COGNITIVE-EXPERIENTIAL SELF THEORY:
EVIDENCE WITHIN RELIGIOUS FREEWILL
AND RELIGIOUS DETERMINISM

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COGNITIVE-EXPERIENTIAL SELF THEORY: EVIDENCE WITHIN RELIGIOUS FREEWILL AND RELIGIOUS DETERMINISM

Mary Lynn Mireles

A Thesis Submitted to the Graduate Faculty

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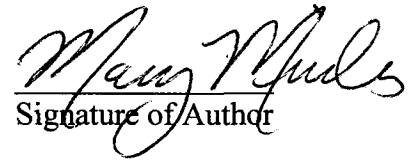

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VITA

Mary Lynn (Holubek) Mireles is the daughter of Douglas Gene Holubek, Sr. and Sandra Jean (Cohn) Holubek. She was born on November 4, 1973 in Orlando, Florida. She attended Winter Park High School, where she successfully completed the International Baccalaureate program, graduating with honors in 1991. As a recipient of the International Baccalaureate diploma, she received the Florida Undergraduate Scholarship and enough college credit to enter The Florida State University as a sophomore. While at Florida State, Mary assisted a number of professors with research on memory, attitudes, stereotypes, and psychology of law. In May of 1994, she graduated from The Florida State University with a Bachelor of Science in Psychology and entered Auburn University Montgomery's (AUM) graduate program in psychology in September, 1994. In the summer of 1997, she married David Esequiel Mireles, a Ph.D. candidate at FSU, and due to career changes, they relocated to Reston, VA in fall of 1999. Mary successfully completed the requirements for her Master's degree at AUM during the spring of 2000.

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THESIS ABSTRACT

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ABSTRACT

Religion has been a topic of interest among psychologist. Since William James in 1902 to present day, researchers have tried to uncover individual differences in religious belief systems. Some trends in religious research indicate that individual differences are found within religious belief systems (Allport & Ross, 1967; Pargament et al., 1987; Stroessner & Green, 1990). Religious belief systems rest on the degree to which individuals believe God controls life events. They are often referred to as freewill, individuals think and react independently, or deterministic, God controls life events (McCrae, 1996). These religious belief differences affect the way religious individuals cope, respond, and think about solutions to problems (Pargament et al., 1987; Pargament et al., 1988; Spilka et al., 1985).

Yet, others posit that individual differences are due to information processing styles (Baker & Gorsuch, 1982; Baither & Saltzberg, 1992; Epstein, 1994). Epstein's (1994) Cognitive-experiential self theory purposes that individuals tend to process information in either a cognitive or experiential system. Although there is some evidence to suggest religious individuals use either system, Epstein (1994) believes that religion is suited for the experiential system due to the nature of beliefs. Other research supports the notion that religious information is suited for both systems (Baither & Saltzberg, 1992; Surwillo & Hobson, 1990).

However, there is some indication that information processing systems and religious freewill-deterministic beliefs are related and possibly account for variance in differences between religious individuals (Tolentino et al., 1990). This paper will demonstrate (1) that freewill-deterministic beliefs are an important factor in understanding religious beliefs and

(2) that in order to obtain a complete understanding of religious belief systems, both freewill-deterministic beliefs and cognitive-experiential information processing systems need to be accounted.

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INTRODUCTION

Trends in research indicate that individual's religious beliefs differ in the degree to which they attribute God controlling life events (Pargament et al., 1987). These attributions are often referred to as freewill, i.e., individuals think and react independently, or deterministic, i.e., individuals believe God controls life events (McCrae, 1996). These differences in freewill-deterministic beliefs affect the way religious individuals cope, respond, and think about solutions to problems (Gabbard, Howard, & Tageson, 1986; Luper, Hopkinson, & Kelley, 1988; Pargament et al., 1987; Pargament et al., 1988; Spilka et al., 1985).

However, Epstein's (1994) cognitive-experiential self theory posits that individuals use either an analytical or experienced-based information processing system to work through solutions to daily events. Analytical systems rely on logic and reasoning, while experiential processing is intuitive and based on faith. Thus, according to Epstein (1994), religious beliefs are more likely to be found in experiential processes. While cognitive-experiential self theory does offer some insight into religious differences, it does not take into account freewill-deterministic beliefs, even though there is some indication that information processing and freewill-deterministic beliefs are correlated (Tolentino et al., 1990). This suggests that freewill-deterministic views and information processing systems both influence how individuals process religious information. Thus, this paper will demonstrate that (1) freewill-deterministic beliefs are an important factor in understanding religious beliefs and (2) both freewill-deterministic beliefs and cognitive-experiential information processing systems need to be considered in order to obtain a complete understanding of religious beliefs.

Cognitive-Experiential Self Theory

Cognitive-experiential self theory (CEST; Epstein,1994) posits the existence of two conceptual and independent frameworks of information processing. According to this theory, individuals tend to process information in either an experiential or cognitive fashion. Epstein (1994) suggests action-oriented events or emotionally arousing stimuli trigger the experiential system, whereas knowledge-based, reason-driven information trigger the cognitive system. Following is a brief description of the characteristics of each processing system.

The Experiential System

Epstein (1994) states that there are "two fundamentally different ways of knowing, one associated with feelings and experience and the other with intellect" (p. 710). The experiential system is the one associated with feelings and experience. It is a different type of acquired experience-based information, different from that learned from textbooks and lectures. It lacks logical reasoning and intellect. Instead, the experiential system relies on experience, emotion and intuition to categorize and assimilate information quickly (Epstein, 1994).

According to Epstein's (1994) theory, the experiential system operates on a basic model of reinforcement and associations to emotionally arousing stimuli. Epstein (1991) states,

> "When an individual is confronted with a situation that requires some kind of response, depending on past emotionally similar experiences, the person experiences certain feelings. The feelings, or vibes, which can be very subtle, motivate action tendencies to see to further the state if the

vibes are pleasant and to reduce the state if they are unpleasant" (p. 122).

Since responses from the experiential system do not require long deliberation, they tend to be reactionary and irrational. Furthermore, because of this quick response time within the experiential system, Epstein (1994) believes it to be more evolutionarily adaptive. For example, in prehistoric times, humans reacted on instinct and emotions, such as fear, in order to survive. If a bear was nearby, prehistoric man responded quickly and ran. When fear struck, he did not deliberate over rational courses of action. If he did, he might have died. Thus, being able to have a quick, a reactionary, emotional system in the presence of danger is believed to be more adaptive over a deliberative system (Epstein, 1994).

Further evidence indicates that early human civilizations used an emotional, experienced-based system to communicate. Epstein (1991) contends that symbols and pictorial information existed long before alphabets, formal language, and higher mathematical processes. According to Epstein (1991), symbolic and pictorial information are representative of the experiential system. They appeal to the senses rather than to the mind. For instance, family albums evoke memories of experiences as well as the emotions felt during that time. It can be said that pictorial and symbolic information provide individuals with a crudely associated story of events and emotions.

All of this, Epstein (1991) believes, evidences an evolutionary history of two distinct information processing systems. In summary, Epstein (1994) characterizes the experiential system in the following ways:

- information may be presented by symbols, narratives or pictures;
- information is non-verbal. It relies on nonintellectual and practical forms of intelligence;
- information is non-rational;
- information is emotionally stimulating;
- individuals react quickly to experiential information based on past similar emotionally arousing experiences.

The Cognitive System

Unlike the experiential system, the cognitive system is a rational system that relies on reason and logic to process information. It is an intellectual system that tends to be slower (Epstein, 1994). Epstein (1994) believes that the cognitive system evolved from higher order thinking and the existence of a cerebral cortex. He proposes that through evolution, the cognitive system adapted to organize knowledge. Thus, it is better suited for abstract, rational, logical thought processes, independent of emotion.

Evidence for Cognitive-Experiential Self Theory

Cognitive-experiential self theory (Epstein, 1994) is an integrative personality theory regarding how individuals tend to process information. There is some research suggesting the existence of the proposed dual processing framework. Much of the research suggests that there is a system independent of analytical thinking and reason, the experiential system. A brief review follows.

Irrational Fears

Irrational fears and phobias are evidence of the existence of a system that operates independently of an analytical, reasoning process (Epstein, 1991). The example Epstein (1985, 1991) frequently uses for this is that of a person who has a phobia about flying. Reason would indicate that flying is a safer form of transportation than automobiles, but the emotional fear of heights and the past experience and familiarity of the ground overrides reason. Thus, the result is a phobia of airplane travel, an irrational fear.

Conflicts

Epstein (1990, 1991, 1994) metaphorically refers to the two systems as a conflict between the heart and the head and cites numerous examples of this occurrence, such as an individual who wants to buy a Corvette, but rationality overrides and leads him to buy a more practical Volvo. These conflicts between "what feels right" and "what logically is right" demonstrates the distinctiveness of the two information processing systems. Kirkpatrick and Epstein (1992) and Denes-Raj and Epstein (1994) found, that in certain situations, individuals will allow their experiential system to override their rational system. When individuals had the opportunity to win money by drawing a red jelly bean from either a large bowl offering a 10% chance of winning (10 red and 90 white jelly beans) or from a small bowl offering the same odds (1 red and 9 white jelly beans), individuals more frequently elected to draw from the larger bowl. And, in many cases, individuals would pay in order to have the opportunity to choose which bowl to draw from instead of having it randomly decided for them. Although the individuals acknowledged that there were equal chances of winning from both bowls, they reasoned

their preference was due to the fact that the larger bowl physically contained more red jelly beans. In turn, they erroneously perceived the larger bowl as having a greater chance of winning. Denes-Raj and Epstein (1994) interpreted these results as evidence that the erroneous perceptions were coming from an irrational, emotionally driven system. They believed that the individuals were processing the information within an experiential system, instead of using rational reasoning skills from the cognitive system.

Even when the odds were reduced to 5% - 9% in the larger bowl (5-9 red and 91-95 white jelly beans), while the small bowl still had a 10% chance of winning, and were clearly marked as such, individuals still incorrectly rationalized the larger bowl as having a greater percentage of red jelly beans (Denes-Raj & Epstein, 1994). This irrational processing, independent of reason, has been found to generalize across situations (Denes-Raj & Epstein, 1994).

If Only Thinking

In an experiment investigating differences in rational and experiential systems, Epstein, Lipson, Holstein, and Huh (1992) found that given emotionally significant, unfortunate outcomes, individuals tend to elicit irrational "if only, I had..." counterfactual responses. In their experiment, Epstein et al. (1992) presented subjects with paired scenarios in which an unfortunate accident occurred. In one case, the protagonist followed his normal routine, and in the other, the protagonist did something out of his normal routine, such as taking a different route home. In both cases, an unfortunate accident occurred. Subjects were asked to indicate which person felt worse or if there was no difference. As predicted, individuals tended to respond that the person who acted

out of the ordinary, not taking his normal routine, felt more foolish. The subjects incorrectly rationalized the break from the normal routine caused the unfortunate incident, resulting in the "if only I had" thought process. Interestingly enough, when the subjects were asked to respond from a rational perspective, the "if only" responses were reduced, but not eliminated. Since the counterfactual "if only" responses were not eliminated after prompted to respond rationally, it can be assumed that the initial, reactionary "if only" response originated from an emotional, experiential processing system, ignoring possible rational explanations for unfortunate incidents (Epstein et al., 1992).

Conjunctive Errors

Conjunctive errors are another form of irrational thinking thought to be a result of processing within the experiential system. They are errors in judgment where the probability of two events occurring together appear greater than the two events occurring independently. Epstein, Denes-Raj, and Pacini (1995) found individuals are more likely to make conjunctive errors when the events are considered to be abstract as opposed to concrete, everyday problems. For example, the Linda problem is an abstract problem. After given a brief description about a person named Linda, subjects were asked to rank-order the likelihood of the following statements: Linda is a bank-teller, Linda is a feminist, or Linda is a bank-teller and a feminist. Based on the law of probabilities, the most likely response is Linda is either a bank-teller or a feminist. It is very unlikely that Linda is both. Yet, subjects incorrectly tend to respond that Linda is both a bank teller and a feminist (Epstein et al., 1995). Again, irrational responses were interpreted as

being elicited from a non-rational information processing system (Epstein et al., 1995).

However, the frequency of conjunctive errors diminishes in problems in which individuals have prior experiential knowledge. In their concrete example, subjects are asked to rank-order the likelihood of a horse winning race A, winning race B, or winning both A and B. The correct response is again the independent occurrence, that is it is more likely a horse would win either race A or B, but not both. Epstein et al. (1995) found that subjects were more likely to select this correct principle in the horse-racing scenario than the Linda problem. They reasoned that most individuals did not have formal knowledge of the correct conjunctive principle to solve these problems and therefore relied on representations of past experiences to reason through these problems. Since problems like the horse-racing scenario are concrete phenomenon, individuals correctly responded based on past experiences. Yet, in the absence of formal knowledge of the conjunction principle, individuals were more likely to incorrectly reason through abstract representations as in the Linda problem. Thus, these findings suggests that individuals rely on experiential thought processes when they are unable to rationalize through the problem and when no cognitive framework exists (Epstein et al., 1990).

