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James R. Kilmer
Andrews University

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Relationship of caning to internal-external locus of control among selected African secondary and college students

Kilmer, James R., Ph.D.
Andrews University, 1988
Andrews University
School of Graduate Studies

RELATIONSHIP OF CANING TO INTERNAL-EXTERNAL LOCUS OF CONTROL AMONG SELECTED AFRICAN SECONDARY AND COLLEGE STUDENTS

A Dissertation
Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

by
James R. Kilmer
July 1988
RELATIONSHIP OF CANING TO INTERNAL-EXTERNAL LOCUS OF CONTROL AMONG SELECTED AFRICAN SECONDARY AND COLLEGE STUDENTS

A dissertation presented in partial fulfillment of the requirements for the degree Doctor of Philosophy

by

James R. Kilmer

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ABSTRACT

RELATIONSHIP OF CANING TO INTERNAL-EXTERNAL LOCUS OF CONTROL AMONG SELECTED AFRICAN SECONDARY AND COLLEGE STUDENTS

by

James R. Kilmer

Chair: Donna J. Habenicht
ABSTRACT OF GRADUATE STUDENT RESEARCH
Dissertation

Andrews University
Department of Education

Title: RELATIONSHIP OF CANING TO INTERNAL-EXTERNAL
LOCUS OF CONTROL AMONG SELECTED AFRICAN
SECONDARY AND COLLEGE STUDENTS

Name of Researcher: James R. Kilmer
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Date completed: May 1988

Problem

Harsh punishment has been recognized as an antecedent of external locus of control. External locus of control has been associated with negative aspects of academic and social development. Educators in Africa need to know if caning is associated with external locus of control.

Method

This study was an ex post facto design. The population was 732 African students between the ages of 17 and 31 years in their third or final year of
secondary school or first or second year of college. All students were from Seventh-day Adventist schools located in the English-speaking African countries of Ghana, Malawi, Nigeria, Tanzania, Uganda, and Zimbabwe. Practically the entire population classified themselves as Christian (67% Seventh-day Adventist, 33% other faiths).

Extreme groups consisting of (1) those who reported they had been caned as often as once a week at home or school (2) and those who reported they had been caned less than once a year (76 and 107 respectively) were compared for differences in Rotter I-E scores, with age and educational level controlled, by means of ANCOVA. Nine one-way ANCOVA tests were run with a separate covariate (sex, mother's education, nationality, social environment, sex of the punitive agent, household types, and time periods of caning) each added to age and educational level.

Results

Frequent caning was significantly related ($p_0 = .0059$) to external locus of control with age and educational level controlled. This supported the experimental hypothesis in the direction anticipated. Only sex and educational level were significant as covariates. Neither of these, however, accounted for a meaningful portion of the differences in I-E scores related to frequency of caning.
Conclusions

Caning surfaced as the variable most closely related to external locus of control.
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CHAPTER I

INTRODUCTION

Background of the Study

Discipline is of universal concern to educators. Research in the western world suggests that effectiveness of discipline depends largely upon the methods employed in its administration. In Africa, literature evinces little attention to the study of discipline as a focused science. Shame, fear, threat, rebuke, corporal punishment, forced labor, and dismissal are all used. The disciplinary custom, however, which stands in most striking contrast to the direction of educational research in the western world is that of frequent corporal punishment, known by Africans as caning. In a recent survey (Kilmer, 1984) 57% of the 75 Kenyan primary teachers questioned said that caning was practiced daily in the schools where they taught. An additional 20% stated it was used at least weekly. Only 23% indicated that students were seldom caned in their school. Interviews with graduate students from Africa suggest similar conventions in other African countries.

In the past two decades much research has focused on internal-external locus of control as measured by the
Rotter Internal-External Locus of Control Scale (henceforth known as the I-E scale) (Rotter, 1966/1982). A person with internal locus of control believes outcomes to be largely contingent upon his/her own efforts. In contrast, external locus of control is a belief that events happen largely because of luck, fate, chance, or powerful others (Rotter, 1982). The person with internal locus of control generally rates higher in academic achievement (Brog, 1985; Findley & Cooper, 1983; Kennelly & Mount, 1985; Messer, 1972), seeks more information for task performance (Williams & Stack, 1972), is more alert and perceptive (DuCette & Wolk, 1972; Lefcourt, Gronnerud, & McDonald, 1974), tries harder to complete tasks (Hiroto, 1974), and has more internal and socially responsible moral principles (Guthrie, 1985; Johnson, Ackerman, Frank, & Fionda, 1968; Johnson & Gormly, 1972).

Though major reviews on locus of control call for more research dealing with antecedents (Lefcourt, 1976; Phares, 1976; Rotter, 1982), few inquiries have investigated the relationship between punitive practice and the formation of locus of control beliefs.

Related and convergent research point to the antecedent of harsh physical punishment as a likely correlate of external locus of control. Several studies have reported a relationship between love-oriented parental discipline and internal locus of control beliefs (Katkovsky, Crandall, & Good, 1967; Levenson, 1973;
MacDonald, 1971). Bruhn (1976) found that subjects whose earliest memories were of severe or unfair punishment tended to have external orientation. Both Lefcourt (1976) and Phares (1976) concluded reviews by stating that warm, protective, positive, and nurturant parents, with few exceptions, were linked to children with internal locus of control.

While not dealing specifically with locus of control, a number of studies have related the disciplinary practice of harsh punishment negatively to moral internalization (Brown, 1978; reviews by Hoffman, 1970, 1977, 1983; Peck & Havighurst, 1967).

Statement of the Problem

Children in Africa may often be disciplined in a manner that inhibits achievement, social development, learning, moral development, and realization of their full potential as a person. Since African teachers are concerned with discipline in the schools, they need to know if there is a measurable relationship between caning and locus of control, which in other cultures relates to these limiting factors. No scientific inquiries have been reported concerning the relationship of caning to internal-external locus of control in Africa.

Purpose of the Study

The purpose of this study was to compare self-reported punitive practice to scores on the I-E scale in
order to determine if there is a relationship between caning and external locus of control among selected African secondary and college students. The study further analyzed the effects of the following moderator variables upon the relationship of caning to locus of control: sex of the child, sex of the punitive agent, social class, household type, social environment, nationality, and time period of caning.

Theory Concerning Effects

Two areas of research are pertinent when one formulates a theory concerning effects of caning upon locus of control. Of primary importance are studies concerning punitive practice and locus of control. Very little theory has been suggested in this area. The second area, punitive practice and moral internalization, is related because moral internalization is related to internal locus of control (Maccoby & Martin, 1983).

Moral Internalization and Punitive Practice

Several theories have been formulated concerning the relationship of power assertive punishment and lack of moral internalization. Attribution Theory (Lepper, 1973; Lewis, 1981) explained that children punished more severely than necessary characterize themselves as having attributes worthy of severe punishment. They then tend to live up to their self-concept. Hoffman (1975) theorized that power assertion (use of force) on the part
of parents helps to perpetuate a sense of opposition between the desires of the child and standards imposed by the parents which could build up an aversion to the standard which appears to cause the pain. Others (Esterbrook, 1959; Mueller, 1979) have suggested that the hostility, fear, and anxiety which result from activities such as caning interfere with the child's cognitive function and hence his or her comprehension of the wrongness or rightness of a given situation. Hoffman (1975) suggested that love-oriented discipline (reasoning, counseling, induction, correction with warmth) facilitates understanding which in turn provides alternatives for a person to act from the standpoint of choice and preference rather than from coercion.

The dynamics involved in power assertive punishment and moral internalization may be involved, in the relationship between caning and locus of control, by creating a state of confusion and lack of meaning, which results in a sense of lack of control. A need still exists, however, for a theory related directly to the specific practice of caning and locus of control.

Theory of Effect of Caning on Locus of Control

The following theory, explaining a possible relationship between caning and external locus of control, is based on general concepts of psychology, personal observation of African culture, and scientific studies.
Need for freedom to control reinforcements

Most studies involving parent-child relationships have been conducted within the framework of social learning theory (Maccoby & Martin, 1983). Social-learning theorists describe a concept called freedom of movement. Freedom of movement is said to be one's capacity to choose goals for which he or she has the highest set of expectancies (anticipated results of a person's self chosen action) (Rotter, Chance, & Phares, 1972). This refines the general concept of need for freedom as recognized by most psychologists. Need for freedom can be seen as a desire on the part of a person to have control over satisfying his or her own needs. Power assertive punishment violates this need for freedom (Brehm, 1972). The reason coercion is offensive is because it means that satisfaction of one's own needs must be replaced by an action which satisfies the needs of some other. Locus of control is a belief concerning whether or not one is in control of satisfying his or her own needs (Rotter, 1982). Lepper, Green, and Nisbett (1973) found that students drew fewer pictures when rewarded than when following their own interests. This suggests that equal tasks are seen as more inviting if a person is working to satisfy personal needs, such as aesthetic enjoyment or need to create, than the same task if performed in order to please some other person.
Formation of locus of control belief

When a superior punishes a child, it is mostly in order to bring the child into compliance with the will of the punitive agent. The child could well interpret this as a contest between satisfaction of his or her own needs and satisfying the needs of the power figure. Social learning theory hypothesizes that "early acquired goals in humans appear as the result of satisfactions and frustrations that are, for the most part controlled by other people" (Rotter, Chance, & Phares, 1972).

The child learns by experience that the satisfaction of his or her needs will be frustrated when forced to comply by powerful others. This limits experience in reward satisfaction based on freedom of choice (Hoffman, 1983). The child then acts on the basis of external pressure rather than internal choice because he or she has been conditioned to experience frustration whenever a choice is made to satisfy needs. The child may associate the pain that results from caning with his or her action toward satisfaction of personal needs. This would result in a generalized expectancy (Rotter, Chance, & Phares, 1972) that it is futile to make choices of personal interest and could well facilitate a sense of helplessness which would inhibit initiative and creativity. Failure to achieve goals has been significantly related to reduced subsequent achievement (Crandall, 1951; Jessor, 1954).
Repeated capitulation of one's own desires then would build a belief that exercise of freedom results in pain. The following illustration may serve to explain. Suppose a father canes a son for not working in the garden. The son could interpret that his father is trying to make the boy serve the father's needs. If the father leaves, the boy would let his own need for pleasure take over and would stop working. If caning occurred repeatedly as a consequence of laziness, the son could come to believe that personal choices are useless for satisfaction of needs, since when he does what he wishes he gets a beating.

It would be different, however, if the father asked the son to work in the garden to satisfy the son's needs. He could appeal to empathy, explaining that the father is tired, or to love, or to pride (Hoffman, 1983), or to taste by letting him plant something that tastes good, or to self-preservation by explaining that if one does not work one does not eat. The son would then work in the garden freely out of choice. Punishment could still be administered, but it would be a punishment of consequences related to the needs of the child. He would associate free choice with satisfaction of his own needs and a belief would result that reinforcements result from one's own choices. This is an internal locus of control belief. Lefcourt (1976) alluded to this dynamic by theorizing that children who grow up in a warm nurturant
home would no doubt find their own movement toward independence greeted with more acceptance.

Caning and learned helplessness

The occasions and purposes of caning seem calculated to leave a student with a feeling of helplessness. The student is caned for not having proper clothes, a factor over which he or she may have little control since family incomes are frequently substandard. The student is also caned for being late, which likewise may be influenced by a relaxed home life with limited facilities. Caning also occurs for wrong answers, which may be due to lack of study materials, different levels of ability, or sight or hearing impediments. This could well result in a belief that one has little control over happenings. The following response from a student to inquiry by the researcher concerning how frequently the student had been caned is typical. The young man replied, "Well let's put it this way, I was late as often as three times a week on the average, so we can begin with that." He said, "After a while you don't care because you know you are going to get it anyway."

Many studies have shown that helplessness is learned (Hiroto, 1974; Hiroto & Seligman, 1975; Mowrer & Viek, 1948; Seligman & Maier, 1967). Helplessness has been recognized as a correlate of external locus of control (Hiroto, 1974). Therefore, it is likely that
frequent caning is associated with external locus of control.

**Summary of Theoretical Effects**

Attributed self-concept, poor cue utilization, lack of information, and an aversion to imposed standards may help to explain, in part, the relationship of harsh physical punishment to external locus of control because each of these could leave the student in a state of confusion and frustration. A more obvious cause, however, may involve a frustration of one's basic need for freedom.

The need for freedom is an urge to be in control of satisfaction of one's own needs. This need is frustrated by coercive, power-assertive punishment. The severity of harsh physical punishment intensifies the affect. Belief in an external locus of control results from a continual frustration of needs as the child yields to powerful others. The child is conditioned by pain to believe that independent moves toward satisfaction of needs are futile. The child often feels helpless to prevent caning because he or she may have little control over the infraction for which caning is inflicted. Learned helplessness results in an external locus of control.
Classification of Variables

Delimitation of Intelligence

Hoffman (1975) affirmed that the relationship of moral internalization and parental power is not affected by intelligence. Rotter (1982) reported negligible correlations between intelligence and internal-external locus of control. Hersch and Scheibe (1967) reported no significant correlation of three different levels of intellectual ability to internal-external locus of control. Phares (1976) concluded:

It certainly does not appear defensible to explain I-E scale scores as being a function of intelligence even though an occasional study may report a modest correlation between internality and an intellectual measure. (p.44)

Therefore, it was not deemed necessary or useful to include intelligence as a variable to be studied.

Variables Controlled

Age

Internal control increases with the age of the child (Penk, 1969). Chandler (1971) gained support for the hypothesis that the older the child, the greater will be the effect of punishment on internalized behavior suppression. He found that the effect on internalization was greater for fourth- and fifth-year primary students than for first- and second-year students. This suggests that the punishment-externalization process may take place in a significant way during primary school. The fact that caning often takes place before the group
and that shame is associated, also reinforces the probability that significant externalization takes place during these years. Phares (1976) explained that locus of control changes with age probably because the older person is more in control of situations. These facts suggest that locus of control may be developmental. Therefore, the variable of age was controlled.

Educational level

Crandall, Katkovsky, and Crandall (1965) found that internality increases by grade through grade 10 with some possible reversion toward externality in grade 12. It seems possible that instruction as well as academic advancement may relate to a sense of control over one's surroundings. Therefore, the variable of educational level was controlled.

Variables Studied

Monogamous or polygamous household

Cheating, an evidence of low guilt, has been associated with external locus of control (Johnson & Gormly, 1972). Since Whiting & Child (1953), in cross cultural studies, linked monogamous households to high guilt in children, it was deemed useful to study this variable.
Peer socialization vs. adult supervision

Whiting and Whiting (1960) suggested that African children who spent most of their time with other children, rather than alone or with adults, were more responsive to socialization by age mates. Those who were constantly under adult supervision may have had less practice in self-control and may have been more responsive to direct threats of injury and abandonment. Because of this, it was considered useful to study the relationship of peer socialization vs. adult supervision to the internal-external locus of control-caning relationship.

Sex of the punitive agent

Hoffman & Saltzstein (1967) found that mothers were more effective punitive agents with adolescents, while Bronfenbrenner (1961) reported that parents of the same sex as the child were most effective. In African society the grandmother is often the punitive agent (Whiting & Whiting, 1960). Since the sex of the punitive agent may influence effects of the punishment, the relationship of the punitive agent to internal-external locus of control was studied.

Sex of the child

Sex differences may influence both the relationship of punishment-internalization as well as scoring on the Rotter scale. Hoffman (1975) stated that
in prior studies concerning child-rearing antecedents of moral internalization, sex had usually shown no effect upon the relationship. However, Rotter (1982) noted some moderate sex differences in the initial development of the I-E scale. Phares (1976) suggested male-female roles as possible determiners of sex differences in locus of control. For these reasons sex difference was included as a moderator variable.

Social class

Evidence concerning the relationship of social class to internal-external effect of punitive practice appears contradictory. Early studies (Aronfreed, Cutick, & Fagen, 1963) concluded that self-criticism and reparation were differentially related to the social class and parental discipline of the child. MacDonald (1971), however, using the father's level of education as an index of socioeconomic status, found no significant relationship. Hoffman (1975) concluded from his review of the literature on child-rearing antecedents of moral internalization that the relationship between power assertion and an external moral orientation does not appear to be related to social class.

A possible explanation for the difference in Hoffman's conclusion and those of earlier studies is that social class influences punitive practice (also noted by Hoffman, 1970). For instance, the parent's education and his score on a scale of humanistic values have been found
to relate positively with the use of induction and negatively with power assertion (Hoffman & Saltzstein, 1967). It is likely, therefore, that earlier studies were finding that social class did affect internalization because educated people, for example, aware of other disciplinary methods, punished differently. Later studies focused on the type of punitive action and found that social class made little difference so long as the punitive practice was the same.

Rotter (1982) reported mixed relationships of social class to I-E scores. Phares (1976) concluded that variations in the I-E scale scores were related to differences in "access to power or to the presence of social barriers to group mobility" (Phares, 1976, p. 44). Lefcourt (1976) reviewed research relating social class to the I-E concept and stated that, in general, "It may be concluded that perceived control is positively associated with access to opportunity" (p. 25). Santa Rita (1980) reported that mother's employment status and educational level were the most significant predictors of internal control orientation.

