias* by considering if they occur at the age in which the fears are expected to develop, are prolonged, and/or significantly impede a child's daily life (Miller, Barrett, & Hampe, 1974). Gullone (1996) stated that understanding normal fears is important, as understanding the developmental pattern, intensity, and duration helps clinicians to identify and understand the etiology of pathological fears or phobias.

Gullone (2000) reviewed the various ways in which researchers have studied normal fears in children and adolescents in the past. Retrospective accounts were used in early studies; for example, Hall (1987) administered about 1,000 questionnaires to adults concerning the onset of their phobias between the ages of 4 and 26 years. Hall found that children had many normal fears that increased, decreased, or remained into adulthood. Using the same methodology as Hall (1987), Jersild and Holmes (1935a) also found that some fears increased with age and others decreased.

Observational investigations of childhood fears are scarce. Jones and Jones (1928) investigated the fear of a snake with 14-month-old to 19-year-old children. No fear of the snake was shown in children under 2 years of age, but at the age of 3 years, the fear was revealed, and by adulthood, the fear was very noticeable. Jersild and Holmes (1935a) observed children (ages 1 year to 5 years of age) responding to different stimuli to determine which one(s) produced fear. The authors observed the snake as the only object that the children feared at 6 years of age.

Parent/teacher reports were also used for assessing children's fears. Hagman (1932) gave mothers of 70 children (aged between 2 and 6 years) fear questionnaires. The

author found that an average of 2.7 fears per child was reported, with the most common being animals, doctor appointments, darkness, and strangers. In addition, many researchers have used child interviews to assess normal fears. One of the earliest of these studies found that animal fears were more prevalent among younger children than among older children (Jersild, Markey, & Jersild, 1933). When children within the age range of 4 to 19 years were interviewed, Maurer (1965) found an average of two fears for each child, Eme and Schmidt (1978) found four to five fears per child, and Slee and Cross (1989) found 9.3 fears per child. Although a difference in the number of normal fears was seen in children, there was general agreement about the types of fears children experienced. Researchers such as Derevensky (1974), Jersild et al. (1933b), Lentz (1985a, 1985b), Maurer (1965), and Winker (1949) found that young children (between the ages of 6 and 10 years) commonly feared animals.

Fear list investigations are an additional methodology used to assess children's fears. In these assessments children were asked to list their common fears (e.g., Angelino, Dollins, & Mech, 1956; Angelino & Shedd, 1953; Nalven, 1970; Pratt, 1945). Pratt (1945) asked children between the ages of 4 and 16 years to list their fears and the author found that children 9 years and younger reported animal fears as being most common; children 10 years and above reported fears such as sickness and academics as most common. Overall, Pratt stated that the most common fear was of animals. Angelino and Shedd (1953) supported Pratt's statement that animal fears were most common. However, Angelino and Shed (1953) found that animal fears were reported most commonly by children between the ages of 10 and 12 years and academic-related fears

were most commonly reported in 13-year-old children.

Currently self-report fear survey schedules have been the most common method of examining fears in children (Gullone, 2000). Using the Fear Survey Schedule for Children (FSSC-R; Gullone & King, 1992, 1993) Gullone and King (1993) found younger children reported more fears than older children and adolescents; and younger children reported more fears of animals than older children. Burnham and Gullone (1997) decided to test Australian children's fears and compare them to fears of American children using the Fear Survey Schedule for Children-Revised. The authors found that 8 of the 10 most common fears were the same in each country.

In summary, it appears that normal fears follow a developmental pattern in children. Babies and young toddlers' fears consist of loud noises or being dropped (e.g., Scarr & Salapatek, 1970). At the end of the first year, toddlers become afraid of strangers, new objects, high places, and being separated from primary caregivers (e.g., Kagan, 1978; Scarr & Salapatek, 1970). During preschool years, fears of being left alone, the dark, and animals become prominent and continue into later years. As the child matures into adolescence fears of failure, criticism and injuries arise (e.g., Angelino, Dollins, & Mech, 1956; Bauer, 1976; Gullone & King, 1997; Hall, 1987; King et al., 1989). Understanding the developmental age of normal fears of animals was important for me to understand because these ages were then targeted ages for the study.

It is apparent from the above studies that fears are numerous in childhood, what was not clear was how serious these fears are to children (Muris et al., 2000). Muris et al. (2000) studied fears of school-aged children and how serious these fear were by a formal

evaluation designed to measure anxiety disorders and specific phobias using the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 1994) criteria. The results of this study documented that fears were related to anxiety in 49% of the participants and in 23% of the children a diagnosis of an anxiety disorder could be given by the DSM-IV criteria. Muris et al., 2000 concluded that some children's fears interfered with daily routines and that early interventions were important to prevent anxiety problems.

Past Studies on Threat Information as a Pathway to Childhood Fear

The Phobic Origins Questionnaire (POQ; Ost & Hugdahl, 1981) has been used as a way to understand the origins of fear and anxieties. This questionnaire evaluates the roles of Rachman's (1977, 1991) three pathways by asking questions about conditioning, modeling, and threat information in the acquisition of a specific fear. The data collected from parent reports suggested that threat information did little in terms of children acquiring fears (Muris & Field, 2010). Mezies and Clark (1993b) gave the POQ to parents of children who were experiencing a phobia to water. Only 14% of parents believed that their child had been warned about the dangers of water or that their child had heard fearful stories about drowning. Of the parents surveyed, none thought that threat information had anything to do with their child's fear of water. Graham and Gaffan (1997) obtained similar results, with 78% of mothers reporting their child had heard threat information about water, but none indicated that this threat information made an important contribution to their child's fear. In King, Clowes-Hollins, and Ollendick's (1997) study the authors examined Rachman's theory from the parents' point-of-view

and found that threat information had nothing to do with their child's phobia of dogs. King, Clowes-Hollins, and Ollendick remarked that the parents' perceptions their child's fear might have been incorrect; a better option might have been to ask the children whether or not negative information contributed to their fear.

Ollendick and King (1991) used the Fear Survey Schedule for Children-Revised (FSSC-R) to determine if learning experiences had an effect on childhood fears. The researchers then asked children who reported "a lot of fear" to FSSC-R specific items, such as "being hit by a truck," or "snakes," etc., if conditioning, modeling, and/or threat information took any part in the acquisition of their fear. Ollendick and King found that 89% of the children reported that hearing frightening stories about the feared situation or object was substantial in the creation of their fears. Conditioning and modeling were mentioned, but not as significantly. In follow-up research Doogan and Thomas (1992), Muris, Du Plessis, and Loxton (2008a), Muris, Merckelbach, and Collaris (1997), Muris et al. (2000a), and Muris et al. (2001) found similar results, indicating threat information was commonly reported by children as an antecedent to their fear beliefs.

There is also data that suggests threat information is not important in acquiring childhood fears. Merchelback et al. (1996b) found that when spider phobic children were asked about their experiences with spiders only 5% ascribed that threat information played a role in his or her fear. To cross-validate the children's responses parents were also asked how they believed their child's fears originated. None of the parents reported that they believed threat information initiated their child's fear of spiders. However, in about half the children interviewed a fear of spiders had always been present; this

indicates an evolutionary predisposition to the fear of some stimuli, such as spiders, heights, and strangers (Menzies & Clarke, 1995; Poulton & Menzies, 2002). Muris and Field (2010) remarked that this idea was hard to substantiate. For example, it may be that some fears, considered in-born or genetic, were so deeply rooted in culture that parents modeled or gave threat-related information from such an early age that the learning events could no longer be remembered by the child.

King et al. (1998) stated that retrospective questionnaires such as the Phobic Origins Questionnaire (POQ; Ost & Hugdahl, 1981) might lack validity for three main reasons. First, there have been no control groups used in these studies. The lack of control groups, with either children experiencing no fear or low fear, make it almost impossible to understand if Rachman's (1977) learning pathways differed among children. Second, there is a potential for memory biases, especially when adults are asked to consider the origins of their fears as children. In a study by McNally and Steketee (1985) over 75% of the participants could not recall the beginning of their phobia. This bias may be less of a complication in studies that asked children if they remembered the origins of their fears because the event was probably more recent. However, Field et al. (2001) stated that asking children about traumatic events probably evoked a bias in itself because these events might be more deeply encoded into memory and, therefore, more easily remembered than indirect means. Third, the measurement instruments used may have lacked validity. These measurements were used to determine the cause of an individual's fear. However, the instruments might not have actually been measuring the cause of fear. Some studies have attempted to address this issue by cross-validating the child's answers

with answers from parents (Merckelbach et al., 1996b). The results of Merckelback et al's (1996b) study suggested that verbal information was not a determining factor in acquiring fear beliefs. Although these findings suggested that verbal information may be a less feasible pathway to fear beliefs in children, it is possible that individuals simply do not recall the comparatively benign personal incidences that may have contributed to the fear (Field et al., 2001).

A significant criticism of retrospective reports, which may confound both memory bias and measurement validity, is that these past reports only measured what the individual felt was responsible for his or her fear, not the events that may have actually led up to the fear. For example, a young girl might believe her fear of dogs is based upon a large dog barking at her while she was walking home from school. However, she may have failed to remember that her parents told her numerous times to keep her distance when encountering dogs (Muris & Field, 2010). How people regard the causation of their fear is influenced by their past beliefs as well as cultural and societal influences. Because of this, people place subjective (rather than objective) influences on certain experiences, which may lead to false accusations about the cause of their fear (Muris & Field, 2010). According to Muris (2007) there is a convincing possibility that fear develops through the influences of one, two, or all three of Rachman's pathways, as well as an individual's genetic vulnerabilities. People have a difficult time separating intricate interactions in their life (Muris & Field, 2010). This makes it complicated to use retrospective assessments to discover if negative information pathways play a role in the origin of fears. Therefore, although these measurements have been valuable in helping people

discover what they attributed their fears to, they have limited use in understanding the roles that any of Rachman's (1977) pathways play in the development of fears (Muris & Field, 2010).

The Field et al. Paradigm Used to Study Childhood Fear of Animals

In order to test Rachman's (1971) theory that information is an important component in acquiring fear, Field, Argyris, and Knowles (2001) formulated an experimental paradigm, now known as the Field et al. Paradigm. In their study, Field, Argyris, and Knowles established this paradigm as a valuable research technique. Fear beliefs in 40 children from primary schools in the United Kingdom about two 'monster' dolls (a creature that the students had no prior experience; the monsters were essentially the same except the monster named Takis was pink and the monster named Makis was yellow) were gauged before disclosure to either information or a video tape of an actor demonstrating anxiety or assurance toward the dolls. The age range of children, from 7- to 9-years old, was selected because it is a critical age in the development of animal phobias (Ost, 1987; Field & Davey, 2001).

In this study, four videos were made of an adult female interacting with the 'monster' doll. The adult was filmed two times with each doll, one time while displaying assurance and positive interaction with the dolls and once displaying anxiety and avoiding interaction with the dolls. Two stories that depicted information about the dolls were also written. Both stories made believe that the monsters were real creatures, but one story included positive information about the dolls and the other story contained negative information.

The Fear Survey Schedule for Children-Revised (FSSC-R) and the Fear Belief Questionnaire (FBQ), which was created by the researchers to assess fear beliefs about the dolls, were used in this study. After either positive or negative verbal information was given, the questionnaires were administered in order to collect information on whether fear beliefs were changed. Based on Rachman's (1977) model negative information (either given verbally or by modeling) should increase fear and positive information (again, either given verbally or by modeling) should decrease fear. The study also documented whether the mode of information (verbal information or modeling) impacted the change in fear beliefs.

In the first part of Field et al.'s (2001) study, the Fear Survey Schedule for Children-Revised (FSSC-R) was administered to each child. Then the children were introduced to two monster dolls: Makis and Takis. The children were asked to envision that the dolls were real monsters and were set out so all the children could view them and the Fear Belief Questionnaire was administered (FBQ). The children were then split into 4 random groups consisting of 10 children each. Group 1 saw the positive modeling videotape of Makis and the negative modeling videotape of Takis. Group 2 watched the negative modeling videotape of Makis and the positive modeling videotape of Takis. Group 3 received the positive verbal information story on Makis and the negative verbal information story on Takis, and Group 4 received the negative verbal information story on Makis and the positive verbal information story on Takis. Finally, the children were asked to complete the FBQ once again.

Field, Argyris, & Knowles (2001) found that the positive verbal information

lowered fear beliefs and the negative verbal information increased fear beliefs toward the dolls. Positive modeling decreased fear beliefs and negative modeling decreased these beliefs, and although significant, was not as effective as the verbal information.

Field, Argyris, and Knowles (2001) suggested that the major implication of these results was that the Field et al. paradigm was a successful way to examine the role of verbal information on fear beliefs. This is consequential because it meant that the paradigm could be used to study the effects of verbal information in a variety of settings and situations. In addition, the results of the study confirmed past studies, such as the Ollendick and King's (1991) study that found 88.8% of children believe their fear originated from negative information. Field, Argyris, and Knowles' study made three important advances in the study of fear acquisition. First, that although past studies have shown that individuals may attribute fear to information after the fact, the studies did not give substantial evidence that this was indeed true (Ollendick & King, 1991). This study took one step forward to show that information may indeed alter fear beliefs. Second, retrospective studies may be biased because "normal" individuals were not utilized (Ollendick & King, 1991). Field et al.'s paradigm can be used to collect data on normal samples. This is accomplished by using the Fear Survey Schedule for Children-Revised (FSSC-R) to exclude children who may be experiencing high levels of anxiety. Therefore, the Field et al. study showed that fear beliefs can be changed in "normal" children, suggesting information is a viable mechanism by which children may acquire fears of objects or situations in which they have no past knowledge. Last, the paradigm used dolls never seen by the children before, which means the children were not

predisposed to fearing or liking the dolls before the experiment even began.

However, as Field and Lawson (2003) noted there was one main problem in this study. The study contained made-up monsters, not actual animals, and therefore, a clear association to a child's fear of animals could not be entirely made. Field, Argyris, and Knowle (2003) adjusted the paradigm by using actual Australian marsupials (a quoll, quokka, and the cuscus); these were animals unknown to children living in the United Kingdom. Each child was told a story about an animal with positive information, negative information, or no information associated with it. The results concluded that information unfavorable in nature notably elevated fears and favorable information notably lowered children's fear beliefs about the animal (Field, Argyris, & Knowles, 2003).

In a study by Field et al. (2003) the authors extended Field et al. (2001) and Field and Lawson's (2003) work to examine how negative information might affect anxiety levels about situations involving peers and school. Field et al. (2003) used an older sample (12-17 year olds) than that of Field et al. and Field and Lawson studies because normal fears about social situations are observed during this older age group and phobias revolving around peer acceptance typically developed at this age as well (Field & Davey, 2001).

Three different social situations that adolescents might be confronted with were examined: Eating with others, talking in front of an audience, and meeting new peers. Each group of adolescents was given positive information, negative information, or neutral information about the one of the situations. The Fear Schedule Survey for

Children-Revised (FSSC-R) and the Social Fear Beliefs Questionnaire (SFBQ) was used to measure fear beliefs in the children. Children were divided into three groups, in one group a teacher read the stories, in another group a student read the stories, and in the last group the children received no stories. The FSSC-R was given to each child; after the FSSC-R was completed the SFBQ was then given. After these assessments were finished, the children were placed in one of nine groups. In Group 1, a teacher told an affirming story about public speaking, a negative story about eating, and a neutral story about meeting a group of other children. In Group 2, a teacher told a neutral story about public speaking, positive story about eating, and a negative story about meeting a group of other children. Group 3 heard a teacher tell a negative story about public speaking, a neutral story about eating, and a positive story about meeting a group of children. Groups 4-6 were the same, except that another student read the stories, and Groups 7-9 heard no stories. After the stories were told the children completed the SFBQ once again.

Results of the Field et al. (2003) study showed mixed results; when a teacher told the story negative information had little impact, when another students told a story on public speaking the negative information increased fear beliefs and positive information decreased fear beliefs. Otherwise, there were no significant differences. The main finding in this study revealed that the information given about common situations does indeed effect an adolescent's fear beliefs, but the results were dependent on the situation and who supplied the information. To be more specific, negative information about meeting new friends and eating in public had no effect on perceived fear, no matter who gave the verbal information, but when a peer member gave negative information on public

speaking fear beliefs were elevated.

A major difference in this study, as compared to Field et al.'s (2001) study, is that the Field et al. study used animals in which children had no prior experiences and the Field et al. (2003) study used situations that the children were familiar. In addition, as the authors stated, the social situation experiment may have varied in its familiarity of past experiences: children have plenty of experience talking and eating in front of peers but little or no experience in public speaking. In addition, public speaking has proved to be an extremely avoidant activity for children (Beidel, 1991).

Field and Lawson (2003) stated that although there were methodological improvements in their study there were still additional improvements that could be made. Stated shortcomings of the Field et al (2001) study included uncontrolled word frequency in each story, whether fear information affects behavioral avoidance, and that self-report measures may be inaccurate because children might be trying to hide their true beliefs (Greenwald, McGhee, & Schwartz, 1998). Therefore, other studies attempted to use additional methods (besides self-report questionnaires) to verify past results including a Behavioral Avoidance Task (BAQ) and the Implicit Association Task (IAT).

