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SOCIAL REASONING IN BOYS: AN EVALUATION OF SELMAN'S THEORY OF SOCIAL UNDERSTANDING

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SOCIAL REASONING IN BOYS:

AN EVALUATION OF SELMAN'S THEORY OF

SOCIAL UNDERSTANDING

BY

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ABSTRACT

SOCIAL REASONING IN BOYS:
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The purpose of the study was to test Selman's theory of social understanding. To this end, the study examined first, the correlations between boys' levels of reasoning on hypothetical stories and in practical situations. Secondly, it sought to determine the degree to which the theory accurately reflects real behavior, or indicates variation in stage usage in a real-life situation. Thirdly, the study examined how strongly the theory correlates with a well-established scale of social development (Vineland Scales of Social Maturity).

Ninety male subjects were pretested using Selman's social dilemmas. Sixty boys from grades 2 through 8 were identified to represent levels 1, 2, and 3. Forty-eight of these boys participated in a hypothetical condition and in a real-life condition each containing a comparable social dilemma in order to ascertain the relevance of Selman's theory of social understanding in a naturalistic setting. A high level of

inter-rater reliability and agreement were obtained and maintained.

Results indicated that the boys' real-life behavior and response to hypothetical stories were highly correlated. An analysis of each of the seven basic "issues", across levels of social understanding, was conducted. Results again indicated highly significant correlations between each of the seven "issues" and the two conditions. A discussion was presented in terms of their efficacy as basic ingredients in arriving at a level of reasoning.

Finally, no correlation between the theory and the Vineland Scales of Social Maturity was found. This result was attributed to the insensitivity of the Vineland to the nuances of social reasoning.

Areas of future research and educational implications are discussed.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

During the last ten years, structuralist views of developmental psychology have accepted evidence that social events display less stability than physical events (Damon, 1977). Social knowledge is viewed as more uncertain and sensitive to current informational conditions than physical knowledge. Therefore, one could expect characteristic differences in both the type of information processed and the manner of its processing in the social as opposed to the nonsocial world.

This thinking has been reflected in increase research on social interaction and its effects on cognition (Smedlund, 1966; Murray, 1972; Zimmerman & Rosenthal, 1972; Kuhn, 1974; Doise, et al., 1975 & 1976).

The two major theories that have guided the study of cognitive development are social learning and cognitive stage theories. Social learning theory views children's cognitive acquisitions as the result of social learning, particularly modeling. Stage theorists, on the other hand, view development as an ontogenetic, hierarchical sequence of progression of stages.

In studying the concept of the development of social knowledge, it can be argued that the universal transformations or reorganizations of cognitive operations which developmentalists discuss do not occur in a vacuum, regardless of the extent to which they are self-generated. Individuals, in fact, develop within very specific and complex intellectual, social, historical, and cultural contexts. Piaget (1971) stated that all knowledge was essentially social, in that knowledge is constructed within a social context. Bearison (1984) maintained that "all knowledge is inherently social in that the ontogenesis of mental development is motivated and maintained by social discourse."

In much of the research on Piagetian theory, there has been a paucity of study on social context and the effect on learning.

Kuhn (1978) addresses classification and seriation as used by Piaget, to study cognitive development in terms of their generality as concepts. She states that this generality makes it possible to both theoretically conceptualize and empirically study their emergence without considering the specific contexts in which the development is occurring. With few exceptions,

we all eventually develop the concepts of classification and seriation and this development is not so dependent upon context, as they are not tied to any particular context. However, she points out that less general concepts in contrast allow for the analyses of specific individual-environment interactions which are likely to be of substantial value in providing clues as to the mechanisms that govern the construction of these concepts. As an example, if one observes a behavior to at be at variance with a person's professed judgments or beliefs, that behavior nevertheless is a reflection of some sort of antecedent determinants and these determinants can be regarded as having both an external, environmental aspect and an internal cognitive aspect (Kuhn, 1978).

The importance of studying behavior within a social context is clearly of major importance in the literature. However, it may be said that Piagetian research has been generally reticent to fully integrate the social aspect into their theory.

Selman is perhaps the only cognitive stage theorist to formulate a theory based on social understanding.

It is clearly necessary that one establish a comprehensive historical perspective of the theory of cognition. Therefore it becomes essential to study the contributions of Social Learning theory.

Social Learning Theory

Social learning theory views the child's behavioral and conceptual acquisitions as the result of social learning, especially modeling. Social learning theorists view such concepts as conservation as a socially mediated form of rule learning. Such factors as the model's ability to present the rules in a clear and consistent manner are emphasized as the key to children's acquisition (Zimmerman, 1977). Social learning theory, as formulated by Bandura (1971 & 1977) depicts rule learning through modeling as the specified form of social interaction in which cognitive concepts are attained.

A study by Rosenthal and Zimmerman (1972) was perhaps the first to examine the influence of modeling on children's conservation performance. First grade children were pretested using the Goldschmid & Bentler Concept Assessment Kit (1968) in order to determine their level of conservation. Non-conserving children were either assigned to an experimental modeling condition or to a control condition. In the modeling condition children observed an adult female who gave conservation responses to six different tasks. Following this session all of the children were posttested

using the same pretest items. In order to study the transfer of conservation to new tasks, a parallel test form was administered. The control group did not observe the model but were given the same tests as the modeling group.

The results indicated that non-conserving children who witnessed a conserving model made significant gains in conservation tasks compared to control group children. As a further indication of the efficacy of modeling, Rosenthal and Zimmerman found that conservers who viewed a non-conserving model significantly reduced their conservation judgments in the immediate posttest. Other studies (Zimmerman & Lanaro, 1974; Zimmerman & Rosenthal, 1974) have also provided empirical support for the positive effects of observing an adult model on subjects' conservation performances.