Household type

Related to the question of social class is household arrangements. Whiting & Whiting (1960) stated that household arrangements influenced the age and severity of aggression training and the techniques parents employ in training for control. According to them, societies with
mother-child households most frequently employ physical punishment. But, like social class, household arrangement may be related only because of the possible effect on the type of punishment given. If, as suggested earlier, social class simply reflects diverse punitive actions, one would expect little difference in scores from like groups of various social-class backgrounds so long as the punitive practice remained similar. This would tend to identify punitive practice as a related factor. If, on the other hand, there is a significant difference between scores of those from diverse social backgrounds who have been disciplined in like manner, then pursuit of other social class-oriented causes would be in order. For this reason social class was studied as a moderator variable in relationship to punitive practice and I-E locus of control.

Nationality

The African countries involved in the study appear to be similar in most respects related to the research. Although identification and isolation of national differences in child-rearing practice and philosophy are beyond the scope of this study, it was deemed useful to compare the countries involved on caning and locus of control.
Time period of caning

It is reasonable to assume that the effects of caning may differ between subjects who have been caned during different periods of time in their life. Therefore, period of caning was studied as a moderator variable.

Experimental Hypotheses

The following experimental hypothesis was postulated with regard to the relationship of caning to internal-external locus of control:

African students from selected secondary schools and colleges who reported that they had been beaten with an instrument of punishment as often as once a week or more during early childhood, at home, or at primary school, or secondary school would score significantly more in the external direction on the Rotter Internal-External Locus of Control Instrument than would their fellow students who reported to have been caned less than once a year or not at all, when the effects of age and educational level are controlled.

In addition to this main hypothesis the following moderator variables were studied to determine if they would significantly change the relationship of caning to locus of control when individually combined with caning: sex, monogamous or polygamous households, social class, social environment, time period of caning, sex of the punitive agent, and nationality.
Likewise, the combination of monogamous household with peer socialized groups was studied for a possible significant interaction effect upon the main hypothesis when added to the independent variable of caning.

**Assumptions**

1. It was assumed that the research involving locus of control would have meaning in the African context.

2. It was assumed the subjects would understand instructions concerning how to answer the questionnaire.

3. It was assumed respondents would be honest in their answers to both the assessment of punitive practice and to the I-E scale items.

4. It was assumed the punitive practice and home situations in the African countries involved in the study were similar enough to make general inferences from research.

**Limitations**

1. The concept of locus of control has limitations due to the cross-cultural context; therefore, the interpretation of findings must take this into consideration.

2. The measurement of punitive practice and the scores on the I-E scale are limited to self-reporting.

3. The ex post facto design cannot be as accurate in data collection as an experimental design.
Delimitations

1. The population was delimited to English-speaking students in Seventh-day Adventist colleges, teacher training colleges, and secondary schools in selected African countries. Therefore, it is recognized that observations can only be generalized to that population.

2. The moderator variables were not exhaustive.

Definition of Terms

Caning. Caning refers to the practice of corporal punishment with a cane or stick or other instrument. The person being punished may be struck on any part of the body, often hands or buttocks. Often the punishment is given with the person bent over or lying down. It is frequently done in public and accompanied with shame. Caning is often used to punish a student for being late, for improper dress, for mistakes in learning, as well as for misbehavior.

Compliance. Compliance is the inclination to yield to the demands of others regardless of personal conviction or inward morality.

Conformist. A conformist is a person who obeys outwardly but does not act on the basis of internal direction or self-motivation (Peck & Havighurst, 1967).

External locus of control. The person with an external locus of control belief thinks that what happens to him or her is greatly influenced by chance,
luck, fate, powerful others, or the complexity of forces surrounding him or her (Rotter, 1966/1982, p. 1).

**Induction.** Induction is discipline which is love-oriented and emphasizes the consequences of actions in relationship to others. It may include counseling, reward, praise, approval, disapproval, deprivation of privileges, or isolation.

**Internal locus of control.** The person with internal locus of control belief thinks that it is the individual who is in charge of life situations rather than luck, fate, chance, powerful others, or the complexity of surrounding forces (Rotter, 1966/1982, p.1).

**Power assertion.** The use of force in punishment, often physical punishment or threat of severe consequences, is called power assertion.

**Punitive agent.** The person who applies the punishment is referred to as the punitive agent.

**Organization of the Dissertation**

Chapter 1 introduced backgrounds for the study, stating the purpose, importance, and theoretical framework. Chapter 2 is devoted to the review of literature. Chapter 3 specifies method and type of research, describes the population, instruments and procedures used. Hypotheses were stated in experimental form in chapter 1, and in null statistical form in chapter 3. In chapter 4 statistical analysis is reported and discussed.
Chapter 5 draws conclusions, makes inferences, and states areas for further study.
CHAPTER II

REVIEW OF LITERATURE

The following review of literature covers backgrounds of the locus of control concept including development and current status of the Rotter (I-E) scale. Although major attention is given to review of research dealing specifically with locus of control and punitive practice, social variables related to locus of control as well as punitive practice and moral internalization are also included. Literature used to shape the theory of effects of caning upon locus of control is surveyed. Also contained in this chapter are anthropological studies concerning child-rearing practice in Africa.

Social Learning Theory

Locus of control concepts grew out of the social learning theory described by Rotter (1954). Most American students of child-rearing have worked within the constructs of social learning theory (Maccoby & Martin, 1983). The major contribution of this theory is the understanding that behavior is determined by a person's thinking, attitudes, and beliefs (Bandura, 1977; Rotter, Chance, & Phares, 1972) as well as by causes related to need-satisfaction. The theory evaluates and clarifies
"how choices are made by individuals from the variety of potential behaviors available to them" (Phares, 1976, p. 13). The psychological situation is identified as an extremely important determinant of behavior (Phares, 1976 p. 17). Typical of the research which facilitated social-learning theory is that of Henry and Rotter (1956). They described different behavior between two groups of samples who were given Rorschach tests. One group expected different outcomes because they were told that the test was widely used in mental hospitals. Rotter (1954) had previously stated:

The occurrence of a behavior of a person is determined not only by the nature or importance of goals or reinforcements but also by the person's anticipation or expectancy that these goals will occur. (p. 102)

In other words, social-learning theorists assert that "behavior is determined by the degree to which people expect that their actions will lead to goals, as well as by reinforcements through goal achievement" (Phares, 1976, p.13).

Social Learning Theory and Locus of Control

In social learning theory, expectancy is one predictor of behavior (together with value of reinforcement and psychological situation) (Lefcourt, 1982). Rotter (1954) has defined expectancy as "the probability held by the individual that a particular reinforcement will occur as a function of a specific
behavior on his part in a specific situation" (p. 16). In social learning theory, expectancies are learned and behavior is shaped not so much by reinforcements as by whether or not the person believes the reinforcement is a result of one's own efforts or a matter of chance (Phares, 1976). Generalized expectancies then predict locus of control. The relationship of expectancies to locus of control is explained by Lefcourt (1976):

In social learning terms the construct, perceived control, is referred to as a generalized expectancy of internal or external control of reinforcement. The formal terms, the generalized expectancy of internal control, refer to the perception of events, whether positive or negative, as being a consequence of one's own actions and thereby potentially under personal control. The generalized expectancy of external control, on the other hand, refers to the perception of positive or negative events as being unrelated to one's own behavior and thereby beyond personal control. (p. 29)

These conclusions were reached on the basis of studies demonstrating a difference in behavior between those who believed they could control outcomes and those who believed their control was limited.

Early Studies with Animals

Mowrer & Viek (1948) found that rats which were conditioned to terminate being shocked by electricity continued to eat food which triggered the pain. Rats that were not able to control the shock, avoided the food stimulus though they received the same length and intensity of electrical current. They thus concluded that non-humans experience greater fear and reduced initiative.
toward auto reinforcement when not in control of pain-inflicting situations than when capable of some control.

Richter (1958) found that wild rats which once experienced escape from turbulent water swam for up to 60 hours, whereas those placed in turbulent water without experiencing escape soon died from causes other than drowning. He concluded that the fear resulting from an orientation of helplessness precipitated death. Seligman & Maier (1967) found that dogs which could not terminate being shocked tried less to escape the electrical shock than did dogs equally shocked but able to terminate it by leaping over a divider.

Experiments with Humans

Phares (1957) reported that individuals expected success when told a task depended on skill more than did others who were told the task was largely a matter of chance. Phares (1962) discovered that subjects who exercised some control over an electric shock were able to recognize more nonsense syllables than those who had only chance control over the shock stimulus. Thus he concluded behavior to be different under skill conditions than under chance conditions.

Locus of Control Construct

Introduction

Understanding of locus of control began to develop after Phares' work with a psychotherapy patient
known by the clinical name of Karl S. (Phares, 1976). It was observed that Karl did not seem to learn to take initiative to satisfy his needs because he believed outcomes to be a matter of luck or fate. For example, he was taught how to get a job and how to talk to a woman so that he might find work and a mate. Even after successful experiences, however, he felt that he had only been lucky or it had been by accident.

The origin of the locus of control construct was facilitated by Julian B. Rotter who had provided clinical supervision for the Karl S. case. This case [Karl S.] provided an opportunity for applying the concepts of social-learning theory to clinical encounters (Rotter, 1954; Rotter, Chance, & Phares, 1972), which culminated in the internal-external locus of control construct (Phares, 1976, p.5).

Rotter, his associates, and students continued to research the relationship of skill versus chance operations to various outcomes (James & Rotter, 1958, Phares, 1957; Rotter, Liverant, & Crowne, 1961). The overwhelming conclusion was that performance was influenced by whether the subject thought himself to be in control of the situation. Studies leading up to the crystallization of the locus of control construct have been reviewed by Rotter (1966/1982), Lefcourt (1976), and Phares (1976). In 1966 Rotter published his article, "General Expectancies for Internal Versus External Control of
Reinforcement," which included the instrument for measurement of locus of control. This monograph sparked some of the most prolific research in the history of behavioral science.

The research referenced above led to the following conclusions concerning locus of control: (1) Anxiety results when people do not believe themselves to be in control of what happens to them. (2) A person who has experienced repeated failures to satisfy needs learns to expect frustration of needs when efforts to satisfy them are self-initiated. (3) The person who believes his or her efforts to satisfy needs are futile loses a desire to make attempts to do so.

The Rotter Internal-External (I-E) Locus of Control Scale

The Rotter Internal-External Locus of Control Scale (I-E) (Rotter, 1966/1982) is a 29-item (6 are filler items to disguise the nature of the instrument) forced-choice instrument (see Rotter 1966/1982, 1982 for instrument plus scoring). It measures the degree to which a person manifests external or internal locus-of-control beliefs. The normal scoring procedure is to count the number of external items marked. In its initial form the (I-E) instrument contained 100 forced-choice items. The scale was reduced to 60 items by means of internal-consistency criteria. Initial testing and development was conducted using high-school students in
grades 10, 11, and 12, college students in elementary psychology classes, and prison inmates in similar age categories. In his book, Phares (1976) explained how the present form of 23 items was finalized.

Recent research and discussion

Within the past few years, considerable attention has been focused on the Rotter instrument itself. It has been analyzed, evaluated, and refined. In some cases its consistency has been questioned, in other cases upheld. The answer to its utility, however, appears to lie in the purpose for which it is used. Epstein (1973) added sensitivity through factor analysis. Gregory (1978) supported an argument that the I-E scale is more predictive of responses to negative events.

Criticisms and answers to criticisms

One of the most recent criticisms of the scale was offered by Marsh and Richards (1984) who applied Confirmatory Factor Analysis. They asserted that when judged by current standards, the Rotter I-E scale is a poor measurement instrument. They stated that the internal consistency reliability of the scale is minimal, and that the assumption of its unidimensionality is clearly wrong. Though Marsh and Richards supplied useful information, their criticism applied to a refined use of the I-E instrument, not to measurements of the broad concept of Internal-External Locus of Control for which Rotter
first developed the scale. Their primary concern was that the instrument was not unidimensional. Rotter (1982) and Phares (1976) have both mentioned that the scale could probably be seen as a multidimensional instrument, but to separate it in this manner would be unnecessary for assessment of the broad concepts for which it was designed to measure. Much of the refinement and criticism of the I-E instrument results from an attempt to make it do things for which it was not designed (Rotter 1975, 1982). Its purpose was explained by Phares (1976):

The best single indicator of the validity of the I-E Scale would undoubtedly be evidence showing that internals are more active, alert, or directive in attempting to control and manipulate their environments than are externals . . . While there are important exceptions to this statement, the foregoing hypothesis is the one most consistently verified in a wide variety of experimental studies, surveys, and life situations. (p. 60)

Lefcourt (1976) reviewed research concerning the I-E scale up to that date and cited numerous works supporting construct validity when used for the purpose for which it was intended. He concluded:

If the investigator's purposes are to expand upon the nomological network within which locus of control may operate then devices such as Rotter's scale or Crandall's IAR may suffice despite the failings inherent in each of them. However, if one were seeking to use the construct to make sense of more clinical problems where precision is an issue, then due consideration should be given to the construction of measures that are appropriate to the given problem. (p. 137)
Recent support

Test-retest reliability of the Rotter scale and concurrent validity between the Rotter and MacDonald-Tseng scales were established by Zerega (1975). Kevelson (1984) factor analyzed the Rotter scale and applied four separate multiple regression analyses. No significant differences between factors were found. Layton (1985) recently established stability by means of correlations between test-retest scores significant at $p < .0001$. He measured the same group twice over a period of 11 and 12 months and 6 and 7 months. Rotter's (1966/1982) original test-retest was over a shorter time span.

A recent study (Ashkanasy, 1985) reported a high level of obliqueness between factors, using confirmatory factory analysis. This is relevant to the present study, since it answers the objections of Marsh and Richards (1984) and supports the utility of the instrument in measuring a generalized construct. Ashkanasy (1985) concluded:

From an operational point of view, however, it appears that Rotter's scale, despite an overhead of irrelevant items, measures a useful and essential unitary personality variable. (p. 1338)

Cultural Adaptation of the Rotter Scale

Although the Rotter Scale deals with aspects of life common to all people (such as fate, job, personal and political relationships), it was recognized that divergent cultures offer unique situations that may well...
affect the internal consistency of the scale. Kinder and Reeder (1975) included four personal control items from the Rotter scale in a survey. Though Blacks represented only 10% of the probability sample of 1,000, the study did indicate that the Rotter items failed to demonstrate an adequate degree of internal consistency for the Black subsample. In this study the unreliability was specific to Blacks in contrast to the subsamples of Anglos and Chicanos. Zoppel (1979) investigated personality differences among 159 Black 14- to 19-year-old females from Jamaica and the United States using the I-E scale, the Adjective Check List, and the Role Construct Preparatory Test. She concluded that the Rotter scale lacked equivalence of meaning cross culturally.

Quite recently several have used the I-E scale, or forms of it, for African studies. Reimanis and Posen (1980) compared Northeastern Nigerian, Black Zimbabwean, White Rhodesian and United States American male and female college students. Factor analysis indicated that questions dealing with personal control (control over one's own fate) were less subject to fluctuations. There was no significant difference in personal control questions when comparing similar groups. It was determined that items dealing with systems control (political influence) were influenced more by the political ideology of the country than by social variables. Furnham and Henry (1980) found no significant difference
on the I-E scale between African, European, and Indian nurses in South Africa. They did note, however, a different factorial structure for each group. Using only the personal control factor Maqsud (1981) reported no significant difference between three Nigerian tribes, and no significant difference between the mean of the Nigerian group and that of a select group of western individuals.

Riordan (1981) compared Black, White, Colored and Indian populations in South Africa, using a slightly differently formatted I-E scale. The I-E scale was also compared to Levenson's IPC (Levenson, 1973) scale, which distinguished between internal, powerful others, and chance factors. The two scales correlated as expected. Differences were noted in the way Blacks perceived power structure. Factors were found to be unique to cultural groups; but, of importance to the present study, each factor was found to be a stable and meaningful dimension of locus of control when used in like groups.

Reimanis (1982) compared Nigerian and American college students using the I-E scale and found no significant differences in means between the two groups.

**Locus of Control and Social Variables**

Locus of control relates significantly to a number of social variables (MacDonald, 1971).
School Achievement

Messer (1972) reported that internal locus of control belief was associated with higher grades and achievement test scores even when IQ and cognitive impulsivity were controlled. This supported a number of earlier studies recognizing locus of control as a strong predictor of school achievement (Phares, 1976). Traub (1982) reported that more internal females exceeded external females on G.P.A., a finding that was not replicated among males. Though sex differences are present in most locus of control studies, it is males rather than females who have shown the greatest relationship of internal orientation to high GPA according to literature reviewed by Findley and Cooper (1983). They also reported that stronger correlations were found between specific locus of control measures and standardized achievement or intelligence tests.

