

THE RELATIONSHIP BETWEEN PARENTING STYLE AND EPISTEMOLOGICAL  
BELIEFS

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I have examined the final copy of this thesis for form and content, and recommend that it be accepted in partial fulfillment of the requirement for the degree of Master of Education with a major in Educational Psychology

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## DEDICATION

To my wife, Lori, your work and care for our family this past year was remarkable and I thank God often for your strength and wisdom. Your love and support make me who I am

To my sons, Zachary, the cancer champion, and Joshua, the super sibling, your courage, energy, spirit, love, support, and patience this past year will inspire me for the rest of my life

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## ABSTRACT

This study explored parenting styles and epistemological beliefs. The purpose was to determine if one's epistemological beliefs are associated with the parenting style one experiences as a child. Parenting styles were classified as authoritative, authoritarian, indulgent, and neglectful. Epistemological beliefs were classified as certain knowledge, simple knowledge, omniscient authority, quick learning, and innate ability. An ancillary analysis revealed epistemological beliefs and vocabulary knowledge were related to GPA. Sixty-four mostly 17 and 18 year-old students from a medium sized high school in the Midwest completed the Epistemic Beliefs Inventory, a parenting style measure, and a vocabulary measure. Significant differences between parenting styles were found for quick learning, certain knowledge, and omniscient authority. This suggests that the parenting style parents use may impact the formation of the child's epistemological beliefs. A significant interaction effect was found between vocabulary and quick learning for GPA. This suggests that sophisticated beliefs in quick learning may help a student overcome their low vocabulary knowledge and earn a high GPA.

## TABLE OF CONTENTS

Chapter	Page
I. THE PROBLEM .....	1
Rationale .....	1
Definitions .....	3
Purpose .....	4
Overview .....	4
Hypotheses .....	4
II. LITERATURE REVIEW .....	6
Introduction .....	6
Review of the epistemological beliefs literature .....	7
Perry's theory .....	7
The reflective judgment model .....	8
Women's ways of knowing theory .....	9
Epistemological belief system theory .....	10
Associations between epistemological beliefs and learning .....	12
Epistemological beliefs development .....	15
Review of the parenting styles literature .....	16
Baumrind's research and theory .....	17
Maccoby and Martin's model .....	21
Baumrind's FSP research .....	24
Contemporary parenting styles research .....	25
Summary .....	26
III. METHODOLOGY .....	30
Participants .....	30
Instruments .....	30
Epistemological beliefs measure .....	30
Parenting styles measure .....	32
Demographics measure .....	33
Procedures .....	34
Data analysis .....	34
IV. RESULTS .....	36
Parenting styles scores .....	36
Epistemological beliefs and vocabulary scores .....	37
Parenting styles and epistemological beliefs .....	38
The effect of epistemological beliefs and vocabulary on GPA .....	40

Chapter	Page
V. DISCUSSION.....	43
Study summary.....	43
Conclusions regarding parenting styles and epistemological beliefs.....	45
Conclusions regarding epistemological beliefs, vocabulary and GPA.....	48
Limitations.....	49
Future research.....	49
Implications for parenting.....	50
Implications for the classroom.....	50
Implications for Theories.....	51
REFERENCES.....	52
APPENDICES.....	56
Epistemic beliefs inventory key.....	57
Parenting style measure.....	59
Vocabulary measure.....	62
Informed consent.....	63
Parental informed consent.....	64

## LIST OF TABLES

Table	Page
1. Questionnaire subscales identification of parenting styles. . . . .	33
2. Means and standard deviations for parenting styles and epistemological beliefs . . . . .	39
3. GPA means and standard deviations for vocabulary X belief in quick learning interaction. . . . .	42



## LIST OF FIGURES

Figure	Page
1. Interaction of quick learning beliefs and vocabulary . . . . .	41

# CHAPTER I

## THE PROBLEM

### *Rationale*

Epistemological beliefs research has revealed that it is important to focus on students' implicit beliefs about knowledge and learning. Numerous associations between epistemological beliefs and learning have been discovered. One good example is that students who believe intelligence is not fixed at birth show more persistence when working on a difficult task (Dweck & Leggett, 1988). Another good example is students who do poorly in math are more likely to believe that math problems should be solved in ten minutes or they can not be solved (Schoenfeld, 1983).

The Epistemological Belief System theory was developed in the late 1980s (Schommer-Aikins, 2004). Since its development it has been an important part of epistemological beliefs research. One of the earliest studies of this theory showed important influences on learning. A sample of 117 college students revealed that the epistemological beliefs included in this theory influenced comprehension monitoring while reading a short passage and performance on a mastery test after finishing the reading (Schommer, 1990). Research with the Epistemological Belief System theory has continued to the present and has shown influences on grade point average (GPA) and attitudes toward school (Schommer, 1997).

Up to this point, epistemological research has primarily focused on the outcomes of these beliefs. This study focuses on the development of epistemological beliefs. This area has had much less research (Schommer, 1998). Discoveries about the development

of epistemological beliefs will make an important contribution to epistemological research.

Early researchers did not ignore the development of epistemological beliefs entirely. They made some proposals about what shapes epistemological beliefs. Belenky, Clinchy, Goldberger, and Tarule (1986) proposed that social relationships shape epistemological beliefs, and Anderson (1984) identified parents and teachers as important influences. Later research that focused on the Epistemological Belief System theory identified age, amount of education, and education of parents as influential to the development of epistemological beliefs (Schommer, 1990; Schommer, 1993; Schommer, 1998; Schommer-Aikins, 2004). One recurring area that is influential in the small amount of research on the development of epistemological beliefs is the family. This study explores the influence of the family further by focusing on parenting styles.

Childhood home life's influence on epistemological beliefs has not been carefully examined (Schommer, 1998). One reason for this is that research in this area must take into consideration the family unit's complexity and this is difficult to do. The parenting styles construct that was first developed by Baumrind (1967) has been successful in quantifying this complexity for research purposes. Two findings are particularly intriguing as a basis for exploring associations between epistemological beliefs and parenting styles. Schommer (1990) found that the more parents encouraged their children to take responsibilities in the home and for their own thinking, the more sophisticated epistemological beliefs the students had. Schommer (1993) found that the more parents encouraged independent decision making, the more likely students were to view

knowledge as complex. These parenting behaviors are ones included in parenting styles conceptualizations.

### *Definitions*

Historically, epistemology has been a concept philosophers have studied. Philosophers define epistemology as the origin, nature, limits, methods, and justification of human knowledge (Hofer, 2002). Psychologists and educators became interested in epistemology in the 1960s. They view it slightly differently. They focus on one's understanding of knowledge and learning, its development, and how it shapes the individual's understanding of the world (Hofer, 2002). This study focuses on the Epistemological Belief System theory (Schommer, 1994). This theory includes five beliefs about knowledge and learning that are independent of one another. The beliefs are certain knowledge, simple knowledge, omniscient authority, quick learning, and innate ability.

The parenting styles concept was first developed by Baumrind (1967). She did not try to measure specific parenting behaviors for specific situations. Instead, parenting styles are "constellations of parental attitudes, practices, and nonverbal expressions that characterize the nature of parent-child interactions across diverse situations" (Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997, p. 507-508). Four parenting styles have been developed from Baumrind's research. They are authoritative, authoritarian, indulgent, and neglectful. Authoritative parents require children be responsive to parental demands and the parents are responsive to the children's perspective and their reasonable demands. Authoritarian parents require children be responsive to parental demands, but these parents are not responsive to the children's perspective or demands. Indulgent

parents do not require children be responsive to parental demands, but they are responsive to the children's perspective and demands. Neglectful parents do not require children be responsive to parental demands and they are not responsive to the children's perspective and demands. Parent and child interactions are very complex and parenting styles are an effective way to categorize these interactions.

### *Purpose*

The purpose of this study is to explore associations between epistemological beliefs and parenting styles. An association between these two concepts may reveal that parenting influences the development of children's epistemological beliefs. This would be a valuable contribution to both epistemological beliefs research and parenting styles research. It would reveal an important specific area that shapes epistemological beliefs and an important specific outcome of parenting styles.

### *Overview*

This study synthesizes the theory and research of epistemological beliefs and parenting styles and then identifies connections between them. These connections are the basis for the hypotheses in this study. Chapter two first discusses epistemological beliefs. It presents the theoretical background of epistemological belief research and presents Schommer-Aikins' Epistemological Belief System theory (Schommer, 1994). The link between epistemological beliefs and academic performance is reviewed. The second half of chapter two discusses parenting styles. It presents the theoretical background of parenting styles research and contemporary research. Finally, theoretical connections between epistemological beliefs and parenting styles are identified.

Chapter three presents the methodology that will be used in this study. The demographic questions are presented and descriptions of the questionnaires are included. Finally, the procedures for collecting the data and analyzing it are presented.

### *Hypotheses*

This study proposes the following hypotheses about the influence of parenting styles on the development of epistemological beliefs:

- a) Authoritative parenting will be associated with beliefs that knowledge is complex and learning is gradual.
- b) Indulgent and neglectful parenting will be associated with more unsophisticated epistemological beliefs.
- c) Authoritative parenting will be associated with more sophisticated epistemological beliefs.
- d) Authoritarian parenting will be associated with beliefs that knowledge is certain and is handed down from authority.

## CHAPTER II

### LITERATURE REVIEW

#### *Introduction*

Many teachers have experienced the student who wants a simple answer to a complicated question. A history teacher might experience this from a student who wants to know who has been the best President. The student may become frustrated when the teacher responds that consensus varies among scholars. For some students this lack of a definitive answer seems confusing. Teachers in this type of situation are often puzzled. Their own years of study have brought them to a point where they understand knowledge is often uncertain, with different individuals making different interpretations. In the past several decades researchers of personal epistemology have formulated theories and made discoveries that cast new light on individuals' views of knowledge and learning. These developments provide an understanding of the student's and teacher's confusion in the example above, and have other important implications for the classroom and daily life. In this chapter I synthesize the theories and research on personal epistemology. I then synthesize the research and theories on parenting styles and hypothesize that it may be one important influence on personal epistemology development.

This chapter is organized in the following way. First, background knowledge of epistemological belief research will be presented. Second, personal epistemology as conceptualized as an epistemological belief system is discussed. Third, the link between epistemological beliefs and academic performance is reviewed. Fourth, the need for more research on the development of epistemological beliefs is asserted. Fifth, research on parenting styles is reviewed. Sixth, Baumrind's (1967) theory and research are reviewed.

Seventh, Maccoby and Martin's (1983) model that reconceptualizes Baumrind's theory is described. Eighth, Baumrind's (1991) Family Socialization and Developmental Competence longitudinal program of research (FSP), that supports Maccoby and Martin's model, is described. Ninth, contemporary parenting styles research is presented. Finally, theoretical connections between epistemological beliefs and parenting styles are asserted.