Rational Experiential Inventory

The Rational Experiential Inventory (REI; Epstein, Pacini, Denes-Raj, & Heier, 1996) was developed to measure individuals' tendencies to engage in rational or experiential thought processes. The scale consists of the Need for Cognition Scale (NCS, Cacioppo & Petty, 1982) and the Faith in Intuition Scale (FI, Epstein et al., 1996), which are theorized to measure rational and emotional thinking, respectively. Both the 19-item

NCS and the 12-item FI scale were deemed reliable, having reliability coefficients of 0.87 and 0.77, respectively. NCS and FI were not significantly related to one another, suggesting that they are measuring two different, orthogonal types of thinking styles (Epstein et al., 1996).

The cognitive scale. The NCS (Cacioppo & Petty, 1982) was originally developed to measure individuals' tendencies to engage in cognitive thinking and has been found to be a reliable measure of such. However, there is correlatory evidence supporting the notion that NCS (Cacioppo & Petty, 1982) is tapping into a construct of rational thinking. NCS positively correlates with enjoyment of cognitive tasks (Baugh & Mason, 1986; Cacioppo & Petty, 1982; Condra, 1992; Dornic, Ekehammar, & Laaksonen, 1991; Lassiter, Briggs, & Bowman, 1991; Ratneshwar, Mick, & Reitinger, 1990; Tolentino, Curry, & Leak, 1990), information seeking habits (Ahlering, 1987; Condra, 1992), desire to seek new experiences that stimulate thinking (Venkatraman, Marino, Kardes, & Sklar, 1900; Venkatraman & Price, 1990), and intuitive thinking on the Myers-Briggs (Claxton & McIntyre, 1994). NCS also positively correlates with problem solving effectiveness (Heppner, Reeder, & Larson, 1983) and curiosity (Olson, Camp, & Fuller, 1984). All of which suggest that NCS is related to ideas similar to Epstein's (1994) cognitive information processing system construct.

The experiential scale. The Faith in Intuition Scale (FI; Epstein et al., 1996) purportedly measures the degree to which individuals process information within an experiential system. At the present, there is very little research on FI. Therefore, it cannot be determined whether or not it is a valid measure of experiential processing.

Religion

Epstein (1994) posits that religion is better suited for the experiential processing system. He argues that "for many individuals, rational, analytical thinking fails to provide as satisfactory a way of understanding the world and of directing their behavior in it as does religious teaching" (p. 712). Thus, because religion tends to be guided on faith instead of reason, individuals would tend to use an experiential system over a rational system to process religious information (Epstein, 1994).

However, many others have theorized that religion contains both affective and cognitive aspects (Allport, 1950; Brown, 1966; Hood, 1970; Proudfoot & Shaver, 1975), but to what degree and how has been debated. Some argue that emotional arousal during religious experience occurs first, and then cognitive reflections follow (Brown, 1966; Proudfoot & Shaver, 1975). Yet, Hood (1970) suggests that religious cognitions and beliefs are primary. He believes that in order for individuals to interpret emotionally arousing religious events, they must be first predisposed to such beliefs.

Although there are many theories and speculations, whether religious information is experiential, cognitive, or both has yet to be studied. This paper will attempt to demonstrate that religious information may be processed within either a cognitive or experiential framework, as opposed to Epstein's (1994) theory that religion is suited solely for the experiential system. Following are arguments supporting the idea that religion has both affective and cognitive aspects.

Evidence for Cognition and Emotion within Religion

Religion and Emotion

Religion has many emotional aspects. William James (1902) wrote that the importance of the religious experience to the individual was not only reason and philosophical existentialism, but that it also meant religious emotions and feelings combine in relation to what an individual considers divine. From funerals to religious holidays, signs of emotions (joy, sadness, anger, etc.) can readily be observed within a religious congregation. Thus, individuals engaging in the religious experience find it emotional (Proudfoot & Shaver, 1975).

Religious literature, songs, and other traditional rituals are also considered to fall within the realm of the emotional experience in that they are alternate ways religious individuals communicate (Bellah, 1965; Epstein, 1994; Sadler, 1970). Religious affect can be found in religious literature through symbolism, narratives, and parables. For example, Jesus' sermons on the mount are parables intended to give concrete examples to which ordinary people could relate. Accordingly, Sadler (1970) states the following,

> It [religion] is composed not merely of artifacts but also - and primarily - of symbols which express men's interests, attitudes, values, fears, aspirations, and which form systems of interpretation and communication. These systems of symbols set the boundaries of a group's frame of reference within which individual members interpret their experiences and make sense of them. (p 16-17)

Thus, using symbols to interpret experiences and make sense of them is a form of experiential processing (Epstein, 1994). According to Epstein's theory (1994) such symbolic narratives are suited to an experiential processing system for two reasons. One, narratives and symbols arouse emotions. Secondly, narratives are experienced-based, making them easy for individuals to identify and relate with their own past experiences.

Affective aspects of religion are also found in areas other than ritual and text. There is some evidence suggesting emotional arousal is in religious thought and experiences. Stoudemire (1971) found a direct relationship between religion and emotion by recording galvanic skin response (GSR) and subjective reports of emotion after reading religious statements. Others have found emotional factors within religious conversion (Ozark, 1989; Ullman, 1982), religious coping (Carver, Scheier, & Weintraub, 1989), religious psychological adjustment (Chau, Johnson, Bowers, Darvill, & Danko, 1990; Schaeffer & Gorsuch, 1991) and religion and mental health (Mauger, Blaydes, Carroll, Light, & Padgett, 1995; Watson, Morris, & Hood, 1990).

Religion and Cognition

Although Epstein (1994) would argue the contrary, religion cannot only be emotional. It is also highly cognitive (Hood, 1970). Thouless (1961) writes, "Religion being social, cannot rest content with an incommunicable basis; so its experiences must be translated into words...This translation into words is the intellectualization of the experience which gives birth to a religious doctrine" (p. 31).

Religious thinking has been measured by cognitive activity during religious activities and complexity of thought processes about religious issues. Surwillo and

Hobson (1978) found evidence of increased brain rhythm frequency during meditation periods, such as prayer, that was different than when at rest. They interpreted this increase in rhythm frequency as an increase in cognitive activity. Thus, this suggests that cognitive processing may occur during experiential religious activities, contradicting Epstein's (1994) theory about religion and possibility that the information processing systems are independent of one another.

Yet, while it may be true religious activities may increase cognitive activity, they do not necessarily increase complex reasoning. More abstract thinking was found to be associated with greater rejection of religious doctrine (Hoge & Petrillo, 1978). Furthermore, individuals scoring high on closed-minded belief systems, such as fundamentalism and orthodoxy, displayed lower levels of cognitive complexity (Edgington & Hutchinson, 1990). While there is some suggestion that religious individuals use a cognitive system, the degree to which has not yet been determined.

Religious Cognitive-Emotional Scale

Since there was no scale available to measure individuals' tendencies to process religion within cognitive and affective frameworks, the Religious Cognitive-Emotional Scale (RCES, see Appendix B) was developed. This scale is conceptually similar to the Epstein et al. (1996) Rational Experiential Inventory (REI) in that there are two scales which independently assess cognitive and emotional orientations.

The religious cognitive scale (RCS) consists of twelve items: five items from Religious Maturity Scale (Dudley & Cruise, 1990) and seven additional items which were created and worded similarly to items on the NCS, the measure of cognitive information

processing for CEST. The religious emotional scale (RES) consists of 13 items, created and worded similar to items on the FI. All of the items on the religious cognitive and religious emotional scales were chosen on face validity.

Religious Belief Systems

There is some suggestion that religious belief systems may influence the degree of cognitive or experiential processing. Past studies show that individuals' tend to differ in their belief systems, closed-minded or open-minded, and that these differences may affect the degree to which they process religious information in a cognitive system (Edgnington & Hutchinson, 1990; Hoge & Petrillo, 1978). Therefore, religious belief systems should not be ignored. Currently, there is no current research regarding the role of religious belief systems within CEST. Following is a brief review of religious literature as it relates to belief systems.

Research in the Psychology of Religion

Differences in belief systems are important in studying both religion and information processing. First of all, religion itself is a belief system about God and the world. It serves to provide understanding about the world, life and death, good and evil, and right and wrong. Secondly, information processing is essentially how an individual perceives the subject, (in this case religion), and how the individual interprets the information. Therefore, differences in belief systems should be related to information processing, cognitive or experiential.

Religious Orientation Scale

Allport and Ross' (1967) Religious Orientation Scale (ROS) purportedly measures differences in religious orientations. However, the research has yielded many inconsistencies (Kirkpatrick, 1993) and the scale has come under a great deal of criticism (Kirkpatrick, 1993). ROS is related to religious cognitive processing and belief systems, namely open- and closed-mindedness (Baither & Saltzberg, 1992; Batson & Raynor-Prince, 1983; Pargament et al., 1987; Watson, Folbrecht, Morris, & Hood, 1990). The ROS is important because it has influenced trends within the study of religion, specifically differences in open- and closed-minded belief systems. A brief summary of the ROS and its research findings follows.

According to Allport and Ross' (1967) theory, religious individuals tend to prefer either an intrinsic or extrinsic orientation. Devout individuals, termed intrinsic, adhere to religion as a master motive in life and have highly internalized orthodox beliefs and prescriptions. Intrinsic individuals "find their master motive in religion. Other needs, strong as they may be, are regarded as of less ultimate significance" (p. 434). In contrast, irreverent and egocentric religious individuals, termed extrinsic, practice religious behaviors and adhere to religious beliefs for self-serving interests. Extrinsic individuals have a disposition "to use religion for their own ends...Extrinsic values are always instrumental and utilitarian. Persons with this orientation may find religion useful in a variety of ways -- to provide security and solace, sociability and distraction, status and self justification" (p. 434).

To support their theory, Allport and Ross (1967) developed the Religious

Orientation Scale (ROS), which is one of the most prevalent scales used in research on religion. ROS purportedly measures individual differences in religious orientations. ROS consists of two separate sub-scales, intrinsic (I) and extrinsic (E). Items on each sub-scale assess certain aspects of beliefs, behaviors, and emotions within religion. High scores on I were interpreted as intrinsic religious orientation; high scores on E were interpreted as extrinsic religious orientations.

Thus, the purpose of ROS was not to measure the degree to which individuals process religious information within cognitive or experiential frameworks nor was it to measure differences in belief systems. Rather, its purpose was to assess religious orientations by gathering information on religious motivations as well as the beliefs, emotions, and behaviors, which are theorized to affect their orientation. Yet, there is some suggestion that ROS is tapping into both cognitive and emotional variables (Baither & Saltzberg, 1992; Baker & Gorsuch, 1982; Batson & Raynor-Prince, 1983; Genia, 1993; Pargament et al., 1987; Richards, 1991; Watson, Folbrecht, Morris, & Hood, 1990), as well as freewill and deterministic belief systems (Pargament et al., 1987). A review of the ROS findings follows.

Religious Orientation Scale Findings

Responses on the ROS have been found to distinguish between a number of differences, including church participation, such as frequency of church attendance (Griffin & Thompson, 1983; Strickland & Shaffer, 1971) and denominations (Donahue, 1985b; Griffin & Thompson, 1983; Strickland & Weddell, 1972). In addition, ROS responses also correlate with value judgments (Dittes, 1971), religious beliefs (Donahue,

1985b), the amount of reported religious experiences (Hood, Morris, & Watson, 1990), and the degree of religious commitment (Donahue, 1985a). ROS scores positively correlate with a number of personality variables. Intrinsic responses tend to be positively related with social desirability (Batson et al., 1978; Leak & Fish, 1989; Trimble, 1997), and extrinsic responses positively correlated with assertiveness (Kraft, Litwin, & Barber, 1986).

Cognition and Affect

ROS tends to relate to cognitive and affective variables. Although the findings are not always consistent, the results suggest that the extrinsic orientation is tapping into affective variables while the intrinsic orientation is tapping into cognitive variables (Baither & Saltzberg, 1992; Baker & Gorsuch, 1982; Batson & Raynor-Prince, 1983; Genia, 1993; Pargament et al., 1987; Richards, 1991; Watson, Folbrecht, Morris, & Hood, 1990). This may evidence that religious individuals differ in the degree to which they process within a cognitive or experiential information processing framework.