Recent research (Kennelly & Mount, 1985) has continued to report significant correlations between internal locus of control and high academic achievement. Significant relationships were found between locus of control and all aspects of achievement for boys. The relationship was only evident between locus of control and letter grades for girls. Support for locus of control as a significant variable of academic achievement has also been supplied by Brog (1985).
Cognitive Activity

Williams and Stack (1972), working with a Black population, supported previous findings that those with internal orientation seek more information preparatory to task engagement. DuCette and Wolk (1972) found those scoring in the internal direction were quicker at extracting cues that would facilitate the making of accurate judgments. Lefcourt, Gronnerud, and McDonald (1974) affirmed that those whose scores were significantly more internal were quicker to grasp the meaning of ensuing events.

Perseverance

Individuals with internal control tend to be more productive and creative since they feel responsibility, not helplessness, for actions. Hiroto (1974) has shown that subjects scoring in an external direction do not perform as well as those scoring in an internal direction in a learned helplessness paradigm. He attempted to replicate earlier experiments with animals (Seligman & Maier, 1967), using human beings. Loud sounds were used rather than electrical shock. He concluded that "Both animals and man show longer latencies and more failures to escape following inescapable aversive events than following escapable events or no pretreatment" (Hiroto, 1974, p. 192).
Moral Implications

Johnson et al. (1968) asked subjects to complete a story concerning a hero who was faced with pressure directing him toward violation of a social norm (i.e., drug use, illicit sex). They discovered that the more in the internal direction the subject scored, the more likely he was to complete the story in a way that the hero resisted pressure. Johnson and Gormly (1972) reported that cheaters scored more in an external direction than noncheaters among fifth-grade boys and girls. Phares (1976) reviewed several studies demonstrating the tendency of those scoring in an internal direction to delay gratification more than those who scored in an external direction. Other studies have shown those scoring higher in an internal direction to exercise more self-control (James, Woodruff, & Werner, 1965; Lundy, 1972; MacDonald, 1971; Straits & Sechrest, 1963). Tzuriel's work (1985) indicated that internality and intrinsic motivation were associated.

According to Hoffman (1970), self-criticism is an index of moral internalization. Those with greater internal orientation were found to be more self-critical (Aronfreed, 1963; Aronfreed et al., 1963). Individuals scoring in an external direction on the I-E scale were reported to have been less resistant to influence, more conforming, and less confident than those indicating internal orientation (Crowne & Liverant,
1963). Internal locus of control and development of moral judgment have been linked (Guthrie, 1985).

**Punitive Practice and Locus of Control**

The studies concerning parental antecedents of locus of control show general tendencies toward a relationship between coercive types of punishment and external locus of control. Results vary, however, especially depending upon sex of the punitive agent. No research was found that isolated corporal punishment as a single correlate of locus of control beliefs.

Katkovsky et al. (1967) reported that protective, nurturing, approving, and non-rejecting parental behavior was associated with the child's belief in internal control. The sample used for the first part of this study consisted of 41 children (23 boys, 18 girls) and their mothers, all of whom were members of families participating in the Fels Research Institute's Study of Human Development.

The instrument used to measure internal-external locus of control was the Intellectual Achievement Responsibility Questionnaire (IAR) which adapts Rotter's scale to a format suitable for younger age groups. The IAR distinguishes between positive and negative achievement experiences, and by means of forced-choice items asks the child to attribute the cause of the achievement experience either to external source or the child's own behavior.
The parent measures were made by home visitors using nine parent-behavior rating scales. Three of the scales most related to the present study were General Babying (a parent with a high score helped more than necessary), General Protectiveness (a high score in this area represented a parent who shelters a great deal), and Severity of Punishment (a high rating in this area indicated frequent and severe penalties which incite fear and resentment). The most significant correlations between parent-behavior ratings and children's total internal score were General Babying and General Protectiveness, both .64 ($p < .001$). Severity of Punishment showed a small negative correlation with internality overall (-.13). A negative correlation of -.43 ($p < .10$) was recorded, however, between severity of punishment and positive achievement experiences for girls. Though correlations between Severity of Punishment and internal IAR scores were somewhat inconsistent, there was a general tendency toward a negative relationship.

The second part of the Katkovsky et al. (1967) study investigated 20 girls and 20 boys and each child's mother and father. Mother's nurturance correlated at .44 ($p < .10$) for boy's total internal scores. Mother's rejection indicated a negative relationship (-.61, $p < .01$) with girl's internal orientation. Father's rejection showed a negative correlation (-.42, $p < .10$) with girl's internal scores. When the Parent Reaction
Questionnaire was used, the strongest correlation was a negative one between fathers' negative reactions and total internal IAR scores. Katkovsky and his associates concluded:

Findings generally indicated that parent behaviors characterized as warm, praising, protective, and supportive were positively associated with children's beliefs in internal control. Conversely, "negative" parental behaviors, such as dominance, rejection, and criticality were negatively associated with beliefs in internal control. (Katkovsky et al., 1967, p. 765)

Tolor and Jalowiec (1968) related Rotter's scale to a parent-attitude research instrument using 68 male freshman at Fairfield University. They reported that external expectancy related significantly to both the Authoritarian-Control factor ($r = .24, p < .05$) and to the Hostility-Rejection factor ($r = .27, p < .05$). It should be noted that the parental attitudes assessed were those attributed by the subjects to their mothers.

MacDonald (1971) related perceived parental punitive practice to scores on the Rotter scale. The samples were 427 undergraduate students at West Virginia University. Samples with internal locus of control described their parents as being warm (nurturant), consistent (predictable), and as encouraging their children to try to control their own reinforcements. Externally oriented students described their parents as using stronger punishment.

Internal-control orientation was associated with high maternal and paternal nurturance, low maternal
protectiveness, high maternal predictability of standards, and low maternal deprivation of privileges. Males who reported high predictability of standards were significantly more internal. Among males only, maternal affective punishment is associated with externality. It must be noted, however, that one result did not fit the general pattern. Physical punishment was positively related to internal control orientation among males who received greater amounts of physical punishment from their fathers than those who received lesser amounts of physical punishment from their fathers. This study should help to clarify this inconsistent relationship.

Levenson (1973) reported a positive relationship between parental use of more punishing controlling types of behaviors and the measure of control by powerful others (a suggested factor of the Rotter scale). Her study replicated that of MacDonald (1971). She studied 276 (193 males and 93 females) undergraduate students from Texas A & M University. As in other studies there was a significant sex difference. Males who were helped and taught by their mothers had higher internal scores, but this was not the case for females. Parental demanding, punishing, and controlling behaviors were all related positively to scores on the Powerful Others scale. Physical punishment, however, showed a significant relationship to control by powerful others only when males were punished by their mothers. Using a revised
form of the Rotter scale, Nowicki & Segal (1974) reported that paternal nurturance was associated with female internality. However, only maternal nurturance was associated with internality for males. Loeb (1975) concluded that external fourth- and fifth-grade boys reported their parents to be more directive than the parents of their fellow internal boys.

An investigation by Bruhn (1976) attempted to predict control stance, as measured by the Rotter I-E instrument, by means of earliest memories of punishment. Bruhn found, as anticipated, that those whose earliest memories were of severe or unfair punishment tended to have external orientation, while those who remembered their first punishment as fair and the severity of their act as minor were generally classified as internal in outlook. Bruhn tested 397 Duke undergraduates from the psychology subject pool with several instruments including the I-E scale. Scores on the I-E scale were cut at the mid-point, with those scoring above 11.5 labeled external and those below 11.5 internal. Neither of the punishment types alone predicted above chance, but were predictive in combinations. For subjects who rated their punishment as fair and their offense as relatively minor, 73.9% predicted internal scores, significant at $p < .017$ when a binomial statistic was employed. For subjects who rated their earliest memories of punishment as at least bad, 76.9% predicted external scores as expected.
Lefcourt (1976) reviewed familial origins of locus of control. In conclusion he stated:

In effect, the warm and protective home that has been found to be associated with the development of an internal locus of control may be described as one where the child is protected in his early years but not squelched; where he is sheltered from the excessive frustrations that can easily occur when a child is young and relatively helpless which, in turn, can engender a more fearful approach to life's challenges. (p.102)

Chandler, Wolfe, Cook, and Dugovics (1980) more recently reported that parents who were observed to be explaining and suggesting in contrast to ordering and directing, most often had internal children.

Related Studies Concerning Punitive Practice and Moral Internalization

Two areas of research are involved in this study: (1) antecedents of locus of control and (2) punitive practice. While literature describing studies relating locus of control to punitive practice is limited, abundant material is available concerning discipline. Since some moral internalization concepts are similar to aspects of internal locus of control, it is useful to review several related studies concerning moral internalization and punitive practice.

Though social learning theorists are reluctant to use the term "moral internalization" because it deals with internal psychological states, they have attempted to explain similar overt behavior, such as resistance to temptation (Johnson et al., 1968; Johnson & Gormly,
1972), guilt (Johnson et al., 1968) and self-control (James et al., 1965; MacDonald, 1971; Straits & Sechrest, 1963). Hoffman (1983) characterized moral internalization as a moral norm and sense of guilt that comes from within rather than from external sources. Behavior based on fear of punishment would not be in response to an internalized motive. Since individuals with internal locus of control comply without surveillance (Johnson & Gormly, 1972) more than externals, it seems reasonable to suggest that internal locus of control and moral internalization are related.

Brown (1978) analyzed the relationship of physical punishment versus reasoning to the moral internalization index of guilt in a Black population of seventh-grade children. He supported earlier findings that guilt was the strongest correlate of induction.

Hoffman (1983) generalized from research:

A rather large body of research indicates that (a) a moral orientation characterized by independence of external sanctions and by high guilt is associated with the frequent use of induction. (b) A moral orientation based on fear of external detection and punishment, on the other hand, is associated with the frequent use of power-assertive discipline, that is, physical force, deprivation of possessions or privileges, direct commands, or threats. (p. 246)

Because moral internalization and locus of control are related, some clues to cause-and-effect relationships between caning and locus of control may be found in theories concerning disciplinary techniques and moral internalization.
Attribution Theory

Self-control is negatively related to punishment that engenders anxiety, fear, guilt, and shame (Dienstbier, Hillman, Leinhoff, Hillman, & Valkenaar, 1975). Lewis (1981) described the attribution theory as "recognizing that conditions that foster compliance do not necessarily foster internalization" (p. 547). This may be related to locus of control in the sense that compliance implies that a person is motivated by pressure more than intrinsic values when acting.

Lepper (1973) indicated that controls that are greater than what is necessary to obtain compliance actually undermine internalization because the person so punished attributes to himself/herself the character of a person who needs severe punishment. It may also be that reactance (Brehm, 1972) leads the person so punished to find attractive the very thing he/she is forced to give up.

Lewis (1981) explained the attribution theory, stating that an individual makes inferences or attributions about his or her behavior based upon the kind of punishment given and then the person tends to live up to that self-concept. Maccoby & Martin (1983), after reviewing more recent developments in attribution theory, affirmed that "Maximum internalization . . . will occur under conditions where the agent's pressure is just sufficient to bring about compliance" (Maccoby & Martin, 1983, p. 10).
Hoffman (1983) theorized that power assertion on the part of the parents helps to perpetuate a sense of opposition between the desires of the child and standards imposed by the parents. It may arouse intense emotional hostility, fear, and anxiety which prevents the child from understanding how the deed may hurt others. He asserted that a "salient inductive" approach best directs the child's attention to the consequences of the action for the victim.

Another factor that may be involved in resultant externalization from harsh physical punishment may be cue utilization. Hoffman (1983) has suggested, on the basis of research by Esterbrook (1959) and evidence by Mueller (1979), that the hostility, fear, and anxiety which result from activities such as caning interfere with one's cognitive function and hence with the comprehension of the wrongness or rightness of a given situation. This could contribute to confusion.

Hoffman (1975, 1983) suggested that discipline which is love-oriented and uses reason helps the child to think of consequences of his behavior to others. He also has argued that this induction type of punishment provides understanding and gives freedom to act.
In contrast, the person who receives harsh physical punishment thinks in terms of consequences to himself and acts more from coercion than from choice. It is this need for freedom that may be basic to the relationship between caning and locus of control.

**Theory of the Effect of Caning on Locus of Control**

**Need for Freedom to Control Reinforcements**

Hammock and Brehm (1966) asked children, ages 7 - 11, to rank candy bars according to their preferences. They were promised that if they would answer this question they would be given their choice. The children were then taken to another room, but the bar of their choice was removed from the group so they did not receive it. They then ranked the candy bars again. As hypothesized, the attractiveness of the "forced bar" decreased and that of the "eliminated bar" increased. The need for freedom to choose was violated and resulted in what Brehm (1976) termed "reactance" or a desire to restore freedom. The same frustration of need for freedom has been noted when there was verbal pressure to adopt a certain viewpoint (Wicklund & Brehm, 1968; Worchel & Brehm, 1971). After reviewing studies concerning reactance, Brehm (1976) stated:

The more important a freedom is to the individual, the more reactance will be aroused when it is threatened or eliminated. The importance of a freedom is determined by the significance of the motives (for example, hunger, avoidance of pain,
The relationship of need for freedom and intrinsic motivation has been described in a study by Lepper, Green, and Nisbett (1973). Students who were involved in drawing pictures were promised rewards to do the same. Those who were promised rewards lost interest and drew fewer pictures than did those who were, like themselves, already engaged in the activities of their own volition but offered no reward. Some who were given a reward afterward also lost interest, but not to the degree of those promised a reward. It appeared that pressure, even of a positive nature, violated the person's need to choose his/her own reinforcements.

**Failure Attitude**

Crandall (1951) induced failure on a physical skills task, then reported that these experiences were followed by changes in the TAT stories told after the failure. An earlier experiment (Jessor, 1954) measured changes in predictions by students who had either performed well or poorly on a math test. Students predicted their performance on college ability, physical skills, and attractiveness to the opposite sex. Over 80% of the students changed their predictions after either failing or succeeding on the math examination. Jessor generalized that the attitude toward future tasks would be influenced by previous performance.
Learned Helplessness

The fact that helplessness is learned has been suggested by a number of studies. Seligman and Maier (1967) used dogs in a shuttle box to test the results of learned escape from electric shock versus inability to escape. The dogs were again stimulated seven days after conditioning. Dogs which were given a shock which they were not able to terminate did not make attempts to escape but accepted the shock in a passive manner. Dogs who had experienced control over the stimulus made more attempts to escape. Hiroto and Seligman (1975) gained support for the hypothesis that helplessness is generalized to like tasks. College students who were given insoluble tasks and inescapable noise treatment made fewer attempts to solve problems and to escape than did their fellow students who believed they could control the treatment.

Summary

Literature concerning a theoretical relationship between caning and locus of control may be summarized as follows: External locus of control is caused by violation of need for freedom to provide one's own reinforcements. Repeated failure to satisfy needs reinforces a belief of helplessness. Harsh physical punishment facilitates a belief on the part of the punished that he/she is a person who needs severe punishment because of inability to control actions. A person so punished may be
frustrated and confused, leaving a feeling of inability to cope with surroundings. Continual infliction of pain for circumstances beyond control of the person induces a sense of helplessness.

African Literature

Although no studies were found relating punitive practice to locus of control for African populations, several reports are of interest to the current study.

Child Rearing

Whiting and Child (1953) compared a broad cross-section of ethnic groups in several areas including child training. Data were collected from anthropological reports. Several African tribes were included. Punishment techniques were observed and related to a measure of guilt, among other things. Guilt was measured by the extent to which patients assumed individual responsibility for being ill. A positive correlation was reported between high love-oriented discipline and guilt. It must be noted, by way of explanation, that the concept of guilt used in the study was based upon the extent to which a person felt that he had brought a sickness on himself. It is true that guilt may be seen as an anxiety concerning future consequences, however, this aspect of guilt would not have the same connotations in an African culture as in a western one.

It was recognized by Whiting and Child that the
source of the guilt measured in the cross-cultural study was based upon fear and surveillance by spirits. This sense of guilt is somewhat removed from concepts related to internal control which are based upon intrinsic values and relationships to people. Love-oriented discipline also included ostracization which, in an African culture, is quite salient due to the concept of survival based upon clan cooperation.

A correlation was also found between early socialization and guilt. Socialization consisted of weaning, toilet training, modesty training, training in heterosexual inhibitions, and independence training. A useful occasional paper (Whiting & Whiting, 1960) digested and analyzed anthropological and descriptive data concerning child-rearing practices in a cross-cultural context. Peer socialization was noted as a likely factor contributing to responsibility to the group. The Whitings suggested that children constantly under adult supervision may have less practice in self-control. The report also noted that monogamous family structure had predicted high guilt, and that combinations of early socialization and monogamous family structure predicted higher guilt than either alone.

One of the classic cross-cultural studies in child-rearing practices is that of Whiting (1963). Several East African tribes were included in her account. Caning was reported to be the most frequently used method
of punishment. The period of 18 months to 3 years was reported to be one of severe punishment for the child's infantile dependency behavior. From 3 to 10 years was the time for physical punishment attempting to curb impulsive activities. Children were beaten if they did not manifest desired toilet habits, if they continued to ask the mother for something when she was busy, if the child asked assistance with dressing when considered old enough, and especially if he/she continued to cry after attempts had been made to comfort.