#### *Review of the Epistemological Beliefs Literature*

Epistemology is not a new concept. Philosophers have long pondered epistemology as the origin, nature, limits, methods, and justification of human knowledge (Hofer, 2002). Psychologists and educators started becoming interested in epistemology in the late 1960s. From this perspective the focus is on one's understanding of knowledge and learning, its development, and how it shapes the individual's understanding of the world (Hofer, 2002). Psychologists became interested in personal epistemology because they began to hypothesize that it influenced one's educational experiences. Research since this time has confirmed that personal epistemology does influence one's educational experiences and even influences daily experiences like reading the newspaper.

*Perry's theory.* Harvard psychologist William Perry was the first scholar to identify epistemological beliefs' influence on the educational experience (1968). In the 1960s he conducted a study to explore what was responsible for individual college students' different approaches to learning in college. He used an in-depth interview method. When he started his research he expected to find personality characteristics responsible for the differences. He ended up discovering that the key differences among the students were their views of knowledge. He developed a theory of epistemological



development from his research that sparked interest in epistemology in education and psychology and spurred research and theoretical development that continues today.

Perry used the term developmental scheme to refer to his theory of epistemological development. His interviews revealed that the undergraduate college students who participated in his study had a narrow or simple view of knowledge when they started as freshmen. The freshmen tended to view knowledge as either right or wrong and felt that knowledge was derived from an authority figure like a parent or professor. Perry identified eight more levels of epistemological development. He hypothesized that individuals pass through these levels before arriving at a final understanding of the complex nature of knowledge. Perry called these nine levels positions, and did not feel they were strict stages as in the Piagetian stage model. He did feel they were linear and hierarchical, but fluctuation back and forth was possible (Moore, 2002). This fluctuation distinguishes them from a strict stage model, but it is still accurate to understand Perry's theory as a stage model. By the ninth stage the individual views knowledge as dependent on the context and derived from reason instead of an authority figure. Perry felt the higher positions required more advanced reasoning and suggested that undergraduate studies moved an individual from the lower positions to the higher positions.

*The reflective judgment model.* In the early 1980s Kitchener and King refined Perry's theory and developed a theory of intellectual development that focused on how people deal with ill-structured problems (Schommer, 1994). They referred to their theory as the Reflective Judgment Model (King & Kitchener, 2002). They identify seven stages in the development of thinking. Similar to Perry's theory, the early stages are naïve ways

of viewing knowledge. Each successive stage is a more complex and effective view of knowledge. Reasoning in stages one through three is marked by the belief that knowledge comes from an authority figure and that there is absolute right and wrong. Reasoning in stages four and five recognizes uncertainties and evidence beyond authority figures, however, it attributes the uncertainties to mistakes in the evidence. Reasoning in the final stages, six and seven, accepts knowledge as uncertain and recognizes judgments are made on the best available evidence.

Kitchener and King's Reflective Judgment Theory diverged from Perry's work significantly but retained several key components of Perry's work. The stage model is an important similarity. The seven stages in The Reflective Judgment Theory are linear and hierarchical in the same way as Perry's nine positions. A natural growth from a naïve understanding of knowledge to a complex and mature understanding is another important similarity. Finally, both theories propose that movement from the lower stages to the higher stages occurs naturally with age and exposure to education.

*Women's ways of knowing theory.* Belenky, Clinchy, Goldberger, & Tarule (1986) also refined Perry's theory. They felt Perry had focused too much on male subjects in his original study. Belenky et al. (1986) focused on female subjects and used their findings to adapt Perry's theory into a new theory they called Women's Ways of Knowing. They do not assert that their epistemological views are only confined to women, but do assert that more women than men have them (Schommer, 1994). Belenky and her colleagues identified five epistemological perspectives. In the first and second perspectives, silence and received knowledge, the individual does not generate knowledge, but obtains it from an authority. In the third perspective, subjective

knowledge, knowledge is considered private and developed by each individual. In the last two perspectives, procedural and constructed knowledge, knowledge is obtained using objective procedures. The authors consider the last stages to be the most sophisticated. These perspectives are often interpreted as being linear and hierarchical, but Clinchy (2002) reports differently. She concludes that individuals may progress through the stages differently depending on their area of expertise.

*Epistemological belief system theory.* Each of the previous researchers influenced Schommer-Aikins in the development of her theory. Their similarities led to the development of the Epistemological Belief System theory (Schommer, 1994). Her assertion that epistemological beliefs are a system of more or less independent beliefs is one key element that separates her theory from previous theories. This critical part of the theory is best described in Schommer-Aikins' (1994) own words.

I propose epistemological beliefs be reconceived as a system of more or less independent beliefs. By system, I mean that there is more than one belief to consider. And by more or less independent, I mean that individuals may be sophisticated in some beliefs, but not necessarily sophisticated in other beliefs (p. 300).

Schommer-Aikins includes five beliefs in her theory (Schommer-Aikins, 2004). These beliefs are about the stability of knowledge, the structure of knowledge, the source of knowledge, the speed of learning, and the ability to learn. An individual's beliefs about each of these range from unsophisticated to sophisticated. Unsophisticated beliefs support basic lower level learning and knowledge like memorizing facts. Sophisticated beliefs support higher level critical thinking, creativity, and application of knowledge.

Unsophisticated beliefs about the stability of knowledge are ones that view knowledge as unchanging, and sophisticated beliefs are ones that view knowledge as tentative. Unsophisticated beliefs about the structure of knowledge are ones that view knowledge as isolated bits and pieces, and sophisticated beliefs are ones that view knowledge as integrated concepts. Unsophisticated beliefs about the source of knowledge are ones that view knowledge as coming from an authority figure, and sophisticated beliefs are ones that view knowledge as coming from reason. Unsophisticated beliefs about the speed of learning are ones that view learning as quick or not at all, and sophisticated beliefs are ones that view learning as gradual. Unsophisticated beliefs about the ability to learn are ones that view it as being fixed at birth, and sophisticated beliefs are ones that view it as improvable.

The first three beliefs are similar to beliefs included in previous theories. Including beliefs about learning is another key element that separates Schommer-Aikin's theory from previous theories. Schommer-Aikins notes that once an individual has developed sophisticated beliefs they will still use unsophisticated beliefs when it is appropriate for a particular task.

More or less independent means that the different beliefs develop asynchronously. A person may have reached a sophisticated level for one of the beliefs, but still have unsophisticated beliefs for another. An example is someone who believes knowledge is complex, but believes it is unchanging (Schommer-Aikins, 2004). As reported above, previous theories proposed synchronous development where individuals progress linearly from unsophisticated reasoning to more sophisticated reasoning as they age and/or acquire more education. Synchronous development is also universal across all

individuals. The asynchronous development is another part of this theory that separates it from previous theories.

The final part of the epistemological belief system theory that separates it from previous theories is the use of a questionnaire to measure epistemological beliefs (Schommer-Aikins, 2004). As reported above, previous theories used interview formats to measure epistemological beliefs. The Epistemological Beliefs Questionnaire (Schommer, 1990) consists of 63 items that use a five-point likert scale ranging from strongly disagree to strongly agree. The initial testing of the instrument was successful in identifying the beliefs, with the exception of the source of knowledge (Schommer, 1990). Consequently, the only belief that is not measured by this questionnaire is the source of knowledge. The questionnaire contains two or more subscales for each of the four beliefs it measures.

Schommer-Aikins (2004) reports important implications for using a questionnaire instead of interviews. A questionnaire is more efficient and objective. It allows for group administration and statistical analysis. She reports that the availability of a questionnaire may be responsible for an increase in the study of epistemology in the 1990s. The high level of interest in this questionnaire and its use by researchers around the world support these assertions (Schommer-Aikins, 2004). A questionnaire also allows researchers to measure the different epistemological beliefs independently.

*Associations between epistemological beliefs and learning.* The initial research carried out by Perry and the theory he developed inspired subsequent theorists and researchers because it held promise for explaining a key way beliefs shape cognition and their underlying influence on learning and academic performance. Since the 1960s,

research has found a variety of associations between epistemological beliefs and learning. In 1985 Schoenfeld stated the importance of epistemological beliefs very well when he said “belief systems shape cognition, even when one is not consciously aware of holding those beliefs” (p. 35)

For example, Ryan’s (1984) research provided an initial basis for using a questionnaire to measure epistemological beliefs. He used Perry’s (1968) research to develop seven objective questions that classified subjects as either dualists or relativists. Dualists view knowledge as a set of facts that are either right or wrong, and relativists view knowledge as complex propositions that vary in their correctness. He then measured his subjects’ comprehension monitoring strategies. His questions successfully predicted the subjects’ comprehension monitoring strategies. Dualists were more likely to use a knowledge based comprehension strategy, and relativists were more likely to use an application based strategy. An application based strategy is more sophisticated and more effective.

Dweck and Leggett (1988) identified a relationship between the belief that intelligence is fixed at birth and persistence in learning. They discovered that students who believed intelligence is fixed at birth were more likely to display helpless behavior when confronted with a difficult academic task. Schoenfeld (1983) discovered that students who do poorly in math are more likely to believe that math problems should be solved in 10 minutes or they will never be solved, and only geniuses are capable of discovering or creating mathematics.

The initial research exploring the link between the Epistemological Belief System theory and learning was carried out at the end of the 1980s (Schommer, 1990).

Schommer-Aikins administered the Epistemological Beliefs Questionnaire and a reading comprehension test to 117 college students. Multiple regression was used to measure the relationship between epistemological beliefs and conclusions drawn, performance on a mastery test, and comprehension monitoring. Results revealed the more students believed in quick, all-or-none learning, the more likely they were to oversimplify conclusions. The more students believed in certain knowledge, the more likely they were to write absolute conclusions. The more students believed in quick all-or-none learning, the more likely they were to perform poorly on a mastery test. Finally, the more students believed in quick, all-or-none learning, the more likely they were to overestimate their understanding of the passage. These results reveal that epistemological beliefs affect students' processing of information, monitoring of comprehension, and interpretation of knowledge. These were inspiring results for the Epistemological Belief System theory and led to further research.

Research continues to reveal associations between the Epistemological Belief System theory and learning and academic performance. One study was carried out in the early 1990s with 69 high school students (Schommer, 1997). The Epistemological Beliefs Questionnaire was administered and regression analysis was used to compare their results to their GPAs. The results revealed that the less students believed in quick learning, the better GPAs they earned. Another study explored students' attitude toward school (Schommer, 1997). After completing the Epistemological Beliefs Questionnaire students answered a set of open ended questions about the value of education, persistence in pursuing education in the face of adversities, and tenacity in studying. The results revealed that the more students believed the ability to learn can improve over time, the

more likely they were to indicate that they valued education, that persistence in the face of academic adversity is critical, and that tenacity in studying is to be expected (Schommer & Walker, 1997).