Robert and Charbonneau (1977) demonstrated that a nonconserving adult model must be present during both observation and post-test phases in order to induce a significant proportion of conservers to revert to nonconserving. In a later study, Robert and Charbonneau (1978) found that reversals in conservation occurred only in the presence of an adult experimenter who remained a part of the experimental situation.

They argued that conservation reversals brought about by modeling procedures may be a function of the subjects' submissiveness to social influence features in the experimental procedures. That is, the model's presence becomes critical at the moment when subjects must commit themselves to either adoption or rejection of modeled nonconservation.

Murray, J. P. (1974) research provided further clarification of the magnitude of modeling effects by examining both subjects' initial level of development and the types of models that were observed. Initial pretesting of children ages 5 to 10 years on the conservation of substance -- clay and substance -- liquid identified these levels of concept attainment. Conservers were defined as children who achieved a perfect score in both conservation tasks, non-conservers by their failure on both, while partial conservers only correctly answered one of the tasks. Results indicated that positive modeling effects were dependent upon the child's initial level of cognitive development. PC subjects benefited from observing a C peer model. However, NC who had observed the same C model made no progress.

Proponents of the social learning approach have sought to explain concept attainment following interaction as a case of rule learning involving modeling of the correct conserving response.

Botvin and Murray (1975) sought to compare the efficacy of peer modeling with that of social conflict. Nonconserving first grade children and conserving second grade children were assigned to one of three treatment conditions: a) a social interaction group; b) a modeling group; and c) a control group which consisted of only nonconservers.

While finding significant differences in the posttest scores between the control group and both experimental groups, there was no significant difference between the gains made by children in the social interaction group and those who observed a model. Thus, social interaction and modeling were found to be equally effective in promoting conservation.

Botvin and Murray (1975) therefore concluded that the "social conflict training effect itself may be attributed more parsimoniously to the nonconservers' modeling of the conservers, than to the effects of his repeated communication conflicts with them (p. 799).

In a more recent study, Zimmerman and Blom (1983)

used dyadic modeling conditions in order to determine the role played by conflict in children's cognitive development.

In that study, preoperational subjects who observed two adult models displaying rule-consistent behavior had significantly greater cognitive gains compared to subjects who observed two models, one playing the nonconserver, the other playing the conserver.

Whereas social learning theory has historically been viewed by developmentalists as mechanistic and reductionist (e.g., Bellin, 1981), Zimmerman (1983) presents a comprehensive and elegant analysis of how social learning theory "fits within the broad meta-theoretical movement of contextualism" (p. 39). He identifies its common features with other contextual theories, also concerned with issues that social leaning theories have traditionally addressed, such as concept formation, perception, language acquisition and memory. Zimmerman states that social learning theory as a contextual theory "assumes that reality is dynamic and continuous in flow and that knowledge is the ever-changing cumulative product of one's personal transactions with the proximal and distal environment." An essential ingredient of the theory is the basic belief that human

knowledge is seen to emerge "from specific person-environment encounters and is organized on the basis of specific features of such experiences" (p. 38).

Understanding social learning theory as a natural part of the broad-based contextualist movement is to view it as addressing the need expressed in the research for more ecologically valid studies (Neisser, 1976) and for refocusing on social interaction (Kuhn, 1974; Doise, et al., 1976). In general terms, social learning theory speaks to the demand to study cognition within the "ordinary environment in the context of natural, purposeful activity" (Zimmerman, 1983).

Dialectical Theorists

Dialectical theorists such as Riegel (1976) posit a reactive individual, not an individual who simply reflects external factors which mechanistically determine behavior. Conflict is viewed as a consistently occuring aspect of life. He rejects the notion of an individual whose thought moves progressively into himself becoming so abstract that thought loses touch with reality and eventually with practical action (Riegel, 1976). Damon (1979) also from a dialectical perspective is

critical of Piagetian theory in not giving enough recognition to social processes as central to a child's construction of knowledge.

Youniss (1978) offers an interpretation of Piaget from a dialectical perspective. He posits an individual, regardless of age, who exists within a world in which actions bring contact with other persons. The motivation for thought is to seek regularity in these interactions. This is the same motive which accounts for thought regarding the interaction between an individual and physical objects. The quality of interaction between an individual and his social world versus the quality of interaction between person and physical objects are intrinsically different due to contextual variances.

For Piaget, the source of regularity in interactions is through a developmental progression. He proposes that one begins with a relation of constraint, i.e., authority to subordinate. This level of interaction then develops to a relation of cooperation, i.e., subjects share control equally through reciprocity.

Development proceeds from private to social and back to private thought and with a progressive domination of thought over action. The result of this progression is evidenced when an individual deals with a particular

behavior, and he endows it with understanding, according to his system of abstract thinking (Piaget, 1971).

The issue which evolves is in what manner does an individual develop his conceptual understanding of social situations. In other words, does there exist a developmental sequence of levels culminating in a qualitatively advanced level of understanding?

Selman (1980) has developed a formal theory to explain the development of social understanding, while maintaining the dialectics of subject-to-subject interaction.

The theory developed by Selman and the qualitative levels of social understanding he posits are of importance to developmental research. However, to date there have been no studies conducted to test the theory or to study whether children actually do maintain the particular level of understanding he theorizes.

Selman's Theoretical Research on Social Cognitive Development

Age related changes in social development. Selman (1975, 1976, 1979) has studied the developing social understanding among children, adolescents and adults. Selman's theoretical concern is with "how children, as

they grow older, organize and relate to their social world," (p. 1), i.e., to friends, peer groups, parents, authority figures and to themselves (Selman, 1979). Selman has studied the development of interpersonal understanding using an ontogenetic sequence of hierarchical stages (Selman, 1975; Cooney & Selman, 1978). Selman and his colleagues (Cooney & Selman, 1978; Selman, 1976, 1980; Selman & Jacquette, 1978) have focused on how the psychological and social perspectives of self and other are coordinated within four domains of social understanding: self, friendship, peer group relationships, and parent-child relationships.