Field and Lawson (2003) used the Implicit Association Task (IAT; Greenwald, McGhee, & Schwartz, 1998) to assess whether the self-report measures were actually measuring a change in attitude rather than an awareness of the experimental demands. The IAT was developed as a tool to measure mental approaches and attitudes in social experiments and to study disorders, such as animal fears (Teachman, Gregg, & Woody, 2001), social anxiety (de Jong, 2002; de Jong, et al., 2001), and depression (Gemar et al.,

2001). The IAT is grounded in the hypothesis that it should be easier to connect two related concepts than unrelated concepts. Field and Lawson used the example provided by Greenwald, McGhee, and Schwartz (1998) in which the words ROSE and WASP and LOVE and ROTTEN were presented on a computer screen. Students were then asked to categorize the words by pressing a key on the screen and the interval of time to respond in milliseconds was recorded. If ROSE and LOVE are associated categories, and WASP and ROTTEN are associated categories, then the participants response times should be faster than when ROSE and ROTTEN and WASP and LOVE were assigned to the same key because these categories were incompatible. Therefore, Field and Lawson used the IAT to measure the alliance between the words and fear beliefs.

The researchers told 6 to 9 year old children three different stories about the same Australian marsupials as in Field's (2003) study, which were the quoll, the quokka, and the cuscus. For each child positive information was given about one marsupial, negative information about the second, and no information about the third. The dependent variables of the study were time to approach three touch boxes, self-report of fear beliefs, and response times on the Implicit Association Task. The independent variables included negative, positive, or no information about the animal, time before and after the stories were told, and the child's gender. Gender was added into the study because the effects of gender had not been previously explored.

In the self-report measure (i.e., Fear Beliefs Questionnaire), before any stories were told, the children viewed all animals on the positive side. After the negative information was disseminated the fear beliefs of both males and females significantly

increased. After positive information was given the fear beliefs decreased, and after no information was given the fear believes remained unchanged.

Field and Lawson (2003) found that in compatible trails (i.e., positive information about the quoll and positive words) of the Implicit Association Task the students performed much quicker than in incompatible trials (i.e., negative information about the quoll and positive words). Gender had no effect. The touch box task showed that both girls and boys took a longer amount of time when asked to approach a touch box that they believed housed the animal after negative information was given, and less time when asked to approach a touch box that they believed housed the animal after positive or no information was given.

According to Field and Lawson (2003), this study made four main advances in understanding how fears are formed. First, fear information affected self-reported measures of beliefs along with behavioral avoidance of the stimulus. According to Field and Lawson, this short-term avoidance could be the first stage toward phobic behavioral avoidance. Ollendick and King (1991) used Field et al.'s (2001) paradigm and discovered that the effect of negative information continued at least a week after it was administered. Second, children did not just understand the experimental demands, but the fear information actually had an effect on implicit measures of beliefs toward animals. Third, positive information reduced fear beliefs. Fourth, gender did not affect fear beliefs.

As Field and Lawson (2003) pointed out, the results of the self-reported measurements used in the past may have reflected some compliance on the part of the children to perform to the requirements that they felt the experimenter expected.

However, the results of the Implicit Association Task suggested otherwise. Children found compatible trails (trails where negative animals were assigned unpleasant keys and positive animals were assigned pleasant response keys) easier than incompatible trials (trails where the negative animal is assigned to pleasant words and the positive animal is assigned to the unpleasant words). These conclusions advocate that children in these studies are demonstrating unanimity between the Implicit Association Task and self-report analyses (Field & Lawson, 2003).

In 2008, Field, Lawson, and Banerjee wanted to test two additional hypotheses. First, they were interested in testing whether learned fear beliefs were durable in nature. If learning beliefs are long lasting, the effect of verbal threat information on fear has a greater influence on future learning experiences and creating phobias or anxiety. Second, whether learning fear varies across age span. Fear learning should vary across age because fears are evolutionary in nature and change according to developmental stages, children under 8 years old should be especially influential to learning fear of animals compared to older children. Field, Lawson, and Banerjee used data from Field and Lawson's (2003) published data in younger children following them for up to 6 months after the first administration. Data from a new group of children (ages 12-13 years) were also added.

Each child first saw pictures of the cuscus, quoll, and quokka and completed the Fear Survey Schedule for Children-Revised (FSSC-R) and Fear Beliefs Questionnaire (FBQ). The children were then randomly placed in groups and received either a negative story, positive story, or no story about the three animals. After this, the children

completed the FSSC-R and the FBQ for a second time and the Behavioral Approach Task (BAT) and Implicit Association Task (IAT) were also added. Children were then visited at their schools 1 week, 1 month, 3 months, and 6 months after the information was given and once again asked to complete the FBQ and the IAT. The BAT could not be administered again because the children had already been debriefed that the boxes did not actually contain real animals.

Results of the self-reported fear belief questionnaires showed that, as in the past, fear beliefs increased after negative verbal information was given decreased, increased after positive verbal information was given, and did not change after there was no information given. In addition, after the 1 week, 1 month, 3 months, and 6 months intervals these fear beliefs remained with the children. Implicit Association Task results showed that incompatible trails induced longer reaction times than compatible trails at each time period, but were only significant for the younger group. Results of the Behavioral Approach Task showed that children who had heard negative information took longer to approach the touch boxes compared to the other boxes, regardless of age.

This study is interesting, as it showed that information significantly affected measures of fear and that these fears can be persistent over a 6-month time span, when measuring both direct and indirect measurements of fear. Age was only a significant factor in the Implicit Association Task, with younger students taking longer to complete incompatible trails, but had a non-significant effect on self-reported questionnaires and the Behavioral Avoidance Task. Field, Lawson, and Banerjee (2008) stated that future research should concentrate on the exacerbated effect of verbal information (both positive

and negative) on more common or relevant antecedents.

The Field et al. Paradigm Used to Study Positive Information on Childhood Fear of Animals

Kelly et al. (2010) stated that although there is much research on how children learn fears, there is only a meager amount of research that explored if fear levels are changed in a positive direction through Rachman's (1977) same three pathways. Using animals that were previously associated with danger (the quokka and quoll), Kelly et al. examined the effect of either positive verbal information or modeling a positive experience on children's fear beliefs. The research design developed by Field and Lawson in 2003 was modified to fit the hypothesis that positive information and modeling would significantly reduce fears and avoidance toward the animals.

In this study, the researcher exhibited pictures of a quokka and a quoll. The Fear Beliefs Questionnaire (FBQ) was then administered. Children were randomly placed into experimental groups. The quokka negative group received threat information about the quokka and no information about the quoll, and the quoll negative group received threat information about the quoll and no information about the quokka. Children were then asked to complete the FBQ again.

After this, another researcher asked the children to complete the Behavioral Avoidance Task (BAT) using the touch box that contained the words quokka and quoll above them. Children were asked to approach each box and to place their hand into the box. Following the BAT the children were administered positive information, modeling, or no information regarding the quoll and quokka. In the positive information group the

children were told that the previous negative information they heard about the animals was a mistake, and that the animal was actually friendly and kind. The researcher went on to give the children more positive information on the animal. In the modeling group the researcher put her hand into the box with the word quoll or quokka on top and showed no anxiety or fear while dong so. In the control group the children were given no information or modeling, but were asked to draw a star. The researcher finally asked the children to fill out the Fear Beliefs Questionnaire and to complete the Behavioral Avoidance Task again.

Results of this study showed that fear beliefs increased after verbal threat information and anxious modeling, but not in the control group (i.e., no information was given), as seen in previous studies (e.g., Field et al., 2008). As the authors hypothesized children who received the positive information and positive modeling showed lower levels of fear than children who received no information. However, there was significantly less fear beliefs exhibited within children who heard the positive information compared to the children who were shown modeling behavior. Kelly et al. (2010) suggested that the pathway in which the anxiety had been created was with verbal threat information; therefore it seems plausible that the way in which the children unlearned this fear was with positive verbal information.

Strengths of this study included its prospective experimental design and a sample size of 107 children. This large sample size probably meant that the effect of relearning fears was detected (Kelly et al., 2010). However, according to Kelly et al. (2010), the study was limited by the fact that the children were given the positive information only a

short time after the negative information was given. The authors suggested that because the animals were unknown, the anxiety and fear they experienced were speculative, and these concepts needed to be addressed in natural environment.

In summary, both positive verbal information and positive modeling was effective in reducing fear beliefs about animals in which children were given a predisposition to fear the animals. The positive verbal information was more effective than modeling, but both significantly reduced fear more than no information reduced the fears. This study showed the effects of reducing fear beliefs by positive information, and these concepts should now be attempted in a natural environment (Kelly et al., 2010).

Summary and Conclusions

The reported frequency of childhood fear of animals is common and may lead to a specific animal phobia. The effects of fear and the reduction of fear may help clinicians alleviate many anxiety problems that children face. Kelly et al. (2010) stated that using positive information about probable situations and objects of childhood phobias might help to counteract the negative information children hear throughout their lives.

Rachman (1977; 1991) postulated that some fears might be the product of indirect learning occurrences, such as negative verbal information. Studies in this literature review have revealed that there is a direct relationship between negative verbal information and reported fear (e.g., Field, Argyris, & Knowles, 2001; Field et al., 2003; Field and Lawson, 2003). In Kelly et al.'s (2010) study the researchers revealed that after negative information was given about an unknown animal, children's fears increased. However, after positive information about the same unknown animal was given fears

subsided. Rachman (1977) suggested that many people who should have become fearful of a stimulus do not become fearful because of the positive verbal information they have heard throughout their lifespan.

There has been much research on the effects of negative verbal information on fear beliefs about unknown animals, and just one study on the effects of positive verbal information given on unknown animals after negative information was administered. However, there have been no studies that examined whether fear beliefs changed after positive information was given about an animal already known to evoke fear.

This present study contributes to social change by helping to recognize the role positive verbal information may have on reducing mild fears, or in preventing these fears from occurring in the first place. In addition, understanding how fears are formed can help form therapeutic techniques and therefore, results can be expedited (Kelly et al., 2010).

Chapter 3 describes the procedures that will be used to conduct this study. It also provides detail on the research design and rational, methodology, sampling and sampling procedures, instrumentation, threats to validity, and ethical procedures.

Chapter 3: Research Methods

Introduction

Based on the literature discussed in Chapters 1 and 2, the intent of this research was to examine the effect of positive verbal information on fear toward bats, a group of traditionally maligned animals. Given that the consequences of fear have significance for therapists working with children with anxiety problems (Kelly et al., 2010), the proactive administration of positive information concerning the antecedents of common phobias may be beneficial in order to contravene the negative experiences that can take place in a child's life. According to Kelly et al. (2010), phobias can severely affect a child's academic and social functioning. Therefore, Kelly et al. stated that the need to continue fostering a diverse theoretical and clinical comprehension of fear beliefs is consequential.

The next steps in evaluating how childhood fears can be reduced include administering positive information to children who may be experiencing mild fear or anxiety toward an animal already known to evoke fear: the bat (A. Field, personal communication, April 20, 2012). This study was quantitative in nature and was designed to determine whether correcting mild fears about an animal with associated prior negative beliefs by using positive verbal information changes the level of fear. The dependent variables in the analysis were Bat Attitude Questionnaire (BAQ) scores and Fear Beliefs Questionnaire (FBQ) scores; the data were treated as continuous. The independent grouping between-subjects variable was group (Group 1 vs. Group 2). The independent grouping within-subjects variable was time (Time 1 vs. Time 2 vs. Time 3). These variables had not been measured in the past and reflected an important gap in the

literature (A. Field, personal communication, April 20, 2012).

The theoretical basis for the research followed the conceptual framework indicating that threat-related information about bats leads to fear of them. This study used an experimental approach to determine if a presentation rich in positive information about bats changed students' fear of bats in any way. If students' fear beliefs were corrected by positive verbal information, then there was the potential for fear to decrease. In this chapter, the research design and rationale are discussed, along with issues regarding the population of interest, sampling, the presentations, measurements (validity and reliability), and data analysis methods.

Research Design and Rationale

The research design was quantitative and involved two groups of children 7 to 9 years of age. These ages were chosen based studies by Ost (1987) and Field and Davey (2001), who suggested that these are the ages at which animal phobias emerge. The recommended sample size to achieve empirical validity was calculated to be 158 participants. The dependent variables in the analysis were Bat Attitude Questionnaire (BAQ) scores and Fear Belief Questionnaire (FBQ) scores; the data were treated as continuous. The independent grouping between-subjects variable was group (Group 1 vs. Group 2). The independent grouping within-subjects variable was time (Time 1 vs. Time 2 vs. Time 3). Consistent with previous studies (e.g., Field, Argyris, & Knowles, 2001; Field & Lawson, 2003; Field et al., 2003; Kelly et al., 2010), the Fear Survey Schedule for Children-Revised (FSSC-R; Ollendick, 1983) was used as a covariate and administered before the positive information was given for all children. Another covariate

in this study was gender. The Fear Beliefs Questionnaire (FBQ) has been used in over 10 previous studies, and in this study it was revised for bats. The FBQ was given both before and after the positive verbal information in both groups. Respondents to the questionnaire used a 5-point Likert scale to endorse various statements about bats and situations involving them; results indicated attitudes and fears toward the animal. In addition, the Bat Attitude Questionnaire (BAQ) was given before and after the positive verbal information and also measured fear beliefs toward bats.

The questionnaires given before the positive verbal information allowed me to obtain a profile of prior knowledge and fear beliefs about bats. The questionnaires given after the positive verbal information then focused on whether the prior knowledge was restructured and measured any changes in fear beliefs that occurred.

During Time 1, both Groups 1 and 2 received the Fear Survey Schedule for Children-Revised (FSSC-R), a photograph of a bat was exhibited (Appendix D), and the children were asked to complete the Bat Attitude Questionnaire (BAQ) and Fear Beliefs Questionnaire (FBQ). Group 1 was then provided with the positive verbal information while Group 2 completed a maze. During Time 2 (immediately after Time 1), both groups were asked to complete the BAQ and FBQ once again. After this, there was a period of one day, after which Group 2 received the positive verbal information and Group 1 did not receive any further information. Immediately after Time 2, I asked Group 1 and Group 2 to complete the BAQ and FBQ one last time (Time 3). In this way I collected data that indicated changes after positive verbal information for both groups. By using this design, I accumulated data that compared Group 1 (before vs. after positive

verbal information) to Group 2 (before vs. after a maze, then after positive verbal information).

Methodology

Population

For this study, I recruited students in second through fourth grade who attended a public school in Oakland County, Michigan.

Sampling and Sampling Procedures

The sample was drawn from a population of schools in Oakland County, Michigan and was a convenience sample of roughly 158 students. A convenience sample consists of groups that have already been formed in the natural environment (Creswell, 2003) and can be used to collect general data (Lawal, 2009). However, according to Lawal (2009), convenience samples may be limited in their ability to be generalized to the entire population. If the results are not generalized in this way, then a convenience sample is an entirely acceptable form of research design (Lawal, 2009). Therefore, results from this study are not generalized to the entire population of U.S. students.

The proposed analyses included two repeated-measures MANCOVAs as well as a one-between and one-within MANCOVA. G*Power 3.1.3 was used to calculate the appropriate sample size for each type of analysis. The one-within, one-between MANCOVA required the most stringent sample size. Sample size was calculated using an effect size (*f*) of .25, an alpha of .05, a recommended power of .80, two groups, and three measurements.

The recommended sample size to achieve empirical validity was calculated to be

158 participants. Oakland County serves 28 local school districts with a total of 233 schools, and according to the 2010 Census, there were 471,115 households, with over 30% of the households having children under the age of 18 (Oakland County School Districts, 2012). The 28 school districts in Oakland County differ as to the number of students in each class. For example, in a high population area such as Farmington Hills (27 schools), there is an average of 70 children in second grade, 70 children in third grade, and 80 children in fourth grade, for an average of 220 children. In a lower populated area such as Clawson (5 schools), there are an average of 40 children in second grade, 30 children in third grade, and 30 children in fourth grade, for an average of 100 students (Schoolfinder, 2013). Given that the calculated sample size was 158 students and there might be a dropout rate, three schools were randomly selected to participate in the study.

Procedures for Recruitment, Participation, and Data Collecting

Public schools in Oakland County were randomly selected for potential participation in the study. A random number generator was used to select schools. Once a school was selected, I emailed the school principals, explained the purpose of the study and the need for students in grades second through fourth, asked if the school had ever had a bat presentation in the past, and asked if the school was interested in the study.

One school principal emailed back and stated she was excited about the study, had 210 students enrolled in second through fourth grade, never had a bat presentation, and could begin the study in late August. The principal was then emailed the Letter of Cooperation, which she signed electronically and returned. It was confirmed that the

research project would be conducted at the school, and IRB approval was granted.

Consent and assent forms were then given to the students to bring home to their parents. Children were asked to have their parents sign the forms and explain the assent forms to them to sign and return within 1 week, if possible. After a 1-week period, 175 children had consent and assent forms signed, and these children were recruited for the study. I collected these forms 12 days later, kept grades separate, and then used a random number generator to determine which group the child was assigned to. For example, all students in second grade were assigned either to Group 1 or 2 determined by the random number generator, all students in third grade were assigned to Group 1 or 2 determined by the random number generator, and so forth.