*Epistemological beliefs development.* The decades after Perry's epistemological research were marked by reconceptions of his theory and attempts to uncover how epistemological beliefs shape cognition and thus influence learning and academic performance. The information above shows that a great deal has been discovered in these areas; however, not as much is known about the development of epistemological beliefs (Schommer, 1998). Some of the early researchers made some proposals about what shapes epistemological beliefs and in the past decade some researchers have started empirically exploring it.

Belenky et al's (1986) theory of Women's Ways of Knowing proposes a close tie between epistemological beliefs and social relationships (Schommer-Aikins, 2004). In their theory, how one relates to other people like teachers and peers influences how one judges the quality of knowledge. Anderson (1984) proposes that parents and teachers shape children's epistemological beliefs by modeling interpretations of experiences. Schommer-Aikins (2004) identifies peers, family, and teachers as groups that influence views of learning.

One empirical study of the development of epistemological beliefs focused on how age and education affect it (Schommer, 1998). Four hundred and eighteen adults completed the Epistemological Beliefs Questionnaire. The stratified sample, included one-third of the subjects who had only a high school education, another third who had some college courses, and the final third who had some hours of graduate school study.



The results reveal that the more education adults receive, the more likely they are to believe that knowledge is complex and constantly evolving, and the older an individual is, the more they believe the ability to learn can be improved. Schommer-Aikins' study also explored the subjects' characteristics and found some interesting associations (1990). The more education the participants' parents had and the more they had encouraged their children to take responsibilities in the home and for their own thinking, the more sophisticated epistemological beliefs the students possessed.

One area that often emerges in these explorations of the development of epistemological beliefs is that of the family (Anderson, 1984; Schommer, 1990; Schommer, 1993; Schommer-Aikins, 2004). One study compared junior college students with university students (Schommer, 1993). The junior college students had less sophisticated beliefs for all four epistemological beliefs when compared to the university students. Some of the differences between the groups were accounted for by their families. The more education the parents had and the more they encouraged independent decision making, the less likely students were to believe in simple knowledge. The more education parents had, the less likely students were to believe in quick all-or-nothing learning.

#### *Review of the Parenting Styles Literature*

Even with this initial evidence that family plays a role in the development of epistemological beliefs, childhood home life has not been carefully examined (Schommer, 1998). One difficulty in exploring relationships between the family and epistemological beliefs is deciding how to quantify the family. Parental behavior is complex and family units have numerous variables. It has been shown that parents with

more education have children with more sophisticated epistemological beliefs (Schommer, 1993). This does not reveal how or why these children develop more sophisticated beliefs. Baumrind's parenting styles theory that grew out of her 1967 research provides a framework to address this problem. "Parenting styles are constellations of parental attitudes, practices, and nonverbal expressions that characterize the nature of parent-child interactions across diverse situations" (Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997, p. 507-508). This is different from attempting to measure specific parenting behavior for specific situations. Instead, it provides a window into how a parent generally treats the child in different day-to-day activities. This effectively quantifies parenting behaviors in a broad way, but also incorporates specific parenting behaviors. Parenting styles have been used extensively in research so there is a strong empirical and theoretical background.

*Baumrind's research and theory.* Sears, Maccoby, and Levin's 1957 work on socialization in the family had a significant impact on theorists in this area. They proposed that parental behavior should be understood by considering joint and interactive effects of different dimensions. Since their work, most of the theories have focused on this type of multi-dimensional approach (Lamborn, Mounts, Steinberg, & Dornbusch, 1991). The most influential theory of parental behaviors and socialization in the family is Baumrind's parenting styles theory. Contemporary research on parenting styles is shaped by her studies that started in the 1960s (Glasgow et al., 1997).

Baumrind's research laid the foundation for using parenting styles in a typological approach when categorizing parental behavior in research on the socializing effects of parents' treatment of children. The typological approach "focuses on the configuration of

different parenting practices and assumes that the impact of any one practice depends on the arrangement of all others” (Glasgow et al, 1997, p. 508). Parent-child interaction is very diverse and takes place in many different situations and settings. Researchers have embraced the parenting styles typology approach as a way to measure this diverse interaction in a consistent manner.

Baumrind originally measured four parent-child interaction dimensions: parental control, parental maturity demands, parent-child communication, and parental nurturance. Parental control referred to parental acts that shape the child’s behavior and promote internalization of parental standards. Parental maturity demands referred to pressures put on the child to perform up to ability intellectually, socially and emotionally. Parent-child communication referred to the extent the parent used reason to obtain compliance and asked the child’s opinions and feelings. Parental nurturance referred to the extent the parent expressed love and warmth while carrying out care taking functions for the child.

At the heart of Baumrind’s (1967) research was the assumption that parental childrearing practices have a significant impact on physical, cognitive, and social development. Baumrind hypothesized that children’s energy level, willingness to explore their environment, self-control, sociability, and buoyancy are influenced by the kind of contact provided by their parents (1967). A rich, complex environment will push children to reach their inherent cognitive ability and an inadequate environment will hinder their development in these areas.

To study these assertions, Baumrind assessed a sample of 32 preschool children on five dimensions: self-control, approach-avoidance tendency, self-reliance, subjective mood, and peer affiliation. Self-control was the tendency to suppress the impulse to act

when it was not appropriate to act. Approach-avoidance was how much the child approached novel stimuli. Subjective mood was the predominant mood shown during nursery school activities. Self-reliance was the ability to handle their affairs in an independent manner. Peer affiliation was the child's ability to express warmth toward his peers. The preschool children were classified in one of three groups that she titled pattern I, pattern II, and pattern III. Pattern I children ranked high on mood, self-reliance, and self control. Pattern II children ranked low on peer affiliation and mood, and ranked high on the approach dimension. The pattern III children ranked low on self-reliance and self-control. Baumrind hypothesized that parents of children in each pattern would differ consistently on the measured parenting dimensions.

The results supported Baumrind's hypothesis. Parents of pattern I children showed high nurturance, high control, high maturity demands, and communicated clearly with the children. Parents of pattern II children showed high control, low nurturance, and did not communicate clearly to obtain the child's compliance. Parents of pattern III children showed low control, low maturity demands, and low nurturance. Baumrind named the parents of pattern I children authoritative, the parents of pattern II children authoritarian, and the parents of pattern III children permissive.

Several aspects of Baumrind's theory and results were groundbreaking to the field and set the standard for future conceptualization of parental socialization behavior. First, Baumrind's model was not a linear model. Parenting style was not defined as more or less of a quantity of parental control behavior. Instead, it was defined as fitting one of three types of qualitatively different parental control patterns. This was a novel way of conceptualizing parenting styles (Darling & Steinberg, 1993). It focused on one parenting

dimension, control. Baumrind defined control as the parents' attempt to integrate the child into the family and society by demanding behavioral compliance. The authoritative parents carried out control in a nurturing manner with clear communication. The authoritarian parents carried out control with little nurturance and unclear communication. The permissive parents carried out lower levels of control with less nurturance and communication. Baumrind focused on control, but her results revealed that methods of parental nurturance, communication, and maturity demands varied consistently with parental control. This means parents who carried out control in a certain manner were also likely to carry out the other factors in a certain manner.

This reveals a second important aspect of Baumrind's theory that has been influential. She used a configurational approach (Darling & Steinberg, 1993). She asserted that the influence of each aspect of parenting was dependant on all other aspects. An example would be disciplinary techniques affecting the impact of maturity demands on the child.

A third aspect of Baumrind's theory and research that changed the field was her separation of parenting behaviors from child characteristics (Darling & Steinberg, 1993). Her parenting styles were solely a characteristic of the parents and not the parent-child relationship. For example, her measure of compliance measured the parents' attempts to get the child to comply. It was separate from whether the child actually complied. Previous theories had assumed that parents influenced children, but did not take into account that children also influence parents. Baumrind asserted that children do influence their parents, and so one needed to consider both children and parents when researching. Her focus was on parental characteristics and so she measured this separate from the

child's reaction to the parent. She did not feel that the child's reaction was unimportant. She felt both needed to be considered separately. This was a key aspect of Baumrind's model because she felt a key outcome of the authoritative style was that it made the child more open to the socializing attempts of the parent.

A final area of Baumrind's work that has had a significant impact on the field of study are the research results that revealed a set of parental characteristics that were associated with a set of optimal child characteristics. She started her research with the children. She first identified the children with the optimal characteristics and then looked to see what the parents were like. Her results were clear and consistent. The parents who were emotionally supportive, granted appropriate autonomy, had high standards, and clear communication successfully socialized their children. She called this parenting style authoritative. Research, throughout the nearly 40 years since her original work, has consistently replicated her findings (Darling & Steinberg, 1993). This has provided researchers with an important base for exploration.

*Maccoby and Martin's model.* Maccoby and Martin (1983) transformed Baumrind's theory by creating a multidimensional linear definition of parenting based on her three styles. This transformation has had a significant impact on parenting style research (Steinberg, Elman, & Mounts, 1989). Baumrind's configurational approach was a basis for this transformation. Baumrind's conception allowed for her authoritative, authoritarian, and permissive styles to be solely based on the control dimension. However, her results revealed that other parenting attributes were consistently associated with the different types of control. Maccoby and Martin chose two dimensions they felt characterized the configurational nature of Baumrind's findings. They called one

dimension responsiveness and the other demandingness. Demandingness referred to the amount and the types of demands made by the parents on the child. Responsiveness referred to how much the parent adapts to the child's signals and needs, and to desired and undesired behaviors. They proposed that four parenting styles could be categorized by combining these two dimensions. They called parents who were high in demandingness and high in responsiveness authoritative. Parents who were high in demandingness and low in responsiveness were called authoritarian. Parents who were low in demandingness and high in responsiveness were called indulgent. Finally, parents who were low in demandingness and low in responsiveness were called neglecting. Maccoby and Martin's four styles approximated Baumrind's three styles, but differed in several ways. Maccoby and Martin's styles did not take into consideration communication patterns between parents and children, and they did not account for differing patterns of control. Maccoby and Martin did feel that their two dimensional model approximated Baumrind's model close enough that the outcomes of child socialization would be the same. They hypothesized that children of authoritative parents would be the most effectively socialized and that all four styles would socialize children in a predictable way.

The authoritative parenting style demands that children be responsive to parental demands and in turn the parents are responsive to the children's perspective and their reasonable demands. Though Maccoby and Martin's two dimensions did not include all of the following elements, they felt that it captured the following elements that Baumrind listed for her authoritative style. These parents require mature behavior from children, set clear standards, and firmly enforce them. They recognize rights of both parents and

children and encourage the children's independence. Finally, this style involves open communication between parents and children.

The authoritarian parenting style demands that children be responsive to parental demands, but the parents are not responsive to the children's perspective or demands. These parents place strict limits on children's expression of their needs. In extreme cases children are not allowed to speak until they are spoken to. Parents decide on rules without any input from the children. Though Maccoby and Martin's two dimensions did not include all of the following elements, they felt that it captured the following elements that Baumrind listed for her authoritarian style. These parents try to shape their children's behavior in accordance with a set of absolute standards and discourage verbal give-and-take between parent and child. These parents value obedience, authority, and tradition.