Selman's theoretical assumption is that social issues are initially poorly differentiated in the thinking of young children and what can be observed is a progression of each of these issues through an ontogenetic and heirarchical sequence of cognitive stages. For example, using the issue of conformity, he attempts to show how conceptions of group conformity proceed through a series of stages in which the child is first only aware of conformity of actions, to a later recognition of the conformity of individual thoughts, and to a final conception of a group mood type of conformity (Selman, 1979).

It is a basic working hypothesis of his position that developing interpersonal conceptions pass through qualitative stages. He theorizes that there will be certain parallels in the stages of social awareness among the four domains. For example, there will be certain similarities in thinking at Level 1 about relations such as friendship and peer groups as well as similarities about issues such as personality change, conflict resolution, and conformity (Selman, 1979).

This does not mean that it is assumed that at any point in time an individual thinks at the same stage about each and every area. In fact, Selman (1975) indicates that there is always some variation in stage level of awareness within an individual as he thinks about various interpersonal concepts and issues. However, as interpersonal understanding develops in each area, it does so within an invariant sequence and it is this developmental order of sequence which is relatively universal across content area.

In a more recent study, Selman (1983) postulates that from an initially confused and syncretic state, children at roughly three to six years of age display the first qualitative level. These children's understanding show two properties: a) a distinction between

intentional and unintentional actions; and b) a distinction between self and others. That is that different persons may or may not have different subjective perspectives of the same social situation. Between the ages of six to ten years, most children display a second reflective level of social understanding. At this stage, the self as subject can look inward in a self-reflective manner on psychological events (feelings, thoughts, motives). In addition, there is the understanding that humans interact on the basis of their capacity for realizing the reciprocity of shared knowledge.

Selman relies upon the process of social perspective taking in order to identify these developmental sequential aspects of interpersonal understanding across and with relationships. Perspective-taking is a general and basic social developmental process, and the definition is very precise, i.e., the developing conception of the self-other relation from the construct of role-taking which implies taking only the others' perspective or knowing the content of the others' perspective. Each level of perspective-taking represents a basic orientation to the social world, a way of organizing thinking about social relationships. For Selman, social perspective-taking develops from Level 0 to Level 1 --

subjecting or differentiated perspectives; Level 2 -- self-reflective or reciprocal perspectives; Level 3 -- third person or mutual perspectives; and Level 4 -- societal or in-depth perspectives.

Characteristics of levels of interpersonal understanding. Level 0 through Level 4 are properly understood as general cognitive structures that define and resolve issues of social interaction. Selman's use of "cognitive structures" is derived from Piaget (1971, 1974) and Levi-Strauss (1963) where a variety of social concepts or behaviors are analyzed as contents which are part of a total transformational system maintaining an underlying structural integrity or form (Selman, 1979). The kinds of interpersonal awareness have been constructed so as to follow four principles of cognitive-developmental structures described by Piaget (1960, 1970) and Kohlberg (1969).

First, the stages of interpersonal understanding imply qualitative differences in the social reality which is organized. These differences are qualitative because they represent a fundamental restructuring in the way an individual views issues within person, close friendships or peer groups. For example, Level 3

conceptions of groups is a qualitatively different form of organization from Level 1. The child moves from viewing groups as an association of dyadic relations ("they like each other") to a communal or shared whole ("working together as a unit"). The change is not simply additive as the numbers imply, but qualitative in that the basic nature of group organization is transformed.

Secondly, the different modes of interpersonal understanding form an invariant sequence of stages in individual cognitive development. While contextual factors may alter the rate of progression, they do not alter the sequence. Selman (1976; Selman, Jacquette, & Lavin, 1976) demonstrated that, whereas emotionally disturbed children function at a lower level in comparison to matched peers, the sequence of their development appears to be the same. Most of the disturbed children appear to conceptualize peer interaction from a level characteristic of normal children three or four years younger. Selman's approach is one of developmental lag rather than abnormality.

Third, each stage of interpersonal understanding represents a structured whole. A given stage response does not merely represent factors specific to that task,

but an underlying cognitive logic which characterizes thought at that stage for a variety of group processes. To illustrate, Selman (1979) demonstrated that Level 2 responses concerning group leadership, defined as an issue, have an underlying structure of coordinating interests (e.g., "If you don't have a leader, you have some saying, 'I am going first, I am, I am . . . ' but the leader keeps organizing it"), which parallels Level 2 group cohesion, also defined as an issue, as cooperative "partnerships" of "teamwork" (e.g., "If you don't pass to your teammates, then they won't pass to you . . ."). These parallel conceptions of peer group processes, such as cohesion and leadership, at Level 2 are, in turn, parallel to Level 2 conceptions of all interpersonal issues: personality change, conflict resolution, and so on.

The structured wholeness primarily refers to the underlying logic of parallel concepts. This does not mean to imply that a child in all situations will use the same level in organizing his interpersonal world views. Actually there is little direct knowledge about variation in stage usage when an individual is faced with a real life social experience (Selman, Lavin, & Brion-Meisels, 1978). Structured wholeness implies

only that there is a logical correspondence between types of thinking at a given level.