On the day of the study, data collection involved the group administration of self-administered questionnaires to children who had returned their signed consent and assent forms. The first step was to administer the Fear Survey Schedule for Children-Revised (FSSC-R). Each child was asked to write his or her name on the first page and to wait to begin. Once all the students were ready, I read the first item of the FSSC-R and the possible answers. I then read the remaining questions and possible answers until all children were finished. Children were also told that if they did not understand a question, they should raise their hand and I would help them. The FSSC-R took about 15 minutes to complete, which was compatible with Ollendick's (2006) research.

After all the Fear Survey Schedule for Children-Revised questionnaires were completed, children were shown a photograph of a bat and asked to fill out the Fear Beliefs Questionnaire (FBQ) and Bat Attitude Questionnaire (BAQ). With each

questionnaire, I read the questions and possible answers until all children were finished. Again, children were asked to raise their hands if they had any questions. The FBQ was designed to take less than 10 minutes to complete (Field, Argyris, & Knowles, 2001), and the BAQ was designed for completion in less than 10 minutes (Prokop, Fancovicova, & Kubiatko, 2009). Both of the questionnaires were completed by the children in the appropriate time frame.

At this point, Group 1 was brought into a separate room and received the positive verbal information, and the students were then asked to again fill out the Fear Beliefs Questionnaire (FBQ) and the Bat Attitude Questionnaire (BAQ) as I read the questions and possible answers again. The children in Group 2 received a learning task (i.e., maze) to complete and were asked to fill out the BAQ and FBQ again. After 24 hours (1 day later), the same positive verbal information was given to Group 2 (Group 1 received no further information). Then, both Group 1 and Group 2 were asked to fill out the BAQ and FBQ for one last time. In this way, data were collected after positive verbal information for both groups (Table 2).

After the last assessments were given, the children were asked if they had any additional questions. Children asked many questions about vampire bats and bats living in their house. I answered all of their questions. The children and teachers were thanked for their time. The teachers and principal were told that if they were interested in obtaining results of this study, they would be emailed to them when the study was complete. They were also told that there would be no follow-up procedures.

Table 2

Data Collection Schedule

Time	Group 1	Group 2
Day 1	FSSC-R	FSSC-R
	Picture exhibited	Picture exhibited
Time 1	BAQ and FBQ given	BAQ and FBQ given
(Directly after time 1)	Positive verbal information	Maze
Time 2	BAQ and FBQ given	BAQ and FBQ given
(Directly after positive verbal information or maze)		
Day 2	No additional information	Positive verbal information
(1 day after time 2)		
Time 3	BAQ and FBQ given	BAQ and FBQ given

Prior to the start of the study, I explained the purpose of the study and the fact that participation was completely voluntary. As Dillman (2000) suggested, a nearly identical introduction was provided at each presentation, and I expressed my appreciation for each individual's attendance and for taking time to participate in the study.

The psychoeducational intervention (i.e., positive verbal information that was given) involved educational teaching strategies. The objectives of the intervention were for students participating in the presentation to acquire and maintain more scientifically accepted knowledge about bats, change possible negative attitudes due to false beliefs,

and therefore fear bats less.

This short presentation followed the format of the vignette constructed by Field and Lawson (2003) and used in numerous later studies (e.g., Field, 2006; Field & Lawson, 2008; Field, Lawson, & Banerjee, 2008; Field & Schorah, 2007). The name of the animal, facts about what the animal eats, and the environment in which the animal lives were changed to conform to this experiment. The facts presented in the redesigned vignette were based on Prokop, Fancovicova, and Kubiatko's (2009) study indicating that unknown bat facts and myths about bats may increase fear.

The positive information vignette was as follows:

> Bats in the United States feed on insects and actually eat many insect pests like mosquitoes. Bats here in the U.S. do not drink blood at all. There are vampire bats that live in Central and South America, but they usually drink the blood of cows and chickens. Bats in other parts of the world eat fruit and drink nectar and are very important in helping rainforests that have been cut down to regrow. Bats are clean mammals that have soft fur and feed their baby milk, like all mammals. Bats live in old trees, but may sometimes move into attics when they cannot find homes. Putting up a bat house in your yard will give bats a place to live and help get rid of pesky bugs. Many people in Michigan like bats and find them to be very helpful.

Instrumentation and Operationalization of Constructs

Bat Attitude Questionnaire (BAQ)

Prokop, Fancovicova, and Kubiatko (2009) developed the Bat Attitude

Questionnaire (BAQ). The BAQ was designed to measure students' (ages 6-16 years) beliefs in false information and knowledge of bats using a 5-point Likert scale. This assessment consists of 46 questions and, according to the authors (Prokop, Fancovicova, & Kubiatko, 2009), should take children roughly 10 minutes to complete. The authors modeled the questionnaire after Kellert's (1996) attitudes toward animals scale. There are four main measurements in the BAQ.

Negativistic questions (Cronbach's alpha = 0.92) were designed to measure an avoidance of bats as a direct result of fear or dislike toward the animal. Most of the questions in this scale were taken and modified from the Spider Phobia Questionnaire (Kindt, Brosschot, & Murit, 1996). Prokop, Fancovicova, and Kubiatko (2009) simply took the word *spider* and replaced it with *bat*. Examples of questions in this category are as follows: "I would rather avoid places were bats are present," "Whenever I see a bat on television I close my eyes," and "I dislike looking at pictures of bats." Scientistic questions (Cronbach's alpha = 0.90) were intended to measure a student's interest in bats. These questions consisted of basic bat facts and include "Some tropical bats feed on fruit," Most bats feed on blood," and "Bats overwinter in abandoned caves and buildings." Ecologistic questions (Cronbach's alpha = 0.63) asked students whether they were concerned about the conservation of bats in their natural environment and addressed how they saw the relationship between bats and humans. Questions in this category included statements such as "We should all care about bat protection," "Bats are not important in nature," and "Protection of old buildings and trees contributes to bat protection." False beliefs or myths (Cronbach's alpha = 0.73) about bats were taken from

online web sources, publications, and the authors' experiences with beliefs. These questions included "Bats suck out blood from humans," "Bats bite people in the neck," and "Bats can get tangled in your hair."

> The BAQ initially consisted of 57 questions scored from
>
> 1 (strongly disagree) to 5 (strongly agree). The questions are formulated either negatively or positively. Negative items are scored in reverse order, and the summed scores provide a composite index of attitudes toward bats. Therefore, low scores reflect negative attitudes and high scores reflect positive attitudes toward bats. (Prokop, Fancovicova, & Kubiatko, 2009, pp. 22-23)

According to Prokop, Fancovicova, and Kubiatko (2009), the validity of the BAQ was confirmed through review by university zoology professors and experts in biology. The reviewers were asked to read the questions and determine whether or not each question reflected the goals of determining knowledge of bats and belief in myths about bats. Based on the comments of the reviewers, the BAQ was revised and a pilot study of 60 students was initiated. There were 11 questions that did not correlate with others (Pearson's $r > 0.2$) and were removed, as suggested by Salta and Tzougraki (2004).

Prokop, Fancovicova, and Kubiatko (2009) used the Saiser-Meyer-Olkin (KMO) to measure sampling adequacy. The KMO is an "index for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. Large values for the KMO measure indicate that a factor analysis is appropriate" (Prokop, Fancovicova, & Kubiatko, 2009, pg. 5). The authors stated that the KMO measure of smaling adequacy was 0.90. In addition, the significance level was $p <$

0.001, which indicates that the variables are indeed related. The Cronbach's ∝ coefficient for the instrument is 0.93, which indicates high reliability (Nunnaly, 1978).

The Bat Attitude Questionnaire has been used in previous studies. Prokop and Tunnicliffe (2008) stated that knowledge of animals might influence a child's beliefs and behavior toward them. It is therefore important to measure the amount of knowledge, negative attitudes, and alternative conceptions (i.e. myths and untrue ideas) believed about the animal. In their study, the authors found that knowledge and alternative conceptions about bats were found irrespective of the child's age or gender. Prokop and Tunnicliffe (2008) also reported a correlation between the belief in myths about bats and negative attitudes toward them. In addition, a link between attitude and knowledge was found, meaning the less the children knew about bats the more they disliked and/or feared them.

In 2009 Prokop, Fancovicova, and Kubiatko published a study that found that the less undergraduate students knew about bats the more they feared them, and that students with knowledge of bats appreciated them more. Prokop, Fancovicova, and Kubiatko also reported that false beliefs about bats were pervasive among most of the students, documenting a greater need to teach about these animals.

Fear Survey Schedule for Children-Revised (FSSC-R)

The Fear Survey Schedule for Children-Revised (FSSC-R) was developed by Ollendick (1983) to measure the construct of fear in children and adolescents. It has been used to identify specific fear sensitivities in children and adolescents who might benefit from treatment, and to measure successes of treatment modalities in therapy (Ollendick,

2006). According to Ollendick (1983) the FSSC-R is useful in measuring what fears may lead to avoidance behaviors, and has been used in numerous studies on the how fears developed, why fears developed, and the course of fear beliefs in youths. Originally, the assessment was developed for children between the ages of 8 to 11 years, but has been extended to youths from 7 to 16 years (Ollendick, King, & Frary, 1989). This assessment, using a Likert type scale, was designed for completion in less than 10 minutes (Ollendick, 2006).

The Fear Survey Schedule for Children-Revised (FSSC-R) has established its reliability by documented internal consistency, coefficients, test-retest reliabilities and stability of scores over time. Various researchers have reported Cronbach's alphas coefficients for the total fearfulness score be above 0.90, and the factor subscale scores have ranged from 0.57 to 0.89 (Friedman et al., 1991; King et al., 1992; Ollendick, 1983; Ollendick et al., 1989). King and Ollendick (1992) documented "test-retest reliability for overall fearfulness to be 0.82 after a week, 0.82 after two weeks, and 0.62 after three months. The FSSC-R scores have been found to be stable over one week and two weeks, but decrease over a three-month period of time" (King and Ollendick,1992; pp. 53-54). Scores on subscales have been shown to relate to phobias and anxiety disorders (Last et al., 1989; Weems et al., 1999) and have established convergent and divergent validity (Ollendick, 2006). And last, the FSSC-R has been used to determine whether clinical intervention was successful in studies with children and adolescents who suffered from fearful and anxious behaviors (Barrett, Dadds, & Rapee, 1996; Kendall, 1994; Kendall et al., 1997; Ollendick, 1996; Silverman et al., 1999).

There are numerous studies that used the Fear Survey Schedule for Children-Revised (FSSC-R), including studies that examined fears in anxiety-disordered children (e.g., Last, Grancis, & Strauss, 1989), a cross-sectional study of fears in Australian children and adolescents (e.g., King et al., 1989), fear differences between gender, age, and nationality (e.g., Ollendick & King, 1989), fears in children diagnosed with mental retardation (e.g., Gullone, King, & Cummins, 1996), and general fears in children and adolescents (e.g., Muris, Merckelbach, & Collaris, 1997; Ollendick, Matson, & Helsel, 1985; Silverman, Fleisig, & Rabian, 1991).

Muris et al. (2000) documented use of the Fear Survey Schedule for Children-Revised (FSSC-R) and the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 1994) and reported that most children fears were rated normal at their developmental level. However, in some children these fears were high enough to reflect severe anxiety problems that significantly impeded daily activity. Gullone (2000) explored past research on the developmental patterns of normal fear and found a predictable trend in what children were afraid of by age group. The study also examined the validity of the FSSC-R and found it to be a reliable instrument.

Several studies using the Fear Survey Schedule for Children-Revised (FSSC-R) directly pertained to the study of animal fears. In 2000, King et al. reviewed numerous studies on the origin of animal phobias in children and found that the FSSC-R was a suitable fear survey to use with children experiencing animal phobias. The authors stated that the assessment was useful in identifying a specific stimulus causing the phobia and as many of the 80 items are related directly to fears of animals. King, Muris, and

Ollendick (2005) reviewed studies that used the FSSC-R and found that animal phobias should not be ignored because of the amount of distress they cause to the child and the restriction these children may experience in daily activities. The authors stated that assessments, such as the FSSC-R, should also be used when clinical intervention plans are made.

Ollendick and King (1991) used the Fear Survey Schedule for Children-Revised (FSSC-R) to show that Rachman's hypothesis on indirect learning experiences was indeed a viable explanation for childhood fear. In this study of school children the 10 most extreme fears, as assessed by the FSSC-R, were examined. Children who reported "a lot of fear" to the FSSC-R items such as "*Being hit by a car or truck,*" and "*Snakes*" were given a further assessment that asked whether indirect or direct means were the reason for these fears. Ollendick and King found that a significant majority of children reported that threat-related information (i.e., hearing information from parents, teachers, peers, television, movies) had an influence on the fears.

The Fear Survey Schedule for Children-Revised (FSSC-R) has also been used as a covariant (a variable that may interact with the level of fear the children report) in studies that examined Rachman's indirect pathways in the procurement of fears. Field, Argyris, and Knowles (2001) administered the questionnaire before any other assessments were given and before negative verbal information was given to establish that differences in normal fears did not affect results of the study. The authors found no significant differences in FSSC-R scores among the children. Field and Lawson (2008) also used the FSSC-R as a covariate in their study. In this experiment the authors exposed children to

threat, positive, or no information about three previously unknown animals and examined the outcome of new learning experiences on the children. Muris et al. (2009) investigated to what extent disgust-related, cleanliness-related, and threat-related information changed children's fear beliefs, feelings of dislike, and avoidance behavior about unknown animals. The findings of this study showed that disgust-related information promoted fear and threat-related information enhanced feelings of disgust toward unknown animals. Last, Muris and Rijkee (2011) used the FSSC-R as a covariate when studying whether fear beliefs were lowered after a discussion with a same-gender peer compared with the child on his or her own.

Fear Beliefs Questionnaire (FBQ) Revised for Bats

The Fear Belief Questionnaire (FBQ) was developed for children ages 6-9 years of age by Field, Argyris, and Knowles in 2001 in order to test the paradigm that administering threat-related information about a monster doll increased a child's fear of the doll. The FBQ consisted of 18 items, took less than 10 minutes to complete, and asked children to rate their fear beliefs towards two dolls (Takis and Makis) by circling a number from -2 (very sad) to +2 (very happy). Original questions asked, "*How do you feel about being friends with Takis?*" Eight items referred to the doll Makis, and eight to the doll Takis, the last two items measured attitudes toward monsters in general.

In 2003, Field and Lawson redesigned the original Fear Belief Questionnaire (FBQ) in order to further test the Field et al. paradigm (2001). This time the questionnaire consisted of 23 items and asked children to reply to questions about unknown Australian animals (the quoll, cuscus, and quokka) and situations involving them using a 5-point

Likert scale (0 = No, not at all; 1 = No, not really; 2 = Don't Know/Neither; 3 = Yes, probably; 4 = Yes, definitely). This revised assessment was made up of 7 different questions. Each question was repeated once for each animal (making 21 questions total). "All items are scored from 0-4; so that high scores were consistent with having a high fear belief and low scores were consistent with having a low fear belief. Several items on the FBQ were reverse-scored. The scores for each animal were averaged to create a single fear belief score for each animal that could range from 0-4" (Field & Lawson, 2003, pg. 1281). Questions included "*Do you think a cuscus/quoll/quokka would hurt you?*" and "*Would you be scared if you saw a cuscus/quoll/quokka?*" Field (2006a) stated that, "Cronbach's alphas for the subscales were .87 (cuscus subscale), .86 (quokka subscale) and .84 (quoll subscale) before the information, and .98 (cuscus subscale), .98 (quokka subscale), and .97 (quoll subscale) after the information. These values are consistent with other studies from the author's laboratory using the scale" (pp. 5-8).

In a study by Field (2006a) the author examined how negative, positive, or no information about unknown animals might lead to anxiety in children. This revised Fear Belief Questionnaire was used before the information was given and then afterwards and results showed that negative information increased fear. Field, Lawson, and Banerjee (2008) used the FBQ, again as a before and afterwards measurement, and assessed whether positive, negative, or no information affected fear in the long-term. The authors reported the children still feared the unknown animals, when they were given negative information, up to 6 months later. Field and Lawson (2008) used the FBQ to examine what the impact of threat, positive, or no information had on future learning. The results

of this study supported theories of fear acquisition.

In Kelly et al.'s (2010) study the authors studied whether fears in children could be reduced using positive verbal information. Fear was measured by the Fear Belief Questionnaire (FBQ) after negative verbal information was given and then after positive information was administered. Results showed that children did indeed change their views about the animals after positive verbal information was given. And finally, Muris and Rijkee (2011) administered the FBQ to determine if children whom were provided either positive verbal information or no information about the same three Australian marsupials, the quoll, quokka, and cuscus, changed levels of fear under two conditions. Condition 1 consisted of rating fear beliefs after the children viewed photographs of the animal while alone. Under Condition 2, fear beliefs were measured after a discussion on what constitutes fear with a friend. Results showed that students who discussed fear related issues with a friend showed lower scores on the FBQ than children who did not.