Of special interest relevant to attribution theory is that the mothers caned and reprimanded simultaneously with the expressed idea that the offense foreshadowed immoral character development. More than 85% of the mothers questioned mentioned caning as first in importance for children between 3 and 6 years of age. A belief prevailed, however, that caning might be useless if the child continued to be bad after one had caned so much he or she were tired.

Obedience and African Children

Munroe and Munroe (1972) tested 18 mother-and-child sets of Kikuyus, an East African tribe. The children were found to be more compliant than other cultural groups. Unlike American children, the Kikuyu children obeyed their own mothers as well as mother substitutes. It should be noted, however, that the toys used to test compliance may not have been attractive to
the children since they may not have been exposed to such objects.

**Locus of Control in Africa**

Reimanis and Posen (1980) compared locus of control scores between Nigerians, Zimbabweans, White Rhodesians, and United States Americans. They concluded that the aspects of personal control were similar for all groups, but areas dealing with political factors differed. Maqsud (1981) compared scores on the I-E scale (limited to personal control) between three Nigerian tribes and previously reported scores of those from United States, West Germany, Italy, and France. He found no significant difference between socioeconomic background in the 120 Nigerian adolescent boys tested. The means were similar for Nigerian and western youth.

Reimanis (1982) reported a study comparing Nigerian to American college students on locus of control and political beliefs. He found no significant difference between the scores of the two on the I-E scale.

**Socialization and Dependence in Nigeria**

A sample of 91 individuals from the Igbo tribe of Nigeria were interviewed in order to assess differences between socialization practices of people with differing educational levels (Bloom, 1982). Bloom reported "in general the more educated favored earlier independence.
and less punitive and less conformity-producing modes of training and discipline" (Bloom, 1982, p. 3). A common view of the informants was that most children are beaten because they should obey their elders. Caning and beating were regarded as a common punishment. Most expressed doubts about the value of rewarding children. Those who reported that they believed they were not encouraged to independence enough listed excessive punishment, parental criticism, and over-protectiveness as causes.

**Attribution Generalized in Nigeria**

Boski (1983) tested cross-cultural applications of attribution theory in Nigeria. He hypothesized that tribes with high achievement motivation should also show high egotistic attributions if attribution theory is applicable in Nigeria. He concluded:

The evidence for a universal mechanism of positive evaluation in self-attribution of achievement-related outcomes is overwhelming; it also overshadows the internal-external causal asymmetry that has laid foundations for the theory of attributional egotism. (p. 103)

**Summary**

Social-learning theory postulates that a person is influenced by whether or not he/she expects a certain reinforcement to result from behavior (and how much value is given to that reinforcement) in a given situation. Hence if a person does not succeed at a task, he/she may
learn to become helpless if the outcome is interpreted to have been due to extenuating circumstances. A person who attributes outcomes to chance, luck, fate, or powerful others has external locus of control. The person who believes actions to result in outcomes has internal belief. Individuals with internal locus of control as measured by the I-E instrument have been evaluated higher in school achievement, cognitive activity, perseverance, and internal morality.

Child rearing antecedents of internal locus of control are parental warmth, nurturance, and freedom. Antecedents of external locus of control are power assertion and coerciveness. Widespread caning is still reported in Africa. Households, whether monogamous or polygamous, may influence independence and development of guilt. Heads of household with more education tend to use punishment types which may foster more internalization. Locus of control studies in Africa indicate that the personal control aspects of the I-E scale shows some consistency with measurements of Western populations.

Internal and external aspects of attribution theory have been validated in a cross-cultural context.
CHAPTER III

METHODOLOGY

Chapter 3 reports methodology, including population and sample, as well as instruments and procedures used. The research hypotheses are also stated in this chapter.

Type of Research

This research was an ex post facto design which investigated the extent to which self-reported punishment by caning corresponded to internal-external locus of control as measured by the Rotter I-E scale. The study evaluated various moderator variables and interaction effects.

Research Design

The independent variable was reported punitive practice. The dependent variable was the score achieved on the I-E scale. Moderator variables were sex of the punitive agent, peer socialization vs. adult supervision, polygamous vs. monogamous households, sex and social class of the subject, nationality, and time period of caning. Variables controlled were age and educational level.
The population for this investigation were Africans, ages 17 to 31, enrolled in selected African Seventh-day Adventist Schools and were: (1) all first- and second-year students enrolled in a regular college program in selected colleges and seminaries, (2) all first; second, and third-year students in selected teacher training colleges, and (3) all students in their third and final years in selected African secondary schools. (One student was included who was within the age limits but who reported grade level as the second year of secondary school.) The English-speaking African countries where the schools were located were Ghana, Malawi, Nigeria, Tanzania, Uganda, and Zimbabwe. The schools were not identified by name in order to protect the privacy of respondents and thus enhance the accuracy of questionnaire responses.

The population from each school was estimated by African graduate students at Andrews University who were directly acquainted with each individual school. The distribution of countries represented by the returned questionnaires varied from the number of returns by school because students from one country often study in a nearby country where a school is located that will serve their need. Table 1 lists the number of usable returns by nationality of individuals.

Sufficient educational survey questionnaires were
sent to accommodate unexpected increases in the estimated populations due to what is known as a "jump year." A jump year may have at least double the normal student population for a specific level due to combined classes.

**TABLE 1**

NUMBER OF USABLE QUESTIONNAIRES RETURNED BY COUNTRIES

<table>
<thead>
<tr>
<th>Country</th>
<th>Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>282</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>134</td>
</tr>
<tr>
<td>Nigeria</td>
<td>81</td>
</tr>
<tr>
<td>Malawi</td>
<td>75</td>
</tr>
<tr>
<td>Uganda</td>
<td>69</td>
</tr>
<tr>
<td>Tanzania</td>
<td>54</td>
</tr>
<tr>
<td>Other African Countries</td>
<td>37</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>732</strong></td>
</tr>
</tbody>
</table>

Table 2 lists estimated populations and the actual number of questionnaires returned according to schools. Schools H and L were the only schools which did not return questionnaires. School B returned only five questionnaires. The reason for this is that although listed as a college, the bulk of students in school B were in high-school. The request to this school was for first- and second-year college students so the
high-school students were not surveyed. A similar condition existed with schools F and I. High-school and college students were studying on the same campus.

**TABLE 2**

**ESTIMATED POPULATIONS AND ACTUAL RETURNS OF QUESTIONNAIRES**

<table>
<thead>
<tr>
<th>Schools</th>
<th>Estimated Population</th>
<th>Actual Returns</th>
<th>Usable</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>70</td>
<td>58</td>
<td>56</td>
</tr>
<tr>
<td>B</td>
<td>69</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>C</td>
<td>85</td>
<td>200</td>
<td>185</td>
</tr>
<tr>
<td>D</td>
<td>50</td>
<td>44</td>
<td>43</td>
</tr>
<tr>
<td>E</td>
<td>200</td>
<td>150</td>
<td>147</td>
</tr>
<tr>
<td>F</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>G</td>
<td>60</td>
<td>64</td>
<td>60</td>
</tr>
<tr>
<td>H</td>
<td>50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>30</td>
<td>69</td>
<td>68</td>
</tr>
<tr>
<td>J</td>
<td>60</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>K</td>
<td>90</td>
<td>85</td>
<td>83</td>
</tr>
<tr>
<td>L</td>
<td>30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>M</td>
<td>30</td>
<td>45</td>
<td>41</td>
</tr>
</tbody>
</table>

**Total** 874 764 732

There were more high-school students and fewer
college-level students than anticipated. School C returned over twice the amount expected due to a jump year. Eighty-seven percent of the estimated population returned questionnaires.

A number of the questionnaires were not usable because the I-E scale was not completed. Several others had incomplete or missing data. In some cases individuals failed to mark areas such as sex or mother's educational level, for example. These questionnaires were used, but when moderator variables were studied involving a variable with missing data, that case was removed from the analysis by computer. For this reason some of the analyses which included covariates such as sex or sex of the punitive agent use slightly fewer numbers than the test for the main hypothesis.

Instrumentation

Instrument for Assessment of Punitive Practice

Data describing punitive practice, sex of the punitive agent, household type, socialization, sex, social class, nationality, and time period of caning were gathered using an instrument developed at the University of Eastern Africa for the assessment of punitive practice titled "Educational Survey" (see appendix A). This instrument was developed by the researcher while teaching in Kenya, on the basis of over five years of personal observation, experience, and testing. Pilot studies with
small groups of students at University of Eastern Africa in Kenya resulted in changes in wording. Also item N was added. The instrument was then tested with a group of 18 first-year students at University of Eastern Africa. It was confirmed by verbal feedback and analysis of the questionnaires that students understood how to fill out the blanks after the introduction was given. Results indicated that the instrument for assessment of punitive practice would provide categories for the two major groups needed to test the research hypotheses. Nineteen percent of the pilot study respondents indicated that they had been caned at least as often as once a week. Twenty-one percent reported that they had been caned less than once a year.

The Rotter (I-E) Scale

The Rotter Internal-External Locus of Control Scale (Rotter, 1966/1982) measures locus of control beliefs. The I-E instrument has been used in the bulk of relevant studies. It is a 23-item, forced-choice scale. The normal procedure for scoring is to total the external items marked. Numerous probes have recently evaluated its utility, consistency, and validity (Ashkanasy, 1985; Epstein, 1973; Gregory, 1978; Kevelson, 1984; Layton, 1985; Marsh & Richards, 1984; Zerega, 1975). Marsh and Richards (1984), using Confirmatory Factor Analysis, reported minimal internal consistency and faulty
assumption of unidimensionality. Their concerns were not relevant to the broad concepts of locus of control which are of interest to the present research (Ashkanasy, 1985; Lefcourt, 1976, Phares, 1976; Rotter, 1975).

An impressive amount of recent research has confirmed the consistency, and validity of the I-E scale when dealing with the unitary personality variable of locus of control (Ashkanasy, 1985; Kevelson, 1984; Layton, 1985; Zerega, 1975).

Cross Cultural Use of the Rotter scale

Kinder and Reeder (1975) noted a unique lack of internal consistency for a Black subsample when testing multicultural groups with the I-E scale. Zoppel (1979) concluded that the Rotter scale lacked equivalence of meaning cross-culturally.

Quite recently several researchers have used the I-E scale, or forms of it, for African studies. Reimanis and Posen (1980) reported consistencies among like groups involving personal control in Northeastern Nigerian, Black Zimbabwean, White Rhodesian, and United States American male and female college students. Furnham and Henry (1980) found no significant difference on the I-E scale among African, European, and Indian nurses in South Africa. They did note, however, a different factorial structure for each group. Using only the personal control factor, Maqsud (1981) reported no

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significant difference between three Nigerian tribes, and no significant difference between the mean of a Nigerian group and that of a select group of western individuals. Zoe (1981) reported that each factor of a slightly modified I-E scale was found to be a stable and meaningful dimension of locus of control when used in like African groups. Reimanis (1982) compared Nigerian and American college students using the I-E scale and found no significant differences. Generalization of locus of control variables was further enhanced by refinement of the I-E instrument in order to fit the African context.

Cultural adaptation for this study

To effect construct validity of the I-E instrument in the African culture, experts were asked to inter-rate the individual items. Fifteen graduate students at Andrews University were selected to serve as raters: Ghana - 4, Malawi - 3, Tanzania - 2, Uganda - 1, Zimbabwe - 2, and Nigeria - 3. Concepts of locus of control were explained and each expert answered sample questions (appendix G) to ascertain whether or not instructions and concepts were clearly understood. Inter-raters were given a copy of the I-E scale and asked to independently rate the items as internal or external locus of control considering the context of their own country's culture.

Any question on the Rotter scale that was not validated by 80% of the experts as demonstrating external
orientation with the same response that Rotter would
select to determine the same, was excluded. Table 3
displays results of the inter-rating process.

TABLE 3

LIST OF ITEMS ON THE ROTTER SCALE WITH PERCENTAGES
OF INTER-RATERS WHO VALIDATED EACH ITEM

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>93</td>
</tr>
<tr>
<td>3</td>
<td>93</td>
</tr>
<tr>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>5</td>
<td>80</td>
</tr>
<tr>
<td>6</td>
<td>73 *</td>
</tr>
<tr>
<td>7</td>
<td>87</td>
</tr>
<tr>
<td>9</td>
<td>93</td>
</tr>
<tr>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>11</td>
<td>93</td>
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<tr>
<td>12</td>
<td>100</td>
</tr>
<tr>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>15</td>
<td>73 *</td>
</tr>
<tr>
<td>16</td>
<td>93</td>
</tr>
<tr>
<td>17</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>87</td>
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<tr>
<td>20</td>
<td>87</td>
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<td>21</td>
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<tr>
<td>34</td>
<td>** 93</td>
</tr>
<tr>
<td>35</td>
<td>** 93</td>
</tr>
</tbody>
</table>

Note: * Items failing to reach 80% validation
Note: ** Replacement items
Six additional items were prepared for the I-E scale in anticipation that they might be rated more applicable than items failing the inter-rating process (appendix B). Replacement items were designed to simplify concepts. Items 6 and 15 failed to meet inter-rater criterion. They were replaced by items 33 and 31, respectively.

Item 6 was validated by only 73% of the experts. It reads as follows: "a. Without the right breaks one cannot be an effective leader. b. Capable people who fail to become leaders have not taken advantage of their opportunities." It is possible that the word "breaks" is idiomatic and therefore does not have equivalent meaning in the African context. Replacement item 33 deals with leadership but is stated simply: "a. People who get others to do things are just lucky. b. Getting people to do the right thing depends on ability; luck has little or nothing to do with it." Item analysis on the questionnaires returned revealed a point-multiserial correlation of .28 for item 6 when analyzed with all other Rotter items (.32 in Rotter's original). When replacement item 33 was analyzed along with the two other replacement items in the Rotter scale the point-multiserial correlation was .31. Since replacement item 33 was stronger than the original item (number 6), both in areas of reliability and validity, number 33 was scored in the place of 6 for the current research.
Inter-raters also failed to validate item 15 on the I-E scale. It reads: "a. In my case getting what I want has little or nothing to do with luck. b. Many times we might just as well decide what to do by flipping a coin." It was replaced by item 31 "a. Becoming a success is a matter of hard work; luck has little or nothing to do with it. b. People are successful mostly because they happen to be in the right place at the right time." Item 15 obtained a point-multiserial of .24 in Africa when the I-E scale was scored in its original form (Rotter's original point-biserial = .29). Replacement item 31 was correlated at .31. Item 31 was also stronger than item 15 both in validity and reliability therefore 31 was scored in the place of 15 for the research.

Item 3 of the original Rotter scale obtained a point-multiserial correlation of only .09 when scored by Africans. It was replaced by replacement item 30 which obtained a point-multiserial of .25 when analyzed with the other two replacement items in the Rotter scale.

The I-E scale with items 6, 3, and 15 substituted obtained an overall reliability coefficient alpha of .55. In original form it produced a reliability coefficient alpha of .50 when applied to students in Africa. Rotter had obtained split half and Kuder-Richardson correlations of .73 and .69 in initial testing in the United States.

Table 4 compares point-multiserial item correlations between the standard and adapted I-E scales, as
<table>
<thead>
<tr>
<th>Item no.</th>
<th>Adapted Scale</th>
<th>Standard Scale</th>
<th>Initial Test</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.30</td>
<td>.26</td>
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<td>3</td>
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</tr>
<tr>
<td>29</td>
<td>.32</td>
<td>.22</td>
<td>.11</td>
</tr>
</tbody>
</table>
well as Rotter's initial point-biserial correlations.

The I-E scale was administered in its original form with the extra items included as part of the instrument. After exchanging replacement items through the scoring process, the total of 23 remained the same.

The Rotter scale was selected for this research because the purpose of the study was to relate to the broad concepts of internal-external locus of control. The Rotter I-E instrument has been identified with most studies in this area. The application is not intended to make precise clinical predictions (Lefcourt, 1976), but to relate to significant findings concerning an established unitary personality variable (Ashkanasy, 1985). The first-step nature of the research in Africa demanded a broad perspective with optimum utility. Therefore, the Rotter I-E scale was deemed useful.

**Procedures**

The I-E scale and the instrument for assessment of punitive practice each were sent to the principals or headmasters of the schools involved. Letters (appendix C) were sent requesting the principal or headmaster to assemble the students in order to answer the questionnaires and I-E scale items all at one sitting. The administrator was asked to read a short introduction explaining procedures and ensuring anonymity (appendix A). Letters from the dean of the Andrews University Graduate School (appendix E), as well as
from the committee chairperson (appendix F), were sent. American Express money orders for postage and self-addressed envelopes were included in the mailing to facilitate ready returns. Personal letters encouraging follow-up were sent to individuals, known by the researcher, who were teaching in schools solicited.

The introduction explained that the survey related home experience to opinions (appendix a). Participants were assured of complete privacy and non-identification.

Questionnaires were returned in bulk by means of self-addressed packets. Responses were recorded on a data file by means of word processor, then grouped and analyzed by appropriate computer analysis.