Affect-laden variables. High scores on the extrinsic orientation tend to be related to affect-laden variables. Positive correlations have been found between extrinsic scores and affect laden variables, such as anxiety (Baker & Gorsuch, 1982), self-sentiment, a lack of motivation to adhere to social norms (Baker & Gorsuch, 1982), guilt (Baker & Gorsuch, 1982), inability to balance emotional forces (Baker & Gorsuch, 1982), frustration (Baker & Gorsuch, 1982), depression (Genia, 1993), anxiety (Baker & Gorsuch, 1982), and mental well-being (Richards, 1991). Thus, extrinsic scores may be related to the experiential information processing construct.

Cognitive-laden variables. Additionally, ROS responses correlate with cognitive functioning. Those scoring high on intrinsic items also tended to score high on cognitive orientations such as rational thinking (Baither & Saltzberg, 1992), cognitive complexity (Batson & Raynor-Prince, 1983), need determined expression (Watson, Folbrecht, Morris, & Hood, 1990), and coping skills (Pargament et al., 1987). These findings may suggest that the intrinsic orientation is related to cognitive information processing. Thus, ROS may be related to both Epstein's (1994) experiential and cognitive information processing systems. Contradictory to Epstein's (1994) theory that religion is experiential, these findings hint at the possibility that religious individuals may differ in how they process religious information.

Open- and Closed-minded Beliefs

Freewill and determinstic beliefs. Although ROS may be tapping into cognitive and affective constructs, ROS may also be tapping to open-minded and closed-minded belief systems. Allport (1950) and Allport and Ross (1967) differentiate religious motivations of intrinsic and extrinsic religious individuals based on the idea that the intrinsics possess a mature religiosity and a freedom to explore existential beliefs. On describing the mature religious orientation, Allport (1950) states, "A person believing he is free uses what equipment he has more flexibly and successfully than does a person who is convinced he dwells in chains" (p. 17). Essentially, Allport (1950) suggests that religiously mature individuals, intrinsics, endorse a freewill philosophy, since they are conceptualized as open-minded thinkers having "flexibility" and "freedom" in their religious beliefs.

On the other hand, extrinsics are conceived as deterministic thinkers, believing that they are being controlled by external forces and that they are not free to choose among alternatives (Allport, 1950). Individuals endorsing deterministic philosophies perceive God as controlling crises, in which He ultimately provides meaning for unfortunate events (Spilka et al., 1985).

Consequently, the ROS can be also interpreted as an attempt to assess the degree to which religious individuals endorse freewill or deterministic philosophies. Additional evidence supports this notion. Past studies demonstrate that ROS is tapping into beliefs about God's influence or control over individual's lifes (Kirkpatrick & Hood, 1990a, 1990b). Specifically, high scores on measures of closed-minded beliefs, such as fundamentalism (Kirkpatrick, 1993; McFarland, 1989; McFarland & Warren, 1992), prejudice (Allport & Ross, 1967; Batson, Naifeh, & Pate, 1978; Donahue, 1985a; Feagin, 1964; Griffin, Gorsuch, & Davis, 1987; Hoge & Carroll, 1973; McFarland, 1989; Ponton & Gorsuch, 1988), dogmatism (Donahue, 1985a), authoritarianism (Kahoe, 1977), orthodoxy (Hunsberger, Lea, Pancer, Pratt, & McKenzie, 1992; Kirkpatrick, 1993) positively correlate with high scores on extrinsic responses. On the other hand, high scores on the intrinsic scale predict ideas associated with open-minded belief systems, such as perceived self-control or personal agency. Intrinsic scores positively correlate with internal locus of control (Sturgeon & Hamley, 1979), a measure of the degree to which individuals perceive external forces controlling events. However, God control, a measure of the degree to which individuals perceive God controlling life events, seems to be predictive of intrinsic scores (Jackson & Coursey, 1988). Thus, from these findings,

ROS may be tapping into ideas related to open- and closed-minded belief systems. Again, correlations with ROS have not always been consistent (Kirkpatrick, 1993).

Prejudice. Prejudice is also a measure of closed-minded belief systems. Previous studies have shown that high scores on the intrinsic orientation tend to be related to low levels of prejudice, while high extrinsic scores are related to high levels of prejudice (Allport & Ross, 1967; Donahue, 1985a). Yet, in some cases, intrinsic scores have been positively related to prejudice (Batson et al., 1978; Griffin et al., 1987; McConahay & Hough, 1976; Ponton & Gorsuch, 1988) or not related at all (Donahue, 1985a). Thus, there is some question as to the relationship between religious orientations and prejudice. Some research suggests that intrinsics may be responding to prejudicial questions in a socially acceptable manner. A positive correlation was found between high scores on the intrinsic scale and social desirability (Batson et al., 1978; Leak & Fish, 1989). Yet, other researchers argue that these findings may be spurious and that intrinsicness is not related at all to social desirability. They state social-environmental factors (e.g. denomination, geographical location, culture, and an internalization of the church's values) are more predictive of prejudice than is the intrinsic-extrinsic dimension (Feagin, 1964; Griffin et al., 1987; Griffin & Thompson, 1983; Hoge & Carroll, 1973; Ponton & Gorsuch, 1988; Strickland & Weddell, 1972). However, whether or not social desirability is an intervening variable in the ROS and prejudice correlation is questionable. Regardless of how the intrinsic scale correlates with prejudice, ROS does seem to also be related to prejudicial measures, a type of closed-minded belief system.

Fundamentalism and Orthodoxy. Contrary to Allport's (1950) notion that the

intrinsic orientation is open and tolerant, intrinsic scores tend to positively correlate with fundamentalism measures (Kirkpatrick, 1993). Furthermore, fundamentalism positively correlates with orthodoxy, suggesting that it is tapping into a construct of closed-mindedness. However, orthodoxy was either unrelated or negatively related to intrinsicness (Kirkpatrick, 1993).

While orthodoxy and fundamentalism are positively correlated, the fact that instrinsic scores are only positively correlated with fundamentalism raises some questions. First of all, it could be that a third variable, such as social desirability, is interacting with measures. Secondly, although Allport (1950) describes the intrinsic orientation as being "flexible," he also mentions that intrinsics are highly orthodox in their belief systems (Allport & Ross, 1967). Thus, the expectation is that it would more likely positively correlate with orthodoxy and not with closed-minded measures, like fundamentalism. This is not the case. The basic premise of Allport's (1950) theory that intrinsics are open-minded but orthodox is in contradiction according to Kirkpatrick's (1993) findings.

Allport (1950) may not have taken into account that religious people may be to some degree closed-minded. After all, when accepting a personal religion as true, individuals may to reject other possible explanations about the existence of God and about understanding the world that oppose their belief system. However, according to Allport's (1950) original notion, intrinsic religious individuals should possess "freedom" and "flexibility" within their belief system. Thus, Allport's (1950) basic premise of intrinsicness seems to be contradictory, or maybe there is another religious dimension.

Quest. Batson and Ventis (1982) theorized that Allport and Ross (1967) omitted an important theoretical aspect of freewill and open-mindedness. They suggest that ROS fails to measure a possible third religious orientation, quest. Quest is an existential openness and search for religious meaning, a construct associated with open-mindedness and freewill. High scores on the quest scale strongly and positively correlated with complex thinking and seeking out new information (Batson & Raynor-Prince, 1983). Regarding closed-minded and open-minded belief systems, quest negatively correlates with orthodoxy and fundamentalism (Kirkpatrick, 1993). Additionally, high scores on quest positively correlate with the following: a desire to read both anti-fundamentalist and pro-fundamentalist articles (McFarland & Warren, 1992), agentic styles of religious problem solving (Pargament et al., 1988), a tendency to make internal attributions (Pargament et al., 1987), and a desire to search for religious answers (Nielsen, 1995). High scores on quest negatively correlate with forms of deterministic thinking, such as prejudice (Batson, 1976; Batson et al., 1978; McFarland, 1989), orthodoxy (Batson, 1976; Kirkpatrick, 1993), and fundamentalism (McFarland, 1989). Thus, quest may be a third open-minded religious orientation, as opposed to ROS, which tends to be closed-minded (Batson & Raynor-Prince, 1983; Kirkpatrick, 1993).

While some (e.g., Donahue, 1985a; Kojetin et al, 1987) have questioned what the quest dimension is measuring, Batson and Schoenrade (1991a, 1991b) found quest to be a reliable and valid construct of existential questioning. Furthermore, research findings suggest that quest could be a third, separate orientation to ROS (Batson, Schoenrade, & Ventis, 1993). Thus, this raises questions regarding the all inclusiveness of the intrinsic-

extrinsic (I-E) dimension and its validity as a construct related to religiosity.

Shortcomings of the Religious Orientation Scale

Even though the ROS has generated a great deal of research, it has been repeatedly criticized for theoretical imprecision and poor scale development (Donahue, 1985a; Hoge & Carroll, 1973; Hood, 1985; Hunsberger, 1995; Kirkpatrick & Hood, 1990a, 1990b; Kojetin, McInotosh, Bridges, & Spilka, 1987), lack of operational definitions and specificity (Hood, 1985; Hunt & King, 1971; Kirkpatrick & Hood, 1990a, 1990b; Wilson, 1960), and vague and mixed content items (Wilson, 1960). Below is an explanation of the criticisms.

Lack of Operational Definitions. ROS sought to distinguish between extrinsic and intrinsic orientations (Allport & Ross, 1967). However, the word "orientation" is a vague and non-descriptive term. Furthermore, what "orientation" is measuring has not been standard throughout the literature. Many researchers have offered various descriptions including: motivations, beliefs, attitudes, values, behaviors, and cognitive style (Kirkpatrick & Hood, 1990a). While Masters (1990) has been a proponent of ROS, he agrees with the argument that ROS lacks specificity and operational definitions.

Poor Scale Development. It has also been pointed out that items on the ROS seem vague and contain items of mixed content (Kirkpatrick & Hood, 1990a: Wilson, 1960) That is, the items on the scale are possibly tapping into different constructs. Some items assess behaviors, others tap into religious attitudes or cognitions and beliefs. Hilty, Morgan, and Hartman (1985) found only two items on the extrinsic scale and four items on the intrinsic scale, out of a combined total of 21 scale items, which loaded into clear-

cut factors. Thus, the scale items are not seemingly tapping into a single construct of either intrinsicness or extrinsicness.

Additional findings suggest that items may yield response biases. Because the intrinsic-extrinsic dimensions tend to distinguish between denominations, studies differ based on the population. For instance, Feagin (1964) argues intrinsicness is seemingly specific to Protestant-based religions. Thus, the I-E conceptualization may not be differences in orientations, but actually bias to differences in religious congregations.

Theoretical Imprecision. Lastly, the theoretical framework of ROS has also come under attack (Donahue, 1985a; Hoge & Carroll, 1973; Hood, 1985; Hunsberger, 1995; Kirkpatrick & Hood, 1990a, 1990b; Hunt & King, 1971; Kojetin, McInotosh, Bridges, & Spilka, 1987; Wilson, 1960). There are questions about ROS having only two orientations. First of all, Batson and Ventis (1982) have suggested that Allport and Ross (1967) neglected to measure another possible third orientation, quest. Furthermore, other research findings (Hood, Morris & Watson, 1990) have shown that the intrinsic and extrinsic dimensions do not yield bipolar opposites as originally theorized by Allport and Ross (1967). Instead, the two dimensions are orthogonal and do not produce two conceptual dimensions, but rather four.

As stated previously, ROS consists of two separate scales, the intrinsic and extrinsic. High scores on one or the other indicated tendencies towards either intrinsic or extrinsic orientations. Yet, ROS does not account for high scores on both or low scores on both. When confronted on with such scores, Allport and Ross (1967) added two more orientations to their original theory. Low scores on both, termed anti-religious, were a

lack of interest in religion. High scores on both intrinsic and extrinsic scales, termed indiscriminately pro-religious, were individuals who both used their religion for utilitarian and selfish means. The indiscriminately pro-religious orientation was nicknamed "muddleheads" for the very reason that they seemed muddled between the two orientations (Allport & Ross, 1967). Thus, Kirkpatrick and Hood (1990a) argue that these two additional orientations, the indiscriminately pro-religious and anti-religious, are by-products of ROS and do not fit conceptually into the Allport (1950) theory. They believe that the definition for the indiscriminately pro-religious was circular and confusing. The definition, individuals who use religion for both selfless and selfish needs, contradicts itself. This raises questions about what indiscriminately pro-religiousness really is measuring.

Some have attempted to operationally measure the four-fold typology (Hood, 1973, 1985; Pargament et al., 1987). For example, Hood (1973, 1985) performed median splits on both the intrinsic and extrinsic scales to measure the indiscriminately pro-religious and anti-religious. However, some problems with this solution are inherent. Since there is variability in samples across studies, using median splits to determine a distinction yields inconsistencies.