The fourth principle is that interpersonal understandings are hierarchical integrations. These characteristics form an order of increasingly comprehensive structures which are used to answer common problems about social life. The kinds of hierarchical properties which develop as one progresses through the stages are: an increasing awareness of the degree of psychological interdependence between persons; the development of a systems approach to persons; friendship or group dynamics; and movement from a concern only with overt behaviors to a concern for thoughts and generalized expectations (Selman, 1979). As an individual attains higher levels of interpersonal awareness he is able to make more use of these dimensions in resolving problems in social interaction. Lower levels are not discarded but built upon. Selman (1976) indicated that the adolescent subjects of higher stages will occasionally answer problems using conceptions available to lower stage subjects. However, children at lower stages will be unable to apply higher stage solutions. This is also seen with persons of formal operational thought employing concrete operational abilities.

Studies Using Naturalistic Settings and Social and Experiential Measures

The argument that different logical structures are required in the social domain as opposed to those needed in the physical domain is a theoretically important issue. If, in fact, the logical structures are the most basic components of cognitive activity then evidence for their operation should theoretically be observable across a wide variety of domains. In an attempt to study this issue, many studies look at Piaget's stage of formal operation reasoning in a variety of settings, using different social tasks, their aim being to investigate the universality of that stage of reasoning (Sinnott, 1975; Capon & Kuhn, 1979; Sinnott & Guttman, 1978). However, these studies also provide important evidence as to the extent that different logical structures are required in each domain. These studies represent a marked departure from the traditional use of tasks which are taken from the logicomathematical domain.

Sinnott (1975) emphasized the importance of using a naturalistic setting and concluded that subjects will use the level of reasoning that will best facilitate a desired result. His study using women in a supermarket

choosing which of three products was the best buy found that they did not necessarily use formal reasoning to arrive at their final choice. Aside from the question of the universality of formal operations, the study underlines the importance of the context in which it is studied.

Zimmerman (1983) very cogently argues for the use of naturalistic contexts in examining behavior. He cites the Piagetian studies (Smedslund, 1961; Wohlwill & Lowe, 1962) in which researchers were not able to teach preoperational children to conserve. Subsequent reviews showed that the tasks were too unfamiliar and complicated for the children and when paired down, the learning was found (Brainerd, 1977).

Selman (1976) developed his system of structural analysis for the social domain based on Piaget's descriptions of cognitive development. He studied a group of preadolescents in a variety of domains, including physical-mathematical, interpersonal, and perspective-taking.

In his study, 47 boys, ages 7 to 13, from grades 1, 2, 5, and 6, were interviewed on the following measures: four interpersonal relations dilemmas; two measures designed to assess structural levels of perspective-

taking (one a competitive guessing game adapted from Flavell (1968) that assesses perspective-taking levels in a social problem-solving context; and the other, developed by Selman and Byrne (1974), that assesses level of perspective-taking in the context of socio-moral dillemmas); two logico-physical measures adapted from Inhelder and Piaget (1958) used to assess Piagetian cognitive stage (balancing weights, mandating the use of the logical operations of inversion and reciprocity); a measure of moral judgment stage (Kohlberg, 1976); and a sociometric measure of both positive and negative peer evaluations (Bower, 1960).

The interpersonal-relations measure involved encouraging the subjects to "exercise their interpersonal concepts in the process of resolving commonplace interpersonal dilemmas" (Selman, 1976, p. 161). In addition, to facilitate the expression and assessment of each subject's highest verbal level of conceptualization, a one-to-one interview followed the viewing of an audio-visual presentation of the dilemma. Preadolsecent actors presented the story on color-sound filmstrips of approximately 8 minutes duration.

In a prototypical dilemma, Tom is trying to decide what present to buy his friend Mike, who will be given a

surprise birthday party the next day. Tom meets Mike by chance and learns that Mike is very upset that his pet dog, Pepper, has been lost for two weeks. In fact, Mike is so upset that he tells Tom, "I miss Pepper so much I never want to look at another dog again." Tom goes off, only to pass a store with a sale on puppies; one or two are left and these will soon be gone. The dilemma is whether or not to buy the puppy for Mike's birthday. For this and three similar interpersonal dilemmas, they asked a series of standard but open-ended questions designed to elicit the subject's reasoning about certain categories of interpersonal relations. From this study, Selman concluded that the domains were indeed distinguishable and that similar and correlated stage changes were evident in each area.

Keating and Clark (1980) take issue with Selman's (1976) study specifically with regard to evidence used for convergence and discriminative validity. Keating and Clark argue that the same correlations, found across task dilemmas in each domain, were used as evidence for both discrimination and convergence. Obviously, identical sets of correlations cannot be used as evidence for both convergence and discrimination. They conducted a miltitrait, multimethod matrix

(Campbell & Fisk, 1959) investigation of the development of logical and interpersonal reasoning among adolescents by devising group written measures of standard physical and interpersonal measures of reasoning. The results indicated that physical reasoning and interpersonal reasoning measures using different methods, i.e., written test and clinical interview, were significantly correlated within each domain but that convergence did not significantly exceed the correlations of performance across domains within a particular measurement method, e.g., within the clinical method. Thus, they concluded that physical and interpersonal reasoning development cannot be empirically separated from each other.

Sinnott (1975) argues that "physical operative functioning," analogous to Furth's (1969) concept of physical abstraction, feedback from the results of action on physical objects, decreases with age. Social operative functioning (Sinnott, 1975) defined as feedback from social experience increases with age. Complex intellectual activity of the type encountered in formal operational ability requires the exercise of both types of functions and an abstraction from them, a process similar to Furth's concept of reflective abstraction. In childhood, physical operative

function or nonphysical experience seem to play a lesser role. It appears that the situation gradually equalizes in late adolescence (Sinnott, 1975).

Social Interaction Studies

As early as 1966, Smedslund suggested the need for a change in approach to cognitive developmental research. He indicated that research should concentrate on the interaction between the human environment and the subject, rather than on subject and physical setting. During the 1970's the first experimental studies explicitly investigating the relation between social interaction and cognitive development were conducted.