Maccoby and Martin broke Baumrind's permissive style into two distinct styles. Their indulgent style closely matches Baumrind's permissive style. As in the first two dimensions, Maccoby and Martin's two dimensions did not include all of the following elements, but they felt they captured the following elements that Baumrind listed for her permissive style. These parents have a tolerant attitude toward the children's impulses and use little punishment. They avoid, as much as possible, asserting their authority and make few demands for mature behavior. They allow children to make their own decisions, regulate their own behavior, and they do not make many rules governing their time schedule.

Maccoby and Martin's neglectful style includes the same types of parental behaviors found in the indulgent style. However, the neglectful parents are not warm and involved like the indulgent parents. These parents do whatever is necessary to minimize



the costs in time and effort of interaction with the child. They keep the child at a distance. In this style some parenting functions are completely stopped. Maccoby and Martin list rules for homework and setting standards for appropriate interaction with other children as two examples of parenting functions that are usually not carried out by neglectful parents. These parent's involvement with the child is at the lowest base level possible to still keep the child a part of the household. Any lower level of involvement and it would not be possible to keep the child as a part of the household.

*Baumrind's FSP research.* After Baumrind's original research, she carried out longitudinal research to further explore her parenting styles theory. She named this extensive research project the Family Socialization and Developmental Competence Longitudinal Program of Research (FSP) (Baumrind, 1989; Baumrind, 1991). She started out with a sample of four-year-old children who were born in the late 1960s. She used extensive interview and observational techniques similar to the methods reported above for her original research. She studied these same children when they were ten years old and again when they were 15 years old. She referred to the study of four year olds as T1, the study when they were 10 years old as T2, and the study when they were 15 years old as T3.

Baumrind refined her parenting styles theory after both the T2 study and the T3 study. The T3 study is considered her most recent refinement. Her conclusions in the T3 study supported Maccoby and Martin's model that is described above. Baumrind concluded that the combination of parents' demandingness and responsiveness were the defining aspects of their style of parenting. She subdivided and refined her original three parenting styles into seven styles. She divided her permissive style into a democratic style

and a nondirective style. The democratic style was more conscientious and committed than the nondirective style. The authoritarian style was divided into a nonauthoritarian-directive and an authoritarian-directive style. The nonauthoritarian-directive style was not intrusive and the authoritarian-directive style was. A good-enough style was added that consisted of parents with moderate scores on demandingness and responsiveness. The authoritative style was high in demandingness and responsiveness and the unengaged style was neither demanding nor responsive. The children of the authoritative parents were found to be the most competent and the children of the unengaged and the nondirective parents were the least competent.

*Contemporary parenting styles research.* A series of studies carried out by Steinberg, Mounts, Darling, Lamborn, Dornbusch, and colleagues has explored the utility and generality of Baumrind's typology and Maccoby and Martin's transformation (Chao, 2001; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Steinberg, Elmen, & Mounts, 1989; Steinberg, Lamborn, Dornbusch, & Darling, 1992; Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994). The results of these studies have supported Baumrind's assertions and results, as well as Maccoby and Martin's proposals. Large sample sizes and diverse populations are significant strengths of these studies. These have shown the outcomes of Baumrind's styles are generalizable across region, age, gender, and socioeconomic status. It is not as clear that the outcomes of the results can be generalized across all ethnic groups.

Baumrind (1967) and Maccoby and Martin (1983) focused on general concepts of socialization. Children's ability to handle their affairs in an independent manner and their

ability to express warmth toward their peers are two examples listed above. Baumrind's (1991) more recent work has also studied more specific measures of competence like drug use. The series of studies carried out by Steinberg and his colleagues also looked at more specific measures of competence.

Dornbusch et al. (1987) explored the impact of parenting styles on academic performance. They used a survey method to categorize 7,836 high school students into Baumrind's original three styles: authoritative, authoritarian, and permissive. Their results revealed that children who reported authoritarian and permissive parents had lower grades than children who reported authoritative parents. Steinberg et al. (1992) also found that children of authoritative parents performed better in school.

Lamborn et al. (1991) explored the impact of parenting styles on academic performance, psychosocial development, internalized distress, and problem behavior. They used a survey method to categorize 10,000 high school students into Maccoby and Martin's four styles: authoritative, authoritarian, indulgent, and neglectful. Their results revealed that children from authoritative homes had higher academic competence, lower levels of problem behavior like drug use and delinquency, and higher levels of psychosocial development like self reliance and work orientation than children from homes of the other 3 styles. Children from neglectful homes performed the poorest on all four outcomes measured.

### *Summary*

The study being proposed focuses on associations between parenting styles and epistemological beliefs. The hypothesized connection between these two concepts rests on parenting styles being a shaping force in development and epistemological beliefs

being an important outcome of development. Several aspects of the contemporary research in both epistemological beliefs and parenting styles make a connection between these two a logical hypothesis.

First, exploring a connection between parenting styles and epistemological beliefs attempts to fill missing pieces in both areas that research has not yet addressed.

Researchers have not thoroughly explored the processes through which parenting styles influence development (Glasgow et al., 1997). Research has consistently identified that certain parenting styles lead to certain developmental outcomes. How or why this occurs has not been explored. Darling and Steinberg (1993) report that empirical evidence that reveals why authoritative parents produce competent children does not exist.

Epistemological beliefs may be one reason why. Authoritative parents may encourage the development of more sophisticated epistemological beliefs. In turn, children with more sophisticated epistemological beliefs are more academically competent (Dweck & Legget, 1988; Schoenfeld, 1983; Schommer, 1990)

In like manner, researchers know little about the development of epistemological beliefs (Schommer, 1998). The research that does exist often speculates that childhood home life is one potential influence to the development of epistemological beliefs, but it has not been carefully examined (Schommer 1998). Belenky et al. (1986) identified social relationships as an important influence. Anderson (1984) identified parents as an influence on children's epistemological beliefs through their modeling interpretations of experiences. Parenting styles contain the characteristics these researchers and theorists identify.

A second aspect of the contemporary literature that leads to a hypothesized connection between parenting styles and epistemological beliefs is the research on academic competence. Researchers have demonstrated that children with authoritative parents do better in school than children with parents from one of the other three styles (Dornbusch et al., 1987; Steinberg et al., 1992; Lamborn et al., 1991). In the same manner epistemological research demonstrates that children with more sophisticated epistemological beliefs do better in school (Schommer, 1997; Schommer, 1990). It may be that these two characteristics are independently influencing school performance. It also may be that parenting styles and epistemological beliefs themselves are related and then have an influence on school performance. This study hypothesizes the latter.

A third aspect of the research is the similarities between the four parenting styles and the epistemological beliefs. This can be seen in the authoritarian style. Authoritarian parents are described above as placing strict limits on children's expression and deciding on rules without any input from the children. In extreme cases children are not allowed to speak until they are spoken to. It seems likely that a child who has grown up with this parenting may develop beliefs that knowledge is certain and is handed down from authority. These would be two unsophisticated beliefs.

Indulgent and neglectful parents are described as having tolerant attitudes toward children's impulses and using little punishment. They make few demands for mature behavior. They allow children to make their own decisions and regulate their own behavior. These children may not advance to sophisticated epistemological beliefs because they are not encouraged to do so.

Finally, authoritative parents are described above as requiring mature behavior from children and setting clear standards. They recognize rights of both parents and children, and encourage the children's independence. This style involves open communication between parents and children. It seems likely that children who have experienced this type of parenting may be more likely to feel knowledge is complex and learning is gradual. These are both sophisticated beliefs. A good example of this is discussed above from Schommer's (1993) research. She found that the more parents encouraged independent decision making, the more likely the students were to believe knowledge is complex.

The above research leads to several hypotheses about the influence of parenting styles on the development of epistemological beliefs:

- a) Authoritative parenting will be associated with beliefs that knowledge is complex and learning is gradual.
- b) Indulgent and neglectful parenting will be associated with more unsophisticated epistemological beliefs.
- c) Authoritative parenting will be associated with more sophisticated epistemological beliefs.
- d) Authoritarian parenting will be associated with beliefs that knowledge is certain and is handed down from authority.

## CHAPTER III

### METHOD

#### *Participants*

Eighty five high school students from a medium sized school in the Midwest participated in this study. Sixty four students completed the questionnaire fully and comprised the sample for this study. The student body was predominantly Euro-American with a small number of Hispanic American and African American students. The student body was fairly diverse socio-economically with about 40% of the students qualifying for free and reduced lunches. Students were solicited from five psychology classes and two advanced placement American History classes. Twenty-six subjects were male and 38 subjects were female. Fifty-two subjects were Euro-American, one subject was African American, one subject was Asian American, six subjects were Latino, and four subjects listed other. Two subjects were 16 years old, 19 subjects were 17 years old, 42 subjects were 18 years old, and one subject was 19 years old.

#### *Instruments*

*Epistemological beliefs measure.* Students' epistemological beliefs were assessed using Schraw's Epistemic Beliefs Inventory (EBI) (Schraw, Bendixen, & Dunkle, 2002). The EBI is based on Schommer-Aikins' epistemological belief system theory and her Epistemological Beliefs Questionnaire. The EBI is shorter than the Epistemological Beliefs Questionnaire and measures five epistemological beliefs, including omniscient authority, which the Epistemological Beliefs Questionnaire does not include. A shorter assessment will work better with high school students and parenting styles are hypothesized to influence omniscient authority. These characteristics made the EBI a

more appropriate assessment tool for this study. Schraw et al. (2002) reported test-retest reliability,  $r = 0.68$ , for the five scales of the EBI. They correlated the overall epistemological belief score with a reading comprehension test to evaluate the EBI's predictive validity. Cronbach's alpha was .83.

The EBI consists of 28 items. Each item is a specific example of one belief in the epistemological belief system theory. Ten items are written as sophisticated statements and the other 18 are written as naïve statements. The EBI measures five epistemological beliefs. They are omniscient authority, certain knowledge, quick learning, simple knowledge, and innate ability. Each epistemological belief is represented by at least five of the 28 items. Individuals responded using a five-point Likert scale. Number one corresponded to "strongly disagree" and five corresponded to "strongly agree". Students circled the number that most closely matched their agreement with the statement. Six items from the original EBI were changed for this study. Only four items in the original EBI were phrased in a sophisticated direction. The six items were changed from a naïve direction to a sophisticated direction so more items would be sophisticated. These six items and the other EBI information reported are included in Appendix A.

The EBI was scored by categorizing each item into the epistemological belief it measures. The items all used the same Likert scale. The items for each epistemological belief were added to calculate a total score for each of the five beliefs. In order to ensure that a high score always represented a naïve epistemological belief some items were recoded. Each student received five scores on the EBI, one for each of the epistemological beliefs it measures. The higher the score the more naïve the student's belief.