Although Pargament et al. (1987) attempted to construct separate scales measuring the new dimensions, the indiscriminately pro-religious orientation and the anti-religious orientation constructs are still not adequately defined. While it is plausible that pro-religious orientations exist, there is still some question as to what types of religious beliefs they endorse and how religion influences their behavior. Kirkpatrick and

Hood (1990a) argue that the indiscriminately pro-religious is more of a residual effect of the anti-intrinsic items on the scale. In other words, reverse items on the intrinsic scale may be yielding a negative responses, thus creating a false high score on the intrinsic scale. However, others contend that the indiscriminately pro-religious orientation is a result of "yea-saying" responses to items since it positively correlates with social desirability (Hood et al., 1990; Kahoe, 1976).

Furthermore, some researchers have suggested that the extrinsic scale can be broken down into two subscales, extrinsic social and extrinsic personal (Genia, 1993; Trimble, 1997) and possibly a third, such as extrinsic other or extrinsic disbelief (Brown, 1964; Gorsuch & Venable, 1989). However, by doing so, this reduces the total number of items on each sub-scale, and consequently it lowers the reliability (Genia, 1993; Trimble, 1997).

Much of the criticism of the ROS has arisen from a lack of clear definitions of a four-fold typology and the degree to which individuals' responses are due to outside factors such as social desirability or residual affects from other scale items. To date, many researchers have not measured or reported indiscriminately pro-religious scores, probably since factoring the items into a four-fold typology lowers the reliability, and the four-fold typology framework is difficult to theoretically explain (Kirkpatrick & Hood, 1990a).

Still, others have attempted to create similar scales or revise portions of the ROS (Allen & Spilka, 1967; Batson & Ventis, 1982; Dudley & Cruise, 1990; Feagin, 1964; Fleck, 1976; Genia, 1993; Gorsuch & McPherson, 1989; Gorsuch & Venable, 1983;

Pargament et al., 1987). However, they too have met with either poor reliability or have been subject to similar theoretical problems since many of them have used the same items or framework as the ROS (Donahue, 1985a; Dudley & Cruise, 1990; Kirkpatrick & Hood, 1990a, 1990b; Van Wicklin, 1990).

Undeniably, ROS has been plagued with lack of clear and specific operational definitions that can be used to distinguish differences in religious orientations. Even though ROS has generated a considerable amount of research, the inconsistencies of empirical findings, theoretical vagueness, and the lack of appropriate operational definitions and content validity indicate the need for alternative frameworks to assess individual differences in religious belief systems (Kirkpatrick & Hood, 1990a).

However, Masters (1990) indicates that research with ROS has yielded some interesting findings that should not be ignored. For instance, ROS yields a tendency for religious individuals to differ in their belief systems (Allport & Ross, 1967) and possibly within information processing systems (Batson & Ventis, 1982; Hoge & Carroll, 1973; Surwillo & Hobson, 1979). It may be that religious belief systems and the interpretation of those beliefs, information processing, are related, since other research shows similar trends (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986; Ickes & Teng, 1987; Tolentino et al., 1990; Hjelle and Ziegler's, 1976). Therefore, it is important to discover differences in belief systems as they may reflect common components in information processing systems. Following is a brief review of how religious beliefs relate to different closed-minded and open-minded belief systems.

Freewill-Determinism

The freewill-determinism philosophies are associated with open- and closed-mindedness, respectively (Dawson, 1990; Harcum, 1991; Sappington, 1990; Stroessner & Green, 1990; Spilka, Shaver, & Kirkpatrick, 1985) and serve to explain why individuals' religious attributions, behaviors, and belief systems differ (Alcock, 1992; Binswanger, 1991; Luper, Hopkinson, & Kelley, 1988; Pargament et al., 1988; Stroessner & Green, 1990). Since religion is a system of beliefs about causal explanations for the creation of the world, the creation of morality, good and evil, sin, etc., it stands to reason that religious individuals' belief systems should differ on the basis of their perceptions of God's influence in their life. Thus, the degree to which religious persons attribute causation to any deity, force, powerful other, divine persons or the like, may reflect how open-minded they are (Alcock, 1992; Binswanger, 1991; Luper, Hopkinson, & Kelley, 1988), how much personal responsibility they attribute to themselves (Alcock, 1992; Gabbard, Howard, & Tageson, 1986; Spilka et al., 1985), and how much personal control they perceive themselves as having (Pargament, Kennell, Hathaway, Grevengoed, Newman, & Jones, 1988) on a freewill-determinism continuum.

In turn, the degree to which individuals are open- or closed-minded may affect the extent to which information is processed. Specifically, fundamentalism and orthodoxy, closed-minded belief systems, are associated with lower levels of cognitive complexity (Edgington and Hutchinson, 1990). While problem solving, a characteristic of Epstein's (1994) cognitive information processing system, is related to agenticism (Pargament et al., 1988). Therefore, since freewill-determinism philosophies tend to be correlated with

both information processing and open- and closed-minded belief systems, they might be more predictive measure than ROS. A detailed description of freewill and determinism, as well as a review of supporting religious literature follows.

Freewill

Freewill has been described in the following ways: openness and flexibility in belief structures (Sappington, 1990; Stroessner & Green, 1990), volitional and intentional behaviors (Harcum, 1991; Sappington, 1990), and internalized attributions (Dawson, 1990; Spilka, Shaver, & Kirkpatrick, 1985). It is theorized that individuals who endorse freewill philosophies will have agentic beliefs, make agentic attributions, and feel personally responsible for behaviors (Rotter, 1966). The inter-relatedness of these variables within the freewill construct are discussed below.

Openness. Openness has been associated with the following adjectives: novel, complex, intrinsic, thought provoking, free-thinking, self-reflective, internal, conscious, and providing a choice among alternatives (McCrae, 1993a, b; McCrae, 1996; Sappington, 1990; Stroud, 1994). Individuals scoring high on openness scales tend to be more conscious of their personal feelings, more aware of their effects on others, and more abstract in their thinking (McCrae, 1993a). Additionally, those scoring high on open-mindedness scales also are more likely to rethink choices and beliefs (McCrae, 1993a) and have more cognitive flexibility (Stevens, 1992).

Additionally, openness is a combination of cognitive and affective components (McCrae, 1993a, 1993b). The amount of openness individuals possess will determine how willing they are to change existing beliefs, how deeply they process information, to

what they will attribute the cause of events, and to the extent they process information emotionally or rationally (McCrae, 1996).

Volition. Volition implies that individuals consciously choose to engage in certain behaviors. It also implies personal responsibility for behavior (Harcum, 1991). Open-minded thinking styles, such as freewill, have been found to positively correlate with personal agency, a personality variable measuring the degree to which one feels responsible for their own actions (McCrae, 1993a). Subsequently, the individual's behavior is perceived to be willed by him- or herself, which is reflected in internal attributions. Individuals believing in freewill tend to perceive themselves as not being influenced or constrained by outside forces or other individuals (McCrae, 1993a). They are willing to adopt conflicting information, rationalize through alternative courses for action and take personal responsibility for their behaviors. Consistent with this notion, religious open-mindedness positively correlates with agency and volitional behaviors and to confront and cope with existential issues (Stevens, 1992)

Within intentional actions, it is the cognitions that direct the individual to the desired state or goal (Brown, 1989). According to Brown (1989), volitional behavior is internal, active, and intellectual, as opposed to passive behaviors which are perceived as external and emotional. When an individual chooses to act, he or she consciously makes that decision. The degree to which the belief contains fear, arousal, anger or other emotions will affect the intentions directed toward it (Brown, 1989).

Attributions. Internal causal attributions and agentic thinking shape behaviors (Brown, 1989). The causal attributions "I did it" or "He did it for me" result from perceptions of the Self after the resolution of an act. Brown (1989) uses the example of a person being approached by a robber in a dark alley to illustrate this point. The degree to which the individual believes he possesses freewill in this situation affects his subsequent actions, cognitions, and emotions and visa versa. If he feels that he is unconstrained by outside forces, he may feel confident, strong, and unafraid and respond by either walking pass the robber or turning around and walking in another direction. His response to continue walking is volitional, and his attributions to his response are ones of personal control and agentic beliefs. However, the person, who believes he is bound by the situation, will lack choices with which to act upon. He would then feel fear, constraint, and isolation. His behaviors would be restricted and highly emotional (e.g., He cowers in fear). Consequently, he will attribute his lack of response and lack of alternatives to external causes (e.g., The robber had me cornered, and I could not escape).

Determinism

Conversely, determinism contains elements of closed-minded thinking, a tendency to make external attributions, believes in a lack of personal control and in a lack of volition (Creager, 1967; Sappington, 1990; Stroud, 1994). Thus, the deterministic individual believes that external forces cause events. Subsequently, individuals' behaviors are subsequently predetermined by existing master plans and are controlled by other individuals or supreme beings (Sappington, 1990).

Fundamentalism and Orthodoxy. Fundamentalism, like orthodoxy, is a strict adherence to a set of beliefs. In fact, the terms are often used to describe one another and are intertwined in meaning (Edgington & Hutchinson, 1990; Kirkpatrick, Hood, & Hartz, 1991). Studies have found that measures of fundamentalism positively correlate with orthodoxy (Edgington & Hutchinson, 1990; Ozark, 1989). Fundamentalism also positively correlates with other deterministic measures, orthodoxy, dogmatism, closed-mindedness, and prejudice (Edgington & Hutchinson, 1990; Stanley, 1963a, 1963b; Kirkpatrick, 1993). These findings indicate the constructs are tapping into rigid, inflexible systems of beliefs (Kirkpatrick et al., 1991; Rokeach, 1960).

Religious Freewill-Determinism Research

There is little research on freewill and determinism in the psychology religion. However, there are some studies that provide evidence of such forms of thinking among religious individuals. Following is a review of the current literature addressing concepts which are similar to the religious freewill-determinism continuum and which suggest that it is an important factor in research in differentiating religious orientations.

Committed and consensual orientations. Allen and Spilka (1967) attempted to distinguish between open-minded and closed-minded religious beliefs by measuring individuals' religiosity in terms of whether an individuals was committed or consensual. Committed orientations are defined as individuals possessing a faith associated with candidness and openness, which are ideas associated with freewill. The consensual orientation refers to faith associated with rigid and simplistic cognitive styles, which are items associated with determinism. As theorized, closed cognitive styles tend to

positively correlate with consensual scores (Raschke, 1973). Yet, while definitions of committed and consensual orientations seem to differentiate freewill-deterministic orientations, findings suggest that they are only slightly correlated (Allen & Spilka, 1967). Thus, consensual and committed religious orientations are tapping into freewill and deterministic dimensions, respectively.

Iron-rods and compasses. Nielsen (1995) developed two scales which purport to measure the degree to which religious individuals use their religion to ascertain answers to existential questions. His purpose was to operationalize the extent to which individuals attempt to ascertain answers to existential questions and the thought processes that they use to do so. Iron-rods are defined as those who seek and find answers to almost all existential questions, while compasses seek and gain answers but still have many unanswered questions.

Iron-rods and compasses tend to correlate with other previously mentioned scales tapping into the religious freewill-determinism continuum. In a small Mormon population, the quest scale tended to positively correlate with compass, and the intrinsic on the ROS scale positively correlated with the iron-rods. These findings suggest that iron-rods/intrinsics may be final or possibly dogmatic in their assertions, while the compasses/quests may have a more tolerant and open approach to religious questions.

Institutionalism-individualism. Brown (1964) proposed the institutionalism-individualism dimension, which purportedly measures acceptance to authority. Institutionalism, as he termed it, is a measure of the amount of external influences to which beliefs are attributed determinism. Examples of such influences are the church, the

minister, the Bible, or religious dogma. The polar opposite, individualism, is a measure of the internal influences to which beliefs are attributed free-will. Findings indicate that institutionalism correlates positively with orthodoxy, fundamentalism, and authoritarianism, while individualism correlates negatively (Brown, 1966; Stanley, 1963a, 1963b; Van Wicklin, 1990), suggesting that institutionalism is tapping into deterministic forms of thinking, while individualism reflects forms of freewill thinking.

Locus of control. Similar to Brown's (1964) institutional - individual conceptualization, Rotter's (1966) Locus of Control Scale (LOC) attempted to measure the amount of control an individual perceives to have. Individuals having an internal locus of control orientation perceive themselves to have control over situations and events. Conversely, those having an external locus of control orientation attribute causes to other factors. Findings by Scheidt (1973) suggested that those believing in pseudoscientific, paranormal, occult activities were more external in their attributions. Similarly, Tobacyk, Nagot, and Mitchell (1989) suggested that individuals scoring high on the Prediction of Future Events Scale (PFE), a measure of beliefs in religious determinism, paranormal divinatory procedures, psychically gifted, etc., have an external LOC. Therefore, individuals who feel less responsible for events in their lives are more likely to focus on the emotional and irrational and to endorse religious determinism. Although the expectation is that freewill will positively correlate with internal LOC and negatively with external LOC and that determinism will positively correlate with external LOC and negatively with internal LOC, there is some contradictory evidence suggesting otherwise. Waldman, Viney, Bell, Bennett, and Hess (1983) used the freewill-

determinism scale (Waldman, Viney, & Barchilon, 1982) and found a small, positive correlation between freewill and external locus of control on the LOC scale. Ritezma and Young (1983) explained this discrepancy with the notion that religious commitment is highly internalized, meaning that those who are religious feel that God is working through them. Those high in religious determinism may internalize their religious commitment and have a perceived feeling of empowerment through God. This would explain high scores on both freewill and external LOC. However, this may also suggest that LOC is not tapping into the same construct as the religious freewill-determinism continuum.