Operational Definitions

The dependent variables in the analysis were the Bat Attitude Questionnaire scores and Fear Beliefs Questionnaire scores, Fear Survey Schedule for Children-Revised scores and age were covariates; the data were treated as continuous. The independent grouping between-subjects variables were group (Group 1 vs. Group 2). The independent grouping within-subjects variables were time (Time 1 vs. Time 2 vs. Time 3).

According to the Merriam-Webster Online Dictionary (http://www.merriam-webster.com/dictionary/fear, n.d.), fear is "an unpleasant often strong emotion caused by anticipation or awareness of danger;" or an "anxious concern." From a biological

perspective the function of fear is to protect the animal (humans included) from harmful situations, whether these situations are actual or only believed to be harmful (Ohman, 1986). However, fear is merely a construct, inferred from measurements of verbal reports, physiological responses, and outward behaviors such as avoidance (Kozak & Miller, 1982). The Bat Attitude Questionnaire and the Fear Beliefs Questionnaire, two assessments used in numerous other studies to measure the same construct, were used to measure fear.

The Bat Attitude Questionnaire (BAQ) consisted of 46 self-administered questions that were scored from 1 (strongly disagree) to 5 (strongly agree). The items were worded as either a negative or positive question and therefore the negative items were scored in reverse order. The scores were then scored and the result provided a composite index of attitudes toward bats. Low scores reflected a negative attitude and high scores reflected a positive attitude toward bats (Prokop, Fancovicova, & Kubiatko, 2009). Example questions include "*I would like to read a book about bats,*" "*If someone tells me that bats are somewhere around me, I get nervous,*" and "*I would like to have some bats in the attic of my home.*"

Field and Lawson (2003) developed the Fear Beliefs Questionnaire (FBQ) questionnaire. This assessment included 7 different questions that endorsed questions about 3 unknown marsupials using a 5-point scale (0 = No, not at all; 1 = No, not really; 2 = Don't know or Neither; 3 = Yes, probably; and 4 = Yes, definitely). Items were scored from 0 to 4 and a high score indicated a high level of fear and a low score indicated a low level. Several items were reverse scored and a numerical mean was then

calculated to create a single fear belief score for each animal that could range from 1 to 4. Sample questions include "*Would you be happy to have a cuscus/quoll/quokka for a pet or look after for a few weeks?*" "*Do you think a cuscus/quoll/quokka would hurt you?*" and "*Would you go out of your way to avoid a cuscus/quoll/quokka?*"

The Fear Survey Schedule for Children-Revised (FSSC-R) contained 80 items that were rated on a three-point scale of none, some, or a lot. A total fearfulness score could be calculated as well as how intense these fears were (for example, the number of fears scored as '*a lot*'). The items were scored 1, 2, or 3 and then summed. The total fear score ranged from 80 to 240. Statements on the FSSC-R included "*Not being able to breathe,*" "*Being hit by a car,*" and "*Getting burned by fire*" (Ollendick, 2006).

Data Analysis Plan

Data were transferred into SPSS 18.0 for Windows for analysis. Descriptive statistics were conducted on the demographic variables. Frequencies and percentages were presented for categorical data. Means and standard deviations were presented for continuous data, including the Fear Beliefs Questionnaire, Bat Attitude Questionnaire, and Fear Survey Schedule for Children-Revised scores.

Research Question 1

Are there significant differences on Fear Beliefs Questionnaire (FBQ) and Bat Attitude Questionnaire (BAQ) scores by Groups 1 and 2 and Times 1, 2, and 3?

H_0 1 (Null): There are no significant differences on the Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by group and time, after controlling for gender and the Fear Survey Schedule for Children-Revised.

H_a 1 (Alternative): There are significant differences on the Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by group and time, after controlling for gender and the Fear Survey Schedule for Children-Revised.

To assess Research Question 1, a one within one between multivariate analysis of covariance (MANCOVA) was conducted to determine if, after controlling for gender and Fear Survey Schedule for Children-Revised scores, there are statistically significant differences by group and time on FBQ and BAQ scores. The one within one between MANCOVA was the appropriate analysis when the goal of research was to assess if simultaneous mean differences exist on two or more continuous dependent variables by time and group with control variables. The dependent variables in the analysis were BAQ scores and FBQ scores; the data were treated as continuous. The independent grouping between-subjects variables were group (Group 1 vs. Group 2). The independent grouping within-subjects variables were time (Time 1 vs. Time 2 vs. Time 3).

The MANCOVA used the *F* test and created a linear combination of the dependent variables for a grand mean, and was used to determine if there were significant differences by group and time. Prior to conducting the MANCOVA analysis, the potential covariates were examined and data was assessed to be certain there were no univariate or multivariate outliers. Additionally, the assumptions of normality and homogeneity of variance/covariance matrices were assessed prior to analysis. Normality assumed that the two subdomain scores were normally distributed and were assessed with the examination of normal q-q plots. The MANCOVA was robust toward the violation with respect to Type I error (Stevens, 2009). Homogeneity of variance was assessed

using Levene's test and assumed that posttest cognitive scores had equal error variances. Homogeneity of covariance matrices was the multivariate equivalent to homogeneity of variance and was tested using Box's M test (Leech, Barrett, & Morgan, 2008). Data were assessed for univariate outliers with the creation and examination of *z* scores on the subdomains. If *z* scores below -3.29 or above 3.29 were found, the case was removed from the data set (Tabachnick & Fidell, 2012) as a univariate outlier. Multivariate outliers were assessed with the examination of Mahalanobis distances; outliers were removed from the data set. If the MANOVA results were statistically significant, the individual ANOVAs were interpreted (Tabachnick & Fidell, 2012) and pairwise comparisons were conducted.

Research Question 2

Are there significant differences on the Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by Time 1, 2, and 3 for Group 1?

H_0 2 (Null): For Group 1, there are no significant differences on the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores by time.

H_a 2 (Alternative): For Group 1, there are significant differences on the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores by time.

To access Research Question 2, a repeated-measures MANCOVA was conducted to assess if for Group 1, after controlling for gender and the Fear Survey Schedule for Children-Revised scores, significant mean differences existed on the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores by time (Time 1 vs. Time 2 vs. Time 3). The dependent variables in this analysis were the Bat Attitude Questionnaire and Fear

Beliefs Questionnaire scores; they were treated as continuous variables. The independent variable was time (Time 1 vs. Time 2 vs. Time 3) for Group 1. The repeated-measures MANCOVA was used in research when subjects were measured on the same dependent variables that were administered to groups more than once (Tabachnick & Fidell, 2012); in this case, on the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores on Group 1 at Times 1, 2, and 3.

Research Question 3

Are there significant differences on the Bat Attitude Questionnaire and Fear Belief Questionnaire scores by Time 1, 2, and 3 for Group 2?

$H_0 3$: For Group 2, there are no significant differences on the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores by time.

$H_a 3$: For Group 2, there are significant differences on the Bat Attitude Questionnaire and Fear Belief Questionnaire scores by time.

To assess Research Question 3, a repeated-measures MANCOVA was conducted to assess if, for Group 2, after controlling for gender and the Fear Survey Schedule for Children-Revised scores, significant mean differences existed on the Bat Attitude Questionnaire and Fear Belief Questionnaire scores by time (Time 1 vs. Time 2 vs. Time 3. The dependent variables in this analysis were the Bat Attitude Questionnaire and Fear Belief Questionnaire scores; they were treated as continuous variables. The repeated-measures MANCOVA was used in research when subjects were measured on the same dependent variables that were administered to groups more than once (Tabachnick & Fidell, 2012); in this case, on the Bat Attitude Questionnaire and Fear Belief

Questionnaire scores on Group 2 at Times 1, 2, and 3.

Threats to Validity

External validity refers to the degree to which the results of a study can be generalized across individuals, settings, and times. Because the participants being studied only included children ages 7 to 9 years old in Oakland County, Michigan the population validity should not be expected to be generalized to age groups outside of this range nor this socioeconomic status. In addition, although I tried to take measures to ensure different ethnicities were represented, there is no way to determine if this was a threat to the validity in the study. And last, this study only represents a short segment in time. Although the effects of negative verbal information were detected in children up to 6 months after the study, we should not assume the same for positive verbal information.

Internal validity refers to the degree that the independent variable in the study is caused by the dependent variable or whether unknown factors are contributing to the anticipated change. Because children were in the age range of 7- to 9-years old, age may be a confounding variable. It is possible that 9 year old children have much better knowledge of animals in general and bats in particular and therefore fear them less.

Some of these confounding variables should be balanced among the groups due to the random assignment of Group 1 and Group 2, keeping in mind that Group 2 eventually received the positive verbal information and their fear levels were evaluated. Randomization was preformed by a computerized random number generator; each class will received a random number, even numbers received treatment first and odd numbers receive treatment after the appropriate time interval. In this way the I was able to measure

changes before and after the positive verbal information was administered, and then after a waiting period.

Construct validity refers to how well the chosen assessments measure fear beliefs in the children. As addressed in the Methodology section, all assessments were chosen because of their high reliability and validity in previous studies.

Ethical Procedures

The following measures were utilized to ensure the protection of participants' rights: This study was bound within the framework of privacy, confidentiality, and informed consent. The Institutional Review Board (IRB) was solicited for approval to conduct research. Proper steps were taken to inform the principal, teachers, students, and parents about the intended research and gained permission to conduct research at the school's site.

Consent forms sent to the parents indicated that the study presented positive information about bats and asked the parent to consider whether their child had any fears due to negative exposure to the animal. Assent forms given to the children on the day of the study explained that the parent had consented to the study, gave an explanation of the study in proper terminology, and ensured that the child felt comfortable with the study before it began.

Parents, students, teachers, and the principal were be told that they may refuse participation in the study, with no adverse outcomes. At any time during the study participants could withdraw from the study with no questions asked. As this study merely showed a bat photograph to children and asked them to complete questionnaires, no

adverse effects were predicted. However, if a child decided he or she did not want to complete the questionnaire for any reason, this decision was respected.

Teachers were aware that if a student appeared to be uncomfortable during the study he or she could be quietly led out of the classroom. Teachers were asked to use their best judgment on this decision, according to school policies and procedures. In case that a student needed to be removed and appeared to be significantly distressed about the study the principal could consult the list of referral sources provided by the researcher, including Affiliated Psychologists of Bloomfield Hills. Child psychologists at Affiliated Psychologists have already been arranged to be available on that day. The school could also choose to use their own behavioral health care specialist. None of these procedures were utilized, as all students were comfortable with the questionnaires.

The raw data is located in a locked file cabinet in my home. I am the only person with access to the file cabinet key. The data are available, upon request, for participants to view anytime during the study. The raw data will be stored for five years before being destroyed, and when destroyed, will be shredded and discarded.

Summary

In summary, Chapter 3 presented research methods to measure children's fear beliefs in bats both before and after positive verbal information was administered. Consistent with previous studies (e.g., Field, Argyris, & Knowles, 2001; Field & Lawson, 2003; Field et al., 2003; Kelly et al., 2010) the Fear Survey Schedule for Children-Revised (FSSC-R) was used as a potential covariate before the presentation, for all children. The Fear Beliefs Questionnaire (FBQ) has been used in over 10 previous

studies, however in this study it was revised for bats, and was given both before and after the positive verbal information. The FBQ endorsed various statements about bats and situations involving them using a 5-point Likert scale and measured attitudes and fears toward the animal. The Bat Attitude (BAT) questionnaire was given before and after the presentation. This questionnaire measured fear and beliefs toward bats.

The population of interest was second, third, and fourth grade students attending a public school in Oakland County, Michigan. This population was a convenience sample of roughly 158 students, randomly drawn from a database of schools. The classrooms were randomly assorted into one of two groups. Group 1 received the assessments, positive verbal information was administered, and then Group 1 once again filled out the questionnaires. Group 2 filled out the assessments, the next day was provided with the positive verbal information, then asked to once again fill out the questionnaires again. The validity and reliability of each instrument has been established in numerous past studies.

Upon completion of the quantitative data collection, results were analyzed by MANCOVA, ANOVA, and descriptive statics such as mean and standard deviation using Statistical Package for the Social Sciences 14.0 Software. (SPSS; Norusis, 2006). The study was quantitative in nature and addressed the question: Is there a significant difference in the amount of fear children experience toward bats after the administration of positive verbal information?

Threats to external validity included generalization of age groups outside of the 7- to 9-years, possible differences in ethnicity and gender, and although the effects of

negative verbal information was detected in children up to 6 months after the study, we should not assume the same for positive verbal information. Threats to internal validity include knowledge differences between 7, 8, and 9 year olds, and gender differences.

Chapter 4 provides descriptive and demographic characteristics of the sample, describes how representative the sample population is of the entire population and a description of whether administration of positive verbal information went as planned. The results of the study is reported including characteristics of the sample and statistical analysis findings.

Chapter 4: Results

Introduction

This quantitative study used the Field et al. (2001) paradigm to determine whether positive verbal information had any effect on children's fear levels toward bats. Kelly et al. (2010) stated that the consequences of fear may affect a child's academic and social functioning, and therefore understanding the antecedents of fears is important.

The study examined two groups of children during three time periods. During Time 1, both Group 1 and Group 2 received the Fear Survey Schedule for Children-Revised (FSSC-R) assessment, a photograph of a bat was shown, and the Bat Attitude Questionnaire (BAQ) and Fear Beliefs Questionnaire (FBQ) were given. Group 1 then received positive verbal information and Group 2 completed a maze. During Time 2, both Group 1 and Group 2 again completed the BAQ and FBQ. After a 24-hour time period, positive verbal information was administered to Group 2 (Group 1 did not receive any further positive verbal information). During Time 3, both Group 1 (no further information was given) and Group 2 (immediately after the positive verbal information was given) were administered the FBQ and BAQ for a last time.

The Bat Attitude Questionnaire consisted of 45 questions that were scored from 5 (*strongly disagree*) to 1 (*strongly agree*). The questions were formulated either negatively or positively. Negative items were scored in reverse order, and the summed scores provided a composite index of attitudes toward bats. High scores reflect positive attitudes and low scores reflect negative attitudes toward bats. The Fear Beliefs Questionnaire consisted of 9 questions. All items were scored from 0-4, with several items reverse-

scored. The scores for each animal were averaged to create a single fear belief score for each animal that could range from 0-4. High scores are consistent with having low fear beliefs, and low scores are consistent with having high fear beliefs.

The study sought to address the following questions:

Research Question 1

Are there significant differences in Fear Belief Questionnaire and Bat Attitude Questionnaire scores by Groups 1 and 2 and Times 1, 2, and 3?

H_0 1 (Null): There are no significant differences in the Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by group and time, after controlling for gender and the Fear Survey Schedule for Children-Revised.

H_a 1 (Alternative): There are significant differences in the Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by group and time, after controlling for gender and the Fear Survey Schedule for Children-Revised.

To assess Research Question 1, a one-within one-between multivariate analysis of covariance (MANCOVA) was conducted to determine if, after controlling for gender and the Fear Survey Schedule for Children-Revised scores, there are statistically significant differences by group and time in the Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores. The dependent variables in the analysis were the Bat Attitude Questionnaire scores and Fear Beliefs Questionnaire scores; the data were treated as continuous. The independent grouping between-subjects variable was group (Group 1 vs. Group 2). The independent grouping within-subjects variable was time (Time 1 vs. Time 2 vs. Time 3).

Research Question 2

Are there significant differences in the Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by Times 1, 2, and 3 for Group 1?

H_0 2 (Null): For Group 1, there are no significant differences in the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores by time.

H_a 2 (Alternative): For Group 1, there are significant differences in the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores by time.

To assess Research Question 2, a repeated-measures MANCOVA was conducted to determine whether for Group 1, after controlling for gender and the Fear Survey Schedule for Children-Revised scores, significant mean differences existed in the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores by time (Time 1 vs. Time 2 vs. Time 3). The dependent variables in this analysis were the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores; they were treated as continuous variables. The independent variable was time (Time 1 vs. Time 2 vs. Time 3) for Group 1. The repeated-measures MANCOVA is used in research when subjects are measured on the same dependent variables that are administered to groups more than once (Tabachnick & Fidell, 2012); in this case, on the Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores for Group 1 at Times 1, 2, and 3.

Research Question 3

Are there significant differences in the Bat Attitude Questionnaire and Fear Belief Questionnaire scores by Time 1, 2, and 3 for Group 2?

H_03: For Group 2, there are no significant differences on the Bat Attitude

Questionnaire and Fear Beliefs Questionnaire scores by time.

H_a3: For Group 2, there are significant differences on the Bat Attitude Questionnaire and Fear Belief Questionnaire scores by time.

To assess Research Question 3, a repeated-measures MANCOVA was conducted to determine whether for Group 2, after controlling for gender and the Fear Survey Schedule for Children-Revised scores, significant mean differences existed on the Bat Attitude Questionnaire and Fear Belief Questionnaire scores by time (Time 1 vs. Time 2 vs. Time 3. The dependent variables in this analysis were the Bat Attitude Questionnaire and Fear Belief Questionnaire scores; they were treated as continuous variables. The repeated-measures MANCOVA is used in research when subjects are measured on the same dependent variables that are administered to groups more than once (Tabachnick & Fidell, 2012); in this case, on the Bat Attitude Questionnaire and Fear Belief Questionnaire scores on Group 2 at Times 1, 2, and 3.