Due to the differences in theoretical orientations among the early studies, many of the results were contested. The two models used to explain the role of social interaction on the development of cognition are social learning theory and cognitive stage theory. Rosenthal and Zimmerman (1972) demonstrated the role of modeling in vicarious learning. Kuhn (1974), using a more cognitivist orientation, attempted to verify Piaget's equilibration model by experimental means. Her hypotheses are concerned with the effects of

interaction with models of different cognitive levels.

Doise, Mugny, and Perret-Clermont (1975, 1976) point out that the majority of these studies were based on the common assumption that interaction owes its effectiveness to imitation processes. It seems from these studies that interaction with a model of a higher cognitive level would be necessary for the subject of lower cognitive level to progress. However, there is considerable divergence between various researchers as to the "optimal distance," in terms of cognitive levels, between the subject and the model.

The concept of "optimal distance" and its function as a mechanism of change in the development of cognitive structuring is of great significance. Kuhn (1972) studied these mechanisms, basing her research on the equilibration model. The equilibration model purports that the results of the organism's action "feed back to its psychological structures in a way that is discrepant with that structure. This discrepancy induces a state of disequilibrium, leading to a reorganization of the existing structure in ways that serve to restore equilibration. This progressive restructuring produces a hierarchy of successively more differentiated, elaborated, and integrated structures and development proceeds in an

invariant sequence" (p. 834).

Her hypothesis developed from this model and the optimal mismatch hypothesis, i.e., artificially induced disequilibrium by presenting models that reflect a structure discrepant from the child's. Insofar as the child is aware of the discrepancy, this may induce the disequilibrium leading to reorganization. This reasoning led to her hypothesis, "that the best model to present to induce structural change is a model that reflects the stage just above the child's own stage." If this next-higher stage is the one toward which he is naturally progressing and will next attain, exposure to a model at this stage ought to be the most likely one for which he could perceive the discrepancy between the modeled structure and his own structure and hence the most likely one to lend to disequilibrium and change. He would be less likely to be led to a stage of disequilibrium by exposure to a model several stages above his own, as he himself would not possess the structure enabling him to perceive the discrepancy between modeled stage.

Her results confirmed her major hypothesis that the most change occurred in the +1 position. There was negligible change in the direction of a lower stage on

the part of subjects in the +1 and +2 conditions and negligible change in the direction of a higher stage on the parts of the subjects in the -1 condition. There was nonsignificant change in the direction of a higher stage among subjects in the 0 condition.

Overall, the findings indicate that stage changes in the +1 and +2 conditions were almost always to the +1 stage. In fact, +2 change eventually returned to the +1 level.

The study indicates that the amount and pattern of change depends on the relation between the structural level of the model and that of the subject. Children most readily exhibited changes in the direction of the more advanced structures.

Of critical importance in this study is the way in which the results differ from those based on an imitation model (Rosenthal & Zimmerman, 1972). The progressive change that occurred in subjects was almost always to the +1 stage, even when the child had observed no +1 model. Kuhn posits that the model serves to stimulate progression but does not determine form. These results are supported by Turiel (1977) on moral judgments.

Therefore models which represented a structural level discrepant with but not inferior to the subject's

were more likely to induce an attempt at accommodation by the subjects than were models which did not.

Murray (1972) showed that the positive effects of modeling are "predicted by the cognitive level with which the subjects began the experiment" (p. 157). Subjects who were partial conservers (intermediate between C and NC) benefited from viewing a conservation model whereas nonconserving subjects did not. He found different results in his study with Botvin (1975). Again the progression is in the direction of the +1 condition, as in Kuhn (1972). Moreover, subjects presented with a NC model did not regress but rather remained at the same level, i.e., PC and NC, showed the NC progressed, whereas PC remained the same; in the C and PC condition, PC progressed by C stayed the same.

Modeling is seen as being effective specifically when it is in a developmentally advanced condition and with subjects who are at least partial conservers.

The Geneva School of developmental psychology, taking a socio-cognitive approach, stresses the role of the internal capacities of the subject in the equilibration of his relations with the environment. Mugny, Perret-Clermont, and Doise (1981) studied the links between social

interaction and cognitive development. They looked at the interpersonal bases of the development of cognitive mechanisms in the child, "illustrating experimentally the chain of circular causality which connects individual cognitive functions with the interpersonal interactions in which the child participates" (p. 37).

They have developed the concept of socio-cognitive conflict, where a change in the individual's strategy has its explicit source in a conflict between his initial response and the response strategy of one or several others. This concept is their causal factor for growth. Doise, Mugny, and Perret-Clermont (1975) showed that subjects who evidenced progress in conservation tasks after interaction with another child used arguments in the post-test which were not produced during the interaction, thus proving the existence of an underlying organizing activity linked to the social interaction. Social interaction, then, is characterized by its constructive nature.

Their research indicated that interaction involves more than simple imitation and, therefore, group performances were superior to those which could have been foreseen on the basis of the initial levels; in addition, subjects whose partners were on a lower level also showed progress.

Socio-cognitive conflict, therefore, appears to be an important factor in all restructurization, whether collective or individual. Progress was most apparent when subjects of different cognitive levels presented different approaches to the same task. However, the argument is that the subjects do not have to be at different cognitive levels for there to be progress; in fact, they can be on the same low level as long as their approaches are different (Doise, Mugny, & Perret-Clermont, 1975).