Causal attributions. Religious individuals have a propensity to describe events within their religious belief system (Bourque & Back, 1971; Hood et al., 1990). The amount of secular attributions has been found to be predicted by: the degree to which religious individuals endorse more conservative beliefs and the degree to which religious individuals experience unusual or unexplainable events or intense emotional arousal (Luper, Brock, & De Paola, 1992; Luper, De Paola, Brock, & Clement, 1994). Similarly, religious individuals' perceptions about the primary controlling agent (themselves or God) affect how they attribute causation for events (Alcock, 1992; Gabbard et al., 1986; Pargament et al.,1988; Spilka et al., 1985) and the types of agentic or deterministic coping in which they engage (Pargament et al., 1988; Shortz & Worthington, 1994).

However, religious attribution theories (Proudfoot & Shaver, 1975; Spilka et al., 1985) are not comprehensive, because they lack consistency and ignore the type and degree of information processing in which the individual engages (Lalljee, Brown, &

Hilton, 1990). For instance, Luper et al. (1988) reported fundamentalists endorse an internal locus of control and had causal attributions to God. They concluded that this inconsistency was a product of individuals belief that God gave them the freewill to make their own choices. It appears that the freewill-determinism continuum is more comprehensive than causal attribution theories in explaining beliefs about personal agency, volitional behaviors, types of open-minded thinking styles, and problem solving, as well as the amount of influence God has within an individual's life.

God control. Ritezma and Young (1983) developed the God Causal Agent (GCA) scale, which is a reliable and valid measure of the degree to which individuals attribute events as having supernatural causation. Seeing God as a causal agent has been found to correlate negatively with scales that measure feelings of personal control and positively with orthodoxy (Pargament et al., 1987). Again, deterministic orientations are related to closed-minded belief systems such as orthodoxy. Additional findings indicate that the amount of control individuals perceive they have is related to the types of strategies one uses to problem solve (Edgnington & Hutchinson, 1990; Hoge & Petrillo, 1978; Pargament, Kennell, Hathaway, Grevengoed, Newman, & Jones, 1988). Thus, this suggests that control issues may affect the degree to which individuals process information in either a cognitive or experiential system.

Religious coping. Religious coping strategies assess religious coping and the causal attributions one makes about everyday, real-life problems. Pargament et al. (1988) developed a scale of three religious coping styles based on Rotter's (1966) LOC. Individuals endorsing a deferring coping style assume that God will handle their

problems, and that they personally handle nothing. Deferring coping is a highly deterministic orientation. Individuals having a collaborative coping style see God and individuals as partners working through problems, which is a combination of determinism and agenticism. Individuals possessing a self-directive coping style see themselves as the primary controlling agents, (e.g., "I can do it myself; God gave me the brains to solve my own problems"). Of these three religious coping styles, the self-directed coping style is the most agentic, while the deferring coping style is the most deterministic.

Findings by Pargament et al. (1987) suggest that there is a distinction between religious individuals in the amount of divine intervention they perceive. Thus, religious perceptions of self-control should form a continuum where individuals high in self-directing coping behaviors are free-thinkers and agentic. On the other hand, those who attribute some divine intervention, the collaborative and deferring coping styles, display less agentic attributions and tend to report more deterministic ideals (Pargament et al., 1987). By measuring the degree to which individuals make causal attributions about God, the religious coping measures are most likely tapping into the freewill-deterministic continuum.

Religious-philosophical determinism. Stroessner and Green (1990) developed a religious-philosophical determinism scale to measure the degree to which individuals believe God or fate controls their behavior. As expected, findings indicated that the determinist had a higher external locus of control.

These are, of course, selective findings. However, they do indicate that the freewill-determinism dimension has been an underlying factor in research in religious attributions and beliefs and may be an underlying factor in information processing (Edgnington & Hutchinson, 1990; Hoge & Petrillo, 1978; Pargament, Kennell, Hathaway, Grevengoed, Newman, & Jones, 1988).

Religious information processing and freewill-determinism. Religious belief systems do not solely consist of freewill and determinism. As Luper et al. (1992) suggest, researchers need to incorporate theories of information processing. Some researchers in the psychology of religion (Bourgeouis, 1990; D'Arcy, 1915; Hickman, 1926; Sadler, 1970) posit that religious beliefs are processed within a tripartite framework of freewill, cognitive thinking, and emotional thinking. Within each religious belief, there are different strengths of emotional, cognition, and agenticism, which give each religious belief its uniqueness (Hickman, 1926; McCrae, 1993a). Previous findings indicate that a dual information processing framework might be related to a religious freewill-determinism continuum (Berzonsky & Sullivan, 1992; Fletcher et al., 1986; Hoge & Petrillo, 1978; Ickes & Teng, 1987; Kaliopuska, 1985; Sadowski & Cogburn, 1995; Surwillo & Hobson, 1978; Tolentino et al., 1990). The next section addresses issues related to information processing and freewill.

Information Processing and Freewill-Determinism

Within Epstein's (1994) Cognitive Experiential Self Theory (CEST), the cognitive and experiential systems are characterized as open- and closed-minded frameworks, respectively. As a rational and analytical system, the cognitive system is

characterized as being open to alternative answers and thinking independently through possible alternatives. These are items associated open-mindedness and freewill. Yet, the experiential system is guided by intuition and stereotypical thinking (Epstein, 1994). Intuition hints at the possibility of an external other guiding events; stereotypical thinking is similar to fundamentalism, prejudice, orthodoxy. These are items associated with deterministic thinking.

Thus, the type of freewill or deterministic beliefs religious individuals endorse should affect how religious events are perceived and analyzed -- within either cognitive or emotional frameworks. Below is corollary findings indicating that the cognitive experiential self theory and religious cognitive emotional scale (RCES) may be related to freewill-determinism.

Cognitive Processing and Freewill-Determinism

Need for cognition and freewill-determinism. The Need for Cognition (NCS) is the cognitive information processing scale within CEST (Epstein et al., 1996). Previous studies show that NCS positively correlates with agentic attributions. Positive correlations can be found between NCS and internal locus of control (Fletcher et al., 1986; Ickes & Teng, 1987) and a desire for control over one's own environment (Thompson, Chaiken, & Hazlewood, 1993). NCS (Cacioppo & Petty, 1982) also positively correlates with freewill thinking styles, such as tending to be open to experiences (Berzonsky & Sullivan, 1992; Sadowski & Cogburn, 1995), desiring to seek out information (Berzonsky & Sullivan, 1992) cognitive innovativeness, desiring new experiences that stimulate thinking (Venkatraman et al., 1990; Venkatraman & Price,

1990), and being objective, which is defined as tendencies to base beliefs on empirical and rational information (Leary, Sheppard, McNeil, Jenkins, & Barnes, 1986). Lastly, NCS positively, but nonsignificantly, correlates with the self-directed religious coping style, an agentic religious problem solving approach (Tolentino et al., 1990). Thus, cognitive information processing may also be a form of agentic thinking.

Further evidence supports the idea that individuals higher in cognitive or rational thinking styles may perceive themselves as possessing freewill. Kaliopuska (1985) found the freedom-determinism scale significantly positively correlated with one of Hjelle and Ziegler's (1976) basic eight assumptions concerning human nature -- the rationality-irrationality dimension. This suggests that individuals who are more agentic tend to think more rationally, and those who are more deterministic are more irrational.

On the other hand, NCS has been found to negatively correlate to deterministic factors, such as dogmatism (Cacioppo & Petty, 1982; Fletcher et al., 1986), as well as closed-mindedness (Petty & Jarvis, 1996; Webster & Kruglanski, 1994), authoritarianism (Sorrentino, Bobocel, Gitta, & Olson, 1988), the need for closure (Petty & Jarvis, 1996), and a preference for predictability (Petty & Jarvis, 1996; Webster & Kruglanski, 1994). All of this evidence suggests those high in the NCS have a propensity toward freewill styles of thinking.

Religious cognitive scale and freewill-determinism. Since NCS is positively correlated to freewill thinking styles, the religious cognitive scale items should be as well. Some religious activities have been found to increase cognitive activity (Surwillo & Hobson, 1978). However, Hoge and Petrillo (1978) found abstract thinking, a

characteristic of Epstein's (1994) cognitive information processing system, is associated with rejection of religious doctrine. Again, this may be due to the notion that religious individuals probably possess a form of orthodoxy. Yet, there is some suggestion that closed-minded belief systems vary between religious individuals (Batson & Ventis, 1982; Allport & Ross, 1967). Thus, expectations would be that religious cognition responses are positively correlated with freewill thinking styles. However, there is no current research on the religious cognitive scale and how it relates to other factors.

Experiential Processing and Freewill-Determinism

Faith in intuition and freewill-determinism. Epstein (1994) believes that religious individuals may tend to process religion within the experiential system. So, it is expected that religious individuals would score high on FI.

To date, there is no research on whether individuals scoring high on Faith In Intuition (FI; Epstein et al., 1996) tend to engage in freewill or deterministic attributions. Deterministic thinking is by definition is irrational and stereotypical. There is no rational explanation for religious orthodox beliefs. Therefore, because the experiential system is relying on non-cognitive, irrational thought processes, it can be theorized that the experiential system has a propensity towards deterministic thinking. However, the extent to which and how the experiential system relates to freewill and determinism has not yet been addressed.

Religious emotional scale and freewill-determinism. Similar to the FI scale, the religious emotional scale also purports to measure tendencies to engage in an experiential information processing system. McCrae (1996) indicates that emotional systems may be

related to closed-minded thinking styles. Consequently, religious emotional information processing is probably related to Epstein's experiential scale, FI, and to deterministic thinking. Like FI, there is no current research on whether or not the religious emotional scale correlates with any scale.

Summary of the Issues

The purpose of this research is the following: (a) to examine Epstein's CEST theory of a dual processing framework within religion; (b) to investigate whether belief systems, namely freewill and determinsim, are related to cognitive and experiential information processing; and (c) to offer another dimension of freewill-determinism to Epstein's (1994) dual information processing framework. In summary, the expectation is that a freewill-determinism are factors of cognitive-experiential processing.

HYPOTHESIS

Although Epstein et al. (1996) have shown that individuals process information within either cognitive or experiential frameworks, evidence within applied situations, such as religion, has not yet been studied. From the past research, it can be surmised that religious persons who score high on freewill dimensions will tend to be more agentic problem solvers and will tend to be more cognitive, rational and open-minded in their thinking and belief systems. Thus, those scoring high on religious freewill measures should also tend to process within a cognitive system.

On the other hand, the religious determinist is expected to endorse deferring styles of problem solving. Because the determinist quickly defers problems to God without looking for alternative or rational explanations and solutions, it can be assumed from CEST theory (Epstein, 1994) that such individuals are irrational closed-minded and tend to process information within the experiential system. Additionally, closed-minded belief systems have been found to be associated with lower levels of cognitive complexity (Edgington and Hutchinson, 1990). Thus, religious determinists are expected to process information within the experiential system. The measures that were used to assess religious information processing, CEST, and freewill-determinism, as well as predictions for each, are listed below.

The Scales

Information Processing

Information processing is measured by two different scales. The Rational Experiential Inventory is used to measure Epstein (1994) cognitive-experiential self theory. The Religious Cognitive Emotional Scale (RCES) is used to measure religious information processing. Below are detailed descriptions about both.

Rational Experiential Inventory

The Rational Experiential Inventory (REI, Epstein et al., 1996) purports to measure tendencies to engage in either cognitive or experiential information processing modes. It consists of the Need for Cognition (NCS, Cacioppo & Petty, 1982) and the Faith in Intuition Scale (FI, Epstein et al., 1996), which measures cognitive and experiential thinking, respectively.

The Rational Experiential Inventory (REI, Epstein et al., 1996) is a 31-item inventory, which consists of two separate sub-scales -- the Need for Cognition Scale (NCS, Cacioppo & Petty, 1982) and the Faith in Intuition Scale (FI, Epstein et al., 1996). The 19-item NCS is a reliable measure ($\propto = 0.87$) of the degree to which individuals engage in and enjoy thinking and is used to assess cognitive information processing framework. The 12-item FI scale is a reliable ($\propto = 0.77$) measure of experiential forms of thinking -- individual's intuitive feelings and immediate impressions (Epstein et al., 1996).