*Parenting styles measure.* Parenting styles were assessed using the questionnaire developed by Lamborn et al. (1991). This measure used two subscales to classify parenting into authoritative, authoritarian, indulgent, or neglectful styles. These are the four styles in Maccoby and Martin's (1983) revision of Baumrind's parenting styles framework. One subscale was involvement/acceptance and the second subscale was strictness/supervision. The involvement/acceptance subscale assessed how much adolescents perceived their parents as responsive, caring, and involved. Lamborn et al. (1991) report Cronbach's alpha = .72 for this scale. The strictness/supervision subscale assessed how much adolescents' parents regulated their behavior. Lamborn et al. (1991) report Cronbach alpha = .76 for this scale. They used school performance to evaluate this parenting style measure's predictive validity in a sample of 4,100 14 to 18 year olds. The students with authoritative parents had the highest GPAs, the students with authoritarian parents had the next highest, and the students with neglectful and indulgent parents had the lowest GPAs.

Lamborn et al.'s (1991) method was used to score the parenting styles questionnaire. The involvement/acceptance scale items were recoded so all high scores indicated high involvement/acceptance. The strictness/supervision items were recoded so all high scores indicated high strictness/supervision. Different Likert scales were used in this questionnaire. The number of response options ranged from two to nine. The items were weighted to score them with the following method. Each item was divided by the number of response options. This creates a common scale of zero to one for each item. The recoded and weighted Likert scores were added for each subscale. The midpoint of the range of responses in this sample was used to divide the sample into those that scored

above the midpoint and those that scored below the midpoint. Parents who were above the midpoint for both subscales were identified as authoritative. Parents who were below the midpoint for both subscales were identified as neglectful. Parents who were above the midpoint for strictness/supervision and below the midpoint for involvement/acceptance were identified as authoritarian. Parents who were below the midpoint for strictness/supervision and above the midpoint for involvement/acceptance were identified as indulgent. This is reported in table one.

Table 1

*Questionnaire Subscales Identification of Parenting Styles*

Parenting Styles	Subscales Scores
Authoritative Style	High Strictness/Supervision High Involvement/Acceptance
Authoritarian Style	High Strictness/Supervision Low Involvement/Acceptance
Indulgent Style	Low Strictness/Supervision High Involvement/Acceptance
Neglectful Style	Low Strictness/Supervision Low Involvement/Acceptance

*Demographics measure.* Information was also collected on the students' demographic characteristics. Students' GPAs were collected and students completed a short vocabulary measure to determine their vocabulary knowledge. Eighteen words that are challenging for high school juniors and seniors were chosen for the vocabulary

measure. The vocabulary words were chosen from a list of important words to know for the SAT exam (The Most, n.d.). This list was created by the web site Vocabulary University.

### *Procedures*

The questionnaires were organized into a booklet that could be easily distributed to students. The demographic questions and a vocabulary assessment separated the EBI and the parenting styles measure. One half of the booklets had the EBI first and the parenting styles measure last and the remaining half of the booklets had the parenting styles measure first and the EBI last. Students were instructed to complete the assessments in the order they appeared in the test booklet. Each student's GPA was provided by the high school's administration office.

The questionnaires were administered to the students during a regular class session. One week prior to the administration students were informed of the project and invited to participate. Sixteen and Seventeen year-old students were given a consent form for their parents and told they must return this if they would like to participate. All students signed a consent form prior to the assessment day. The students were informed that their participation was voluntary, confidential, and anonymous.

### *Data Analysis*

Two questions were addressed in these analyses. First, does parenting style relate to the level of epistemological belief sophistication in the students? Four hypotheses were proposed as a part of this question: (a) authoritative parenting will be associated with beliefs that knowledge is complex and learning is gradual; (b) indulgent and neglectful parenting will be associated with less sophisticated epistemological beliefs; (c)

authoritative parenting will be associated with more sophisticated epistemological beliefs (d) authoritarian parenting will be associated with beliefs that knowledge is certain and is handed down from authority. In order to test these hypotheses a one way multivariate analysis of variance (MANOVA) was conducted with parenting style as the independent variable and the five epistemological beliefs as dependent variables. Because vocabulary is typically taken into account when predicting GPA, an ancillary question is do epistemological beliefs predict GPA, and does the combination of epistemological beliefs and vocabulary knowledge have a unique effect? A two way analysis of variance (ANOVA) was conducted with epistemological beliefs and vocabulary as the independent variables and GPA as the dependent variable.

## CHAPTER IV

### RESULTS

The results of the data analysis are presented in this chapter. The purpose was to determine if one's epistemological beliefs are associated with the parenting style one experiences as a child. Four specific hypotheses were proposed for this purpose: (a) authoritative parenting will be associated with beliefs that knowledge is complex and learning is gradual; (b) indulgent and neglectful parenting will be associated with less sophisticated epistemological beliefs; (c) authoritative parenting will be associated with more sophisticated epistemological beliefs (d) authoritarian parenting will be associated with beliefs that knowledge is certain and is handed down from authority. An ancillary analysis was conducted to determine if epistemological beliefs and vocabulary knowledge are related to GPA.

#### *Parenting styles scores*

Parenting style scores were calculated using the parental involvement/acceptance scale items and the parental strictness/supervision scale items. As stated earlier, parents who were classified as authoritative had high scores on both the involvement/acceptance scale and the strictness/supervision scale. Parents who were classified as authoritarian had low scores in involvement/acceptance and high scores in strictness/supervision. Parents who were classified as indulgent had high scores in involvement/acceptance and low scores in strictness/supervision. Finally, parents who were classified as neglectful had low scores in both involvement/acceptance and strictness/supervision.

An important issue in calculating these parenting styles is where the cutoff is in order to determine what is high and what is low. In previous research studies, one of two

methods was used. In one method the median score of involvement/acceptance and strictness/supervision served as the cutoff (Chao, 2001). The problem with this approach for the present study is it assumes the sample has close to 50% high and 50% low scores. This sample size was too small to make that assumption. Another approach was to use the top third involvement/acceptance and strictness/supervision scores and the bottom third involvement/acceptance and strictness/supervision scores (Lamborn et al., 1991). Again, the problem with this approach is that the sample size is too small to lose this many subjects. Therefore, in this study we examined the actual range of scores for this sample. The midpoint for this range served as the cutoff. Specifically, the range for strictness/supervision in this sample was from 2.75 to 8.41 and the midpoint was 5.58. The range for involvement/acceptance was 5.33 to 10.0 and the midpoint was 7.67. These midpoints established classification for each parenting style. This resulted in 44 students experiencing authoritative parenting, ten students experiencing authoritarian parenting, five students experiencing neglectful parenting, and five students experiencing indulgent parenting.

#### *Epistemological Beliefs and Vocabulary Scores*

In preparation for calculating epistemological beliefs scores each item was examined for skewness and range. All items had low skewness, less than 1.0, and a full range of responses. On the other hand, when the frequencies of responses for each option were examined, it indicated that four items had more than one third of the students responding with neutral. This suggested that these items were confusing to the students. Therefore, these items were not included in the calculations of epistemological beliefs. Items for each epistemological belief were added according to the scheme shown in

Appendix A to create a total score for each belief. One item was removed from quick learning (item 22), two items were removed from certain knowledge (item 6 and 2), and one item was removed from innate ability (Item 8). Vocabulary scores were also calculated by simply adding the number of correct items.

### *Parenting Styles and Epistemological Beliefs*

In order to address the hypothesis that the parenting style a student experiences influences their epistemological beliefs a one way MANOVA was conducted with parenting style as the independent variable and epistemological beliefs scores as the dependent variable. The multivariate statistic Wilks Lambda was significant ( $F(15,154.99) = 2.92, p < .01$ ) therefore, follow up univariate analyses were examined. Parenting style was significant for three dependent variables: quick learning ( $F(3,60) = 3.57, p < .05, \eta^2 = .15, MS_e = 7.15$ ), certain knowledge ( $F(3,60) = 2.71, p < .05, \eta^2 = .119, MS_e = 3.67$ ), and omniscient authority ( $F(3,60) = 2.96, p < .05, \eta^2 = .13, MS_e = 11.80$ ). Follow up Least Squared Differences (LSD) post hoc tests indicated significant differences in beliefs about quick learning between authoritative parenting and authoritarian parenting, significant differences in beliefs about certain knowledge between neglectful parenting and authoritative parenting, and significant differences in beliefs about omniscient authority between indulgent parenting and authoritative parenting. Means and standard deviations for each group are shown in table 2.

Note that each significant difference is in contrast to authoritative parenting. Students experiencing authoritative parenting are less likely to believe in quick learning than students with authoritarian parents, more likely to believe in certain knowledge than

students with neglectful parents, and more likely to believe in omniscient authority than students with indulgent parents.

Table 2

*Means and Standard Deviations for Parenting Styles and Epistemological Beliefs*

Group	N	M	SD
<b>Quick Learning</b>			
Authoritative	44	<b>12.57</b>	2.80
Authoritarian	10	<b>15.40</b>	2.19
Indulgent	5	12.80	2.17
Neglectful	5	14.60	2.88
<b>Certain Knowledge</b>			
Authoritative	44	<b>7.32</b>	2.02
Authoritarian	10	6.40	1.35
Indulgent	5	5.60	2.07
Neglectful	5	<b>5.40</b>	1.67
<b>Omniscient Authority</b>			
Authoritative	44	<b>15.75</b>	3.29
Authoritarian	10	13.70	4.35
Indulgent	5	<b>12.20</b>	1.10
Neglectful	5	12.80	4.15
<b>Innate Ability</b>			
Authoritative	44	14.16	2.41
Authoritarian	10	12.4	1.96