Mugny and Doise (1975) showed that pairs of subjects performed better on spatial transformation tasks than subjects working alone. Their conclusion, therefore, was that conflicts of cognitive centrations embedded in a social situation lead children to coordinate their actions and view their own centrations relativistically. The Geneva School's emphasis on the central role of cognitive conflict in promoting growth has enriched our understanding of the mechanisms underlying collective cognitive performances and their repercussions on the individual level. In terms of the notion of imitation as proposed by the social learning theorists, Mugny and Doise have shown that collective performances are structurally superior to those of the group members

taken individually and that a non-superior but conflicting model (lowest level) helps the intermediate subjects to progress.

This result refutes Murray (1974) who states that the alternative model must be superior and correct in order for progress to be made.

The central idea of the Geneva School is that cognitive development does not result simply from the interaction of the child with his surroundings in the nonsocial environment, but that this interaction is always mediated by and therefore derives its meaning from his social interactions with peers and adults. In this sense they are dealing with a socio-interactive approach, which is also a constructivist perspective, since they maintain along with Piagetian theory that cognition is not a copying process, a passive appropriation, but that it is a construction by the active individual which therefore takes place during social intervention.

Whereas their central idea is constructionist in the tradition of Piaget, their basic hypothesis, namely that intra-individual cognitive structuring develops from inter-individual cognitive coordination has a strong flavor of Vygotsky's theory. That is, one's

progress in terms of cognitive development operates from the outside-in, vis-a-vis social interaction. The logical conclusion is also with the Vygotsky tradition, that is, inter-individual coordinations are consequently superior to intra-individual coordinations. However, it is important to note, once again, that the results achieved in an interaction situation cannot be equated with the performance of the better of the partners (Mugny, Perret-Clermont, & Doise, 1981). In other words, there exists a cognitive originality in the collective solutions (Mugny & Doise, 1978). An elaboration of this finding was presented earlier in the discussion of the Doise, Mugny and Perret-Clermont (1975) study.

The Geneva School provides some evidence to argue with the Social Learning position that change is a function of imitation. A comparison between the behavior of the subjects during the post-tests and the behavior of their partners during the interaction emphasizes that any progress evidenced by the former cannot be solely ascribed to imitation. They feel that their most crucial piece of evidence comes from their observation that during the post-test these former non-conservers did not limit themselves to repeating the arguments they

had heard, but that in half the cases they offered other arguments. The Geneva School thus purports that there is a fundamental cognitive restructuring which takes place as a result of the social interaction, which results in new structures or further elaborated structures and goes beyond imitative adoption of situation-specific and "superficial behavior patterns" (Mugny & Doise, 1978). However, Zimmerman and Lanaro (1974) showed similar findings to this and conclude that what these results indicate is a generalization of knowledge.

The literature provides us with evidence that social interaction is in fact a necessary condition for cognitive growth. Whether one approaches the issues of development from a socio-cognitive, equilibration, or social learning model, the mechanisms involved in change must be addressed. The conclusive evidence from each of these perspectives is that subjects benefit most from interaction with those on a structural level one above their own (Kuhn, 1974; Murray, 1974). In addition, while the Geneva School has focused on the importance of conflict in interactions, other studies have demonstrated the efficacy of modeling as opposed to conflict in learning (Zimmerman & Bloom, 1983). Murray (1972) argues for a balanced number per group to avoid coercion

among members in the process of resolution.

Hypothetical and Practical Reasoning Studies

Piaget (1965) addressed the difference between reasoning in practical and hypothetical contexts, in his studies of moral justice, when he noted that "the theoretical simply lags behind the practical moral judgment and shows in an adequate manner a stage that has been superseded on the place of action" (Bearison & Gass, 1979, p. 117).

Bearison and Gass (1979), in response to the need for more adequate paradigms to study social cognition, examined children's hypothetical and practical reasoning vis-a-vis persuasive appeals in different contexts. The purpose of their study was to assess contextual effects on children's levels of social reasoning. Children between the ages of 10 and 11½ years were randomly chosen for one of two conditions. The children were asked to persuade someone to give them $2.00. In one condition (hypothetical), the target of persuasion and the motivating cause were hypothetically presented, while in the other condition (real), both the target and cause were actual. In other words, in

the real condition the children understood that their persuasion was inherently relevant to the situation in which they actually found themselves. Children were shown a $2.00 reward in the real condition for the best persuasive argument, whereas no reward was presented in the hypothetical. After the persuasive appeals were scored, they were assigned to one of four levels of increasing coordination between self-other perspectives.

Their results indicated that the levels of appeal in the real condition was significantly higher than in the hypothetical condition. Their explanation for these findings is that because the children in the real condition were given the opportunity to actually receive the money, they were more highly motivated to respond in a cognitively optimal fashion than those in the hypothetical condition.

These results contrast with Damon (1977) who found that children exhibited higher levels of distributive justice (i.e., equal sharing) in hypothetical contexts. However, Damon felt that his practical condition increased the child's sense of self-gain, which runs naturally counter to the principle of equity. The motion of self-gain, in relation to Bearison and Gass

(1979), does not run counter to the principle of persuasion. That is, in the practical condition, there is no issue related to equity (i.e., equal sharing) as in the Damon study. Thus the Bearison and Gass study allows for optimal self-gain, which is consistent with their conditions of persuasion. Thus, across domains of social reasoning, hypothetical social thought will not necessarily reflect higher or lower levels of perspectivism than practical social thought.

In their review of the literature, Bearison and Gass (1979) mention that Cox (1975) found the children's ability to infer another's visual perspective appeared to be developmentally more advanced when the target was an actual person compared with a doll representing a person. Bearison and Gass (1979) conclude that only by testing the contextual effects of social reasoning across many different domains will we be able to derive general principles to explain developmental differences between hypothetical and practical social reasoning.

Both Social Learning theory and structuralist theory have addressed the issue of social reasoning. However, within the structuralist perspective only Selman has developed a formal theory to address, solely, social reasoning. In addition, within the development of his

theory, he used hypothetical situations or paper tests to study boys' social reasoning. A major question then emerges in terms of the relationship between reasoning on a paper test versus reasoning in an in vivo situation.