This chapter examines the data collection processes that were followed, how the data were analyzed, and the results of the study.

Data Collection

The target sample for this study included students in second through fourth grade who attended a public school in Southeastern Michigan. Principals at various schools were contacted via email about potential interest in the study. One school principal emailed back, and stated her school would love to participate in the study, had 210 students enrolled in second through fourth grade, and could potentially begin the study in late August. The principal was emailed the Letter of Cooperation, which she signed

electronically and returned. It was confirmed that the research project would be conducted at the school, and IRB approval was granted. The school is located in Oakland County, Michigan, which is known to be a predominately upper middle class area. Therefore, the results can only be based on students residing in this county or perhaps extrapolated to other counties with upper middle class socioeconomic status.

On September 4, 2013, I visited the second through fourth grades with consent and assent forms for students to bring home to parents. Children were asked to explain the forms to their parents, have their parents sign the forms, and return within 1 week, if possible. After a 1-week period, 175 children had the consent and assent forms signed, and these children were recruited for the study. Data collection began on September 9, 2013 and ended on September 17, 2013. Data collection went as initially planned, with no discrepancies with the plan presented in the previous chapter.

The responses from 175 participants were screened for the study. Data were examined for missing cases, univariate outliers, and multivariate outliers. Data were assessed for missing cases, and none were found. The presence of univariate outliers was assessed by checking the standardized values on the variables of interest. Univariate outliers were defined as standardized values below -3.29 and above 3.29 (Tabachnick & Fidell, 2012). Four univariate outliers were found, and those four outlying scores were removed from the data set. Multivariate outliers were assessed using Mahalanobis distances. Given the dependent variables and covariates, the critical value was determined at $\chi^2(8) = 26.13$, $p = .001$. Three participants had a Mahalanobis distance value that exceeded the critical value, and they were removed from the data set. The

responses from the remaining 172 participants were examined in the final analyses.

Intervention Fidelity

The presentation of different information to differing groups of children was administered as planned. The only challenge that occurred was getting the Group 2 children to do the maze during the time interval in which Group 1 was receiving the positive verbal information. The children wanted to talk and play instead of attempting the maze. However, the teachers settled them down almost instantly, and the students completed the task.

Results

Descriptive Statistics

Slightly over half of the participants were female (89, 52%), and 83 of the participants (48%) were male. Most participants were in Group 1 (91, 53%), while the rest were in Group 2 (81, 47%). Fifty-six (33%) participants were in second grade, 57 (33%) participants were in the third grade, and 59 (34%) participants were in fourth grade. Frequencies and percentages for participants' demographics are presented in Table 3.

Table 3

Frequencies and Percentages for Participants' Demographics

Demographic	*n*	%
Gender		
Male	83	48
Female	89	52
Group		
1	91	53
2	81	47
Grade		
2nd	56	33
3rd	57	33
4th	59	34

Note. Percentages may not total 100 due to rounding error.

Means and standard deviations were conducted on the three variables of interest in the study: Fear Survey Schedule for Children-Revised (FSSC-R) scores, Bat Attitude Questionnaire (BAQ) scores, and Fear Belief Questionnaire (FBQ) scores. Each score was examined by time (Time 1 vs. Time 2 vs. Time 3); however, Fear Survey Schedule for Children-Revised (FSSC-R) scores were only examined at Time 1. FSSC-R scores had a mean (*M*) of 45.35 and standard deviation (*SD*) of 8.60. BAQ scores were the highest at Time 3 ($M = 192.02$, $SD = 24.17$). FBQ scores were the highest at Time 3

(M = 28.99, SD = 5.71). Means and standard deviations for the variables of interest by time are presented in Table 4.

Table 4

Means and Standard Deviations on the Variables of Interest by Time

	Time 1		Time 2		Time 3	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*
FSSC-R	45.35	8.60	—	—	—	—
BAQ	157.67	30.60	179.81	29.57	192.02	24.17
FBQ	22.17	6.57	25.96	7.34	28.99	5.71

Research Question 1

Are there significant differences in Fear Belief Questionnaire (FBQ) and Bat Attitude Questionnaire (BAQ) scores by group and time?

$H_0$1: There are no significant differences in FBQ and BAQ scores by group and time, after controlling for gender and the Fear Survey Schedule for Children-Revised (FSSC-R).

Ha1: There are significant differences in FBQ and BAQ scores by group and time, after controlling for gender and FSSC-R.

To address Research Question 1, a one-within one-between MANCOVA was conducted to determine if, after controlling for gender and FFSC-R scores, there were statistically significant differences by group and time on FBQ and BAQ scores. The

dependent variables in the analysis were BAQ scores and FBQ scores. The independent grouping between-subjects variable was group (Group 1 vs. Group 2). The independent grouping within-subjects variable was time (Time 1 vs. Time 2 vs. Time 3). Statistical significance was determined at $\alpha = .05$. Prior to analysis, the assumptions of the analysis were assessed. The relationships of the potential covariates (gender and FSSC-R) with the dependent variables (BAQ and FBQ scores) were assessed with Pearson correlations. The correlations yielded statistically significant findings between the potential covariates and the dependent variable except for FSSC-R scores with BAQ scores at Time 3 and FBQ scores at Time 2 and Time 3. However, because FSSC-R scores were related to half of the dependent variables, the covariates were used in the analysis. The assumption of normality was assessed with the examination of q-q plots, and the assumption was met. The assumption of sphericity was assessed with Mauchly's test, and the results were significant for both FBQ and BAQ scores, $p < .001$, violating the assumption. Following the procedures outlined by Greenhouse and Geisser (1959), when the assumption is violated, the Greenhouse-Geisser statistic is reported instead. The assumption of homogeneity of variance was assessed using Levene's test and was only significant for FBQ scores at Time 2 ($p = .024$); a more stringent alpha, $p = .025$, is appropriate to determine statistical significance for the individual ANCOVA on FBQ scores at Time 2 (Tabachnick & Fidell, 2012). Homogeneity of covariance matrices was tested using Box's M test; the results of the test were significant ($p < .001$), violating the assumption. To correct for this violation, Pillai's trace approximation was used as the test statistic for the one-within one-between MANCOVA model.

The interaction term between time and group, after controlling for gender and FSSC-R scores, was statistically significant, $F(4, 161) = 8.35$, $p < .001$, partial $\eta^2 = .17$, suggesting that FBQ and BAQ scores are statistically different by the interaction of group (Group 1 vs. Group 2) and time (Time 1 vs. Time 2 vs. Time 3), after controlling for gender and FSSC-R scores. The interaction term's effect size (partial η^2) of .17 indicates a small difference in FBQ and BAQ scores between group and time (Morgan, Leech, Gloekner & Barrett, 2007). The partial eta squared was used to determine effect size instead of Cohen's standard because these effect sizes are not usually interpreted for a MANOVA. However, when examining whether the effect size is small, medium, or large, one can safety assume that the partial η^2 of .17 is a small effect size for the MANCOVA.

Because the interaction term between group and time was found to be statistically significant, it can be said that the impact of group was influenced by time and that therefore, general conclusions (main effects) were not appropriate (Pallant, 2010). The individual ANCOVAs could not be interpreted by group or time. The null hypothesis—there are no significant differences on FBQ and BAQ scores by group and time, after controlling for gender and FSSC-R—can be rejected. The results of the analyses are presented in Table 5. The means and standard deviations on FBQ and BAQ scores by time and group are presented in Table 6. Figures 1 and 2 depict the trends on BAQ and FBQ scores by time and group, respectively (note that high scores reflect lower fear beliefs and low scores reflect higher fear beliefs).

Table 5

One-Between One-Within MANCOVA on FBQ and BAQ Scores by Group and Time While Controlling for Gender and FSSC-R Scores

Source	*SS*	*df*	*MS*	*F*	*p*	Partial η^2
Time*Group						
FBQ	171.84	1.70	101.04	6.63	.003	.04
BAQ	2858.24	1.43	1993.53	8.10	.002	.05
Error						
FBQ	4252.31	278.91	15.25	—	—	—
BAQ	57873.26	235.14	246.13	—	—	—

Note. *F* statistic is Pillai's trace: $F(4, 161) = 8.35$, $p < .001$, partial $\eta^2 = .17$.

Table 6

Means and Standard Deviations on FBQ and BAQ Scores by Time and Group

	Time 1		Time 2		Time 3	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*
Group 1						
BAQ	155.22	28.28	190.63	25.37	190.03	25.07
FBQ	21.93	6.02	29.02	5.76	29.39	5.42
Group 2						
BAQ	163.75	29.23	172.47	24.86	194.16	23.12
FBQ	22.99	6.80	23.06	7.60	29.15	5.55

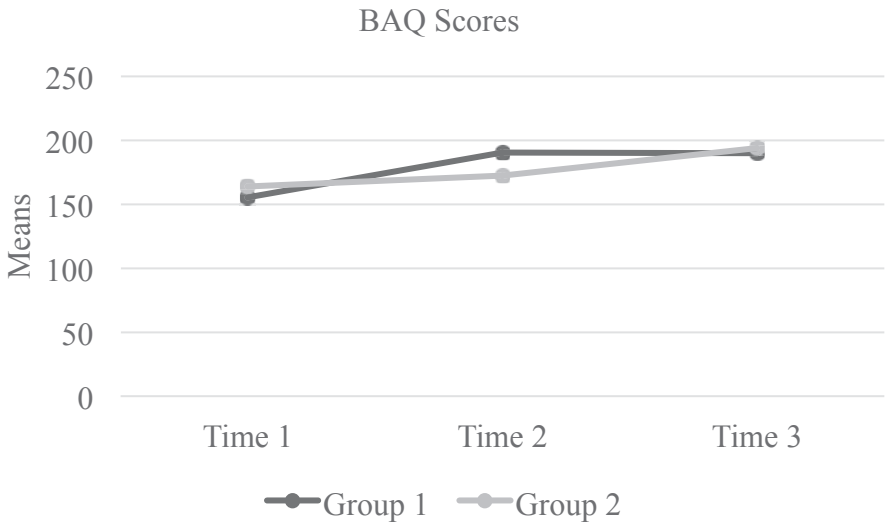

Figure 1. Trend in Bat Attitude Questionnaire scores by time and group.

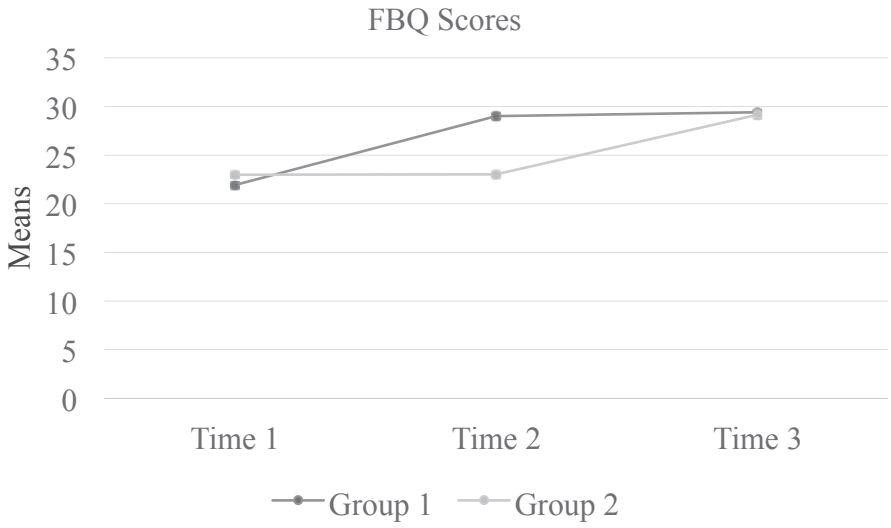

Figure 2. Trend in Fear Beliefs Questionnaire scores by time and group.

Research Question 2

Are there significant differences in Bat Attitude Questionnaire (BAQ) and Fear Beliefs Questionnaire (FBQ) scores by time for Group 1?

$H_0$1: For Group 1, there are no significant differences in BAQ and FBQ scores by

time.

Ha2: For Group 1, there are significant differences in BAQ and FBQ scores by time.

To address Research Question 2, a repeated-measures MANCOVA was conducted to determine if significant differences existed in BAQ and FBQ scores by time for Group 1 participants, after controlling for gender and Fear Survey Schedule for Children-Revised scores. Statistical significance was determined at $\alpha = .05$. Prior to analysis, the assumption of sphericity was assessed. The results were found to be significant, $p < .001$, violating the assumption. To correct for this, the Greenhouse-Geisser test statistic was reported.

The results of the repeated-measures MANCOVA were not found to be statistically significant, $F(4, 82) = 2.13$, $p = .085$, partial $\eta^2 = .09$, suggesting that Bat Attitude Questionnaire (BAQ) and Fear Beliefs Questionnaire (FBQ) scores were not statistically different by time for Group 1 participants, after controlling for gender and the Fear Survey Schedule for Children-Revised scores. No statistical significance could be interpreted. The null hypothesis – for Group 1, there are no significant differences on BAQ and FBQ scores by time – could not be rejected. The results of the analysis are presented in Table 7.

Table 7

Repeated Measures MANCOVA on FBQ and BAQ Scores for Group 1 Participants After Controlling for Gender and FSSC-R Scores

Source	*SS*	*df*	*MS*	*F*	*p*	Partial η^2
Time*Gender*FSSC-R						
FBQ	81.10	1.20	67.79	3.49	.057	.04
BAQ	24.21	1.04	23.37	0.08	.794	.00
Error						
FBQ	1977.94	101.68	19.45	—	—	—
BAQ	27386.15	88.08	310.92	—	—	—

Note. $F(4, 82) = 2.13$, $p = .085$, partial $ç^2 = .09$.

Research Question 3

Are there significant differences in Bat Attitude Questionnaire (BAQ) and Fear Beliefs Questionnaire (FBQ) scores by time for Group 2?

$H_0$3: For Group 2, there are no significant differences in BAQ and FBQ scores by time.

Ha3: For Group 2, there are significant differences in BAQ and FBQ scores by time.

To address Research Question 3, a repeated-measures MANCOVA was conducted to determine if significant differences existed in BAQ and FBQ scores by time for Group 2 participants, after controlling for gender and the Fear Survey Schedule for Children-Revised scores. Statistical significance was determined at $\alpha = .05$. Prior to

analysis, the assumption of sphericity was assessed. The results were found to be significant, $p < .001$, violating the assumption. To correct for this, the Greenhouse-Geisser test statistic was reported.

The results of the repeated-measures MANCOVA were found to be statistically significant, $F(4, 76) = 3.06$, $p = .021$, partial $\eta^2 = .14$, suggesting that BAQ and FBQ scores were statistically different by time for Group 2 participants, after controlling for gender and FSSC-R scores. The MANCOVA's effect size (partial η^2) of .14 indicated a small difference in FBQ and BAQ scores between Time 1, Time 2, and Time 3 (Morgan, Leech, Gloekner & Barrett, 2007). The individual ANCOVA's were interpreted.

The ANCOVA on FBQ scores was not found to be statistically significant, $F(1.45, 114.67) = 0.07$, $p = .881$, partial $\eta^2 = .00$, suggesting that FBQ scores were not statistically different by time after controlling for sex and the Fear Survey Schedule for Children-Revised scores for Group 2 participants. No statistical significance could be interpreted.

The ANCOVA in BAQ scores was found to be statistically significant, $F(1.66, 131.41) = 3.81$, $p = .032$, partial $\eta^2 = .05$, indicating that BAQ scores were statistically different by time after controlling for gender and FSSC-R scores for Group 2 participants. The ANCOVA's effect size, (partial η^2) of .05 indicated a small difference on BAQ scores between Time 1, Time 2, and Time 3 for Group 2 participants (Morgan, Leech, Gloekner & Barrett, 2007). Post-hoc analyses were conducted to determine where the significant differences lie. BAQ scores were statistically lower at Time 1 ($M = 163.75$; before the intervention) than at Time 2 ($M = 172.47$; before the intervention) and Time 3

(*M* = 194.16; after intervention). BAQ scores were statistically higher at Time 3 (*M* = 194.16; after intervention) than at Time 2 (*M* = 172.47; before intervention). These results indicate that BAQ mean scores had a statistically significant increase from Time 1 to Time 2 to Time 3 (note that high scores reflect lower fear beliefs and low scores reflect higher fear beliefs). Again, keep in mind that for Group 2, the positive verbal information occurred directly before Time 3. The null hypothesis – for Group 2, there are no significant differences on BAQ and FBQ scores by time – can be rejected. The results of the analysis are presented in Table 8.

Table 8

Repeated-Measures MANCOVA on FBQ and BAQ Scores for Group 2 Participants After Controlling for Gender and FSSC-R Scores

Source	*SS*	*df*	*MS*	*F*	*p*	Partial η^2
Time*Gender*FSSC-R						
FBQ	1.91	1	1.32	0.07	.881	.00
BAQ	1469.99	2	883.71	3.81	.032	.05
Error						
FBQ	2274.37	115	19.83	—	—	—
BAQ	30487.11	131	232.00	—	—	—

Note. $F(4, 76) = 3.06$, $p = .021$, partial $\eta^2 = .14$.