Since past research indicates NCS is associated with open-minded thinking styles

(Tolentino et al., 1990), the expectation is that NCS will positively correlate with freewill and negatively with deterministic measures. On the other hand, FI scores should be opposite to NCS. Because FI considered an irrational thought process and is associated with reactionary thinking much like determinism (McCrae, 1996), FI is more likely to be positively related to determinism and negatively with freewill.

Although Epstein (1994) believes religion is suited to the experiential system, others (Allport & Ross, 1967; Baither & Saltzberg, 1992; Watson et al., 1990) argue that there is evidence of cognitive processing within religion. Therefore, religious individuals

Religious Cognitive-Emotional Scale

Religious Cognitive-Emotional Scale (RCES, see Appendix B) was developed to measure the degree to which religious individuals process information in either a cognitive or emotional fashion. The scale construction is conceptually similar to the REI (Epstein et al., 1996); there are two scales which independently assess cognitive and emotional orientations. The religious cognitive scale (RCS) consists of eleven items: five items from Religious Maturity Scale (Dudley & Cruise, 1990) and six additional items which were created and worded similarly to items on the NCS in order to provide higher scale validity.

The religious emotional scale (RES) consists of 13 items. Six items were chosen from Nielsen's (1995) Iron Rods-Compasses Scale and 7 additional items chosen on face validity. The 6 items from the Iron Rods-Compasses Scale (Nielsen, 1995) were chosen on the basis of their face validity endorsement of emotional religious thinking. All of the items on the religious cognitive and emotional scales were chosen on face validity.

It is predicted that RCES and REI will positively correlate with one another, such that the cognitive scales are positively correlated and the experiential scales are positively correlated. With regards to freewill and deterministic measures, RCES is also expected to have results similar to REI. Thus, religious cognitive measures should positively correlate with freewill thinking styles, and religious experiential measures should positively correlate with deterministic thinking styles.

Freewill-Determinism Measures

Two scales were used to measure freewill-determinism philosophies, the Religious Coping Scale (Pargament et al., 1988) and the Freewill-Determinism Scale. It is theorized that freewill aspects freewill measures will be positively correlated with each other; deterministic measures should be positively correlated with each other. Secondly, all deterministic measures should negatively correlate with freewill measures.

Lastly, freewill measures should positively correlate with cognitive information processing and negatively with experiential systems. Deterministic aspects should positively correlate with experiential measures and negatively with cognitive ones. Listed below are descriptions of the freewill-determinism measures.

Religious Coping Scale

Pargament et al. (1988) developed the 36-item Religious Coping Scale to access how much control an individual has in solving his own problems. The three sub-scales, self-directing, collaborative, and deferring, measure the amount of control individuals attribute to God. Each sub-scale has 12-items.

The self-directing coping style scale is a reliable measure ($\alpha = 0.94$) of agentic coping. Individuals endorsing this style rationalize through problems without assistance from others. The deferring coping style scale is the reliable measure ($\alpha = 0.91$) of deterministic coping. Individuals endorsing this style defer their problems to God and do not take personal responsibility (Pargament et al., 1988). The collaborative style scale is a combination of both agentic and deterministic coping, since these individuals endorse the belief that God collaboratively works with them through problems (Pargament et al., 1988). Its reliability is 0.94.

Consequently, the Religious Coping Scale was chosen for this study since problem solving styles evidence the ways that individuals approach problems, either agentic, deterministic, or somewhere in between. Past findings tend to support the notion that agentic coping is related to cognitive processing (Tolentino et al., 1990). Thus, agentic problem solving styles should positively correlate with NCS and religious cognitions. On the other hand, deterministic thinking styles should negatively correlate with both the NCS and religious cognitions. It is assumed that deterministic thinkers will attribute everything to God's and will not actively rationalize through problems. Because deterministic thinking is irrational, those having a propensity for such should also score high on FI and RES.

Religious Freewill-Determinism Scale

The Religious Freewill-Determinism Scale (see Appendix A) is an 18-item scale constructed from two separate sub-scales -- Batson & Schoenrade's (1991a) Quest Scale and the religious-philosophical determinism factor of the Freewill-Determinism Scale

(Stroessner & Green, 1990). The 12-item quest scale was used as the freewill scale, since it has characteristics related to freewill. Quest has been found to be a reliable ($\propto = 0.78$; Batson & Schoenrade, 1991a) and valid measure of existential openness and questioning (Batson & Schoenrade, 1991b), items associated with freewill. The 6-item Religious-Philosophical Determinism Scale formed the Religious Determinism Scale and has been found to be a reliable ($\propto = 0.87$) measure of such (Stroessner & Green, 1990). Item 2 was changed to reflect a more religious outlook.

Since the Religious Freewill-Determinism Scale is measuring the amount of influence one believes one has, the freewill scale should be positively correlated with more agentic styles of coping, such as self-directed religious coping. It should also correlate with agentic styles of thinking, such as NCS and RCS. Religious freewill should negatively correlate with deferring styles of coping, while religious determinism should positively correlate with deterministic forms of coping (i.e., religious deferring scale) and information processing (i.e., FI and religious emotional orientations).

Predictions

A total of 4 measures were used, two information processing scales, REI and RCES, and two freewill-determinism scales, religious coping and religious freewill-determinism. The following is a summary of predictions for these scales:

1. Regarding cognitive and experiential processing, NCS and FI will negatively correlate with each other, as will RCS and RES. The cognitive processing scales, NCS and RCS, should positively correlate with one another, as should the experiential scales, RES and FI.

2. Regarding freewill and determinism, all freewill measures, agentic coping and religious freewill, will positively correlate with one another; all deterministic measures, deterministic coping and religious determinism, will positively correlate with one another. Freewill measures will negatively correlate with deterministic measures. No prediction is made for collaborative coping, since it contains elements of both freewill and determinism.
3. Cognitive processing variables, NCS and RCS, will positively correlate with freewill orientations, agentic coping and freewill. NCS and RCS will negatively correlate with deterministic orientations, deterministic coping and determinism. Again, no prediction is made for collaborative coping.
4. Experiential processing variables, FI and RES, will positively correlate with deterministic orientations, deterministic coping and determinism. FI and RES will negatively correlate with freewill orientations, agentic coping and freewill. No prediction is made for collaborative coping.

METHOD

Procedure

Participants from an introductory class were recruited for a study on "Religious Beliefs and Attitudes." The participants were asked a demographic questions about their age, race, gender, religious affiliation and other religious questions, which included their interest in religion, religious meeting attendance, belief in a supreme being, their parents religious affiliation, whether or not they prayed and whether or not they read religious books and articles. The participants gave responses to the following surveys: Rational Experiential Inventory (REI; Epstein et al., 1996), the Religious Cognitive Emotional Scale (RCES; see Appendix A), the Religious Freewill-Determinism scale (see Appendix B), and the Religious Coping Scale (Pargament et al., 1988). Scale items of all surveys were mixed and were randomly distributed throughout the total questionnaire.

Measures

Two different sets of measurements were taken -- cognitive-experiential information processing and religious orientation. Two separate inventories were used to measure cognitive-experiential information processing -- the REI and RCS. Additionally, two separate measures were used to obtain data about individuals' religious orientation -- the Religious Coping Scale and the Religious Freewill-Determinism Scale, which measure agentic and deterministic problem solving styles and beliefs, respectively.

Participants rated all items on a 5-point Likert-type scale. Responses range from strongly agree to strongly disagree; 3 indicated neither agree or disagree. High scores indicated greater disagreement, while lower scores indicated greater agreement. Participants were asked to respond as truthfully as possible to all questions. After completion of the scales, the participants were thanked for their participation and given partial course credit in their introductory psychology class.

Participants

One hundred and twenty-five students enrolled in an introductory psychology class at a large southeastern university were recruited for a study on "Religious Beliefs and Attitudes." The participants received partial course credit in return for their participation. Sixteen participants did not complete the scale items and were discarded from the analysis.

Of the 109 participants, 86 (79%) were female, and 23 (21%) were male. The participants ranged in age from 17-37 years of age with the median age of eighteen years. 80 of the participants were Caucasian, 13 were African American, nine were Hispanic, five were Asian American, and two, for personal reasons, chose not to indicate their racial heritage.

Of the 109 participants, 86 (78%) claimed to be affiliated with a Christian-based religion. The breakdown of the Christian-based religions are as follows: Catholic (thirty-three or 30.3%), Baptist (twenty or 18.3%), Nondenominational Christian (six or 5.6%), Episcopalian (five or 4.6%), Lutheran (five or 4.6%), Methodist (five or 4.6%), Presbyterian (four or 3.7%), Pentecostal (two or 1.8%), Baptist Freewill (one or 0.9%),

Church of Christ (one or 0.9%), Greek Orthodox (one or .9%), Nazarene (one or 0.9%), Church of Latter Day Saints/Mormon (one or 0.9%) and Seventh Day Adventist (one or 0.9%). Of the remaining 24 participants, nine (8.3%) stated they were Jewish. Buddhist, Christian Science, and Muslim religious traditions each had one individual who claimed affiliation. Nine (8.3%) individuals did not have any religious affiliation, and two (1.8%) individuals responded they did not know.

RESULTS

Descriptive Data

Religious Beliefs

Of the 109 participants, 99 (90.8%) affirmed that they believed in a supreme being. Eight (7.3%) did not believe in a supreme being, and 2 (1.8%) were unsure. When asked if they considered themselves to be religious, 73 (67.0%) said "yes" and 36 (33.0%) said "no". The term "religious" was not defined. Of particular note, 101 (92.7%) participants of the 109 participants stated that they were interested in religion, while 7 (6.4%) were not, and 1 (0.9%) was unsure. Thus, the majority of the participants were religious individuals that expressed an interest in religion.

Religious Behaviors

The majority of the participants engaged in religious behaviors in addition to their religious beliefs. 92 (83.6%) of the 109 participants claimed to pray to a supreme being, while 18 (16.4%) did not. 48 (91.1%) of the 109 participants stated they have attended religious services or meetings at least once a month, while 12 (10.9%) never have. Furthermore, 85 (78.0%) participants have read the Bible; 24 (22.0%) have not. 87 (79.8%) participants claim to have read religious literature other than the Bible.

Scales

Table 1 summarizes each of the nine scale means, standard deviations, and alpha levels for all measures. Lower scale scores indicated an affinity towards the construct

scale variable, while higher scale scores indicated a disagreement with the construct variable. All response items were on a Likert scale, ranging from 1 to 5; 1 was completely true, and 5 was completely false. A score of 3 indicated neither agreement or disagreement with an item.

Factor Analysis of the Religious Cognitive-Emotional Scale

A Principle Component Factor Analysis was computed for both Religious Cognitive Scale (RCS) and Religious Emotional Scale (RES). The factors were rotated using the Varimax Kaiser Normalization method. Items that did not load higher than 0.300 on any given factor were removed from further analysis.

Table 2 presents the factor loadings and resulting alpha levels for the Religious Cognitive Scale. Factor one consists of scale items 2, 3, 6, and 9. These four items accounted for almost a third of the variance and had the highest loadings and reliability ($\propto = 0.67$) of all three emergent factors. Thus, these four items are used in all further analysis of the RCS.

As presented in Table 3, one strong factor emerged from the Religious Emotional Scale. Because items 1 and 8 did not load adequately onto factor one, they were deleted from the scale and from further analysis. The resulting alpha for the remaining 11 items was 0.93.

Relatedness between the Scales

REI and RCES. Correlations between scores on the two information processing scales, Rational Experiential Inventory (REI) and Religious Cognitive Emotional Scale (RCES), are presented in Table 4. With regards to the REI, the cognitive scale (NCS)

and the experiential scale (FI) were unrelated, $r(108) = -0.05$, suggesting that these scales are independent measures as theorized by Epstein et al. (1996).

There is partial evidence to suggest a dual information processing framework within religion. A significant negative correlation between the religious information processing systems, RCS and RES, $r(108) = -0.34$, $p < 0.01$, was found. This correlation supports the hypothesis of a dual cognitive and emotional processing framework for religion and suggests that religious cognition and religious emotional processing are opposites on a continuum. Although the cognitive measures, RCS and NCS, were not related as would be expected, a strong significantly negative correlation was found between the Religious Emotional Scale (RES) and the Need for Cognition (NCS), $r(108) = -0.42$, $p < 0.01$.

However, Epstein's et al. (1996) experiential measure, Faith in Intuition (FI), was not related to any other scale in this study. There are some possible reasons for this. First of all, it may be that FI is not adequately assessing experiential processing since many of the items deal with intuition and not necessarily irrational, emotional, experience-based thinking as Epstein (1991, 1994) has characterized an experiential system. Secondly, it may be that items on FI and the religious emotional scale are tapping into two separate constructs. After all, FI did have a strong internal reliability ($\alpha = 0.74$), as did RES ($\alpha = 0.93$).