CHAPTER II

STATEMENT OF THE PROBLEM AND HYPOTHESES

The literature points to the importance of the impact of the social environment on one's ability to reason about a particular situation, and Selman appears to be one of the few researchers to have developed a formalized theory of levels defining cognitive growth in social understanding.

The importance of this theory to developmental research is obviously great. It is the purpose of this study to test Selman's theory of social understanding in terms of the degree to which it accurately reflects real behavior or indicates variation in stage usage in a real life situation, and how strongly it correlates with a well-established scale of social development.

The educational importance of such an undertaking is apparent. Teachers often wonder why certain children are sometimes unable to adequately participate in group activities or why some children are less adept in social interactions with peers. This study can provide evidence in terms of what a teacher may expect from a particular child and perhaps provide us with thought for

ways of helping the child "bridge the gap" through some form of remediation.

Hypotheses

1. It is hypothesized that there will be a significant positive correlation between Selman's hypothetical dilemma and the real-life dilemma in terms of levels of social understanding.

2. There will be a positive correlation between the hypothetical and real situations in terms of Selman's seven specific issue levels.

3. It is hypothesized that there will be a significant positive correlation between global level scores obtained in the hypothetical situation and social age score on the Vineland Social Maturity Scales.

CHAPTER III

METHOD

Subjects

A total of 60 children from the same parochial school were used as subjects. Of that sixty, 48 participated in the full study. The sample included boys in grades 2 through 8. Sixteen boys were identified at each of Selman's levels one, two and three. The children in the sample were from predominantly white middle-class families. Socioeconomic background included both professional and blue-collar workers.

Measures

A social perspective-taking task developed by Selman (1979) was employed to determine level of social understanding. The task consisted of an interpersonal dilemma (Hockey Club Story and Who Comes First -- You or the Group?) which were read to each subject individually.

Since it has been found that many of the younger children (ages 4 to 8) may have little information about the concept of groups (Jacquette, 1976), the following introduction was read to familiarize the child with the word group and different examples of groups.

E: I am going to read you a story about two hockey clubs called The Jets and the Cougars. Have you ever heard of clubs before? What do you know about them? Clubs are a group of kids that get together almost every day to plan what they would like to do. They have meetings, elect leaders, wear uniforms and sometimes have secret passwords so only members can get in. Sometimes clubs hold their meetings in special club-houses, but other times they just meet in the woods or over at one member's house. When new members join, many clubs have initiation which are kind of like tests a member has to go through before being let in. But clubs are only one kind of group that kids are part of. Can you think of other groups kids might have? There are the Girl and Boy Scouts, teams that play sports, musical groups, your classroom and just the regular neighborhood group of kids. All these different groups are alike in one way: they are all made up of a lot of kids that get together to do things together.

The dilemma The Hockey Club Story was read to the Level 1 and Level 2 boys. Who Comes First - You or the Group? was read to Level 3 boys without the introduction.

Following the presentation of the dilemma, the child was asked a series of standard questions, taken from Selman's manual Assessing interpersonal understanding: An interview and scoring manual in five parts, constructed by the Harvard-Judge Baker Reasoning Project. Each interview was conducted individually and lasted from twenty to thirty minutes. Each question is related to one of seven specific issues in Selman's peer group organization domain (formation, cohesion, conformity, rules, decision-making, leadership, and termination). For instance, to assess the child's understanding of how groups are formed, he was asked: "Do you think it would be easy or hard to become a member of a group that has already been together, like a club or friends that hang around together? Why?" To assess decision-making, he was asked: "What things make a team work well together? Would teamwork help? What is teamwork in a group?" Each of these initial probe questions were used as a starting point from which to fully investigate the specific issue under consideration. Using this assessment procedure, each child's responses were tape-recorded and transcribed for scoring.

Each child's interview was divided according to issue, and each issue was independently assigned a

developmental level of social understanding in accordance with the procedures in Selman's manual. Thus, each subject was given seven scores (range = level 0 to level 4) for each interview, one for each issue. These scores were then averaged together according to a standard computational formula to yield a quantitative reflective score of three digits. In this way levels of social cognitive reasoning were established according to Selman's conceptions of peer group organization.

A full description of the scoring system and interview questions may be found in Selman (1979, pp. 338-351). A brief description of guidelines used in assigning children to stages of social reasoning follows:

> (1) Is the child aware of the impact of differing psychological attitudes among group members on the group's organization? Is (s)he cognizant of the effect one member's actions may have on another's feelings, the influence of one member's wants over the actions of another? Is the subject aware of the collaborative nature of groups, that activities involve coordinated actions? If not, the subject is most likely functioning at Level 0. At Stage 0 peer group activities may loosely link members together ("holding hands," "playing together"), but only through each isolated individual's singular enjoyment of the activity("it's fun"). The child is not aware of how groups are organized around some collaborative activity. Peer groups are defined by physicaly proximity or linked activities (e.g., two members playing with the same toy, but individually).

(2) Is the subject aware of how dyadic psychological attitudes between group members tend to interlock to form mentally coordinated exchanges of self-interest ("teamwork") and bonds of reciprocal affection ("friendships")? Is the child aware of how members can coordinate their actions through mental exchange of ideas, likes or feelings (e.g., "vote, so you decide what everyone wants to do")? If "yes" on criterion (1) but "no" on criterion (2), the subject appears to be functioning at Level 1. Peer groups are organized around collaborative activity without a bilateral exchange of ideas. The organization of the group centers around unilateral relations where the attitudes of one member influence or are influenced by the actions of another ("you have to do what the leader wants, or you wouldn't know what to do"). The child is aware of various behavioral management skills ("be nice," "share your toys," "wait your turn"), and individual skills ("good hockey player," "know your tricks"). However, these individual skills are not yet actively coordinated into relations between members. The group is a series of one-way relations.