Summary

Research Question 1 asked if there are significant differences in Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by group and time. This question

was assessed with a one within one between MANCOVA. The results yielded a statistically significant interaction between time and group. Because the interaction term between group and time was found to be statistically significant, it can be said that the impact of group scores was influenced by time.

Research Question 2 asked if there were significant differences in Fear Beliefs Questionnaire and Bat Attitude Questionnaire scores by time for Group 1 alone. This question was assessed with a repeated-measures MANCOVA for Group 1 participants. The results did not yield statistically significant findings. That is, for Group 1 there were no significant differences between Time 1, 2, and 3.

Research Question 3 asked if there were significant differences in Fear Beliefs Questionnaire (FBQ) and Bat Attitude Questionnaire (BAQ) scores by time for Group 2 alone. This question was assessed with a repeated-measures MANCOVA for Group 2 participants. The results yielded significant findings, and therefore a post-hoc analysis was conducted to determine where the significant differences could be found. FBQ scores showed no significant differences, however BAQ scores were statistically lower at Time 1 (before the intervention), increased significantly at Time 2 (before the intervention), and increased significantly again at Time 3 (after the intervention).

There are numerous studies that show how phobias might be formed, but much less research on how to prevent fears from developing in the first place (Muris & Field, 2010). Only one research study investigated if induced fear of unknown animals can be changed with positive information (Kelly et al., 2010) and no research investigating if fear of an animal that has prior biases associated with it can be changed. Considering the

fact that there have been no studies that investigate if fear of an animal that is associated with prior biases can be changed, this study served to further understand the role of positive verbal information on children's fear beliefs as it filled a partial gap in the literature.

Study results, as detailed above with regard to data collection, analysis, and findings, are further discussed in Chapter 5, as well as study-specific conclusions and researcher interpretations and recommendations.

Chapter 5: Interpretation of the Findings

Introduction

The purpose of this study was to examine how the effects of positive verbal information might change children's fear beliefs about an animal already associated with fear, such as the bat. As discussed in previous chapters, the literature provides evidence that when children are given negative information about unknown animals, their fear increases; that when they are given positive information about the same unknown animals, their fear decreases; and that when they are given no information, their fear level stays the same (Field & Lawson, 2003; Kelly et al., 2010). This effect of positive, negative, or no information on children's fear beliefs is known as the Field et al. paradigm (Field, Argyris, & Knowles, 2001). Although there have been numerous studies using the Field et al. paradigm with unknown animals, there is no such research on whether fear beliefs decrease when positive verbal information is given about an animal already known to children, such as the bat.

Results of this study, as discussed in Chapter 4, indicate that for Hypothesis 1 a significant difference was seen in Fear Beliefs Questionnaire (FBQ) and Bat Attitude Questionnaire (BAQ) scores between Groups 1 and 2 and Times 1, 2, and 3. Data for Group 1 alone (positive verbal information was given before Time 2) indicate no significant differences in FBQ and BAQ scores during the time periods. However, for Group 2 (positive verbal information given before Time 3), significant differences were found in BAQ scores during the three time periods, but not in FBQ scores during the same time periods.

Interpretation of the Findings

This study examined one variable of the Field et al. paradigm: whether positive verbal information given about an animal that is already known to evoke fear, such as the bat, changes fear beliefs. Hypothesis 1 tested whether a significant difference was found between Group 1 (received positive verbal information after Time 1) and Group 2 (received positive verbal information after Time 2) during Times 1, 2, and 3. Results revealed a significant difference in Bat Attitude Questionnaire and Fear Beliefs Questionnaire scores between group and time. This suggests that a potential outside variable influenced the scores. That is, the scores between groups and times should have been nonsignificant because the positive verbal intervention was given to each group, just at different times.

In order to test whether any variable that was not directly examined in this study had an effect, several MANCOVAs were run to examine scores between Groups 1 and 2 during Time 1 to see if any significant differences existed before any intervention was given. Group 1's Bat Attitude Questionnaire (BAQ) scores were compared to Group 2's BAQ scores during Time 1 alone (before any intervention was made). Results showed that the results were statistically significant, indicating that BAQ scores were statistically different during Time 1 before any intervention was given. Results showed that FBQ scores were statistically different during Time 1 (Group 1 by Group 2) before any intervention was given. One may surmise that at the beginning of the study, Group 1 and Group 2's scores were already different, suggesting a difference in fear beliefs from the

onset. Perhaps teaching techniques or parents' beliefs about bats had influenced the children in the past. This remains untested, but would be an interesting covariate in a future study.

When examining the Fear Beliefs Questionnaire (FBQ) and Bat Attitude (BAQ) scores between Times 1 (no positive verbal information given), 2 (directly after positive verbal information given), and 3 (no further information given) for Group 1, no difference was found. In interpreting the results of Hypothesis 2, one can formulate three hypotheses as to why there were there were no significant differences found.

First, it could be argued that although fear beliefs decreased, they did so in a smaller way compared to how negative verbal information impacts children. Perhaps the instruments were not sensitive enough to detect changes in the lessening of fear belief scores. For example, Field, Argyris, and Knowles (2001) found that fear beliefs increased significantly after negative verbal information was given to children and that there was a smaller decrease after positive verbal information was presented. In my study, higher scores mean less fear response. Scores on the Fear Belief Questionnaire increased from Time 1 (21.93; no intervention) to Time 2 (M = 29.02; after intervention) and remained somewhat constant during Time 3 (M = 29.39; no additional intervention). This suggests that there was a small but nonsignificant effect. Negative verbal information could have a greater effect on fear beliefs than positive information. This finding also may suggest that the instruments used were not sensitive enough to detect these changes.

Second, it is possible that, like the Field et al. (2003) study with known situations, the results may be dependent on who gives the information; for example, if a peer

provides the positive information, it may affect the child more than if the researcher provides the positive information. Recall that in the Field et al. study children were placed in one of nine groups. In Group 1, a teacher told a positive story about public speaking, a negative story about eating in front of peers, and a neutral story about meeting new friends. In Group 2, a teacher told a neutral story about public speaking, a positive story about eating, and a negative story about meeting a group of other children. Group 3 heard a teacher tell a negative story about public speaking, a neutral story about eating, and a positive story about meeting a group of children. Groups 4-6 were the same, except that another student read the stories, and Groups 7-9 heard no stories. Results of this study showed mixed results: When a teacher told a story on public speaking, negative information had little impact; when another student told a story on public speaking, the negative information increased fear beliefs; and positive information decreased fear beliefs. The authors interpreted these results as indicating that information given about common situations may indeed affect an adolescent's fear belief, but the results are dependent on the situation and who supplies the information. The authors also speculated that meeting new children and eating in front of others were very common situations for the children, whereas public speaking was a novel activity. Therefore, other children telling them to be afraid of public speaking rendered more fear about the situation. This logic may also apply to an understanding of fear beliefs relating to bats. Bats are common animals and commonly spoken of in children's stories. There is a possibility, although not tested in this study, that hearing an adult speaking about the positive attributes of bats may have done very little to decrease the children's fear beliefs but hearing other children

discuss the benefits of bats may have decreased their fears in a more significant way.

And third, we could surmise that the effect of positive verbal information did little to nothing to lessen fear beliefs concerning bats. That is to say that the results of Hypothesis 2 may not support the Field et al. paradigm. Therefore, we can assume that positive verbal information had no effect on Fear Belief Questionnaire and Bat Attitude Questionnaire scores for Group 1.

Although results for Hypothesis 2 showed no significant difference, it may be important to point out that when one visually examines the scores for the Bat Attitude Questionnaire (BAQ) and Fear Beliefs Questionnaire (FBQ), fear beliefs did seem to lessen. Bat Attitude Questionnaire (BAQ) scores for Group 1 during Time 1 (M = 155.22), before intervention, were higher than at Time 2 (M = 190.63; with a difference between Time 1 and 2 of 35.41), after the intervention, and scores remained relatively constant between Time 2 and Time 3 (M = 190.03; with a difference between Time 2 and Time 3 of 0.6), when no further intervention was administered. Remembering that for Group 1, directly before Time 2, the children were given the positive verbal information, one would surmise that the children's scores on the BAQ would increase (that is, fear beliefs would decrease) more after they heard the positive verbal information, and this is exactly what happened. One would also expect the scores of the BAQ to remain relatively constant between Time 2 and 3, as no additional information was given, and this proved to be true as well. The Fear Belief Questionnaire (FBQ) was also given to Group 1 during Times 1, 2, and 3, and results showed a lessening in fear beliefs between Times 1 (M = 21.93), no intervention, and 2 (M = 29.02; with a

difference between Time 1 and 2 of 7.09), directly after intervention, and they remained relatively constant between Times 2 and 3 (M = 29.39; with a difference between Time 2 and 3 of 0.37), when no additional intervention was given.

Hypothesis 3 examined the effect of time on Fear Belief Questionnaire (FBQ) and Bat Attitude Questionnaire (BAQ) scores for Group 3 alone.

When examining the Fear Beliefs Questionnaire (FBQ) and Bat Attitude (BAQ) scores between Times 1 (no positive verbal information given), 2 (no positive verbal information given), and 3 (directly after positive verbal information was given) for Group 2, a significant difference was found in BAQ scores but not FBQ scores.

In terms of why Fear Belief Questionnaire (FBQ) scores did not show a significant difference, the same three hypotheses remain true for Hypothesis 3 as with Hypothesis 2. First, it could be argued that although fear beliefs decreased, they did so in a smaller and nonsignificant way compared to how negative verbal information impacts children. Perhaps the FBQ was not sensitive enough to detect changes in the lessening of fear belief scores. Visually, scores on the Fear Beliefs Questionnaire (FBQ) showed the same pattern of lessening of fear beliefs. Scores increased between Time 1 (M = 22.99), when no positive verbal information was given, and Time 2 (M = 23.06; with a difference of 0.07), when no verbal information was given, and increased at Time 3 (M = 29.15; with a difference of 21.69), after positive verbal information was given. Second, it is possible that, like the Field et al. (2003) study with known situations, the results were dependent on who gave the information. And third, the effect of positive verbal information may have done little to nothing to lessen fear beliefs concerning bats. That is

to say that the results of Hypothesis 3 may not support the Field et al. paradigm.

However, in the examination of the Bat Attitude Questionnaire (BAQ) scores, a significant difference was found between the three time periods. Bat Attitude Questionnaire (BAQ) scores were statistically lower at Time 1 (no positive verbal information given) than at Time 2 (no positive verbal information given) and Time 3 (directly after positive verbal information was given). These results indicate that BAQ mean scores had a statistically significant increase from Time 1 to Time 2 to Time 3 (note that high scores reflect lower fear beliefs and low scores reflect higher fear beliefs). Visually, Group 2's scores showed the same pattern of lessening of fear beliefs scores based on when the positive verbal information was given for the BAQ scores. For Group 2, BAQ scores increased a small amount between Time 1 (M = 163.75), no positive verbal information given, and Time 2 (M = 172.47; with a difference between Time 1 and 2 of 8.72), no positive verbal information given, but at a larger amount during Time 3 (M = 194.16; with a difference of 21.69), directly after the positive verbal information was given. The reasons why the BAQ detected a significant difference in the scores of Group 2 and not Group 1 are not known and indicate potential for further study.

Limitations of the Study

This study had limitations beyond my control. First, the study used a convenience sample. Although a convenience sample is commonly used in psychological studies, it may have been biased by the ethnicity and socioeconomic status of the students in only one school. The school is located in Oakland County, Michigan, which is known to be a predominately upper middle class area. Therefore, the results can only be based on

students residing in this county; I am not able to extend the results of the study beyond the study area.

Second, the Fear Survey Schedule for Children-Revised (FSSC-R), Bat Attitude Questionnaire (BAQ), and Fear Beliefs Questionnaire (FBQ) are self-report measurements. Students may have attempted to present themselves in a favorable light. It did indeed appear that the students were very excited to have a guest presenter and wanted to discuss bats before the presentation began. According to Field et al. (2003), the use of the FSSC-R assessment as a covariate should have addressed the problems of this limitation.

Recommendations for Further Study

Recommendations for further study include the possibility of a research project that includes both an adult educator and peer educator giving the positive verbal information on a known but misunderstood animal. Results of this additional study may show that when information is given about a known animal, peers do more to influence fear beliefs than adults do.

Other recommendations include the use of a waiting period of less than 24 hours to ensure that students do not talk to one another about the information provided or the use of groups in two different schools to ensure that students do not talk to one another during the waiting time between Time 2 and 3. In addition, a study that included only children who scored high in fear beliefs scores (using the Fear Belief Questionnaire and Bat Attitude Questionnaire) could be conducted to examine whether scores increased, decreased, or stayed the same after positive verbal information. This would allow for a

closer examination of whether the positive verbal information had an impact on scores. Last, if the results are to be used to alleviate fear that children face about known animals, this study should also be replicated in clinical populations with children already exhibiting a fear of bats.

Implications for Positive Social Change

Children are exposed to many types of threat information in their everyday lives that create and/or exacerbate fears. Much of the time, these fears are eliminated naturally; however, sometimes fears persist and cause distress for children. And, as a matter of fact, recent theories state that common fears lay the groundwork for phobias later in life. This study contributes important information, as it adds to a body of literature that documents how fears can be reduced by testing the Field et al. (2001) paradigm with an animal already known to evoke fear. No such study had been conducted, and therefore this study could serve to lay the groundwork for future studies in a natural environment.

Past studies have shown that childhood fears can lead to anxiety and avoidance of certain situations or objects. This study may support social change by using positive verbal information to reduce children's fears or even prevent them from forming in the first place. Teachers, parents, and/or peers could provide children with more positive information, thereby protecting children from developing fears (Muris et al., 2010). Further research is definitely needed to understand the effects of positive verbal information on fear beliefs that are already in place.

The results of this study have implications for clinical practice with children experiencing fears, phobias, or anxiety toward animals. Further research is needed if

therapy is to be expedited by finding the source of the fear, dismantling it, and then rebuilding beliefs based on true or positive information.

Conclusions

There are numerous studies that examine how fears are formed but much less information on how to change one's fear beliefs. This study used the Field et al. (2001) paradigm to examine whether positive information indeed lowered children's fears about one misunderstood animal, namely the bat.

The study examined the variables of positive information within 172 students in second through fourth grade who attended public schools in Southeastern Michigan. In the analysis of data for Research Question 1 (Are there are significant differences in Fear Belief Questionnaire (FBQ) and Bat Attitude Questionnaire (BAQ) scores by group and time?), a significant difference was found. This finding is confusing, given that no difference should have been seen. The scores by group and time should have been nonsignificant, given that both groups received the positive verbal information, just at different times. It may be that in this study, the groups were different from the beginning.

Research Question 2 asked if there are significant differences in Bat Attitude Questionnaire (BAQ) and Fear Belief Questionnaire (FBQ) scores by time for Group 1 alone. The results did not yield statistically significant findings. That is, for Group 1, there were no significant differences between Times 1, 2, and 3. This may mean that instruments were not sensitive enough to detect changes with positive information; for example, mean scores for both the FBQ and BAQ for Group 1 during Time 1 (before positive verbal information was given) were lower than for Time 2 (directly after positive

verbal information was given) and remained relatively constant between Time 2 and Time 3 (1 day later, no additional information given), although not significant. It could mean that who administers the positive verbal information is important (i.e., peers may have more of an effect than an adult), or it could mean that for a known animal, the Field et al. paradigm is not supported.

Research Question 3 asked if there are significant differences in Bat Attitude Questionnaire (BAQ) and Fear Belief Questionnaire (FBQ) scores by time for Group 2 alone. The results showed no significant differences in FBQ scores; however, BAQ scores were statistically lower at Time 1 (before the intervention), increased significantly at Time 2 (before the intervention), and increased significantly again at Time 3 (after the intervention). When examining results of the FBQ scores, one might surmise that the scores were too small to detect a significant difference, that the results may have been influenced by who provided the information, or that the Field et al. paradigm simply does not hold true for known animals.

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.).Washington, DC: Author.

Angelino, H., Dollins, J., & Mech, E. V. (1956). Trends in the "fears and worries" of school children as related to socio-economic status and age. *Journal of Genetic Psychology, 89*, 263–276.

Angelino, H., & Shedd, C. L. (1953). Shifts in the content of fears and worries relative to chronological age. *Proceedings of the Oklahoma Academy of Science, 34*, 180–186.

Askew, C., & Field, A. P. (2008). The vicarious learning pathway to fear 40 years on. *Clinical Psychology Review, 28*, 1249–1265.

Bauer, D. H. (1976). An exploratory study of developmental changes in children's fears. *Journal of Child Psychology and Psychiatry, 17*, 69–74.

Beidel, D. C. (1991). Social phobia and overanxious disorder in school age children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *30*, 545-552.

Bjerke, T., & Olstdahl, T. (2004). Animal-related attitudes and activities in an urban population. *Anthrozoos, 17*(2), 109-129.

Bowd, A. D. (1984). Fears and understanding of animals in middle childhood. *Journal of Genetic Psychology, 145*, 143-144.

Burnham, J. J., & Gullone, E. (1997). The Fear Survey Schedule for Children-II: A psychometric investigation with American data. *Behaviour Research and*

Therapy, 35, 165–173.