Religious-Philosophical Orientations. Table 5 demonstrates the relatedness between the religious-philosophical orientations. As expected, the agentic measures -- religious agentic coping and freewill -- were significantly positively correlated, $r(108) =$

0.53, $p < 0.01$. Likewise, the deterministic measures -- religious deterministic coping and determinism -- were significantly positively correlate, $r(108) = 0.83$, $p < 0.01$. Thus, the religious coping scales are tapping into philosophical beliefs of freewill and determinism.

Furthermore, the agentic orientations very strongly negatively correlated with the deterministic orientations. Religious agentic coping negatively correlated with religious deterministic coping, $r(108) = -0.78$, $p < 0.01$, and with determinism, $r(108) = -0.73$, $p < 0.01$. To a slightly lesser degree, freewill significantly negatively correlated with religious deterministic coping, $r(108) = -0.52$, $p < 0.01$, and with determinism, $r(108) = -0.55$, $p < 0.01$. These strong negative correlations suggest that freewill and deterministic variables are opposite religious-philosphical orientations on a freewill-deterministic continuum.

Since collaborative coping by definition had elements of agentic and deterministic thinking styles, it was unexpected that the results indicated a strong tendency towards determinism. Religious collaborative coping positively correlated with determinism, $r(108) = 0.74$, $p < 0.01$, and religious deterministic coping, $r(108) = 0.78$, $p < 0.01$; collaborative coping significantly negatively correlated with agentic orientations -- freewill, $r(108) = -0.46$, $p < 0.01$, and religious agentic coping, $r(108) = 0.81$, $p < 0.01$.

REI and Religious-Philosophical Orientations. Table 6 presents the correlations between the Rational Experiential Inventory (REI) and the religious philosophical orientations, freewill-determinism and religious coping. As predicted, the NCS significantly positively correlates with agentic orientations, freewill, $r(108) = 0.27$, $p < 0.01$, and agentic coping, $r(108) = 0.37$, $p < 0.01$, and significantly negatively correlates with deterministic orientations, determinism, $r(108) = -0.39$, $p < 0.01$, collaborative

coping, $r(108) = -0.424$, $p < 0.01$, and deterministic coping, $r(108) = -0.406$, $p < 0.01$. Again, no relationship was found between the experiential information processing scale, FI, and freewill-deterministic orientations.

RCES and Religious Orientations. Correlations between the Religious Cognitive Emotional Scale (RCES) and the religious-philosophical orientations are presented in Table 7. Like NCS, RCS positively correlated with agentic orientations, freewill $r(108) = 0.62$, $p < 0.01$, and agentic coping, $r(108) = 0.50$, $p < 0.01$. Additionally, RCS was significantly negatively correlated with religious deterministic orientations, determinism, $r(108) = -0.42$, $p < 0.01$, collaborative coping, $r(108) = -0.34$, $p < 0.01$, and deterministic coping, $r(108) = -0.39$, $p < 0.01$.

As expected, very strong, significant positive correlations were found between the Religious Emotional Scale (RES) and deterministic orientations and negatively with freewill. The RES positively correlated with determinism, $r(108) = 0.76$, $p < 0.01$, collaborative coping, $r(108) = 0.89$, $p < 0.01$, and deterministic coping, $r(108) = 0.76$, $p < 0.01$. Large significant, negative correlations were found between the RES and freewill, $r(108) = -0.45$, $p < 0.01$ and agentic coping, $r(108) = -0.78$, $p < 0.01$. Thus, the correlations between the religious information processing scales, the NCS and the freewill-determinism shows a tendency that cognitive processing is related to free-will orientations, while emotional processing is related to deterministic orientations.

Information Processing and Religious Orientation Variables

A principal component analysis with varimax Kaiser normalization rotation was used to determine the relatedness of the information processing scales (NCS, FI, RCS, and RES) and the religious orientation variables – Freewill-Determinism scale, Religious

Agentic Coping, Religious Collaborative Coping, and Religious Deterministic Coping. As shown in Table 8, results are similar to findings of the correlatory data and support the existence of a dual information processing framework within religious. Three factors were evident -- a religious emotional-deterministic, a religious cognitive-agentic, and the Faith in Intuition Scale. As theorized, the Religious Emotional Scale loaded onto the same factor as the religious deterministic orientation variables -- determinism, deterministic coping, and collaborative coping. Additionally, the Religious Cognitive Scale and religious agentic orientation variables -- freewill and agentic coping -- loaded onto a common factor.

However, support for the CEST was not evident. Neither NCS nor FI loaded onto a common factor with religious cognitive-agentic or religious emotional-deterministic orientations, respectively. While FI did loaded independently on a third factor, NCS did not load sufficiently on any of the three factors. Thus, three factors, instead of two, emerged -- a religious cognitive-agentic factor, a religious emotional-deterministic factor, and FI.

Religious Behaviors

As shown in Tables 9, 10, and 11, religious behaviors were strongly positively related to emotional processing and deterministic orientations. Individuals' assertion that they are religious positively correlated with RES, $r(108) = 0.58$, $p < 0.01$, religious determinism, $r(108) = 0.43$, $p < 0.01$, and deterministic coping, $r(108) = 0.43$, $p < 0.01$. Attendance at religious meetings frequency positively correlated with RES, $r(108) = 0.60$, $p < 0.01$, religious determinism, $r(108) = 0.54$, $p < 0.01$, and deterministic coping, $r(108) = 0.59$, $p < 0.01$. Whether or not an individual prays to a supreme being positively

correlated with RES, $r(108) = .72$, $p < 0.01$, religious determinism, $r(108) = 0.56$, $p < 0.01$ and deterministic coping, $r(108) = 0.55$, $p < 0.01$. Lastly, having read the Bible positively correlated with RES, $r(108) = 0.31$, $p < 0.01$, religious determinism, $r(108) = 0.34$, $p < 0.01$, and deterministic coping, $r(108) = 0.35$, $p < 0.01$.

However, religious behaviors strongly negatively correlated with cognitive processing and agentic orientations. Individuals' assertion they are religious negatively correlated with NCS, $r(108) = -0.29$, $p < 0.01$, RCS $r(108) = -0.21$, $p < 0.01$, religious freewill, $r(108) = -0.35$, $p < 0.01$, and agentic coping, $r(108) = -0.49$, $p < 0.01$. The frequency of attendance at religious meetings negatively correlated with NCS, $r(108) = -0.25$, $p < 0.01$, RCS, $r(108) = -0.41$, $p < 0.01$, religious freewill, $r(108) = -0.42$, $p < 0.01$, and agentic coping, $r(108) = -0.64$, $p < 0.01$. Whether or not an individual prays to a supreme being negatively correlated with NCS, $r(108)= -0.34$, $p < 0.01$, RCS, $r(108) = -0.23$, $p < 0.01$, religious freewill, $r(108) = -0.33$, $p < 0.01$, and agentic coping, $r(108) = -0.55$, $p< 0.01$. Finally, having read the Bible negatively slightly negatively correlated with NCS, $r(108) = -0.15$, $p < 0.01$, RCS, $r(108) = -0.25$, $p < 0.01$, freewill, $r(108) = -0.25$, $p < 0.01$, and agentic coping, $r(108) = -0.30$, $p < 0.01$.

There were too few agnostic or atheist participants to determine if the reverse was true for non-religious individuals. Because of the large range of religious affiliations of the participants, no analysis could be made regarding any significant differences in information processing or religious orientation between religious denominations.

Gender Differences

Gender differences were only found between the RES, $r(108) = -0.29$, $p < 0.002$, and the deterministic orientations. Gender correlated with determinism, $r(108) = -0.21$, p

< 0.030, and deterministic coping, $r(108) = -0.25$, $p < 0.01$, such that females were slightly more likely to be emotional and deterministic than males. Correlations are presented in Table 12. Gender differences were not found between any of the cognitive scales, agentic orientation scales, or any items related to religious beliefs or religious behaviors. These results may be skewed in favor of determinism for religious individuals, because the males accounted for less than one-fourth of the total participant population.

DISCUSSION

The results indicate that to obtain a complete understanding of religious beliefs, both freewill-deterministic beliefs and cognitive-experiential processing systems need to be accounted. Two major factors of religious beliefs emerged from this study, a freewill-religious cognitive information processing factor and a deterministic-religious emotional information processing factor.

However, some questions arose from this study. First of all, while support was found for a dual information processing system, religious information processing seemed independent of Epstein et al. (1996) Rational Experiential Inventory. As expected, both the cognitive scale, NCS, and the experiential scale, FI, were unrelated, suggesting they are orthogonal. Yet, neither loaded clearly onto a common factor within freewill-religious cognitive information processing or deterministic-religious emotional information processing orientations. There are a couple of explanations.

First of all, it may be that religious cognitive processing is different from the motivation to think. Although, both religious cognitive scale and NCS, Epstein's et al. (1996) cognitive processing scale, did not correlate with one another, both positively correlated with freewill measures and negatively with deterministic measures and the religious emotional scale. This suggests that each, NCS and religious cognitive scale, are tapping independently into freewill issues.

Secondly, it may be that religious individuals tend to be experiential processors, as Epstein (1994) posits. The descriptive findings and past research (Edgington & Hutchinson, 1990; Hoge & Petrillo, 1978) support this notion. While the data indicates religious individuals tend to be either religious cognitive or religious emotional processors, their propensity for cognitive information processing was negatively related to a desire or belief in religion. Religious behaviors, being religious, attending religious meetings and praying, were negatively correlated with cognitive information processing, both NCS and Religious Cognitive Scale (see table 9). Yet, religious behaviors were positively correlated with the religious emotional scale, suggesting that religion may be better suited for experiential processing. Further, the findings indicate that religious individuals are less likely to endorse cognitive or freewill views. Greater rejection of religious beliefs was found among all cognitive information processing system scales, NCS and RCS, and freewill orientations, freewill beliefs and agentic coping. This is similar to findings by Edgington and Hutchinson (1990) and Hoge and Petrillo (1978).

Third of all, religious cognitive individuals may not necessarily process non-religious information in a cognitive framework. Cognitive individuals may or may not have concerns about religious existential matters. Thus, the lack of relatedness between general cognitive processing and religious processing may be due to the level of interest in religion.

Finally, the lack of relatedness between CEST and RCES may be due to a lack of construct validity. It may be that neither the NCS or the religious cognitive scale are adequately assessing a cognitive construct. NCS (Cacioppo & Petty, 1982) was created to measure the degree to which individuals enjoy thinking and solving problems.

Whether or not it is a valid measure of the degree to which individuals use a cognitive processing system is questionable. Individuals who have a low degree of enjoyment during problem solving does not necessarily indicate that they are not cognitive processors. On the other hand, the religious cognitive information processing scale had low internal reliability among all items, indicating that not all the items were tapping into a single religious cognitive construct. Or, it may be the case that the religious cognitive scale is too specific to positively correlate with NCS. After all, the religious cognitive scale only contains 4-items which seem to be assessing tendencies to be open to alternative religious views. While openness to alternative religious views is similar to items associated with freewill, it does not necessarily imply cognitive processing or freewill. Openness to religious alternatives may be exposing indecisiveness, uncertainty, or both about religious ideas.

Yet, while neither NCS nor FI loaded significantly onto the freewill-religious cognitive or the deterministic-religious emotional processing dimensions, respectively, there is some evidence that Epstein's (1994) Cognitive-experiential self theory is tapping into related ideas. Although NCS did not correlate with the religious cognitive scale as would be expected, NCS items related to the freewill-determinism and religious emotional processing in a similar fashion that the religious cognitive scale did. While NCS did not load onto any factor, it did positively correlate with freewill orientations. NCS also negatively correlated with deterministic orientations and religious emotionally processing. These corollary trends of the NCS and RCS suggest there is converging validity to support a cognitive-freewill factor.

However, FI did not correlate with any freewill-determinism orientations nor the

religious emotional scale. Therefore it is difficult to determine the relatedness between Epstein's (1994) experiential system and freewill-deterministic orientations.

In conclusion, this study suggests that a greater understanding of religious belief systems can be obtained through studying religious cognitive-emotional information processing systems and religious belief systems, freewill-deterministic philosophies. The present research has demonstrated that freewill-determinism beliefs account for individuals differences in religious beliefs that Epstein's (1994) CEST could not. Since NCS and FI did not load onto either the freewill-religious cognitive or the deterministic-religious emotional factors, it is difficult to determine the degree to which religious individuals engage in either Epstein's (1994) cognitive or experiential system. Thus, this two-dimensional model of religious thinking and beliefs shows promising direction for obtaining a better understanding of religion, and future studies may benefit from using it.