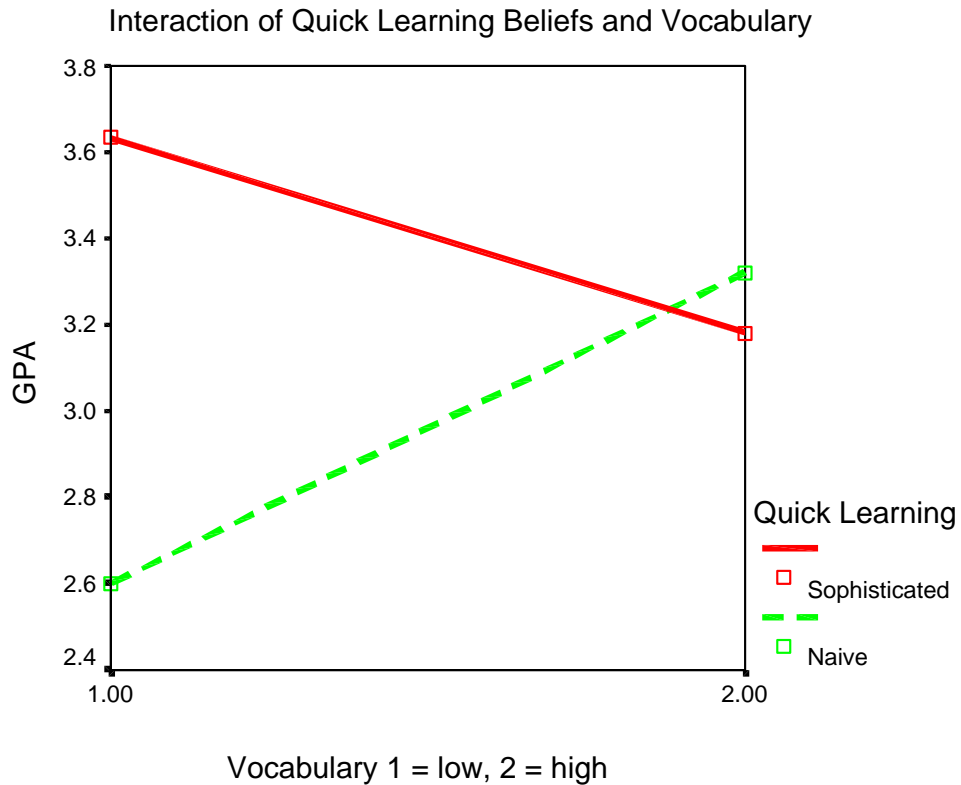
Indulgent	5	13.00	4.47
Neglectful	5	14.80	0.84
Simple Knowledge			
Authoritative	44	7.80	1.86
Authoritarian	10	9.00	1.05
Indulgent	5	8.20	1.10
Neglectful	5	9.40	1.82

Note: Means that are significantly different are in bold

### *The Effect of Epistemological Beliefs and Vocabulary on GPA*

First, zero order correlations between GPA, epistemological beliefs, and vocabulary were examined. There were two significant correlations. Quick learning correlated with GPA, ( $r = -.31, p < .01$ ), and vocabulary correlated with GPA, ( $r = .43, p < .01$ ). In order to determine if there was an interaction effect between vocabulary and the belief in quick learning on GPA, vocabulary and quick learning were dichotomized as high and low. The midpoint of the range of scores was used as the cutoff. Vocabulary ranged from 0 to 18 so 9 was the midpoint and Quick learning ranged from 6 to 18 so 12 was the midpoint. A two way ANOVA was conducted with quick learning and vocabulary as the independent variable and GPA as the dependent variable. There was a main effect for quick learning ( $F(1,56) = 4.52, p < .05, \eta^2 = .07, MS_e = .50$ ), and there was a significant interaction effect between vocabulary and quick learning ( $F(1,56) = 7.80, p < .05, \eta^2 = .12, MS_e = .50$ ). Figure 1 shows the interaction effect.

Figure 1



Two follow up t-tests were conducted to examine specific differences in the interaction. A significant difference was found between students who had a low vocabulary and a naïve belief in quick learning and students who had a low vocabulary and a sophisticated belief in quick learning ( $t(24) = -3.02, p < .01$ ). The second analysis examined students with a high vocabulary that either had sophisticated beliefs or naïve beliefs and the difference was not significant ( $t(32) = .55, p > .05$ ). Descriptive statistics are reported in table 3.

Table 3

*GPA Means and Standard Deviations for Vocabulary X Belief in Quick Learning*

Group	N	M	SD
Low Vocab. X Soph. Quick	6	<b>3.63</b>	0.31
Low Vocab. X Naïve Quick	20	<b>2.60</b>	.81
High Vocab. X Soph. Quick	23	3.32	.57
High Vocab. X Naïve Quick	11	3.18	.89

Note: Means that are significantly different are in bold

## CHAPTER V

### DISCUSSION

#### *Study Summary*

The purpose of this study was to determine if the parenting style parents use is associated with children's epistemological beliefs. An ancillary analysis was conducted to determine if epistemological beliefs and vocabulary knowledge influence academic performance.

Psychologists and educators define Epistemological beliefs as one's understanding of knowledge and learning, its development, and how it shapes the individual's understanding of the world (Hofer, 2002). William Perry was the first researcher to hypothesize and demonstrate that epistemological beliefs influence education (1968). Research since Perry's original work has consistently shown that epistemological beliefs have important influences on education and daily life (Belenky et al., 1986; Dweck & Leggett, 1988; King & Kitchener, 2002; Ryan, 1984; Schoenfeld, 1983; Schoenfeld, 1985; Schommer, 1990; Schommer, 1997). This study uses Schommer-Aikins' Epistemological Belief System theory to conceptualize epistemological beliefs (Schommer-Aikins, 1994). This theory includes five beliefs that are more or less independent of one another (Schommer, 2004). These beliefs are about the stability of knowledge, the structure of knowledge, the source of knowledge, the speed of learning, and the ability to learn. An individual's beliefs about each of these ranges from naïve to sophisticated.

Researchers define parenting styles as constellations of parental attitudes, practices, and nonverbal expressions that characterize the nature of parent-child

interactions across diverse situations (Glasgow, et al., 1997). It provides a window into how a parent generally treats the child in different day-to-day activities. Baumrind hypothesized and successfully demonstrated that parenting styles influence children's energy level, willingness to explore their environment, self-control, sociability, and buoyancy (1967). She identified three parenting styles: authoritative, authoritarian, and permissive. This initial research inspired further research that continues to be active today.

Contemporary parenting styles research, based on Baumrind's initial theory, commonly identifies four parenting styles (Baumrind, 1991; Chao, 2001; Dornbusch et al., 1987; Glasgow et al., 1997; Lamborn et al., 1991; Maccoby & Martin, 1983; Steinberg et al., 1989; Steinberg et al., 1992; Steinberg et al., 1994). Authoritative parents demand that children be responsive to parental demands, and in turn the parents are responsive to the children's perspectives and their reasonable demands. Authoritarian parents demand that children be responsive to parental demands, but the parents are not responsive to the children's perspectives or demands. Indulgent parents have a tolerant attitude toward their children's impulses and avoid asserting their authority. Finally, neglectful parents avoid asserting their authority similar to indulgent parents. However, they are not warm and involved like the indulgent parents. These parents do whatever is necessary to minimize the costs in time and effort of interaction with the child. In this style some parenting functions are completely stopped. Research has revealed that these four parenting styles influence measures of competence such as drug use, school performance, internalized stress, psychosocial development, and peer relations (Baumrind, 1967; Dornbusch et al., 1987; Maccoby & Martin, 1983).

It is shown above that epistemological beliefs and parenting styles have both been shown to influence school performance and other measures of competence. However, a connection between parenting styles and epistemological beliefs has not been explored before this study. This common trait and void in the research led to the hypotheses in this study.

The sample was made up of 64 junior and senior high school students enrolled in a psychology or advanced placement history course. The high school had a population of about 1000 predominantly Euro-American students and is located in a small town (population approximately 18,000) in the Mid West. Subjects completed a survey packet during one of their regular class sessions. The survey packet contained the Epistemic Beliefs Inventory, a vocabulary measure, demographics questions, and the parenting styles questionnaire developed by Lamborn et al. (1991).

The purpose of the data analysis was to determine if epistemological beliefs were associated with parenting styles. A one way MANOVA was conducted with parenting styles as the independent variables and epistemological beliefs as the dependent variables. An ancillary analysis was conducted to determine if epistemological beliefs and vocabulary knowledge are related to GPA. A two way ANOVA was conducted with epistemological beliefs and vocabulary as the independent variables and GPA as the dependent variable.

#### *Conclusions Regarding Parenting Styles and Epistemological beliefs*

The one way MANOVA analyzing parenting styles association with epistemological beliefs showed three statistically significant differences. These

differences partially supported one of the four specific hypotheses of this study, but failed to support the remaining three.

The hypothesis that authoritative parenting will be associated with beliefs that knowledge is complex and learning is gradual was partially supported by the first statistically significant difference. Students experiencing authoritative parenting were less likely to believe in quick learning than students experiencing authoritarian parenting. This reveals that students who experienced both the demands and the support of the authoritative parenting understood that learning often takes time better than students who only experienced the demands of authoritarian parenting. This is consistent with earlier research that authoritative parenting and sophisticated views of quick learning are associated with academic competence (Dornbusch et al., 1987 & Schommer, 1990). A difference was not found for complex knowledge as was hypothesized and no difference was found for neglectful parenting and indulgent parenting.

The remaining three hypotheses: (b) indulgent and neglectful parenting will be associated with less sophisticated epistemological beliefs, (c) authoritative parenting will be associated with more sophisticated epistemological beliefs, and (d) authoritarian parenting will be associated with beliefs that knowledge is certain and is handed down from authority were not supported by the second and third statistically significant differences. However, the results are still intriguing and do not discount the overall hypothesis that parenting styles influence epistemological beliefs.

The second statistically significant difference was students with authoritative parents were more likely to believe in certain knowledge than students with neglectful parents. This reveals that students whose parents have the least involvement and interest

in their lives understood better that knowledge is tentative and sometimes changes. This is inconsistent with previous research. Neglectful parenting is consistently associated with poor performance on measures of competence such as drug use, school performance, internalized stress, psychosocial development, and peer relations (Baumrind, 1967; Dornbusch et al., 1987; Maccoby & Martin, 1983). Sophisticated beliefs in certain knowledge have been associated with good performance on measures of competence such as school performance (Schommer, 1990). This difference is also inconsistent with the theoretical application that authoritative parents who are demanding of children to be independent while also nurturing the needs of the children should encourage sophisticated epistemological beliefs. One explanation for this inconsistency may be that children are still developing their epistemological beliefs and it is adaptive to have naïve beliefs both at home and in the school system during high school. The secondary school environment may communicate to students that knowledge is certain. The children of authoritative parents may be more susceptible to the school's influence than the children of neglectful parents.

The final statistically significant difference revealed that students experiencing authoritative parenting were more likely to believe in omniscient authority than students with indulgent parents. This revealed that students whose parents required few demands of them, but provided lots of attention to their needs, understood better that knowledge comes from reason instead of authority figures. This is also inconsistent with previous research and logical theoretical application. Schommer-Aikins (1990) found that the more children's parents encouraged the children to take responsibilities in the home and for their own thinking, the more sophisticated epistemological beliefs the students had.



One explanation for this inconsistency may rest with the secondary school system. The secondary school system may be authoritarian in its structure. It may be maladaptive to develop a sophisticated belief in omniscient authority while still in high school. The children of indulgent parents may not be as concerned with adapting to the secondary school system as the children of authoritative parents. This may lead them to understand sooner that knowledge comes from reason, even though it may harm their success in high school. The items for omniscient authority in the Epistemic Beliefs Inventory (Schraw et al., 2002) may provide a second explanation for these results. The items may be more about following authority than about one's view of knowledge. Items 26 and 27 are two examples. Item 26 states "when someone in authority tells me what to do, I usually do it", and item 27 states "people shouldn't question authority".