Cantor, J., & Nathanson, A. I. (1996). Children's fright reactions to television news. *Journal of Communication, 46*, 139–152.

Comer, J. S., & Kendall, P. C. (2007). Terrorism: The psychological impact on youth. *Clinical Psychology: Science and Practice, 14*, 179–212.

Craske, M. G. (1997). *Fear and anxiety in children and adolescents. Bulletin of the Menninger Clinic, 61*(Suppl. A), A4–A36.

Craske, M. G. (2003). *Origins of phobias and anxiety disorders. Why more women than men?* Oxford, England: Elsevier.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.

Davey, G. C. L. (1997). A conditioning model of phobias. In G. C. L. Davey (Ed.), *Phobias: A handbook of theory, research and treatment* (pp. 301–322). Chichester, England: Wiley.

de Jong, P. (2002). Implicit self-esteem and social anxiety: Differential self-positivity effects in high and low anxious individuals. *Behaviour Research and Therapy*, *40*, 501–508.

de Jong, P., Pasman, W., Kindt, M., & van den Hout, M. A. (2001). A reaction time paradigm to assess (implicit) complaint-specific dysfunctional beliefs. *Behavior Research and Theory, 39*(1), 101-113.

Derevensky, J. (1974). What children fear. *Journal of Education, 9*, 77–85.

Di Nardo, P. A., Guzy, L. T., Jenkins, J. A., Bak, R. M., Tomasi, S. F., & Copland, M.

(1988). Etiology and maintenance of dog fears. *Behaviour Research and Therapy, 26*, 241–244.

Doogan, S., & Thomas, G. V. (1992). Origins of fear of dogs in adults and children: The role of conditioning processes and prior familiarity with dogs. *Behaviour Research and Therapy, 30*, 387–394.

Ehlers, A., Hofmann, S. G., Herda, C. A., & Roth, W. T. (1994). Clinical characteristics of driving phobia. *Journal of Anxiety Disorders, 8*, 323–339.

Eme, R., & Schmidt, D. (1978). The stability of children's fears. *Child Development, 49*, 1277–1279.

Fear. (2012). In *Merriam-Webster's online dictionary*. Retrieved from http://www.merriam-webster.com/dictionary/fear

Field, A. P. (2002, March). "…And don't talk to any strange animals": Do we teach children to be phobic? Paper presented at the British Psychological Society Annual Conference, Blackpool, England.

Field, A. P. (2006a). Is conditioning a useful framework for understanding the development and treatment of phobias? *Clinical Psychology Review, 26*, 857–875.

Field, A. P. (2006b). Watch out for the beast: Fear information and attentional bias in children. *Journal of Clinical Child and Adolescent Psychology, 35*, 431–439.

Field, A. P., Argyris, N. G., & Knowles, K. A. (2001). Who's afraid of the big bad wolf: A prospective paradigm to test Rachman's indirect pathways in children. *Behaviour Research and Therapy, 39*, 1259-1276.

Field, A. P., & Davey, G. C. L. (2001). Conditioning models of childhood anxiety. *In* W.

K. Silverman & P. A. Treffers, *Anxiety disorders in children and adolescents: research, assessment and intervention* (pp. 187–211). Cambridge: Cambridge University Press.

Field, A. P., Hamilton, S. J., Knowles, K. A., & Plews, E. L. (2003). Fear information and social phobic beliefs in children: A prospective paradigm and preliminary results. *Behavior Research and Therapy, 41*, 113-123.

Field, A. P., & Lawson, J. (2003). Fear information and the development of fears during childhood: Effects on implicit fear responses and behavioural avoidance. *Behaviour Research and Therapy*, *41*, 1277-1293.

Field, A. P., & Lawson, J. (2008). The verbal information pathway to fear and subsequent causal learning in children. *Cognition and Emotion, 22*, 459–479.

Field, A. P., Lawson, J., & Banerjee, R. (2008). The verbal threat information pathway to fear in children: The longitudinal effects on fear cognitions and the immediate effects on avoidance behavior. *Journal of Abnormal Psychology, 117*, *1*, 214-224.

Field, A. P. & Storksen-Coulson, H. (2007). The interaction of pathways to fear in childhood anxiety: A preliminary study. *Behaviour Research and Therapy, 45*, 3051–3059.

Field, A.P. & Schorah, H. (2007). The verbal information pathway to fear and heart rate changes in children. *Journal of Child Psychology and Psychiatry, 48*(11). 1088-1093.

Fisher, A., Schaefer, B., Watkins, M., Worrell, F. & Hall, T. (2006) The factor structure of the Fear Survey Schedule for Children in Trinidadian children and adolescents.

Journal of Anxiety Disorder, *20*, 740–759.

Ferrari, M. (1986). Fears and phobias in childhood phobias: Some clinical and developmental considerations. *Child Psychiatry and Human Development, 17*, 75–87.

Gemar, M. C., Segal, Z. V., Sagrati, S., & Kennedy, S. J. (2001). Mood-induced changes on the Implicit Association Test in recovered depressed patients. *Journal of Abnormal Psychology*, *110*, 282–289.

Graham, J., & Gaffan, E. A. (1997). Fear of water in children and adults: Etiology and familial effects. *Behaviour Research and Therapy, 35*, 91–108.

Greenhouse, S.W., & Geisser, S. (1959). On methods in the analysis of profile data. *Psychometrika*, *24*, 95-112.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology, 74,* 1464–1480.

Gullone, E. (1996). Developmental psychopathology and normal fear. *Behaviour Change, 13*, 143–155.

Gullone, E. (2000). The development of normal fear: A century of research. *Clinical Psychology Review, 20*(4), 429-451.

Gullone, E., & King, N. J. (1992). Psychometric evaluation of a revised fear survey schedule for children and adolescents. *Journal of Child Psychology and Psychiatry, 33*, 987–998.

Gullone, E., & King, N. J. (1993). The fears of youth in the 1990s: Contemporary

normative data. *The Journal of Genetic Psychology, 154*, 137–153.

Gullone, E., & King, N. J. (1997). Three year follow-up of normal fear in children and adolescents aged 7 to18 years. *British Journal of Developmental Psychology, 15,* 97–111.

Hagman, E. R. (1932). A study of fears of children of pre-school age. *Journal of Experimental Education, 1*, 110–130.

Hall, G. S. (1997). A study of fears. *American Journal of Psychology, 8*, 147–249.

Harrison, K., & Cantor, J. (1999). Tales from the screen: Enduring fright reactions to scary media. *Media Psychology, 1*, 97–116.

Hofmann, S. G., Ehlers, A., & Roth, W. T. (1995). Conditioning theory a model for the etiology of public speaking anxiety? *Behaviour Research and Therapy, 33*, 567–571.

Jersild, A. T., & Holmes, F. B. (1935a). *Children's fears*. New York: Teachers College, Columbia University.

Jersild, A. T., & Holmes, F. B. (1935b). Some factors in the development of children's fears. *Journal of Experimental Education, 4*, 133–141.

Jersild, A. T., Markey, F. V., & Jersild, C. L. (1933). Children's fears, dreams, wishes, daydreams, likes, dislikes, pleasant and unpleasant memories. *Child Development Monographs, 12*. New York: Columbia University Press.

Jones, H. E., & Jones, M. C. (1928). Fear. *Childhood Education, 5*, 136–145.

Kagan, J., Kearsley, R., & Zelazo, P. (1978). *Infancy: Its place in human development.* Cambridge, MA: Harvard University Press.

Kahn, P. H., Saunders, C. D., Severson, R. L., Myers, O. E., & Gills, B. T. (2008). Moral and fearful affiliations with the animal world: Children's conception of bats. *Anthrozoos, 21*(4), 375-386. DOI: 10.2752/175303708X371591.

Kalar, M. U., Mustahsan, S. M., Ali, M., Fatima, K., Farooque, K., Batool, M., Haider, S. M., Feroz, F. (2013). Understanding fear in school children. *International Journal of Collaborative Research on Internal Medicine & Public Health, 5,* 268-278.

Kelly, V. L., Barker, H., Field, A. P., Wilson, C., & Reynolds, S. (2010). Can Rachman's indirect pathways be used to un-learn fear? A prospective paradigm to test whether children's fears can be reduced using positive information and modeling a non-anxious response. *Behavior Research and Therapy, 48*, 164-170.

King, N. J., Clowes-Hollins, V., & Ollendick, T. H. (1997). The etiology of childhood dog phobia. *Behaviour Research and Therapy, 35*, 77.

King, N. J., Eleonona, G., & Ollendick, T. H. (1998). Etiology of childhood phobias: Current status of Rachman's three pathways theory. *Behavior Research and Therapy, 36*, 297-309.

King, N. J., Hamilton, D. I., & Ollendick, T. H. (1988). *Children's phobias: A behavioural perspective.* Chichester, UK: John Wiley & Sons.

King, N.J., Muris, P., & Ollendick, T.H. (2004). Specific phobia. In J. March & T.L. Morris (Eds.), *Anxiety disorders in children and adolescents* (2nd ed., pp. 263–279). New York: Guilford Press.

King, N. J., Ollier, K., Icuone. R., Schuster, S., Gullone, E., Bays, K., & Ollendick, T. H. (1989). Fears of children and adolescents: A cross-sectional Australian study

using the Revised- Fear Study Schedule for Children. *Journal of Child Psychology and Psychiatry 30*, 775-784.

Kozak, M.J., & Miller, G.A. (1982). Hypothetical constructs vs. intervening variables: A re-appraisal of the three-system model of anxiety assessment. *Behavior Assessment. 4,* 347-358.

Lang, P. J. (1977). Fear imagery: An information processing analysis. *Behavior Therapy 8*: 862-886.

Leech, N. L., Barrett, K. C., & Morgan, G.A. (2008). *SPSS for intermediate statistics: Use and interpretation* (3rd ed.). New York, NY: Lawrence Erlbaum Associates, Publishers.

Lentz, K. A. (1985a). Fears and worries of young children as expressed in a contextual play setting. *Journal of Child Psychology and Psychiatry, 26*, 981–987.

Lentz, K. A. (1985b). The expressed fears of young children. *Child Psychiatry and Human Development, 16*, 3–13.

Lichtenstein, P. & Annas, P. (2000) Heritability and prevalence of specific fears and phobias in childhood. *Journal of Child Psychology and Psychiatry*, *41*, 927–937.

Maurer, A. (1965). What children fear. *The Journal of Genetic Psychology, 106*, 265–277.

McNally, R. J., & Steketee, G. S. (1985). The etiology and maintenance of severe animal phobias. *Behaviour Research and Therapy, 23*, 431–435.

Menzies, R. G., & Clarke, J. C. (1993b). The etiology of fear of heights and its relationship to severity and individual response patterns. *Behavior Research and*

Therapy, 31, 355–366.

Merckelbach, H., Arntz, A., Arrindell, W. A., & De Jong, P. J. (1992). Pathways to spider phobia. *Behaviour Research and Therapy, 30*, 543–546.

Merckelbach, H., Muris, P., & Schouten, E. (1996b). Pathways to fear in spider phobic children. *Behaviour Research and Therapy, 34*, 935–938.

Miller, L. C., Barrett, C. L., & Hampe, E. (1974). Phobias of childhood in a prescientific era. *In* A. Davids (Ed.), *Child personality and psychopathology: Current topics.* (Vol. 1, pp. 89-134). New York: John Wiley & Sons.

Mineka, S., & Zinbarg, R. (2006). A contemporary learning theory perspective on the etiology of anxiety disorders–It's not what you thought it was. *American Psychologist, 61*, 10–26.

Morgan, G.A., Leech, N. L., Gloekner, G. W. & Barrett, K. C. (2007). *SPSS for introductory statistics: Use and interpretation* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

Morris, R. J., & Kratochwill, T. R. (1983). *Treating children's fears and phobias: A behavioral approach.* New York: Pergamon.

Muris, P. (2007). *Normal and abnormal fear and anxiety in children and adolescents.* Oxford: Elsevier.

Muris, P., Du Plessis, M., & Loxton, H. (2008a). Origins of common fears in South African children. *Journal of Anxiety Disorders, 22*, 1510–1515.

Muris, P. & Field, A. P. (2010). The role of verbal threat information in the development of childhood fear. "Beware the Jabberwock!" *Clinical Child Family*

Psychological Review, 13, 129-150.

Muris, P., Merckelbach, H., Gadet, B., & Moulaert, V. (2000a). Fears, worries, and scary dreams in 4- to 12-year-old children: Their content, developmental pattern, and origins. *Journal of Clinical Child Psychology, 29*, 43–52.

Muris, P., & Merckelbach, H. (2001). The etiology of childhood specific phobias: A multifactorial model. In M. W. Vasey & M. R. Dadds (Eds.), *The developmental psychopathology of anxiety* (pp. 355–385). New York: Oxford University Press.

Muris, P., Merckelbach, H., & Collaris, R. (1997). Common childhood fears and their origins. *Behaviour Research and Therapy, 35*, 929–937.

Muris, P., Merckelbach, H., Mayer, B., & Prins, E. (2000b). How serious are common childhood fears? *Behavior Research and Therapy, 38*, 217-228.

Muris, P., Merckelbach, H., Ollendick, T. H., King, N. J., & Bogie, N. (2001). Children's nighttime fears: Parent-child ratings of frequency, content, origins, coping behaviors, and severity. *Behaviour Research and Therapy, 39*, 13–28.

Muris, P., van Zwol, L, Huijding, J., & Mayer, B. (2010). Mom told me scary things about this animal: Parents installing fear beliefs in their children via the verbal information pathway. *Behaviour Research and Therapy, 48*, 341-346.

Nalven, F. B. (1970). Manifest fears and worries of ghetto vs. middle-class suburban children. *Psychological Reports, 27*, 285–286.

Oakland County School Districts (2012). *Public School Districts*. Retrieved March 2, 2013, from http://www.oakland.k12.mi.us/Schools/PublicSchoolDistricts/tabid/234/Default.a

spx

Ohman, A., & Mineka, S. (2001). Fears, phobias, and preparedness: Toward an evolved module of fear and fear learning. *Psychological Review, 108,* 483–522.

Ollendick, T. H. (1983). Reliability and validity of the Revised Fear Survey Schedule for Children (FSSC-R). *Behaviour Research and Therapy, 21*, 685–692.

Ollendick, T. H., & King, N. J. (1991). Origins of childhood fears: An evaluation of Rachman's theory of fear acquisition. *Behaviour Research and Therapy, 29,* 117–123.

Ollendick, T.H., King, N.J., & Muris, P. (2002). Fears and phobias in children: Phenomenology, epidemiology and aetiology. *Child and Adolescent Mental Health, 7*, 98–106.

Ost, L.G. (1987). Age of onset in different phobias. *Journal of Abnormal Psychology*, *96*, 223–229.

Ost, L.G., & Hugdahl, K. (1981). Acquisition of phobias and anxiety response patterns in clinical patients. *Behaviour Research and Therapy, 19,* 439–447.

Pallant, J. (2010). *SPSS Survival Manual* (4th ed.). New York, New York: McGraw-Hill.

Phillips, D. L., & Clancy, K. J. (1972). Some effects of 'social desirability' in survey studies. *American Journal of Sociology, 77*(5), 921-938.

Poulton, R., & Menzies, R. G. (2002). Non-associative fear acquisition: A review of the evidence from retrospective and longitudinal research. *Behaviour Research and Therapy, 40*, 127–149.

Pratt, K. C. (1945). A study of the "fears" of rural children. *The Journal of Genetic*

Psychology, 67, 179–194.

Prokop, P., Fancovicova, J., & Kubiatko, M. (2009). Vampires are still alive: Slovakian students' attitudes toward bats. *Anthrozoos, 22*(1), 19-30.

Prokop, P. & Tunnicliffe, S. D. (2008). "Disgusting" animals: Primary school children's attitudes and myths of bats and spiders. *Eurasia Journal of Mathematics, Science & Technology Education, 4*(2), 87-97.

Rachman, S. J. (1977). The conditioning theory of fear acquisition: A critical examination. *Behaviour Research and Therapy, 15*, 372-387.

Rachman, S. J. (1991). Neo-conditioning and the classic theory of fear acquisition. *Clinical Psychology Review, 11*, 155–173.

Scarr, S., & Salapatek, P. (1970). Patterns of fear development during infancy. Merrill-Palmer Quarterly, *Behavior and Development, 16*, 53–90.

School Finder (2013). *Schools in Oakland County, Michigan.* Retrieved March 4, 2013 from http://www2.globalscholar.com/schoolfinder/us/michigan/county/oakland

Silverman WK, Rabian B. 1994. Specific phobia. In Ollendick TH, King NJ, Yule W (eds), *International handbook of phobic and anxiety disorders in children and adolescents*. Plenum Press: New York; 87-109.

Slee, P. T., & Cross, D. G. (1989). Living in the nuclear age: An Australian study of children's and adolescent's fears. *Child Psychiatry and Human Development, 19*, 270–278.

Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences* (5th ed.). Mahwah, NJ: Routledge Academic.

Tabachnick, B. G. & Fidell, L. S. (2012). *Using multivariate statistics* (6th ed.). Boston, MA: Pearson.