**Research Hypotheses**

**Main Hypothesis**

The expected relationship of caning to external locus of control projected in the experimental hypothesis was expressed in research form as follows:

African students who report that they have been caned during childhood, at home, or in primary or secondary school, as often as once a week will not score significantly more external on the Rotter Internal-External Locus of Control Instrument than those who report they have been caned less than once a year or never, when controlled for age and educational level.
Sub-hypothesis 1

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when sex of the subject is added to the control variables of age and educational level.

Sub-hypothesis 2

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when nationality is added to the control variables of age and educational level.

Sub-hypothesis 3

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when mother's educational level is added to the control variables of age and educational level.

Sub-hypothesis 4

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when time period of caning is added to the control variables of age and educational level.

Sub-hypothesis 5

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when sex of the punitive agent is added to the control variables of age and educational level.
Sub-hypothesis 6
There will be no significant difference in I-E scores between less-frequently and frequently caned groups when household type is added to the control variables of age and educational level.

Sub-hypothesis 7
There will be no significant difference in I-E scores between less-frequently and frequently caned groups when social environment is added to the control variables of age and educational level.

Sub-hypothesis 8
There will be no significant difference in I-E scores between less-frequently and frequently caned groups when interaction between social environment and household types is added to the control variables of age and educational level.

Data Processing and Analysis
The major hypothesis and its relationship to moderator variables as well as interaction effects were all tested by means of analysis of covariance using the BMDP2V computer program, with test for significance set at the alpha = .05 level. Nine separate one-way ANCOVA programs were used, one for each hypothesis or sub-hypothesis. For the main hypothesis, the independent variable was frequency of caning. The number 1 was assigned to the group caned less than once a year and a
was given to the group caned as often as once a week. The dependent variable (scores on the I-E scale) for these two groups were compared by means of ANCOVA. Age and educational level were added as covariates.

For each of the sub-hypotheses 1 - 7 a single covariate was added to the model for the main hypothesis. For sub-hypothesis 8 two additional covariates were combined for possible interaction effects.

Analysis of covariance was used to add precision to the comparison of I-E scores for the two caning groups. The covariates were variables that may have had an influence on differences in I-E scores. The groups (eg. male/female) included in the covariate were tested to see if there was a significant difference between them in I-E scores. In this way the differences in I-E variances that may be due to the different scores by opposite groups in each moderator variable were measured out by means of the regression slope. The variance and difference in means that remained for the two caning groups was beyond that due to influence by the moderator variables.
Chapter 4 presents information concerning the data-producing sample, the normative data, and the analysis of hypotheses. Discussion of results is also included. Appropriate statistical procedures were used to explore the research questions.

The primary purpose of this study was to compare the I-E scores for selected groups of African young people to determine if there was a relationship between frequency of caning and external locus of control when age and educational level were controlled. Other variables were included as moderator variables. Locus of control was measured by the Rotter (1966/1982) I-E scale. The I-E scale was adapted to African culture by replacement of items 3, 6, and 15 with culturally sensitive items with similar meaning (See Chapter III). The scale consists of 23 forced-choice items. The total score was the sum of those items which were marked toward external orientation (the higher the score the greater the external locus of control).

This chapter includes demographic information and statistical tests of hypotheses.
Demographic Description of the Sample

The subjects for this investigation were selected from a total sample of 732 male and female African secondary and college students, from six African countries, who returned usable questionnaires. The number of subjects varied slightly for each test since cases with missing information were removed when the control and moderator variables were included.

Two major groups were selected from these 732 individuals to represent the extremes between those who experienced frequent and non-frequent caning. All those who reported they had been caned as often as once a week either at home or at school were included in the frequently caned group. The less-frequently caned group was made up of those indicating they had been caned no more frequently than once a year in home or school. There were 107 subjects identified as less-frequently caned, and 76 as frequently caned. These two groups were used in testing the main hypothesis. Most all reported Christian church affiliation. Fifty-nine percent of the less-frequently caned and 74 percent of the frequently caned stated their religion to be Seventh-day Adventist.

Sex and Nationality

Table 5 reports the number of males and the number of females in each of the samples used in the main hypothesis. The nationality of samples used for the main hypothesis is displayed in table 6.
**TABLE 5**

MALE AND FEMALE POPULATION FOR MAIN HYPOTHESIS

<table>
<thead>
<tr>
<th>Sex</th>
<th>Less-Frequently Caned</th>
<th>More-Frequently Caned</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>59</td>
<td>55</td>
<td>114</td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td>15</td>
<td>55</td>
</tr>
<tr>
<td>Blank</td>
<td>8</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>107</strong></td>
<td><strong>76</strong></td>
<td><strong>183</strong></td>
</tr>
</tbody>
</table>

**TABLE 6**

NATIONALITY OF SAMPLES FOR TEST OF MAIN HYPOTHESIS

<table>
<thead>
<tr>
<th>Countries</th>
<th>Less-Frequently Caned</th>
<th>More-Frequently Caned</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>23</td>
<td>24</td>
<td>47</td>
</tr>
<tr>
<td>Malawi</td>
<td>18</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>Nigeria</td>
<td>10</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>Tanzania</td>
<td>10</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Uganda</td>
<td>6</td>
<td>21</td>
<td>27</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>38</td>
<td>9</td>
<td>47</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>107</strong></td>
<td><strong>76</strong></td>
<td><strong>183</strong></td>
</tr>
</tbody>
</table>

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Age and Educational Levels of the Subjects

Educational levels of the students used for testing the main hypothesis are shown in table 7.

TABLE 7

EDUCATIONAL LEVEL OF SAMPLES FOR TEST OF MAIN HYPOTHESIS

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Less Frequently Caned</th>
<th>More Frequently Caned</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary School</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd yr.</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3rd yr.</td>
<td>14</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>last yr.</td>
<td>55</td>
<td>36</td>
<td>91</td>
</tr>
<tr>
<td>Teacher Training  College</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st yr.</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>2nd yr.</td>
<td>13</td>
<td>10</td>
<td>23</td>
</tr>
<tr>
<td>University</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st yr.</td>
<td>9</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>2nd yr.</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Totals</td>
<td>107</td>
<td>76</td>
<td>183</td>
</tr>
</tbody>
</table>

The instrument for assessment of punitive practice only provided for an age range between 17 and 31 years. Table 8 gives the mean and standard deviation for age of the groups used for testing the main hypothesis. The mean age was 20.6 years. Those who were outside the limits of age requirements were excluded from statistical analysis.
TABLE 8
MEANS AND STANDARD DEVIATIONS FOR STUDENT AGE AND EDUCATIONAL LEVEL FOR FREQUENTLY AND LESS FREQUENTLY CANED GROUPS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Freq. Caned Age</th>
<th>Less Freq. Caned Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean sd</td>
<td>mean sd</td>
</tr>
<tr>
<td>Age</td>
<td>20.9 3.7</td>
<td>20.4 3.1</td>
</tr>
</tbody>
</table>

Hypotheses Testing

Main Hypothesis

African students who report that they have been caned during childhood, at home or at primary or secondary school, as often as once a week will not score significantly more in the external direction on the Rotter Internal-External Locus of Control Instrument than those who report to have been caned less than once a year or never, when controlled for age and educational level.

Table 9 presents the ANCOVA data for analysis of the main hypothesis. Analysis of covariance resulted in a significant difference between I-E scores for subjects frequently caned and less-frequently caned ($p = .0059$) when age and educational level were controlled. The null hypothesis was rejected, therefore supporting the main experimental hypothesis in the direction expected. Neither age ($p = .3148$) nor educational level ($p = .1321$)
was significant as a covariate. Though not statistically significant ($p = .3148$), there was a tendency for internal orientation to increase with age ($b = -.0825$). Likewise, as the educational level of subjects increased their scores inclined toward internality ($p = .1321; b = -.2861$). This is in harmony with previous findings since individuals become more in control of their environment as they increase in experience. When the effects of both covariates (age and educational) level were combined they were significant ($p = .0245$). This underscores their usefulness as control variables.

### TABLE 9

**ANALYSIS OF COVARIANCE FOR CANING (INDEPENDENT) AND I-E SCORE (DEPENDENT) WITH AGE AND EDUCATIONAL LEVEL AS COVARIATES**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>d.f.</th>
<th>Mean square</th>
<th>F</th>
<th>Tail prob.</th>
<th>Beta est.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caning</td>
<td>71.22</td>
<td>1</td>
<td>71.22</td>
<td>7.75</td>
<td>.0059</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>9.34</td>
<td>1</td>
<td>9.34</td>
<td>1.02</td>
<td>.3148</td>
<td>-.0825</td>
</tr>
<tr>
<td>Ed. level</td>
<td>21.03</td>
<td>1</td>
<td>21.03</td>
<td>2.29</td>
<td>.1321</td>
<td>-.2861</td>
</tr>
<tr>
<td>All</td>
<td>69.60</td>
<td>2</td>
<td>34.80</td>
<td>3.79</td>
<td>.0245</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>1644.95</td>
<td>179</td>
<td>9.19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 183 (107 less-caned subjects; 76 more-caned subjects)

Table 10 compares means, standard deviations, and adjusted means on the I-E scale, between the two caning
groups. When I-E means were adjusted by influence of covariates they were very little (.08) different from the normal means for both groups. This indicates that age and educational level accounted for very little of the difference between scores for caning groups. The difference between I-E standard deviation for the less-frequently caned group (2.99) and the frequently caned group (3.19) was .20. This suggests a low effect of caning upon I-E scores (it is generally accepted that .2 = low effect, .5 = moderate effect, .8 = great effect).

TABLE 10

COMPARISON OF I-E MEANS AND STANDARD DEVIATIONS BETWEEN CANING GROUPS WITH AGE AND EDUCATIONAL LEVEL AS COVARIATES

<table>
<thead>
<tr>
<th>I-E score</th>
<th>Less Caning</th>
<th>More Caning</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>9.25</td>
<td>10.41</td>
<td>1.20</td>
</tr>
<tr>
<td>Adjusted means</td>
<td>9.20</td>
<td>10.48</td>
<td>1.28</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>2.99</td>
<td>3.19</td>
<td>.20</td>
</tr>
</tbody>
</table>

Sub-hypothesis 1

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when sex is added to the control variables of age and educational level.

Table 11 shows the data for the ANCOVA analysis for sub-hypothesis 1. When sex was included in an ANCOVA
analysis along with the control variables of age and educational level there was a significant difference ($p = .0065$) in I-E scores between caning groups beyond that due to age, educational level and sex. The null hypothesis was rejected. The significant difference in I-E scores between males and females ($p = .0299$) with females scoring higher in an external direction ($b = 1.0753$) is possibly due to African male dominant social structure which may foster female dependency.

**TABLE 11**

ANALYSIS OF COVARIANCE FOR CANING (INDEPENDENT) AND I-E SCORE (DEPENDENT) WITH AGE, EDUCATIONAL LEVEL, AND SEX AS COVARIATES

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>d.f.</th>
<th>Mean square</th>
<th>F</th>
<th>Tail prob.</th>
<th>Beta est.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caning</td>
<td>63.60</td>
<td>1</td>
<td>63.60</td>
<td>7.60</td>
<td>.0065</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>13.53</td>
<td>1</td>
<td>13.53</td>
<td>1.62</td>
<td>.2053</td>
<td>-.1034</td>
</tr>
<tr>
<td>Ed. level</td>
<td>13.75</td>
<td>1</td>
<td>13.75</td>
<td>1.64</td>
<td>.2018</td>
<td>-.2421</td>
</tr>
<tr>
<td>Sex</td>
<td>40.18</td>
<td>1</td>
<td>40.18</td>
<td>4.80</td>
<td>.0299</td>
<td>1.0753</td>
</tr>
<tr>
<td>All</td>
<td>116.40</td>
<td>3</td>
<td>38.80</td>
<td>4.64</td>
<td>.0039</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>1364.09</td>
<td>163</td>
<td>8.37</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$N = 168$ (98 less-caned subjects; 70 more-caned subjects)

Table 12 compares means, standard deviations, and adjusted means on the I-E scale between the two caning groups with sex added as a covariate. Difference between
the normal mean and adjusted mean was .29. This shows that the combined differences in I-E scores due to age, educational level, and sex had a minor effect upon the differences in means between caning groups. The difference between I-E standard deviation for the less-frequently caned group (2.87) and the frequently caned group (3.15) was .28. This suggests a low effect of caning upon I-E scores (.2 = low effect, .5 = moderate effect, .8 = great effect).

TABLE 12
COMPARISON OF I-E MEANS AND STANDARD DEVIATIONS BETWEEN CANING GROUPS WITH AGE, EDUCATIONAL LEVEL, AND SEX AS COVARIATES

<table>
<thead>
<tr>
<th>I-E score</th>
<th>Less Caning</th>
<th>More Caning</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>9.35</td>
<td>10.29</td>
<td>.94</td>
</tr>
<tr>
<td>Adjusted means</td>
<td>9.20</td>
<td>10.47</td>
<td>1.23</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>2.87</td>
<td>3.15</td>
<td>.28</td>
</tr>
</tbody>
</table>

Sub-hypothesis 2

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when nationality is added to the control variables of age and educational level.

Table 13 displays the data for ANCOVA analysis of sub-hypothesis 2. When nationality was analyzed together with age and educational level the main
effects of relationship between scores on the I-E scale between frequently caned and less-frequently caned groups remained significant at $p = .0066$. None of the covariates (age, educational level, nationality) showed significance. The null hypothesis was rejected.

TABLE 13

ANALYSIS OF COVARIANCE FOR CANING (INDEPENDENT) AND I-E SCORE (DEPENDENT) WITH AGE, EDUCATIONAL LEVEL, AND NATIONALITY AS COVARIATES

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>d.f.</th>
<th>Mean square</th>
<th>F</th>
<th>Tail prob.</th>
<th>Beta est.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caning</td>
<td>69.39</td>
<td>1</td>
<td>69.39</td>
<td>7.56</td>
<td>.0066</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>14.58</td>
<td>1</td>
<td>14.58</td>
<td>1.59</td>
<td>.2093</td>
<td>-.1070</td>
</tr>
<tr>
<td>Ed. level</td>
<td>28.31</td>
<td>1</td>
<td>28.31</td>
<td>3.08</td>
<td>.0808</td>
<td>-.3463</td>
</tr>
<tr>
<td>Nationality</td>
<td>10.57</td>
<td>1</td>
<td>10.57</td>
<td>1.15</td>
<td>.2848</td>
<td>-.1180</td>
</tr>
<tr>
<td>All</td>
<td>80.17</td>
<td>3</td>
<td>26.72</td>
<td>2.18</td>
<td>.0360</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>1634.38</td>
<td>178</td>
<td>9.18</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 183 (107 less-caned subjects; 76 more-caned subjects)

Table 14 compares means, standard deviations, and adjusted means on the I-E scale between the two caning groups with nationality included as a covariate with age and educational level. When I-E means were adjusted by influence of covariates they were very little (.09) different from the normal means for both groups. This indicates that age, educational level and nationality
accounted for very little of the difference between scores for caning groups. The difference between I-E standard deviation for the less-frequently caned group (2.99) and the frequently caned group (3.19) was .20. This shows a low effect of caning upon I-E scores.

**TABLE 14**

COMPARISON OF I-E MEANS AND STANDARD DEVIATIONS BETWEEN CANING GROUPS WITH AGE, EDUCATIONAL LEVEL, AND NATIONALITY AS COVARIATES

<table>
<thead>
<tr>
<th>I-E score</th>
<th>Less Caning</th>
<th>More Caning</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>9.25</td>
<td>10.41</td>
<td>1.16</td>
</tr>
<tr>
<td>Adjusted means</td>
<td>9.21</td>
<td>10.46</td>
<td>1.25</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>2.99</td>
<td>3.19</td>
<td>.20</td>
</tr>
</tbody>
</table>

No significant difference in I-E scores due to nationality suggests cross-cultural generalization among African countries studied. The fact that caning correlated with external I-E scores, no matter which country the subjects were from, strengthens the notion that caning is a significant factor in differences in internal and external orientation.

**Sub-hypothesis 3**

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when mother's educational level is added to the control variables of age and educational level.
Table 15 displays the percentages of those who reported their mothers educational level to be in the given categories.