#### *Conclusions Regarding Epistemological Beliefs, Vocabulary, and GPA*

An ancillary analysis was conducted to determine if epistemological beliefs and vocabulary knowledge influence academic performance. The two way ANOVA showed there was a statistically significant difference. The between subject analysis revealed an interaction between vocabulary and quick learning. Students with low vocabulary and sophisticated beliefs about quick learning had GPA's that were statistically significantly higher than students with low vocabulary and naïve beliefs about quick learning. This is consistent with previous research and provides an important addition to the existing research. Sophisticated views of quick learning have been associated with higher GPA's (Schommer, 1997).

Recognizing that learning does not occur quickly allowed these students to compensate for their lower vocabulary knowledge. It may be possible to generalize this

interaction to populations with weaknesses in other areas such as math. Students with weaknesses in math may be able to compensate if they have sophisticated beliefs in quick learning.

### *Limitations*

This study contains several limitations. One limitation is the small sample size. This small sample resulted in two of the parenting style groups only having five participants. This study would be improved if there were more than 64 participants and if there were a similar number of participants in each of the parenting style groups. A second limitation is the lack of diversity in the sample population. It was made up of primarily Euro-American students. A third limitation may be the parenting style instrument and the epistemological belief instrument. The cut off point used in the parenting style instrument has been different in different studies. A consistent method of scoring that allows for easy replication would improve this instrument. The epistemological instrument may need to be refined for use with high school students. The four items that had more than one third of the students responding with neutral may be evidence that students were confused by some items.

### *Future Research*

This study provides some direction for future research. First, future research should include more students with neglectful and indulgent parents. Those groups were under represented in this sample, so their epistemological beliefs may not have been fully explored. Second, future research should include different age groups. This sample was made up of almost all 17 and 18 year olds. Younger samples and older samples would provide a better comparison to this study. Third, further study of high school students'

epistemological beliefs in relation to the educational system would be insightful. High schools may be authoritarian in structure and this may influence students' epistemological beliefs. Comparing high schools that are not as authoritarian with more traditional high schools may address this issue. Finally, the interaction effect between quick learning and vocabulary knowledge suggests that epistemological beliefs may have a compensatory effect. This needs to be studied in future research.

#### *Implications for Parenting*

The major implication for parenting is the statistically significant differences in epistemological beliefs between the parenting styles. This may reveal that how a parent treats their child may influence the child's beliefs about learning and knowledge. The results do not provide clear direction for parents about what practices are best for epistemological development. Past research has shown authoritative parenting is associated with positive measures of competence (Baumrind, 1991; Chao, 2001; Dornbusch, et al., 1987; Glasgow, et al., 1997; Lamborn, et al., 1991; Maccoby & Martin, 1983; Steinberg, et al., 1989; Steinberg, et al., 1992 & Steinberg, et al., 1994). This leads to the hypothesis that it should be associated with sophisticated epistemological beliefs. However, only one of the statistically significant differences in this study matched this. Further research is needed before this relationship can be fully understood.

#### *Implications for the Classroom*

An important implication from this study for the classroom rests in the interaction between vocabulary and quick learning on GPA. A sophisticated belief in quick learning allowed students with low vocabulary knowledge to compensate and still have a high GPA. This is an intriguing outcome. Most students have some areas of weakness. Prior

knowledge, vocabulary knowledge, and study skills are some examples. This means most students can benefit from realizing that learning is gradual and takes time and effort. This belief will help them overcome their weak areas and achieve in areas they might not have without this belief. This interaction effect reveals that it is important for the school system to focus on students' beliefs about learning and knowledge.

### *Implications for Theories*

This study has important implications for both epistemological beliefs theory and parenting styles theory. The students seemed confused by several items on the Epistemic Beliefs Inventory. This may reveal that high school students' concerns and experiences influence their epistemological beliefs. Researchers may need to take this into account when measuring high school students' epistemological beliefs. The certain knowledge items on the Epistemic Beliefs Inventory may need to be refined. They may be measuring views toward authority figures more than views toward knowledge. The interaction effect of quick learning and vocabulary is an important finding for theorists. It reveals that individual weaknesses may be important areas of application for epistemological belief theorists.

The statistically significant differences between parenting styles' epistemological beliefs have important implications for parenting style theory. This is the first time parenting styles and epistemological beliefs have been studied together. The results of this study did not support its hypotheses, but the statistically significant differences reveal that there may be a relationship. These results should be viewed as a beginning point, with the understanding that further exploration is needed to fully understand the relationship.

## REFERENCES

## REFERENCES

- Anderson, R. C. (1984). Some reflections on the acquisition of knowledge. *Educational Researcher, 13*, 5-10.
- Baumrind, D. (1967). Child care practices anteceding three patterns of preschool behavior. *Genetic Psychology Monographs, 75*, 43-88.
- Baumrind, D. (1989). Rearing competent children. In W. Damon (Ed.), *Child Development Today and Tomorrow* (pp. 349-378). San Francisco, CA: Jossey Bass.
- Baumrind, D. (1991). The influence of parenting style of adolescent competence and substance use. *Journal of Early Adolescence, 11*, 56-95.
- Belenky, M. F., Clinchy, B. M., Goldberger, N. R., Tarule, & J. M. (1986). *Women's ways of knowing*. New York: Basic Books.
- Chao, R. K., (2001). Extending research on the consequences of parenting style for Chinese Americans and Europeans Americans. *Child Development, 72*, 1832-1843.
- Clinchy, B. M. (2002). Revisiting women's ways of knowing. In B. K. Hofer & P. R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 3-14). Mahwah, NJ: Lawrence Erlbaum Associates.
- Darling, D., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin, 113*, 487-496.
- Dornbusch, S. M., Ritter, P. L., Leiderman, H., Roberts, D. F., & Fraleigh, M. J. (1987). The relation of parenting style to adolescent school performance. *Child Development, 58*, 1244-1257.
- Dweck, C. S., & Leggett, E.L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256-273.
- Glasgow, K. L., Dornbusch, S. M., Troyer, L., Steinberg, L., & Ritter, P. L. (1997). Parenting Styles, adolescents' attributions, and educational outcomes in nine heterogeneous high schools. *Child Development, 68*, 507-529.
- Hofer, B. K. (2002). Personal epistemology as a psychological and educational construct: An introduction. In B. K. Hofer & P. R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 3-14). Mahwah, NJ: Lawrence Erlbaum Associates.

- King, P. M., & Kitchener, K. S. (2002). The reflective judgment model: Twenty years of research on epistemic cognition. In B. K. Hofer & P. R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 17-36). Mahwah, NJ: Lawrence Erlbaum Associates.
- Lamborn, S.D., Mounts, N.S., Steinberg, L., & Dornbusch, S. M. (1991). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development*, 62, 1049-1065.
- Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: Parent-child interaction. In P. H. Mussen & E. M. Hetherington (Eds.), *Handbook of child psychology: Vol. 4. Socialization, personality, and social development* (4<sup>th</sup> ed., pp. 1-101) New York: Wiley.
- Moore, S. M. (2002). Understanding learning in a postmodern world: Reconsidering the Perry scheme of intellectual and ethical development. In B. K. Hofer & P. R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 17-36). Mahwah, NJ: Lawrence Erlbaum Associates.
- Perry, W. G. Jr. (1968). *Patterns of development in thought and values of students in a liberal arts college: A validation of a scheme*, Cambridge, MA: Bureau of Study Counsel, Harvard University (ERIC Document Reproduction Service No. ED 024315).
- Ryan, M. P. (1984). Monitoring text comprehension: Individual differences in epistemological standards. *Journal of Educational Psychology*, 76, 248-258.
- Schoenfeld, A. H. (1983). Beyond the purely cognitive: Belief systems, social cognitions, and metacognitions as driving forces in intellectual performance. *Cognitive Science*, 7, 329-363.
- Schoenfeld, A. H. (1985). *Mathematical problem solving*. New York: Academic Press.
- Schommer, M. (1990). Effects of beliefs about the nature of knowledge on comprehension. *Journal of Educational Psychology*, 82, 498-504.
- Schommer, M. (1993). Comparisons of beliefs about the nature of knowledge and learning among postsecondary students. *Research in Higher Education*, 34, 355-370.
- Schommer, M. (1994). Synthesizing epistemological belief research: Tentative understandings and provocative confusions. *Educational Psychology Review*, 6, 293-319.
- Schommer, M. (1997). The development of epistemological beliefs among secondary students: A longitudinal study. *Journal of Educational Psychology*, 89, 37-40.

- Schommer, M. (1998). The influence of age and education on epistemological beliefs. *British Journal of Educational Psychology*, 68, 551-562.
- Schommer, M. A., & Walker, K. (1997). Epistemological beliefs and valuing school: Considerations for college admissions and retention. *Research in Higher Education*, 38, 173-186.
- Schommer-Aikins, M. (2004). Explaining the epistemological belief system: Introducing the embedded systemic model and coordinated research approach. *Educational Psychologist*, 39, 19-29.
- Schraw, G., Bendixen, L. D., & Dunkle, M. E. (2002). Development and validation of the Epistemic Belief Inventory. In B. K. Hofer & P. R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 261-275). Mahwah, NJ: Lawrence Erlbaum Associates.
- Sears, R. R., Maccoby, E. E., & Levin, H. (1957). *Patterns of child rearing*. Evanston: Row Peterson.
- Steinberg, L., Elmen, J. D., & Mounts, N. S. (1989). Authoritative parenting, psychosocial maturity, and academic success among adolescents. *Child Development*, 60, 1424-1436.
- Steinberg, L., Lamborn, S. D., Dornbusch, S. M., & Darling, N. (1992). Impact of parenting practices on adolescent achievement: Authoritative parenting, school involvement, and encouragement to succeed. *Child Development*, 63, 1266-1281.
- Steinberg, L., Lamborn, S. D., Darling, N., Mounts, N. S., & Dornbusch, S. M. (1994). Over-time changes in adjustment and competence among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development*, 65, 754-770.
- The most important SAT definition match exercise. (n.d.) Retrieved October 15, 2005, from <http://www.vocabulary.com/VUtopsat3MATCH.html>



## APPENDICES

APPENDIX A

EPISTEMIC BELIEFS INVENTORY KEY

DIRECTIONS: Please indicate how much you agree or disagree with the following statements about learning and education. There are no right or wrong answers. We just want to know what you believe.

<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
1	2	3	4	5

QL\_\_\_\_1. Most things worth knowing are easy to understand.

CK\_\_\_\_2. What is true is a matter of opinion.

QL\_\_\_\_3. Students who learn things quickly are the most successful.

OA\_\_\_\_4. \*There are times when people should not obey the law. (sophisticated)

IA\_\_\_\_5. People=s intellectual potential is fixed at birth.