Teachman, B. A., Gregg, A. P., & Woody, S. R. (2001). Implicit associations of fear relevant stimuli among individuals with snake and spider fears. *Journal of Abnormal Psychology*, *110*, 226–235.

Valkenburg, P. M., Cantor, J., & Peeters, A. (2000). Fright reactions to television. *Communication Research, 27*, 82–99.

Van der Molen, J. H. W., & Bushman, B. J. (2008). Children's direct fright and worry reactions to violence in fiction and news television programs. *Journal of Pediatrics, 153*, 420–424.

Vasey MW, Daleiden EL. 1996. Information-processing pathways to cognitive interference in childhood. *In* Sarason, I. G., Pierce, G., & Sarason. B. (eds), *Cognitive interference: Theory, methods, and findings*. Erlbaum: Hillsdale, NJ; 117-138.

Watson, J. B., & Rayner, R. (1920). Conditioned emotional reactions. *Journal of Experimental Psychology, 3*, 1–14.

Winker, J. B. (1949). Age trends and sex differences in the wishes, identifications, activities and fears of children. *Child Development, 20*, 191–200.

Yule, W. (1997). The Fear Survey Schedule for Children—Revised (FSSC–R). *In* W. Yule, *Anxiety depression and post-traumatic stress in childhood* (pp. 19–29). Berkshire, UK: NFER-Nelson (a unit in I. Sclare, *Child psychology portfolio*).

Appendix A: FSSC-R Survey

Fear Survey Schedule for Children-Revised: Shortened Version

Name:_____ Grade:_____ Date:_____

DIRECTIONS: A number of statements that boys and girls use to describe the fears are given below. Read each carefully and put an **X** in the box in front of the words that best describe your fear. There are no right or wrong answers. Remember, find the words which best describe how much fear you have.

Name: _____

Grade: _____

Teacher: _____

FSSC-R Short Version
How worried are you about the following things?

1. Being teased	☐ Not worried at all ☐ A little worried ☐ Very worried
2. Thunderstorms	☐ Not worried at all ☐ A little worried ☐ Very worried
3. Lizards	☐ Not worried at all ☐ A little worried ☐ Very worried
4. Death	☐ Not worried at all ☐ A little worried ☐ Very worried
5. Having to go to the hospital	☐ Not worried at all ☐ A little worried ☐ Very worried

6. Getting poor grades	☐ Not worried at all ☐ A little worried ☐ Very worried
7. Going to bed in the dark	☐ Not worried at all ☐ A little worried ☐ Very worried
8. Snakes	☐ Not worried at all ☐ A little worried ☐ Very worried
9. Getting lost in a strange place	☐ Not worried at all ☐ A little worried ☐ Very worried
10. Getting a shot from a doctor or nurse	☐ Not worried at all ☐ A little worried ☐ Very worried
11. Having to go to school	☐ Not worried at all ☐ A little worried ☐ Very worried
12. Being alone	☐ Not worried at all ☐ A little worried ☐ Very worried
13. Spiders	☐ Not worried at all ☐ A little worried ☐ Very worried
14. Being hit by a car or truck	☐ Not worried at all ☐ A little worried ☐ Very worried
15. Going to the doctors or dentist	☐ Not worried at all ☐ A little worried ☐ Very worried
16. Getting my report card	☐ Not worried at all ☐ A little worried ☐ Very worried

17. Closed spaces	☐ Not worried at all ☐ A little worried ☐ Very worried
18. Bats or birds	☐ Not worried at all ☐ A little worried ☐ Very worried
19. The sight of blood	☐ Not worried at all ☐ A little worried ☐ Very worried
20. Falling from high places	☐ Not worried at all ☐ A little worried ☐ Very worried
21. Making mistakes	☐ Not worried at all ☐ A little worried ☐ Very worried
22. Dark rooms or closets	☐ Not worried at all ☐ A little worried ☐ Very worried
23. Worms or snails	☐ Not worried at all ☐ A little worried ☐ Very worried
24. Not being able to breath	☐ Not worried at all ☐ A little worried ☐ Very worried
25. Germs or getting a serious illness	☐ Not worried at all ☐ A little worried ☐ Very worried

Appendix B: Bat Attitude Questionnaire

Bat Attitude Questionnaire

Name:_____ Grade:_____ Date:_____

DIRECTIONS: A number of statements that boys and girls use to describe how they feel about bats are given below. Read each carefully and put an **X** in the box in front of the words that best describe how you feel. There are no right or wrong answers. This questionnaire is not a test, but rather research examining attitudes toward bats, just check off what word describes you the best.

	1 Strongly disagree	2 Mostly disagree	3 Don't agree or disagree	4 Mostly agree	5 Strongly agree
I would rather avoid places where bats are present					
I would like to camp near the ruin of old castle where bats occur					
Whenever I see a bat in television I close my eyes					
Bats have feelings like you and I					
I would like to catch a bat					
If there is a bat around my window, I would be unable to sleep					
Even a thought of touching a bat scares me					
I would rather watch about bats on TV rather then meet with them in the nature					
If somebody tells me that bats are somewhere around me, I get nervous					
I would never go to a house if I know that bats are there					
If I see a bat, I feel scared					

Bats scare me more than any other animals					
I would rather stay away from states where there are a lot of bats					
It makes me feel sick when I see a bat					
I would feel OK to catch a bat with gloves on my hands					
I would like to have some bats in the attic of my home					
I would rather avoid the attic of my house if bats are present there					
If I happened to find a bat in my attic, I would probably run away					
I would like to read a book about bats					
Greater attention should be dedicated to bat protection					
I would like to know more about bats flying in the night					
I would like to watch on bats during night using a binocular with night vision					
I would like to know more about big species of tropical bats					
I like watching natural history films about bats					
Bats could be quite interesting animals					
We should learn more about bats in the school					
I would like to know how scientists investigate bats					
I do not see how someone might be interested in research on bats					
I would like to participate on expedition which investigate bats					
Bats have great importance in nature					
I am not interested whether bats in my state are endangered					
Bats are not important in the nature					

Bats overwinter in abandoned caves and mines					
Protection of old buildings and trees contributes to bat protection					
The mean distance of wings of our bats is about 80 cm (2 hands together)					
The body length of our bats ranges from 3 to 8 cm (the length of your hand)					
Some tropical bats feed on fruit					
Our bats sleep through winter and do not feed					
Even thinking of a little bat in my hand scares me a bit					
Most of bats feed on blood					
Bat can get tangled in hair					
Our bats feed on insects					
The prey of bat would lose all blood after a bat bit it					
Bats bit their victim to the neck					
Bat can suck out a blood from human					

Appendix C: Fear Beliefs Questionnaire

Fear Beliefs Questionnaire

Name:_____ Age:_____ Date:_____

DIRECTIONS: A number of statements that boys and girls use to describe how they feel about bats are given below. Read each carefully and put an **X** in the box in front of the words that best describe how you feel. There are no right or wrong answers. This questionnaire is not a test, but rather research examining attitudes toward bats, just check off what word describes you the best.

	0 No, not at all	1 No, not really	2 Don't know/Neither	3 Yes, probably	4 Yes, definitely
Do you think bats get along well together?					
Do you think bats would like to live in the United States?					
Would you be happy to have a bat house to give bats a place to live?					
Do you think a bat would hurt you?					
Would you go up to a bat if you saw one?					
Would you go out of your way to avoid a bat?					

Would you be happy to feed a bat?					
Would you be scared if you saw a bat?					
Would you be happy if you found a bat in your garden?					

Appendix D: Positive Information Vignette and Bat Photograph

Bats in the United States feed on insects and actually eat many insect pests like mosquitoes. Bats here in the U.S. do not drink blood at all. There are vampire bats that live in central and South America, but they usually drink the blood of cows and chickens. Bats in other parts of the world eat fruit and drink nectar and are very important in helping rainforests that have been cut down to regrow. Bats are clean mammals that have soft fur and nurse their baby's milk, like all mammals. Bats live in old trees, but may sometimes move into attics when they cannot find homes. Putting up a bat house in your yard will give bats a place to live and help get rid of pesky bugs. Many people in Michigan like bats and find them to be very helpful.

Appendix E: Email Consent to Use the Fear Survey Schedule for Children-Revised

From: Kim Williams [mailto:Kimberly.williams2@waldenu.edu] **Sent:** Saturday, January 05, 2013 7:25 PM **To:** Thomas Ollendick **Subject:** Re: Use of the FSSC-R

Hi Dr. Ollendick,

Attached, and cut and pasted below, is the study abstract. I will just need a statement from you stating you read the abstract and it is ok for me to use the FSSC-R. Thanks again!
Kim Williams

Thank you – I have read your abstract and hereby give you permission to use the FSSC-R in your intended research. It sounds like a very interesting and potentially important study. Good wishes in your project. Tom

P.S. Might I request a copy of your Bat Attitude and Fear Belief Questionnaire? I am always interested in being aware of what is happening in the field.
P.S. 2 I am attaching a chapter on phobias that you find of interest in your work.

Thomas H. Ollendick, Ph.D.
University Distinguished Professor
Director, Child Study Center
Department of Psychology
Virginia Tech
Blacksburg, VA 24060
Phone: 540 231-6451
http://www.psyc.vt.edu/labs/csc

Appendix F: Email Consent to Use the Fear Beliefs Questionnaire

Hi Professor Field,
I was wondering if I could have your consent to use the FBQ in my research. I have attached the abstract and cut and pasted it below for your reference. I just need a brief statement saying it's ok with you. Thanks again for all your help!

Kim Williams

Dear Kim,
Yes, of course this is fine. You do not need permission from Andy to use the FBQ as it is in the public domain.

He is very happy for you to use it.

Best wishes,

Zoe

Zoe Field

Author and Assistant

Child Anxiety Theory and Treatment Laboratory (CATTLab),

School of Psychology,

University of Sussex,

Falmer,

Brighton,

East Sussex,

BN1 9QH

UK

Appendix G: Email Consent to Use the Bat Attitude Questionnaire

Dňa 01/06/13, **Kim Williams** <kimberly.williams2@walden.edu> napísal:

Hi Dr. Prokop,

I was wondering if I might have your consent to use the BAQ in my doctoral dissertation. I would just need a brief statement saying it was ok. For your reference I have cut and pasted the study's abstract below and attached it as a Word document. Thanks so much in advance,

Sincerely,

Kim Williams

Ph.D candidate

Walden University

Dear Kim,

very interesting proposal, lets apply BAQ, I hope it will be helpful for you. Do not hesitate to inform me about your results, I am curious.

Cheers,

Pavol

Curriculum Vitae

Kimberly J. Williams

EDUCATION

Candidate for Doctor of Philosophy-Clinical Psychology Walden University, Minneapolis, Minnesota Expected graduation date of December, 2013. GPA: 4.0

Ph.D. Dissertation: *The effect of positive information on phobias*

Master's of Science-Biology Eastern Michigan University, Ypsilanti, Michigan. September, 1992. GPA: 3.9

Masters Thesis: *Roosting preference of the Indiana bat, Myotis sodalis, on the northern extent of its range.*

Bachelors of Science-Zoology Michigan State University, East Lansing, Michigan. May 1988. GPA: 3.7

PROFESSIONAL EXPERIENCE

Psychotherapist
Pediatric Specialists of Bloomfield Hills
43097 Woodward Ave Suite 201
Bloomfield Hills, MI 4830

Responsibilities:
- Work to prevent, diagnose and treat mental disorders.
- Perform diagnostic exams on patients for disorders such as ADHD, depression, and anxiety, including comorbid disorders.
- Work alongside doctors to determine the best course of treatment for particular patients.
- Collaborate with doctors and other specialists to develop and implement treatment and intervention programs.
- Council patients with chronic pain, illness, and neurological conditions.
- Work as part of a multi-disciplinary team composed of psychiatrists, psychologists, medical professionals, and other disciplines to provide comprehensive medical and counseling services to patients.

Psychotherapist
Affiliated Psychologists of Michigan, P.C.
74 West Long Lake, Suite 104

Bloomfield Hills, MI 48304

Responsibilities:
- Correct behavioral disorders caused by improper development.
- Help mentally and emotionally distressed clients adjust to life.
- Assist medical and surgical patients in dealing with illnesses or injuries.
- Help people deal with personal crisis, such as divorce or the death of a loved one.
- Interview patients and administer diagnostic assessments. Provide individual, family, or group psychotherapy and design and implement behavior modification programs. Provide therapeutic services to adults and children, including family therapy and individual therapy.

Intern Psychologist
Development Centers
17421 Telegraph Road
Detroit, MI 48219

Responsibilities:
- Undertake and write up assessments, which meet specified standards.
- Conduct interviews with clients and their families to assess and review their situation.
- Offer information and counseling support to clients and their families.
- Organize and manage packages of support to enable clients to lead the fullest lives possible.
- Recommend and sometimes make decisions about the best course of action for a particular client.
- Liaison with, and make referrals to, other agencies.
- Participate in multidisciplinary teams and meetings regarding, for example, child protection or mental health.
- Maintain accurate records and prepare reports for legal action.
- Provide evidence in court.
- Participate in training, supervision and team meetings.

Intern Psychologist
Christ Child House
15751 Joy Road
Detroit, MI 48228

Responsibilities:
- Provide intensive therapy focusing on anger management, conflict resolution, grief and loss, sexual development, and school-based issues.
- Use a variety of evidence-based therapy techniques including play therapy, sand therapy, art therapy, pet therapy, Gestalt therapy, and cognitive-behavior therapy.
- Participate in a variety of professional mental health diagnostic, counseling, treatment,

and community outreach services to clients living in the facility.
- Work as part of a health care team to ensure provision of quality patient care in accordance with state policies, procedures, and training.
- Responsible for assessing patient and family understanding of therapy regimen and conducting ongoing education for patients and their families regarding any assessed misunderstandings of therapy requirements facing the patient.
- Assess patients' responses to treatment therapy making appropriate adjustments and modifications to the treatment plan as indicated by the psychiatrist.
- Communicate problems or concerns to the program manager and psychiatrist.
- Collaborate and communicate with psychiatrist and other members of the healthcare team to interpret, adjust, and coordinate daily patient care plan to ensure continuity of care.

TEACHING EXPERIENCE

Instructor
Wayne State University
33737 W 12 Mile Road
Farmington Hills, MI

Therapy and Sexual Abuse Class
Responsibilities:
- Instruct Master's level psychology students in the use of therapeutic techniques to treat children and adults suffering from sexual abuse backgrounds.

Drug Addiction Class
Responsibilities:
- Instruct master's level psychology students treatment techniques for clients with addiction problems.

DSM-IV-TR in Clinical Psychology Class
Responsibilities:
- Instruct master's level psychology students on how to effectively use the DSM-IV-TR to diagnose disorders in children, adolescents, and adults.

Ethics and Standards in Clinical Psychology Class
Responsibilities:
- Instruct master's level psychology students the American Psychiatric Association ethics when counseling clients.

PUBLICATIONS

Williams, K., Mies, R., Stokes, D. & Stokes, L. (2005). Stokes Beginners Guide to Bat Identification. Little, Brown, Inc.

Williams, K. & Mies, R. (2002). Understanding Bats. Bird Watchers Digest, Indianapolis, IN.

Kurta, A. & Williams, K. (2000). Roosting Preferences of the endangered Indiana bat (*Myotis sodalis*). Ecological and Behavioral Methods for Studying Bats, Hardcourt, Inc.

Williams, K. & Stooks, E. (1999). Bat Basics. Faulkner Publishing, Grand Rapids, MI.

Williams, K. & Stooks, E. (1999). Bats that Eat Insects. Faulkner Publishing, Grand Rapids, MI.

Williams, K. & Stooks, E. (1999). Bats that Drink Nectar. Faulkner Publishing, Grand Rapids, MI.

Williams, K. & Stooks, E. (1999). Bats that Drink Blood. Faulkner Publishing, Grand Rapids, MI.

Williams, K. & Stooks, E. (1999). Bat Conservation. Faulkner Publishing, Grand Rapids, MI.

Williams, K. & Stooks, E. (1999). Bats that Eat Fruit. Faulkner Publishing, Grand Rapids, MI.

Williams, K. & Stooks, E. (1999). Bat Basics. Faulkner Publishing, Grand Rapids, MI.

Williams, K. & Stooks, E. (1998). Little Blue Penguins. Faulkner Publishing, Grand Rapids, MI.

Williams, K. & Stooks, E. (1998). The Large Penguins. Faulkner Publishing, Grand Rapids, MI.

Williams, K. & Stooks, E. (1998). The Crested Penguins. Faulkner Publishing, Grand Rapids, MI.

Williams, K. & Stooks, E. (1998). The Rock Hopper Penguins. Faulkner Publishing, Grand Rapids, MI.

Kurta, A. & Williams, K. (1998). The endangered Indiana bat (*Myotis sodalis*) on the northern edge of its range. *Journal of Mammalogy, (10)*4, 101-119.

PROFESSIONAL PRESENTATIONS

Williams, K. (1999). *The endangered Indiana bat (Myotis sodalis) on the northern edge of it's range.* A paper presentation at the Mammal Association. October, 1999.

Williams, K. & Kurta, A. (1998). *Preliminary studies of the endangered Indiana bat in a northern marsh.* A poster presentation at the North American Bat Research Association. October, 1998.