TABLE 15
MOTHER'S EDUCATIONAL LEVELS

<table>
<thead>
<tr>
<th>Highest Level</th>
<th>Less Caning</th>
<th>More Caning</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Formal Education</td>
<td>19%</td>
<td>36%</td>
</tr>
<tr>
<td>Attended Primary</td>
<td>18%</td>
<td>17%</td>
</tr>
<tr>
<td>Completed Primary</td>
<td>21%</td>
<td>15%</td>
</tr>
<tr>
<td>Attended Secondary</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>Completed Secondary</td>
<td>23%</td>
<td>21%</td>
</tr>
<tr>
<td>Attended University</td>
<td>0%</td>
<td>3%</td>
</tr>
<tr>
<td>Completed University</td>
<td>6%</td>
<td>4%</td>
</tr>
</tbody>
</table>

The ANCOVA data for analysis of sub-hypothesis 3 is given in table 16. When the covariate of mother's educational level was added to those of age and educational level the difference between scores on the I-E scale between both groups remained significant at $p = .0054$. The null hypothesis was rejected. There was surprisingly little statistical relationship between mother's educational level and I-E scores ($p = .5600$). Likewise the slightly more external ($b = .0815$) scores for subjects reporting higher mother education is
TABLE 16
ANALYSIS OF COVARIANCE FOR CANING (INDEPENDENT) AND I-E SCORE (DEPENDENT) WITH AGE, EDUCATIONAL LEVEL, AND MOTHER'S EDUCATION AS COVARIATES

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>d.f.</th>
<th>Mean square</th>
<th>F</th>
<th>Tail prob.</th>
<th>Beta est.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caning</td>
<td>74.68</td>
<td>1</td>
<td>74.68</td>
<td>7.94</td>
<td>.0054</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>3.92</td>
<td>1</td>
<td>3.92</td>
<td>.42</td>
<td>.5190</td>
<td>-.0587</td>
</tr>
<tr>
<td>Ed. level</td>
<td>23.93</td>
<td>1</td>
<td>23.93</td>
<td>2.54</td>
<td>.1126</td>
<td>-.3092</td>
</tr>
<tr>
<td>Mother's ed.</td>
<td>3.11</td>
<td>1</td>
<td>3.11</td>
<td>.33</td>
<td>.5600</td>
<td>.0815</td>
</tr>
<tr>
<td>All</td>
<td>74.32</td>
<td>3</td>
<td>24.77</td>
<td>2.63</td>
<td>.0516</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>1637.41</td>
<td>174</td>
<td>9.41</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 179 (105 less-caned subjects; 74 more-caned subjects)

different than would be expected. This suggests that prior studies reporting correlations between higher socio-economic levels and internal I-E scores probably were measuring punitive practice rather than other socio-economic factors. In further support of this impression, the descriptive data in table 15 shows noticeably lower levels of mother's education for those who reported more-frequent caning.

Table 17 compares means, standard deviations, and adjusted means on the I-E scale between the two caning groups with mother's educational level included. When means were adjusted by influence of covariates they were very little (.18) different from the normal means.
TABLE 17

COMPARISON OF I-E MEANS AND STANDARD DEVIATIONS BETWEEN CANING GROUPS WITH AGE, EDUCATIONAL LEVEL, AND MOTHER'S EDUCATION AS COVARIATES

<table>
<thead>
<tr>
<th>I-E score</th>
<th>Less Caning</th>
<th>More Caning</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>9.25</td>
<td>10.43</td>
<td>1.18</td>
</tr>
<tr>
<td>Adjusted means</td>
<td>9.19</td>
<td>10.51</td>
<td>1.32</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.02</td>
<td>3.23</td>
<td>.21</td>
</tr>
</tbody>
</table>

for both groups. This indicates that age, educational level, and mother's educational level accounted for very little of the difference between scores for caning groups. The difference between I-E standard deviation for the less-frequently caned group (3.02) and the frequently caned group (3.23) was .21. This shows a low effect of caning upon I-E scores.

Sub-hypothesis 4

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when time period of caning is added to the control variables of age and educational level.

Table 18 exhibits the numbers of subjects who reported caning to have taken place during each given time period. While most of the caning occurred between the years of 7 and 10, a surprising 42% of the subjects reported, that for them, the major period of caning
TABLE 18

TIME Periods OF CANING

<table>
<thead>
<tr>
<th>Ages in Years</th>
<th>Less Caning</th>
<th>More Caning</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 6</td>
<td>2</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>7 - 10</td>
<td>34</td>
<td>37</td>
<td>71</td>
</tr>
<tr>
<td>11 - 14</td>
<td>13</td>
<td>25</td>
<td>38</td>
</tr>
<tr>
<td>15 - 17</td>
<td>12</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>Totals</td>
<td>61</td>
<td>80</td>
<td>141</td>
</tr>
</tbody>
</table>

took place after the age of 11. Table 19 is the ANCOVA data for analysis of sub-hypothesis 4.

TABLE 19

ANALYSIS OF COVARIANCE FOR CANING (INDEPENDENT) AND I-E SCORE (DEPENDENT) WITH AGE, EDUCATIONAL LEVEL, AND TIME PERIOD AS COVARIATES

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>d.f.</th>
<th>Mean square</th>
<th>F</th>
<th>Tail prob.</th>
<th>Beta est.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caning</td>
<td>50.85</td>
<td>1</td>
<td>50.85</td>
<td>5.90</td>
<td>.0165</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.10</td>
<td>1</td>
<td>.10</td>
<td>.01</td>
<td>.9161</td>
<td>.0101</td>
</tr>
<tr>
<td>Ed. level</td>
<td>38.15</td>
<td>1</td>
<td>38.15</td>
<td>4.42</td>
<td>.0373</td>
<td>-.4883</td>
</tr>
<tr>
<td>Time period</td>
<td>13.85</td>
<td>1</td>
<td>13.85</td>
<td>1.61</td>
<td>.2072</td>
<td>.3689</td>
</tr>
<tr>
<td>All</td>
<td>75.03</td>
<td>3</td>
<td>25.01</td>
<td>2.90</td>
<td>.0373</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>1172.57</td>
<td>136</td>
<td>8.62</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 141 (80 less-caned subjects; 61 more-caned subjects)
When the covariate of time period of caning was added to age and educational level the main effects concerning the relationship between I-E scores of the two groups remained significant at $p = .0165$. The null hypothesis was rejected. Educational level became significant ($p = .0373$) when combined with time periods and age.

Table 20 compares means, standard deviations, and adjusted means on the I-E scale between the two caning groups with time period of caning included as a covariate.

TABLE 20

<table>
<thead>
<tr>
<th>I-E score</th>
<th>Less Caning</th>
<th>More Caning</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>9.29</td>
<td>10.48</td>
<td>1.19</td>
</tr>
<tr>
<td>Adjusted means</td>
<td>9.27</td>
<td>10.50</td>
<td>1.23</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>2.81</td>
<td>3.21</td>
<td>.40</td>
</tr>
</tbody>
</table>

There was little adjustment in means (.04) due to the addition of covariates. The difference in standard deviations (.40) suggested a low to moderate effect of caning upon I-E scores.

There was a non-significant trend toward external I-E scores as caning occurred at a later age. As far as it goes, this is consistent with prior reports of greater
effect of punishment on internalized behavior suppression upon older subjects (Chandler, 1971). With this countering influence removed, educational level is significant.

**Sub-hypothesis 5**

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when sex of the punitive agent is added to the control variables of age and educational level.

Table 21 displays the ANCOVA data to test sub-hypothesis 5. When analyzed together by means of ANCOVA, the sex of the punitive agent did not significantly influence the relationship of scores between the two.

**TABLE 21**

ANALYSIS OF COVARIANCE FOR CANING (INDEPENDENT) AND I-E SCORE (DEPENDENT) WITH AGE, EDUCATIONAL LEVEL, AND SEX OF PUNITIVE AGENT AS COVARIATES

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>d.f.</th>
<th>Mean square</th>
<th>F</th>
<th>Tail prob.</th>
<th>Beta est.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caning</td>
<td>61.95</td>
<td>1</td>
<td>61.95</td>
<td>6.73</td>
<td>.0103</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>12.33</td>
<td>1</td>
<td>12.33</td>
<td>1.34</td>
<td>.2486</td>
<td>-.0965</td>
</tr>
<tr>
<td>Ed. level</td>
<td>13.78</td>
<td>1</td>
<td>13.78</td>
<td>1.50</td>
<td>.2226</td>
<td>-.2386</td>
</tr>
<tr>
<td>Pun. Agent</td>
<td>7.49</td>
<td>1</td>
<td>7.49</td>
<td>.81</td>
<td>.3682</td>
<td>-.4526</td>
</tr>
<tr>
<td>All</td>
<td>66.35</td>
<td>3</td>
<td>22.12</td>
<td>2.40</td>
<td>.0692</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>1610.00</td>
<td>175</td>
<td>9.20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 180 (104 less-caned subjects; 76 more-caned subjects)
caning groups. The null hypothesis was rejected. The main effect (differences in I-E scores for the two caning groups) remained significant at \( p = .0103 \).

Table 22 compares means, standard deviations, and adjusted means on the I-E scale between the groups with sex of the punitive agent added as a covariate.

### TABLE 22

**COMPARISON OF I-E MEANS AND STANDARD DEVIATIONS BETWEEN CANING GROUPS WITH AGE, EDUCATIONAL LEVEL, AND SEX OF THE PUNITIVE AGENT AS COVARIATES**

<table>
<thead>
<tr>
<th>I-E score</th>
<th>Less Caning</th>
<th>More Caning</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>9.26</td>
<td>10.41</td>
<td>1.15</td>
</tr>
<tr>
<td>Adjusted means</td>
<td>9.23</td>
<td>10.44</td>
<td>1.21</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>2.98</td>
<td>3.19</td>
<td>.21</td>
</tr>
</tbody>
</table>

Of the 180 subjects studied for this analysis 69% were caned most often by males. The less-frequently caned group reported 63% male punitive agents and 37% female. Those frequently caned indicated that the punitive agent was male 78% of the time and female 22%. This indicates that males in the study were most likely to be the punitive agent in Africa. Individuals who are caned frequently are more likely to have a male punitive agent. It made little difference in I-E scores however (\( p = .3682; \) diff. in means = .06) whether the punitive agent was male or female. The main difference depended
upon whether or not caning occurred. There was a non-significant \( p = .3682 \) drift toward scores in the internal \( b = -.4526 \) direction for subjects punished primarily by females.

**Sub-hypothesis 6**

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when household type is added to the control variables of age and educational level.

Table 23 shows the ANCOVA data to test sub-hypothesis 6. When considered together the covariates of age, educational level, and household types did not individually show statistical significance in relationship to the main effect of differences in the I-E scores between individuals frequently and less-frequently caned. The null hypothesis was rejected at \( p = .0079 \). Seventy-nine percent of the 183 subjects compared reported monogamous households. Twenty-one percent indicated a childhood environment of polygamous family structures. Those less-frequently caned reported fewer (18%) polygamous households than those more-frequently caned (26%). Though statistically non-significant, there was a tendency for those from polygamous households to score more external \( p = .2622; b = .6464 \) on the I-E scale. Like mother's educational level, household type evidently influences frequency of caning which in turn relates to external I-E scores.
TABLE 23
ANALYSIS OF COVARIANCE FOR CANING (INDEPENDENT) AND I-E SCORE (DEPENDENT) WITH AGE, EDUCATIONAL LEVEL, AND HOUSEHOLD TYPES AS COVARIATES

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>d.f.</th>
<th>Mean square</th>
<th>F</th>
<th>Tail prob.</th>
<th>Beta est.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caning</td>
<td>66.29</td>
<td>1</td>
<td>66.29</td>
<td>7.22</td>
<td>.0079</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>13.12</td>
<td>1</td>
<td>13.12</td>
<td>1.43</td>
<td>.2333</td>
<td>-.0994</td>
</tr>
<tr>
<td>Ed. level</td>
<td>23.82</td>
<td>1</td>
<td>23.82</td>
<td>2.60</td>
<td>.1089</td>
<td>-.3058</td>
</tr>
<tr>
<td>Wives</td>
<td>11.61</td>
<td>1</td>
<td>11.61</td>
<td>1.27</td>
<td>.2622</td>
<td>.6464</td>
</tr>
<tr>
<td>All</td>
<td>81.20</td>
<td>3</td>
<td>27.07</td>
<td>2.95</td>
<td>.0342</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>1633.34</td>
<td>178</td>
<td>9.18</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 183 (107 less-caned subjects; 76 more-caned subjects)

Table 24 compares means, standard deviations, and adjusted means on the I-E scale between the two caning groups with household types added as a covariate to those of age and educational level. There was little difference between means and adjusted means (.07) indicating that differences in I-E scores due to household types added very little to the difference between caning groups when controlled for age and educational level. The difference in standard deviations suggests a low effect upon I-E scores with all covariates included. It made little difference in I-E scores whether or not the subjects came from polygamous or monogamous households.
TABLE 24

COMPARISON OF I-E MEANS AND STANDARD DEVIATIONS BETWEEN CANING GROUPS WITH AGE, EDUCATIONAL LEVEL, AND HOUSEHOLD TYPES AS COVARIATES

<table>
<thead>
<tr>
<th>I-E score</th>
<th>Less Caning</th>
<th>More Caning</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>9.25</td>
<td>10.41</td>
<td>1.16</td>
</tr>
<tr>
<td>Adjusted means</td>
<td>9.22</td>
<td>10.45</td>
<td>1.23</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.00</td>
<td>3.19</td>
<td>.19</td>
</tr>
</tbody>
</table>

Sub-hypothesis 7

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when social environment is added to the control variables of age and educational level.

Table 25 gives data for analysis of sub-hypothesis 7. When social environment was added to age and educational level, the relationship between I-E scores for less-frequent and frequent caning groups remained significant at \( p = .0070 \). It made little difference in I-E scores whether the subject was raised alone or with other children so long as the frequency of caning was the same. The null hypothesis was rejected.

Ninety percent of the 182 subjects reported that they had grown up mostly with other children (91% less-frequent, 89% more frequent). Those raised alone or with adults showed a non-significant \( (p = .7571) \) tendency toward external scores \( (b = .2358) \) possibly supporting the
TABLE 25

ANALYSIS OF COVARIANCE FOR CANING (INDEPENDENT) AND I-E SCORE (DEPENDENT) WITH AGE, EDUCATIONAL LEVEL, AND SOCIAL ENVIRONMENT AS COVARIATES

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>d.f.</th>
<th>Mean square</th>
<th>F</th>
<th>Tail prob.</th>
<th>Beta est.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caning</td>
<td>69.00</td>
<td>1</td>
<td>69.00</td>
<td>7.44</td>
<td>.0070</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>10.60</td>
<td>1</td>
<td>10.60</td>
<td>1.14</td>
<td>.2865</td>
<td>-.0889</td>
</tr>
<tr>
<td>Ed. level</td>
<td>17.27</td>
<td>1</td>
<td>17.27</td>
<td>1.86</td>
<td>.1743</td>
<td>-.2652</td>
</tr>
<tr>
<td>Soc. envir.</td>
<td>.89</td>
<td>1</td>
<td>.89</td>
<td>.10</td>
<td>.7571</td>
<td>.2358</td>
</tr>
<tr>
<td>All</td>
<td>67.04</td>
<td>3</td>
<td>22.35</td>
<td>2.41</td>
<td>.0688</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>1642.00</td>
<td>177</td>
<td>9.28</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 182 (106 less-caned subjects; 76 more-caned subjects)

notion that peer socialization helps a child to develop internal beliefs. It should be noted, however, that the group raised alone or with adults was quite small (18) for statistical comparison.

Table 26 compares means, standard deviations, and adjusted means on the I-E scale between the two caning groups with social environment included as a covariate, along with age and educational level. There was little adjustment (.05) in means due to the addition of covariates. The difference in standard deviations (.19) suggest a low effect of caning upon I-E scores.

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TABLE 26

COMPARISON OF I-E MEANS AND STANDARD DEVIATIONS BETWEEN CANING GROUPS WITH AGE, EDUCATIONAL LEVEL, AND SOCIAL ENVIRONMENT AS COVARIATES

<table>
<thead>
<tr>
<th>I-E score</th>
<th>Less Caning</th>
<th>More Caning</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>9.27</td>
<td>10.41</td>
<td>1.14</td>
</tr>
<tr>
<td>Adjusted means</td>
<td>9.27</td>
<td>10.46</td>
<td>1.19</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.00</td>
<td>3.19</td>
<td>.19</td>
</tr>
</tbody>
</table>

Sub-hypothesis 8

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when interaction between social environment and household types is added to the control variables of age and educational level. Table 27 presents data for analysis of ANCOVA for sub-hypothesis 8. When household types and social environment variables were combined for interaction, along with the covariates of age and educational level, in the ANCOVA model no interaction effect could be calculated because there was a perfect correlation between variables (no doubt due to the very small probabilities involved and rounding errors). None of the covariates were significant, either collectively or singly. The main effect remained significant at \( p = .0097 \). The null hypothesis was rejected.
<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>d.f.</th>
<th>Mean square</th>
<th>F</th>
<th>Tail prob.</th>
<th>Beta est.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caning</td>
<td>63.33</td>
<td>1</td>
<td>63.33</td>
<td>6.84</td>
<td>.0097</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>14.89</td>
<td>1</td>
<td>14.89</td>
<td>1.61</td>
<td>.2064</td>
<td>-.1072</td>
</tr>
<tr>
<td>Ed. level</td>
<td>19.35</td>
<td>1</td>
<td>19.35</td>
<td>2.09</td>
<td>.1501</td>
<td>-.2814</td>
</tr>
<tr>
<td>Soc. envir.</td>
<td>.39</td>
<td>1</td>
<td>.39</td>
<td>.04</td>
<td>.8367</td>
<td>.1575</td>
</tr>
<tr>
<td>Wives</td>
<td>12.60</td>
<td>1</td>
<td>12.60</td>
<td>1.36</td>
<td>.2450</td>
<td>.6825</td>
</tr>
<tr>
<td>Interaction</td>
<td>.00</td>
<td>1</td>
<td>.00</td>
<td>.00</td>
<td>1.0000</td>
<td>.0000</td>
</tr>
<tr>
<td>All</td>
<td>79.63</td>
<td>4</td>
<td>19.91</td>
<td>2.15</td>
<td>.0766</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>1629.79</td>
<td>176</td>
<td>9.26</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 182 (106 less-caned subjects; 76 more-caned subjects)

Table 28 compares means, standard deviations, and adjusted means on the I-E scale between the two caning groups when interaction was added as a control variable to age, educational level, wives, and time. There was relatively little (.07) added by the combined effects of covariates. The differences in standard deviations (.19) indicated a low effect of caning upon I-E scores with all covariates included.