CK\_\_\_\_6. Absolute moral truth does not exist. (sophisticated)

OA\_\_\_\_7. Parents should teach their children all there is to know about life.

IA\_\_\_\_8. \*Really smart students have to work hard to do well in school. (sophisticated)

QL\_\_\_\_9. If a person tries too hard to understand a problem, they will most likely end up confused.

SK\_\_\_\_10. Too many theories just complicate things.

SK\_\_\_\_11. \*Instructors should focus on how facts link together rather than lists of facts. (sophisticated)

\_\_\_\_12. Answer this item with number 4.

IA\_\_\_\_13. Some people are born with special gifts and talents.

IA\_\_\_\_14. \*How well you do in school depends on how hard you work. (sophisticated)

QL\_\_\_\_15. If you don=t learn something quickly, you won=t ever learn it.

IA\_\_\_\_16. Some people just have a knack for learning and others don=t.

- SK\_\_\_\_17. Things are simpler than most professor would have you believe.
- CK\_\_\_\_18. If two people are arguing about something, at least one of them is wrong.
- OA\_\_\_\_19. Children should be allowed to question their parents= authority.  
(sophisticated)
- QL\_\_\_\_20. \*If you haven=t understood a chapter the first time through, going back over it will help. (sophisticated)
- SK\_\_\_\_21. Science is easy to understand because it contains so many facts.
- QL\_\_\_\_22. The more you know about a topic, the more there is to know. (sophisticated)
- CK\_\_\_\_23. What is true today will be true tomorrow.
- \_\_\_\_24. Leave this item blank.
- IA\_\_\_\_25. Smart people are born that way.
- OA\_\_\_\_26. When someone in authority tells me what to do, I usually do it.
- OA\_\_\_\_27. People shouldn=t question authority.
- QL\_\_\_\_28. Working on a problem with no quick solutions is a waste of time.
- CK\_\_\_\_29. Sometimes there are no right answers to life=s big problems. (sophisticated)
- SK\_\_\_\_30. \*The best ideas are often the most complex. (sophisticated)

\* Indicates the item was changed from Schraw's original questionnaire.

QL = Quick Learning 7 items, 2 sophisticated  
CK = Certain Knowledge 5 items, 2 sophisticated  
OA = Omniscient Authority 5 items, 2 sophisticated  
IA = Innate Ability 6 items, 2 sophisticated  
SK = Simple Knowledge 5 items, 2 sophisticated

## APPENDIX B

### PARENTING STYLE MEASURE

#### Parental Involvement/acceptance Scale

What do you think is usually true or usually false about your father (stepfather, male guardian)?

- \_\_\_\_\_ 1. I can count on him to help me out, if I have some kind of problem.  
1. Usually True      2. Usually False
- \_\_\_\_\_ 2. He keeps pushing me to do my best in whatever I do.  
1. Usually True      2. Usually False
- \_\_\_\_\_ 3. He keeps pushing me to think independently.  
1. Usually True      2. Usually False
- \_\_\_\_\_ 4. He helps me with my school work if there is something I don't understand.  
1. Usually True      2. Usually False
- \_\_\_\_\_ 5. When he wants me to do something, he explains why.  
1. Usually True      2. Usually False

What do you think is usually true or usually false about your mother (stepmother, female guardian)?

- \_\_\_\_\_ 6. I can count on her to help me out, if I have some kind of problem.  
1. Usually True      2. Usually False
- \_\_\_\_\_ 7. She keeps pushing me to do my best in whatever I do.  
1. Usually True      2. Usually False
- \_\_\_\_\_ 8. She keeps pushing me to think independently.  
1. Usually True      2. Usually False
- \_\_\_\_\_ 9. She helps me with my school work if there is something I don't understand.  
1. Usually True      2. Usually False
- \_\_\_\_\_ 10. When she wants me to do something, she explains why.  
1. Usually True      2. Usually False
- \_\_\_\_\_ 11. Circle usually false for this item.  
1. Usually True      2. Usually False
- \_\_\_\_\_ 12. When you get a poor grade in school, how often do your parents or guardians encourage you to try harder?  
1. Never              2. Sometimes          3. Usually
- \_\_\_\_\_ 13. When you get a good grade in school, how often do your parents or guardians praise you?  
1. Never              2. Sometimes          3. Usually
- \_\_\_\_\_ 14. How much do your parents really know who your friends are?  
1. Don't know      2. Know a little      3. Know a lot

How often do these things happen in your family?

\_\_\_\_\_ 15. My parents spend time just talking with me.

1. Almost every day 2. A few times a week 3. A few times a month 4. Almost never

\_\_\_\_\_ 16. My family does something fun together.

1. Almost every day 2. A few times a week 3. A few times a month 4. Almost never

### Parental Strictness/Supervision Scale

\_\_\_\_\_ 17. In a typical week, what is the latest you can stay out on SCHOOL NIGHTS (Monday-

Thursday)?

1. Not allowed out
2. before 8:00
3. 8:00 to 8:59
4. 9:00 to 9:59
5. 10:00 to 10:59
6. 11:00 or later
7. As late as I want

\_\_\_\_\_ 18. In a typical week, what is the latest you can stay out on FRIDAY OR SATURDAY NIGHT?

1. Not allowed out ,
2. before 9:00,
3. 9:00 to 9:59,
4. 10:00 to 10:59,
5. 11:00 to 11:59,
6. 12:00 to 12:59,
7. 1:00 to 1:59,
8. after 2:00,
9. as late as I want.

\_\_\_\_\_ 19. My parents know exactly where I am most afternoons after school.

1. Yes
2. No

How much do your parents TRY to know ...

- \_\_\_\_\_ 20. Where you go at night?  
1. don't try                      2. try a little                      3. try a lot
- \_\_\_\_\_ 21. What you do with your free time?  
1. don't try                      2. try a little                      3. try a lot
- \_\_\_\_\_ 22. Where you are most afternoons after school?  
1. don't try                      2. try a little                      3. try a lot

How much do your parents REALLY know ...

- \_\_\_\_\_ 23. Where you go at night  
1. don't know                      2. know a little                      3. know a lot
- \_\_\_\_\_ 24. What you do with your free time?  
1. don't know                      2. know a little                      3. know a lot
- \_\_\_\_\_ 25. Where you are most afternoons after school?  
1. don't know                      2. know a little                      3. know a lot

## APPENDIX C

### VOCABULARY MEASURE

Match the 18 definitions below to the vocabulary words on the left.

- |                      |   |
|----------------------|---|
| 1. _____ kindle      | a. feeling or attitude of deep respect tinged with awe; veneration                |
| 2. _____ insidious   | b. absence or suppression of passion, emotion or excitement; indifference         |
| 3. _____ superficial | c. made commonplace or trite; banal   |
| 4. _____ futile      | d. intended to entrap or beguile; enticing but harmful; seductive                 |
| 5. _____ diverse     | e. of the surface;; concerned only with the obvious; apparent rather than real    |
| 6. _____ provocative | f. to start a fire; to cause ( a flame or blaze) to begin burning                 |
| 7. _____ incessant   | g. serving or tending to stimulate or excite                                      |
| 8. _____ reverence   | h. uncompromising adherence to moral and ethical principles                       |
| 9. _____ enigma      | i. to examine minutely; to conduct a searching inquiry                            |
| 10. _____ scrutinize | j. completely ineffective; serving no useful purpose                              |
| 11. _____ apathy     | k. a puzzling or inexplicable occurrence; a baffling problem, situation or person |
| 12. _____ jocular    | l. causing or deserving laughter because of absurdity                             |
| 13. _____ integrity  | m. looking upon or treating with contempt; thinking unworthy of notice            |
| 14. _____ disdain    | n. given without recompense or benefit; voluntary                                 |
| 15. _____ reclusive  | o. jovial and playful; given to jesting   |
| 16. _____ ludicrous  | p. composed of different elements or qualities; unlike                            |
| 17. _____ gratuitous | q. continuing without interruption; constant                                      |
| 18. _____ hackneyed  | r. living in seclusion; shut off or apart from the world                          |

APPENDIX D

INFORMED CONSENT

You are invited to participate in a study, which is part of my master’s program at Wichita State University. You were selected to participate because you are enrolled in a psychology or history class at \_\_\_\_\_ High School. Students’ responses will be analyzed from existing data and an informal questionnaire.

If you decide to participate you will be asked to complete a short vocabulary measure and a questionnaire about your views on knowledge, learning and childhood experiences. There are no right or wrong answers to the questionnaire items. We just want to discover what people actually believe. The questionnaire can be completed in about 30 minutes. Your participation is valuable since discoveries about how people view learning and knowledge have many applications in improving classroom instruction.

Data will be kept confidential. Students’ names and school name will not be cited in any way. Observations will be generalized to high school seniors and not to any one student.

Participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your future relations with anyone at \_\_\_\_\_ High School. If you agree to participate in this study, you are free to withdraw from the study at any time without penalty.

If you have questions about this research you can contact me, Brian Kennell, at \_\_\_\_\_, Extension (work) or (home) or Dr. Marlene Schommer-Aikins at Wichita State University at \_\_\_\_\_.

You are under no obligation to participate in this study. Your signature indicates that you have read the information provided above and have voluntarily decided to participate.

You will be given a copy of this consent form to keep.

_____ Signature of Subject	_____ Date
_____ Principle Investigator	_____ Date
_____ Co-Investigator	_____ Date



APPENDIX E

PARENTAL INFORMED CONSENT

Dear Parent,

Your child is invited to participate in a study, which is part of my master’s program at Wichita State University. Information will be collected from students who are enrolled in a psychology or history class at \_\_\_\_\_ High School. Students’ responses will be analyzed from existing data and an informal questionnaire.

Students will be asked to complete a short vocabulary measure and a questionnaire about their views on knowledge, learning, and childhood experiences. There are no right or wrong answers to the questionnaire items. We just want to discover what students actually believe. The questionnaire can be completed in about 30 minutes. Participation is valuable since discoveries about how people view learning and knowledge have many applications in improving classroom instruction.

Data will be kept confidential. Students’ names and school name will not be cited in any way. Observations will be generalized to high school seniors and not to any one student.

Participation in this study is entirely voluntary. The decision to allow the use of your child’s opinions from the existing pool of information will not affect future relations with anyone at \_\_\_\_\_ High School. If you agree to let your child’s information be included, you are free to withdraw this decision at any time without penalty.

If you have questions about this research you can contact me, Brian Kennell, at , Extension (work) or (home) or Dr. Marlene Schommer-Aikins at Wichita State University at .

You are under no obligation to have your child’s information included in this study. Your signature indicates that you have read the information provided above and have voluntarily decided that your child’s information may be included in the study.

If your child may participate in this study please sign below and return one copy of this form. You may keep the second copy of this consent form.

_____	_____
Signature of Parent	Date
_____	_____
Principle Investigator	Date
_____	_____
Co-Investigator	Date