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Table 1

Descriptive Statistics for all Scales

Scale	M	SD	Alpha
Need for Cognition	2.3602	0.6309	0.88
Faith in Intuition	2.2943	0.4981	0.74
Religious Cognitive Scale	2.9358	0.9201	0.67
Religious Emotional Scale	2.3578	0.9943	0.93
Religious Agentic Coping	3.1896	1.1008	0.94
Religious Collaborative Coping	2.7904	1.2195	0.97
Religious Deterministic Coping	3.6430	0.9837	0.94
Freewill	2.8937	0.7368	0.82
Determinism	3.0535	1.0455	0.87

Note. Items range on a Likert-type scale from 1-5, with 1 being strongly agree, 5 as strongly disagreement and 3 as neither agree or disagree. Lower scores indicate a greater affinity, while higher scores indicate a greater disagreement with scale items.

Table 2

Factor Structure of the Religious Cognitive Scale and Resulting Alpha Levels

	Factors		
Item	1	2	3
1	0.245	0.447*	-0.300
2	0.325*	0.670*	-0.021
3	0.300*	0.682*	0.0610
4	-0.021	0.661*	-0.111
5	-0.249	0.621*	0.331*
6	0.617*	0.288	0.332*
7	-0.138	0.132	0.725*
8	-0.617	-0.211	0.386*
9	0.807*	0.038	0.178
10	0.254	-0.169	0.574*
11	-0.832	-0.071	0.195
Alpha	0.67	0.64	0.28

Note. * indicates the items used in computing alpha level.

Table 3

Factor Structure of the Religious Emotional Scale

	Factors	
Item	1	2
1	0.09283	0.603*
2	0.851*	-0.0855
3	0.712*	0.272
4	0.409*	0.398*
5	0.793*	0.06666
6	0.710*	0.269
7	0.821*	0.09962
8	-0.275	0.757*
9	0.773*	-0.0223
10	0.855*	0.03229
11	0.716*	-0.0452
12	0.864*	-0.0637
13	0.842*	-0.0263
Alpha	0.93	0.20

Note. * indicates items used in computing alpha level.

Table 4

Correlations between Need for Cognition, Faith in Intuition, Religious Cognitive, and Religious Emotional Scales

Scale	1	2	3	4
1. Need for Cognition (NCS)	_____	-0.05	0.05	-0.42*
2. Faith in Intuition (FI)		_____	-0.01	0.00
3. Religious Cognitive (RCS)			_____	-0.34*
4. Religious Emotional (RES)				_____

Note. * indicates the correlation is significant at the 0.01 level (two-tailed).

Table 5.

Correlations between Religious Orientation Variables

Scale	1	2	3	4	5
Religious Coping:					
1. Agentic	___	-0.81*	-0.78*	0.53*	-0.73*
2. Collaborative		___	0.78*	-0.46*	0.74*
3. Deterministic			___	-0.52*	0.83*
Religious-Philosophical Orientations					
4. Freewill				___	-0.55*
5. Determinism					___

Note. * indicates the correlation is significant at the 0.01 level (two-tailed).

Table 6.

Correlations between REI Dimensions and Religious Orientation Variables

Religious Orientation Variables	REI Scales	
	Need for Cognition	Faith in Intuition
Religious Coping		
Agentic	0.37*	0.11
Collaborative	-0.42*	0.07
Determinism	-0.41*	0.10
Religious Philosophical Orientations		
Religious Freewill	0.27*	0.01
Religious Determinism	-0.39*	0.05

Note. * indicates the correlation is significant at the 0.05 level (two-tailed).

Table 7

Correlations of Religious Cognitive and Emotional Scales and Religious Orientation Variables.

Religious Orientation Variables	Religious Cognitive and Emotional Scales	
	Cognitive	Emotional
Religious Coping		
Agentic	0.50*	-0.78*
Collaborative	-0.34*	0.89*
Determinism	-0.39*	0.76*
Religious-Philosophical Orientations		
Religious Freewill	0.62*	-0.45*
Religious Determinism	-0.42*	0.76*

Note. * Correlation is significant at the 0.01 level (two-tailed).

Table 8

Rotated Factor Analysis of Religious Coping Scales, Religious-Philosophical Orientations, REI Scales, and Religious Cognitive-Emotional Scales.

Scales	Factors		
	1	2	3
Religious Coping			
Agentic	-0.77	0.46*	0.162
Collaborative	0.88*	-0.28	0.028
Determinism	0.82*	-0.37	0.090
Religious-Philosophical Orientations			
Religious Freewill	-0.33	0.77*	0.01
Religious Determinism	0.78*	-0.42	0.05
Religious Cognitive-Emotional Scales			
Religious Cognitive	-0.12	0.91*	-0.00
Religious Emotional	0.87*	-0.27	-0.04
Cognitive-Experiential Scales			
Need for Cognition	-0.68	-0.17	-0.05
Faith in Intuition	0.03	0.00	1.00*

Note. * indicates scale significantly loads onto a factor.

Table 9

Correlations between Cognitive-Experiential Frameworks and Religious Behaviors.

	Cognitive-Experiential Scales			
Religious Behaviors	NCS	FI	RCS	RES
Claims to be religious	-0.29*	0.11	-0.21*	0.58*
Attendance at religious meetings	-0.25*	-0.07	-0.41**	0.60**
Prays to a supreme being	-0.34*	0.15	-0.23*	0.72**
Has read the Bible	-0.15	0.06	-0.25**	0.31**
Has read other religious publications	0.12	-0.06	-0.11	0.13

Note. * indicates correlation is significant at the 0.05 level (two-tailed). ** indicates correlation is significant at the 0.01 level (two-tailed).

Table 10

Correlations between Religious-Philosophical Orientations and Religious Behaviors.

	Religious-Philosophical Orientations	
Religious Behaviors	Freewill	Determinism
Believes in a supreme being	-0.29**	0.41**
Considers self to be religious	-0.35**	0.43**
Frequency of attendance at religious meetings	-0.42**	0.54**
Prays to a supreme being	-0.33**	0.56**
Has read the Bible	-0.25**	0.36**
Has read religious works other than the Bible	0.01	0.21*

Note: * indicates correlation is significant at the 0.05 level (two-tailed). ** indicates correlation is significant at the 0.01 level (two-tailed).

Table 11

Correlations between Religious Coping and Religious Behaviors.

	Religious Coping		
Religious Behaviors	Agentic	Collaborative	Deterministic
Believes in a supreme being	-0.35*	0.44*	0.38*
Considers self to be religious	-0.49*	0.52*	0.43*
Frequency of attendance at religious meetings	-0.64*	0.58*	0.59*
Prays to a supreme being	-0.55*	0.67*	0.55*
Has read the Bible	-0.30*	0.35*	0.35*
Has read religious works other than the Bible	-0.16	0.04	0.15

Note: * indicates correlation is significant at the 0.01 level (two-tailed).

Table 12

Gender Differences between all Scales

	Gender
Cognitive-Experiential Frameworks	
Need for Cognition	0.08
Faith in Intuition	0.07
Religious Cognitive Scale	0.17
Religious Emotional Scale	-0.29*
Religious-Philosophical Orientations	
Freewill	0.16
Determinism	-0.21*
Religious Coping	
Agentic	0.19
Collaborative	-0.23*
Deterministic	-0.25*

Note. * indicates correlation is significant at the 0.01 level (two-tailed). Negative scores indicate that females are more likely than males to agree with scale items.

Appendix A

Religious Freewill-Determinism Scale

Religious Determinism Scale

1. My choices are limited by God's plan for my life.
2. When things are going well for me, I consider it due to God's grace.
3. My choices are constrained by God.
4. My decisions fit into and thus are limited by a larger plan.
5. God's will determines the choices I make.
6. God has my life planned out.

Religious Freewill Scale

1. I was not very interested in religion, until I began to ask questions about the meaning and purpose of my life.
2. I have been driven to ask religious questions out of a growing awareness of the tensions in my world and in my relation to my world.
3. My life experiences have led me to rethink my religious convictions.
4. God wasn't very important for me, until I began to ask questions about the meaning of my own life.
5. It might be said that I value my religious doubts and uncertainties.
6. For me, doubting is an important part of what it means to be religious.

7. I find religious doubts upsetting.

8. Questions are far more central to my religious experience than are answers.

9. As I grow and change, I expect my religion also to grow and change.

10. I am constantly questioning my religious beliefs.

11. I do not expect my religious convictions to change in the next few years.

12. There are many religious issues on which my views are still changing.

Appendix B

Religious Cognitive-Emotional Scale

Religious Cognitive Scale

1. I am happy with my present religion, but wish to be open to new insights and ways of understanding the meaning of life.
2. I agree with my present religion, but am open to alternative views.
3. My religious beliefs provide me with satisfying answers at this stage of my development, but I am prepared to alter them as new information becomes available.
4. As best as I can determine, my religion is true, but I recognize that I could be mistaken on some points.
5. Important questions about the meaning of life do not have simple or easy answers; therefore faith is a developmental process.
6. I have found many religious questions to be difficult and complex, so I am hesitant to be dogmatic or final in my assertions.
7. I enjoy thinking about existential religious matters.
8. Discussing and analyzing biblical readings is not enjoyable to me.
9. I prefer to reason through complex religious questions without referring to someone else or divine being for guidance.
10. Reason is in conflict with religious thought.
11. I use the Bible to find answers to religious questions.

Religious Emotional Scale

1. I could not commit myself to a religion, unless I was certain that it is completely true.
2. I am relatively certain that the good things that happen in my life are the work of God.
3. I enjoy going to worship services, because they make me feel good.
4. Experiencing religion is essential to understanding God.
5. I sometimes feel God's presence.
6. I turn to religion in times of sadness.
7. My religion inspires me.
8. I have learned more through reading the Bible than through religious experiences.
9. Faith is more important than anything else.
10. Everyday faith gives meaning to my life.
11. My faith in God does not benefit me in my work.
12. Trust in God is more important than skepticism.
13. I feel as though God can hear my prayers.

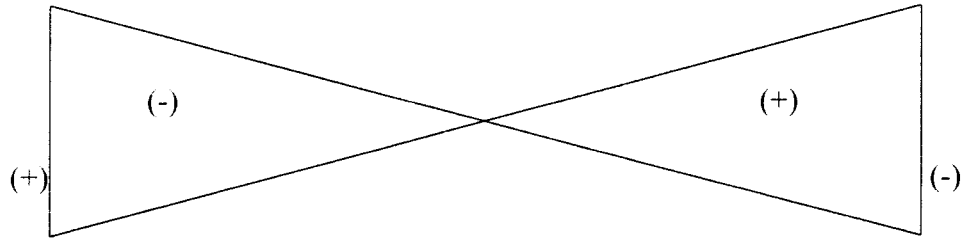
Figure Caption

Figure 1. Cognitive processing frameworks relationship to Freewill-Determinism.

Figure 2. Religious cognitive and experiential processing as it relates to Freewill-Determinism.

General Cognitive Information Processing

Need for Cognition (NCS) Religious Cognitive Scale (RCS)



Freewill Orientations Deterministic Orientations

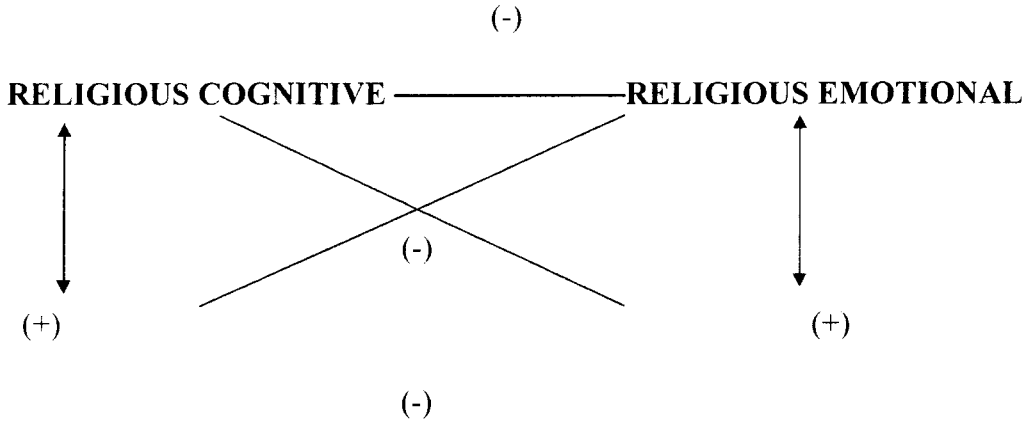
Freewill Determinism

Agentic Religious Coping Religious Deterministic Coping

Religious Collaborative Coping

Freewill-Determinism Continuum

Figure 1.



Freewill

Religious Agentic Coping

Determinism

Religious Deterministic Coping

Religious Collaborative Coping

Figure 2.