Table 29 displays ANOVA data for analysis of caning relationships with no other effects considered.
TABLE 28

COMPARISON OF I-E MEANS AND STANDARD DEVIATIONS BETWEEN CANING GROUPS WITH AGE, EDUCATIONAL LEVEL, AND INTERACTION AS COVARIATES

<table>
<thead>
<tr>
<th>I-E score</th>
<th>Less Caning</th>
<th>More Caning</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>9.27</td>
<td>10.41</td>
<td>1.14</td>
</tr>
<tr>
<td>Adjusted means</td>
<td>9.24</td>
<td>10.45</td>
<td>1.21</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.00</td>
<td>3.19</td>
<td>.19</td>
</tr>
</tbody>
</table>

With all covariates removed, there was a significant difference between scores on the I-E between those who reported to have been caned less than once a year and those who reported that they had been caned more frequently than once a week ($p = .0132$).

TABLE 29

ANALYSIS OF VARIANCE BETWEEN FREQUENTLY CANED AND LESS-FREQUENTLY CANED GROUPS WITH I-E SCORES AS DEPENDENT VARIABLE

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>d.f.</th>
<th>Mean square</th>
<th>Mean</th>
<th>F</th>
<th>Tail Beta</th>
<th>prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caning</td>
<td>59.33</td>
<td>1</td>
<td>59.33</td>
<td></td>
<td>6.26</td>
<td>.0132</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>1714.54</td>
<td>181</td>
<td>9.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$N = 183$ (107 less-caned subjects; 76 more-caned subjects)

Means = 9.25 less-caned; 10.41 more-caned

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Summary

The main null hypothesis was rejected ($p = 0.0059$) in the anticipated direction in support of the experimental hypothesis. There was a statistical difference between I-E scores for those frequently caned and less-frequently caned when controlled for age and educational level. None of the following were significant as covariates when added to age and educational level: nationality, mother's educational level, caning period, polygamous/monogamous households, sex of the punitive agent, peer socialization vs adult supervision. There was a significant sex difference ($p = 0.0299$) with females scoring in the external direction, but the caning group relationships remained significant ($p = 0.0065$) beyond differences due to sex. With all covariates removed the relationship of frequent caning to external locus of control belief was significant at $p = 0.0132$.

When age and educational level were combined as covariates they were significant ($p = 0.0245$) underscoring their usefulness as control variables. As both increased there was an inclination for I-E scores to become more internal. When educational level was combined with age and time period of caning it became significant as a covariate at $p = 0.0373$.

Though not statistically significant, the following groups scored in the external direction on the I-E scale: those punished primarily by males, those from
polygamous households, and those punished in later years.

Household types and socio-economic levels seemed to influence I-E scores only as they affected the type of punitive practice used.

Scores on the I-E scale did not vary beyond chance between the African nations studied, providing the frequency of caning remained constant, suggesting some degree of generalization.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary and conclusions of the study, with discussion, implications of the findings, and recommendations for further research. The summary briefly describes the problem statement, review of literature, purpose of the study, methodology, and findings.

Problem and Procedures

Statement of the Problem

The practice of caning continues to exist in African countries. Educators need to know if this method of discipline is associated with positive or negative academic and social adjustment. Locus of control, as measured by the Rotter Internal-External Locus of Control Scale (I-E) (Rotter, 1966/1982), has been linked to a number of relevant academic and social variables in the western world. No African studies have been reported relating caning to locus of control.

Purpose of the Study

The purpose of this study was to compare self-reported punitive practice to scores on the I-E scale in
order to determine if there was a relationship between caning and external locus of control among selected African secondary and college students. The study further analyzed the effects of the following moderator variables upon the relationship of caning to locus of control: sex differences, sex of the punitive agent, social class, household types, social environment, nationality, and time period of punitive practice.

**Experimental Hypothesis**

It was hypothesized that African students selected who reported that they had been beaten with an instrument of punishment as often as once a week at home or school would score significantly more in the external direction on the I-E scale than would their fellow students who reported to have been caned less than once a year or not at all, when age and educational level were controlled.

In addition to this main hypothesis, moderator variables of sex, nationality, mother's education, household types, social environment, and time period of caning were studied.

**Overview of Related Literature**

Social-learning theory postulates that a person is influenced by beliefs about outcomes as well as by learned expectancies (Rotter, 1954). Hence, if a person does not succeed at a task, he/she may learn to feel
helpless (Hiroto, 1974; Hiroto & Seligman, 1975; Mowrer & Viek, 1948; Seligman & Maier, 1967). This contributes to a belief that circumstances dictate outcomes in life. A person who attributes outcomes to chance, luck, fate, or powerful others has an external locus of control belief (Rotter, 1966/1982, 1975, 1982). The person who believes that what happens to him/her primarily depends upon personal choice, initiative, or responsibility has internal belief (Lefcourt, 1976; Rotter, 1966/1982; Phares, 1976). In 1966 Rotter published "General Expectancies for Internal Versus External Control of Reinforcement," which included the instrument for measurement of locus of control. Layton (1985) recently affirmed stability on this scale by means of correlations between test-retest scores. A recent study (Ashkanasy, 1985) supported unidimensionalilty of the scale and concluded that it measures a unitary personality variable.

Those individuals assessed as internal in locus of control beliefs were reported to rate higher in school achievement (Brog, 1985; Findley & Cooper, 1983; Kennelly & Mount, 1985; Messer, 1972; Phares, 1976; Traub, 1982), cognitive activity (DuCette & Wolk, 1972; Lefcourt et al., 1973; Williams & Stack, 1972), perseverance (Hiroto, 1974; Seligman & Maier, 1967), and internal morality (Guthrie 1985; James et al., 1965; Johnson et al., 1968; Johnson & Gormly, 1972; Lundy, 1972; MacDonald, 1971; Straits & Sechrest, 1963; Tzuriel, 1985).
Parental antecedents of internal locus of control are warmth, nurturance, and freedom (Katkovsky et al., 1967; MacDonald, 1971; Nowicki & Segal, 1974). External locus of control beliefs are linked with authoritarian (Tolor & Jalowiec, 1968; Levenson, 1973), directive (Loeb, 1975), severe (Bruhn, 1976), and ordering (Chandler et al., 1980) parental disciplinary practice.

Hoffman and Saltzstein (1967) reported that mothers were more effective punitive agents, while Bronfrenbrenner (1961) found that parents of the same sex as the child were most effective. Mother's employment status and educational level have proven the most significant social class predictors of internal control orientation (Santa Rita, 1980).

Whiting and Whiting (1960) concluded that an African child raised with adult supervision may have less practice in self-control. Whiting and Child (1953) reported a high guilt among African children disciplined with love-orientation, those involved in early socialization, and those from monogamous households. They also noted peer socialization as a likely contributor to group responsibility, and combinations of monogamous household and peer socialization as predicting guilt.

Caning has been reported (Whiting, 1963) to be the most frequently used method of punishment among East African tribes. The period of 18 months to 3 years was
reported to be one of severe punishment for the child's infantile dependency behavior. According to Whiting (1963), physical punishment to curb impulsive activities took place most frequently between the ages of 3 to 10 years. More than 85% of African mothers questioned mentioned caning as first in importance for children between 3 and 6 years of age. In general the more educated families in Nigeria seem to favor earlier independence and less punitive and less conformity-producing modes of discipline (Bloom, 1982).

Several researchers have reported using the I-E scale, or forms of it, for African studies (Furnham & Henry, 1980; Maqsud, 1981; Reimanis, 1982; Reimanis & Posen, 1980; Riordan, 1981). Internal consistency was noted when comparing like groups.

Methodology

This research was an ex post facto design which investigated the extent to which reported punishment by caning corresponded to internal-external locus of control as measured by the Rotter I-E scale. The study evaluated various moderator variables.

Research Design

The independent variable was self-reported punitive practice. The dependent variable was the score achieved on the I-E scale. Moderator variables were sex of the punitive agent, peer socialization vs. adult
supervision, polygamous vs. monogamous households, sex and social class of the subject, nationality, and time period of caning. Variables controlled were age and educational level.

Population and Sample

The population for this investigation was Africans between the ages of 17 and 31 years enrolled in Seventh-day Adventist African Schools. This included: (1) all first- and second-year students enrolled in a regular college program in selected colleges and seminaries; (2) all first- and second-year students in selected teacher training colleges; and (3) all students in their final year at selected secondary schools.

Instrumentation

Instrument for assessment of punitive practice

Data describing punitive practice, sex of the punitive agent, household type, socialization, sex, social class, nationality, and time period of caning were gathered using an "Educational Survey" instrument developed at the University of Eastern Africa for the assessment of punitive practice. (See appendix A)

The Rotter (I-E) locus of control scale

The Rotter Internal-External Locus of Control Scale (Rotter, 1966/1982) measures locus of control beliefs. It consists of 23 forced-choice items. The
responses indicating external belief are totaled to give the score. The Rotter scale was selected for this research because the purpose of the study was to relate to the broad concepts of locus of control.

Cultural adaptation of Rotter scale

To effect construct validity of the I-E instrument in the African culture, experts were asked to rate the individual items. Items 6 and 15 failed to meet inter-rater criterion. They were replaced by items 33 and 31, respectively, which were developed by the researcher (appendix B). Item 3 was rated low by item analysis and was replaced by item 30 designed by the researcher.

The I-E scale was administered in its original form with the extra items included as part of the instrument. After exchanging replacement items through the scoring process, the total of 23 items remained the same as the standard scale. Overall, the culturally adapted I-E instrument obtained a reliability coefficient alpha of .55. The ability of the Rotter instrument to manifest reliability in an African context is consistent with prior findings (Reimanis, 1982; Riordan, 1981).

Analysis of Data

One main hypothesis and eight sub-hypotheses were tested by means of nine separate one-way multiple classification ANCOVA analyses using BMDP2V computer
programs ("Analysis of Variance," 1977) with test for significance set at the alpha = .05 level.

Results and Discussion

Main Hypothesis

The expected relationship of caning to external locus of control which was projected in the experimental hypothesis was stated for statistical testing as follows: African students who report that they have been caned during childhood, at home, or in primary or secondary school as often as once a week will not score significantly more in the external direction on Rotter Internal-External Locus of Control Instrument than those who report to have been caned less than once a year or never, when controlled for age and educational level.

This null hypothesis was rejected in the anticipated direction, in support of the experimental hypothesis. Those who reported that they had been caned as often as once a week or more scored significantly more (p = .0059) external on the I-E scale than did those who indicated that they had been caned less than once a year. This was true no matter what ages (between 17 and 31) or educational level (between 2nd-year secondary and 2nd-year university) were involved. As individuals increased in age there was no significant change in their locus of control orientation. Likewise as they progressed in education there was no measurable indication beyond chance that their scores were more or less external.
This means that the difference in scores between those frequently caned and less-frequently caned was not due to age or educational differences. Though not statistically significant there was an indication that as one advanced in age and educational experience he/she tended to score less external. This is what one would expect since advancement in experience should give one a sense of more control over environment. When combined, age and educational level were significant ($p = .0245$) underscoring their usefulness as control variables.

There was not evidence of a great effect of caning upon I-E scores. One would not expect wide ranges of differences in scores between those caned frequently and those caned less frequently, but there was an indication that it was not by chance that the two groups scored differently.

**Sub-hypothesis 1**

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when sex is added to the control variables of age and educational level.

This null hypothesis was rejected. There was a significant correlation between frequent caning and external scores ($p = .0065$) beyond that due to sex, age, and educational level. Sex differences did not account for the relationship between caning and external scores. The covariate sex showed a significant relationship to
differences in I-E scores, however ($p = .0299$), with females showing a tendency to score in an external direction. This is what one may expect since African females exist in a male-dominant society.

Sub-hypothesis 2

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when nationality is added to the control variables of age and educational level.

This null hypothesis was rejected. When allowance was made for differences that may occur due to diverse nationalities studied there was a significant correlation between frequent caning and external scores ($p = .0066$) with age and educational level as covariates.

This means that irrespective of country of origin those caned more frequently scored in an external direction on the I-E scale. It also suggests generalization of findings to the countries studied.

Sub-hypothesis 3

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when mother's educational level is added to the control variables of age and educational level.

This null hypothesis was rejected. When differences that may occur due to the educational level of the mothers of subjects were measured out there was
still a significant correlation between frequent caning and external scores \( (p = .0054) \) when controlled for age and educational level. Contrary to what would be expected, as mother's educational level increased the student tended to score more in the external direction (non-significant \( p = .5600; b = .0815 \)) when studied in combination with the age and educational level. This would suggest that previous studies relating higher mother's educational level with internal scores were measuring the secondary effect of type of punishment administered by parents of different social class. It appears that caning by an educated mother would relate to external scores as much as (perhaps more than) caning by an uneducated one. It is also possible that educated parents are not the major influence in the lives of their children since they often work outside the home and send their children to boarding schools.

**Sub-hypothesis 4**

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when time period of caning is added to the control variables of age and educational level.

This null hypothesis was rejected. When allowance was made for differences that may occur due to effects of being caned primarily at given ages there was a significant correlation between frequent caning and external scores \( (p = .0165) \) with age and educational
level as covariates. It made little difference whether a child had been caned primarily during younger years or when he/she was older. There was a non-significant tendency that if a child was primarily caned at an older age he/she scored more in an external direction.

Sub-hypothesis 5

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when sex of the punitive agent is added to the control variables of age and educational level.

This null hypothesis was rejected. There was a significant correlation between frequent caning and external scores ($p = .0103$) beyond any differences due to sex of the punitive agent, age and educational level. The difference in I-E scores between those frequently caned and less-frequently caned was not due to differences that might occur by having been caned by a certain sex. Males were the primary punitive agent and those caned frequently were most often caned by males.

Sub-hypothesis 6

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when household type is added to the control variables of age and educational level.

This null hypothesis was rejected. When differences that may possibly be due to divergent
influences from monogamous or polygamous households were excluded there remained a significant correlation between frequent caning and external scores ($p = .0079$) with age and educational level controlled.

This means that the variance in scores between those frequently caned and those less-frequently caned was not due to influences of household types. Those raised in polygamous households scored very little different from those raised in monogamous ones provided they had been caned with similar frequency. Children raised in polygamous households were caned slightly more frequently than those raised monogamously. However, only 21% of the group used for the main hypothesis reported that they came from polygamous households. Though not statistically significant, those raised in polygamous households scored in the external direction.

Sub-hypothesis 7

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when social environment is added to the control variables of age and educational level.

This null hypothesis was rejected. When allowance was made for differences that may occur due to a child's growing up mostly with other children or under adult supervision there remained a significant correlation ($p = .0070$) between frequent caning and external scores with age and educational level as covariates.
Sibling companionship seemed to have little relationship to I-E scores. Those raised alone or with adults did not score significantly different than those raised with other children. It should be noted however that only 10% of those individuals counted in the study reported that they had been raised alone or with adults. Those who had been raised with other children were caned slightly less than those raised alone or with adults.

Sub-hypothesis 8

There will be no significant difference in I-E scores between less-frequently and frequently caned groups when household type and social environment are combined and added to the control variables of age and educational level.

This null hypothesis was rejected. Even when allowance was made for differences that may occur due to combined effects of household types and social environment there was still a significant correlation between frequent caning and external scores ($p = .0053$) with age and educational level as covariates.

Conclusions

The conclusion was reached that the relationship between frequent caning and locus of control is not by accident. ANCOVA analysis showed a significant relationship between frequently caned individuals and external scores on the I-E scale regardless of what
combinations of covariates were included. Only sex and educational level were significant as covariates. It made little difference in variances in I-E scores between caning groups whether or not covariates were included.

The possibility that nationality, social class, age, period of caning, sex of the punitive agent, household type, or social environment may cause the differences in I-E scores was eliminated. Only caning, sex differences, and educational level related significantly to differences in I-E scores. There was a significant difference in I-E scores between caning groups even when the differences due to age, educational level, and sex were removed. Caning emerged as a likely cause of external I-E scores.

The fact that differences in nationality were not significant increases the likelihood that results may be relevant to a broader population.

Social class as measured by mother's educational level failed to predict internal orientation when studied with caning. This points to type of punishment as more related than other factors of social environment in the relationship of parental antecedents to locus of control.

The adapted I-E scale was a stable instrument in like African cultures.

The technique of asking a school authority to group individuals together to fill out questionnaires is productive in Africa.
Implications

There are practical implications from this study. Since external locus of control has been related, in other populations, to limited academic achievement, perseverance, and self control, it is likely that caning relates to these social variables as well in Africa.

It is likely that the African student who is caned very frequently will generally maintain a lower grade point average than the student caned infrequently, even though abilities are similar. The individual caned frequently may be slower at grasping the meaning of ensuing events. He/she may be limited in cognitive activity.

The person frequently caned will likely have more of a tendency to give up on a task than the one caned very little. It is also likely that a person frequently caned will have a tendency to experience less guilt, yield more readily to temptation, be more subject to outside influences than internal control, and consider himself/herself more worthy of harsh punishment than those receiving little caning.

Though these tendencies are probable, it must be recognized that no cause-effect relationship can be established from a correlational study. It must also be recognized that the differences in means and standard deviations between the two groups are minimal and therefore the possible effects in the areas described are likely minimal. In other words, it is likely that caning
does make a difference in the areas mentioned but not such a great difference that a person frequently caned should become discouraged. The practical outcome of the study should simply point to the fact that better methods of discipline will be more productive of good.

Theoretically, locus of control may be influenced by physical punishment. A removal of responsibility from an individual by means of coercion, a loss of a sense of being able to satisfy one's own needs, reinforced by inflicted pain, may result in a conditioned locus of control belief that it is useless to try to satisfy one's own needs.

If a person becomes conditioned to believe that his/her actions or choices do not generally bring positive results then he/she may trust less in his/her own choice and yield more to outside pressure. This might well result in a morally weak individual who would conform as long as he/she were watched but would have little internal motivation to do right.

Furthermore, the person frequently caned may well develop an aversion toward the imposed external standard because it is a threat to freedom. In an attempt to hold on to personal freedom, that individual may react against the external pressure and end up doing the very thing that is prohibited by it. Hence an outward conformity would be coupled with an inward rebellion.

The child frequently caned may also attribute to
himself/herself characteristics of a bad person and then tend to live up to those attributions because the belief would prevail that better behavior is not possible of such a person who is so bad that he/she must be frequently caned.

**Recommendations**

**Practice**

It is highly recommended that religious educators and parents in Africa primarily use methods other than caning to discipline children. According to other studies and possible implications of this study, a love-oriented discipline which is warm and understanding, and which relates acts to natural consequences, is more productive of internal locus of control beliefs.

Children should see a natural consequence to disobedience that works against the satisfaction of their own needs. If the child can be trained to act in socially responsible ways in order to satisfy his/her own needs, then a conditioned belief should result that individual initiative is productive.

African children have a natural closeness to their mothers. Their need for love should motivate acts from the standpoint of need for acceptance. They also should have a need to make their parents happy and thus be able to empathize with them. Attention could be directed to the way that basic needs such as comfort, security, self-preservation, and approval from others...
are satisfied by actions on the part of the individual.

A child could be shown, for example, that if one eats maize (corn) before it is planted he/she will not have food to eat. It would be well in the African context to establish natural rewards for promptness, proper dress, socially acceptable behavior, and learning. The educator should carefully assess whether or not a student has control over the fault for which he/she is being punished. Natural rewards might be related to basic needs such as food or clothes. Perhaps a child would be allowed to plant a garden, water a banana plant, and eat from it if they came on time. Some could be shown how to make clothes.

Rewards and praise for socially responsible acts should reinforce the belief that positive choices are productive. No stronger punishment should be used than is necessary to bring about compliance. Positive motives should be attributed to children both verbally and non-verbally. Physical punishment should be the exception rather than the rule.

Research

The conclusions of this research should encourage more studies in the area of physical punishment as an antecedent of external locus of control. In Africa, caning could well be related to lower academic achievement, helplessness, lack of perseverance, and external morality. The relationship between social class
and locus of control could be explored. Further studies comparing differences between those primarily caned at home versus those caned primarily at school would be of interest. Studies isolating caning from other possible external related antecedents should prove fruitful. The whole spectrum of the relationship of social variables to locus of control is yet to be investigated in Africa.

It would be well to extend similar studies to broader populations comparing possible influences of different religious groups.

For future studies it would be well for the I-E instrument to be further adapted to the specific culture involved.
APPENDIX A
Educational Survey
INTRODUCTION

1. Do NOT put your name on the paper.
   No one will know how you answer.

2. Be absolutely honest.
   There is no reason to fear because the questions are not embarrassing, but it is essential to be completely honest. Since your name will not be on the paper it will be as safe as a medical record. Many schools are being surveyed and no names of schools will be mentioned in the study. There are ways built into the survey to tell if one is not honest.

3. Do not take long on any one item.
   The questions are not complex. There are no right or wrong answers on the opinion part. There is no grade. The study is just in the interest of science and better living.

4. The study is about home backgrounds and opinions
   What is needed is honest facts about your background and your honest opinions concerning how you feel about the present.

5. The study will benefit you.
   The study will help show what can be done to help students reach their maximum potential academically and socially. This information will be available if there is evidence that questions are answered honestly and carefully.

6. Re-check to make sure you have answered each question.

7. Give the ONE BEST answer ONLY.
   You may find that more than one answer is true. In that case circle the letter of the one that is MOST true. In one instance the question asks for more than one answer, but in all others, give only one.
**EDUCATIONAL SURVEY**

Place a tic in the appropriate boxes for the ONE best answer

(A) **YOU ARE A CITIZEN OF WHAT COUNTRY?**

<table>
<thead>
<tr>
<th>Country</th>
<th>Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>1</td>
</tr>
<tr>
<td>Kenya</td>
<td>2</td>
</tr>
<tr>
<td>Malawi</td>
<td>3</td>
</tr>
<tr>
<td>Nigeria</td>
<td>4</td>
</tr>
<tr>
<td><em>Other:</em></td>
<td></td>
</tr>
</tbody>
</table>

(B) **WHAT IS YOUR RELIGION?**

<table>
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<tr>
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<th>Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.I.C.</td>
<td>9</td>
</tr>
<tr>
<td>Anglican</td>
<td>10</td>
</tr>
<tr>
<td>Baptist</td>
<td>11</td>
</tr>
<tr>
<td>Catholic</td>
<td>12</td>
</tr>
<tr>
<td>Other: (specify)</td>
<td></td>
</tr>
</tbody>
</table>

Mark here if active in your church:  

(C) **WHAT IS YOUR AGE IN YEARS?** (leave blank if under 17 or over 31)

<table>
<thead>
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<th>Age</th>
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</thead>
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<td>18</td>
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<td>30</td>
<td></td>
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<tr>
<td>31</td>
<td></td>
</tr>
</tbody>
</table>

(D) **Your sex.**  

<table>
<thead>
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<th>Box</th>
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<tr>
<td>Male</td>
<td>32</td>
</tr>
<tr>
<td>Female</td>
<td>33</td>
</tr>
</tbody>
</table>

(E) **WHAT IS THE HIGHEST LEVEL YOUR FATHER STUDIED IN SCHOOLS?**

<table>
<thead>
<tr>
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</thead>
<tbody>
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<tr>
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</tr>
<tr>
<td>Secondary</td>
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<tr>
<td>University</td>
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<table>
<thead>
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<th>Has completed:</th>
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<tbody>
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<td>Secondary</td>
<td>38</td>
</tr>
<tr>
<td>University</td>
<td>40</td>
</tr>
</tbody>
</table>

(F) **WHAT IS THE HIGHEST LEVEL YOUR MOTHER STUDIED IN SCHOOLS?**

<table>
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</thead>
<tbody>
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<tr>
<td>Secondary</td>
<td>44</td>
</tr>
<tr>
<td>University</td>
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</table>

<table>
<thead>
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<th>Box</th>
</tr>
</thead>
<tbody>
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<td>Primary</td>
<td>43</td>
</tr>
<tr>
<td>Secondary</td>
<td>45</td>
</tr>
<tr>
<td>University</td>
<td>47</td>
</tr>
</tbody>
</table>

(G) **WHAT LEVEL ARE YOU NOW STUDYING?**

<table>
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<th>Level</th>
<th>Box</th>
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</thead>
<tbody>
<tr>
<td>Secondary:</td>
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<tr>
<td>1st yr.</td>
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<tr>
<td>2nd yr.</td>
<td>51</td>
</tr>
<tr>
<td>3rd yr.</td>
<td>53</td>
</tr>
<tr>
<td>4th yr.</td>
<td>55</td>
</tr>
<tr>
<td>Teacher Training:</td>
<td></td>
</tr>
<tr>
<td>1st yr.</td>
<td>49</td>
</tr>
<tr>
<td>2nd yr.</td>
<td>51</td>
</tr>
<tr>
<td>3rd yr.</td>
<td>53</td>
</tr>
<tr>
<td>4th yr.</td>
<td>55</td>
</tr>
<tr>
<td>University:</td>
<td></td>
</tr>
<tr>
<td>1st yr.</td>
<td>50</td>
</tr>
<tr>
<td>2nd yr.</td>
<td>52</td>
</tr>
<tr>
<td>3rd yr.</td>
<td>54</td>
</tr>
<tr>
<td>4th yr.</td>
<td>55</td>
</tr>
</tbody>
</table>
(H) About what portion of your childhood have you been in the same house with your mother?

Most of my life <___> 56 3/4 of my life <___> 57
1/2 of my life <___> 58 Little or none <___> 59

(I) About what portion of your childhood has your father been in the same house with you?

Most of my life <___> 60 3/4 of my life <___> 61
1/2 of my life <___> 62 Little or none <___> 63

(J) IN YOUR HOME or SCHOOL: Have you EVER been CANED (beaten with a stick or instrument of punishment)?

No <___> 64, Yes <___> 65

[If answer is no, skip to question (N)]

(K) IN YOUR HOME: How often were you caned?

Sometimes as often as once a week or more . . . . <___> 66
Less than once a week, but more than once a month? <___> 67
Less than once a month, but more than once a year? <___> 68
Less than once a year ? ................................<_ _ _> 69

(L) IN SCHOOL: How often were you caned?

Sometimes as often as once a week or more . . . . <___> 70
Less than once a week, but more than once a month? <___> 71
Less than once a month, but more than once a year? <___> 72
Less than once a year ? ................................<_ _ _> 73

(M) FOR ABOUT WHAT PORTIONS OF YOUR LIFE DID YOU EXPERIENCE CANING AS A MEANS OF PUNISHMENT? (check all that apply)

During ages 1 - 6 <___> 74 During ages 7 - 10 <___> 75
During ages 11 - 14 <___> 76 During ages 15 - 17 <___> 77

(N) WHENEVER YOU WERE PUNISHED FOR ANYTHING IT WAS MOST OFTEN BY:

Caning . . . . <___> 78 Some other method <___> 79

(O) WHENEVER YOU WERE PUNISHED FOR ANYTHING IT WAS MOST OFTEN BY:

A man . . <___> 80 A woman . . <___> 81

(P) WHEN YOU GREW UP, HOW MANY WIVES DID YOUR FATHER HAVE AT HOME?

Only one wife <___> 82 More than one wife <___> 83

(Q) AS A CHILD HOW DID YOU SPEND MOST OF YOUR TIME?

With other children <___> 84 Alone or with adults <___> 85
APPENDIX B
Additional Items for Rotter Scale
REPLACEMENT ITEMS FOR ROTTER SCALE

30. a. One major reason that we have so many wars is people do not try hard enough to prevent them. 
b. Wars will always come, whether we try to prevent them or not.

31. a. Becoming a success is a matter of hard work; luck has little or nothing to do with it. 
b. People are successful mostly because they happen to be in the right place at the right time.

32. a. There is little I can do about the way things go in my village, since no one listens to me. 
b. Village elders usually would consider my point of view as valid.

33. a. People who get others to do things are just lucky. 
b. Getting people to do the right thing depends on ability; luck has little or nothing to do with it.

34. a. As far as world affairs are concerned, most of us are victims of forces we can neither understand nor control. 
b. By improving ourselves we can, in the long run, change world events.

35. a. When something bad happens in the village it is mostly because bad things just happen. 
b. When something bad happens in the village it is mostly because someone has made mistakes.

Scoring: External Items

30. b, 31. b, 32. a., 33. a., 34. a., 35. a.
APPENDIX C
Letter to Principals and Headmasters
James R. Kilmer  
c/o W.T. Touchard  
707 Highland Drive  
Berrien Springs, Mi. 49103  
May 15, 1986  

Dr. Roland McKenzie  
Solusi Adventist College  
Private Bag T-5399  
Bulawayo, Zimbabwe  

Dear Dr. McKenzie:  

I am writing to solicit your professional assistance. During our stay in Kenya we came to appreciate the great potential for our people in the area of education. However, more research is needed in order to relate instruction to the African context.  

Under separate cover I am sending to you 136 educational survey questionnaires. My request is that you collect all college students and ask them to fill out the survey sheets. Then return them to me in the pre-addressed envelope which is included in the package. I am sending money for return postage. The information will be kept in the strictest confidence according to guidelines for research. No names of individuals will be used in the study or even known. Nor will the names of schools be mentioned in the study. It is general information that is needed.  

I am enclosing letters from the chairman of my committee, as well as from the dean of the Graduate School here at Andrews. Instructions are included in the packet and should be read to the students when they answer the questionnaires.  

The research will give guidelines for our teachers in training so that they may lead our students into their maximum potential in development and service. Thank you sincerely for your help.  

Yours in the Service of the Lord Jesus  

James R. Kilmer  

P.S. This packet has only c. 110 copies. Only need Freshmen & Sophomores
APPENDIX D
Letter from Dean of Graduate School

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TO WHOM IT MAY CONCERN:

This is to certify that Mr. James R. Kilmer is a doctoral candidate at Andrews University, has completed all of his course work and examinations, and is a bonafide candidate for the Doctor of Philosophy degree. He is now at the dissertation stage, and has the endorsement of his dissertation guidance committee for his pursuit of the dissertation topic: "The Relationship of Caning to Internal-External Locus of Control Among Specified College and Secondary School Students in Africa."

This is to certify that this is an approved doctoral research project, under the responsible guidance of our faculty and will be handled in all professional restraint and confidentiality, as outlined in Mr. Kilmer's request to you.

If there are any further questions you might have on the legitimacy of this research or its usage, please feel free to contact me or his dissertation chairman, Dr. Donna J. Habenicht.

We hope that you will be able to assist Mr. Kilmer on this very important project. Thank you.

Yours very sincerely,

Arthur O. Coetzee, Dean
School of Graduate Studies

cc: Dr. Donna J. Habenicht

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APPENDIX E
Letter from Chairperson
Dear

The Graduate School at Andrews University is especially interested in guiding students in research which may be of value to the Seventh-day Adventist church. Mr. James Kilmer, a doctoral candidate in Religious Education, is pursuing a research topic for his dissertation which relates disciplinary practices during childhood and adolescence to character development. We feel this topic could have great significance for Adventist schools and families in Africa. Mr. Kilmer's interest in this topic was sparked by the years he taught at University of East Africa.

As chairman of his dissertation committee, I very much appreciate your willingness to consider Mr. Kilmer's request for assistance in contacting individuals to participate in his study. I do hope students from your school will be part of this study, as we would like to have all the English speaking colleges in Africa represented in the final data.

Thank you very much for your cooperation and interest. May God bless you daily as you work with young people.

Sincerely,

Donna J. Habenicht, Ed.D.
Associate Professor of Educational and Counseling Psychology

DJH/ms
APPENDIX F
Questions for Inter-raters

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SAMPLE QUESTIONS TO BECOME ACQUAINTED WITH PROCESS

FOR EACH ITEM BELOW:

Circle only the letter for the answer which you think a person would circle who believes that events happen because of luck, fate, chance, or manipulation by others. Do not circle the answer which you think a person would circle if he/she believed himself/herself to be responsible for actions. Keep your homeland culture in mind. Note that neither answer may be true.

Example with answer:

1. a. If I fall off my bicycle, it is usually because accidents just happen.
   b. If I fall off my bicycle it is usually because I am not careful when riding.

   In this case you would circle a. You would not circle b. Answer a. shows that the person thinks that chance played more a part in the accident than did one's own responsibility.

Examples for you to try:

2. a. Famine can be prevented in most cases.
   b. A person can do nothing to stop starvation.

3. a. My position in life is due mostly to where I was born.
   b. What I am in life is due mostly to my own decisions.
APPENDIX G
Data File
REFERENCES


VITA

NAME: James R. Kilmer

DATE OF BIRTH: September 14, 1940

PLACE OF BIRTH: Forks, Washington

EDUCATION:

1963 Bachelor of Arts - Biblical Languages/Religion
   Walla Walla College

1965 Master of Arts - Systematic Theology
   Andrews University

1966 Master of Divinity - Systematic Theology
   Andrews University

1988 Doctor of Philosophy - Religious Education
   Andrews University

PROFESSIONAL EXPERIENCE

1966-77 Pastor
   Oregon Conference of Seventh-day Adventists

1977-78 Assistant Professor of Religion
   Middle East College

1979-85 Assistant Professor of Religion/Pastor
   University of Eastern Africa

1986- Director of Sabbath Schools
   Upper Columbia Conference of Seventh-day Adventists

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