(3) Is the subject aware of how groups form social wholes of common experience and values, distinct from the specific relations between members within the group? Is the subject aware of the underlying meaning of group spirit as "one for all and all for one?" If "yes" on (1) and (2), but "no" on (3), the subject is most probably functioning at Level 2. Groups are organized as a series of bilaterally coordinated relations maintained through a series of "fair" or "equal" exchanges of self-interest ("if you don't pass to him, he won't pass to you"). The child is able to see that groups proceed through an active exchange of viewpoints held by individual members ("you have to like the same things he likes"). The group is not yet seen as a social system, but is rather a series of interlocking dyads ("we all like each other").

(4) Is the subject aware of how groups may form complex social systems which can be analyzed as having a "life of its own" with multiple functions or processes which help to balance the whole system? Is the subject able to think about groups as having a certain "structure" or set of "processes" which can be analyzed without reference to the specific conventions or characteristics held by particular groups? Does the subject see the group as a community of independent thinking members where the plurality of interests does not weaken but strengthens the group? If "yes" on (1), (2), and (3), but "no" on (4), the subject appears to be responding on Level 3. Groups are organized as social wholes ("it's like an egg," "working as a unit") held together by homogenous values and shared experiences ("something in common"). The limiting factors are the inability to see abstract social processes. If "yes" on criteria (1), (2), (3), and (4), the subject is Level 4.

The group is seen as a pluralistic organization of independent social processes which are analyzed as they contribute to some collective goal ("you have to give people the opportunity to be in a position of leadership for there to be a sense of openness"). Individual members are seen to fulfill abstract role responsibilities which all contribute to some collective function ("a position of leadership"). The group's membership is open to a diversity of interests or factions which help give the group a greater sense of wholeness. There is a high value place on diversity within community, but an awareness that these values always place a certain tension on the group.

(Selman, 1979, pp. 342-343)

Scoring

The scoring system is taken completely from Selman

(1979). Briefly, Selman divides Peer Group Organization into seven components, namely: Group Formation; Cohesion; Conformity; Group Rules; Group Decision-Making and Organization; Leadership; and Group Termination. Children's verbal responses to the interview can be grouped according to each of these components. Once the responses are grouped, each component receives a level score as per the guidelines described above. More than one level score may be given to each component and an average score is taken as well as the final "global level score" which is computed according to a specific formula found in Selman's Manual (1979). Inter-rater reliability of the scores across levels was computed and presented in Table 1. The inter-rater reliability score represents the correlation between the levels assigned in the hypothetical dilemma and the levels assigned by an independent rater in the in vivo condition.

Table 2 presents the means and standard deviations by level and across levels for the hypothetical and in vivo global scores.

Table 1

Inter-Rater Reliability and Agreement Statistic for Global Scores Across Levels

Selman's Levels of Social Understanding	Inter-Rater Reliability	Inter-Rater Agreement Statistic
1, 2, 3	.95	.93

Table 2

Means and Standard Deviations of Selman's Levels of Social Understanding for Hypothetical and In Vivo Conditions

Selman's Levels	Hypothetical Condition		In Vivo Condition	
	$\bar{x}$	SD	$\bar{x}$	SD
1 n=16	1.12	.113	1.12	.169
2 n=17	2.16	.215	2.34	.318
3 n=15	3.06	.148	3.13	.129
Total (1,2,3) n=48	2.10	.802	2.27	.814

The mean level obtained across all subjects on Selman's Dilemma was 2.10 with a standard deviation of .802.

Procedure

Once the levels of social understanding were established, four groups of five at each level were organized. The levels were defined by the following parameters: Level 1 = .90-1.89; Level 2 = 1.90-2.89; and Level 3 = 2.90-3.89. The ranges are adapted from Selman's formulations. A subject's score on the hypothetical dilemma has to fall within the appropriate range to then be assigned that level of social understanding. A total of twelve groups made up the sample with each group consisting of same level subjects. Since the groups were organized from grades two through eight, the resulting teams consisted of different age students. Thus, sixth, seventh, and eighth graders were mixed for certain teams as were second and third; and third and fourth graders. There were, however, no extremes represented within teams with regard to level.

Each group, Level 2 and above, were told that a basketball competition was to be held between groups within each level (i.e., there were four teams at each level, with competition between pairs). The experimenter divided each level into four teams, e.g., Level 1 consisted of Team A, B, C, and D, then told the teams that there would be a foul shooting contest in which each team member is allowed four foul shots and the

team coming closest to 16 points wins the game. Team A played Team B, and Team C played Team D. It was decided by the subjects, themselves, that the winning teams be allowed to wear "play clothes" to school, rather than their uniforms for two days.

The experimenter then told the students to select a captain for their team. The experimenter scheduled the game for one week from the day when the teams were organized and returned at that time. The boys were encouraged to practice foul shots (the only shooting position allowed in the game), in the interim.

On the day of the scheduled game, the captain was called from the classroom and then the other four team members were summoned to the gym by the experimenter. At that time, the experimenter told the team that the captain had decided to attend a soccer practice rather than play in the basketball contest, leaving the team with the real-life dilemma, i.e., if each member shoots a perfect score they will make the total; otherwise they are at a real disadvantage. What should they do? Try to convince the captain of his commitment, compete without him, or allow the team to forfeit? The captain was viewed by each team as a critical member, in most cases the best foul shot. Therefore his loss to the team was considered the most threatening to the desired outcome, i.e., winning the competition.

At the point that the dilemma is created, the four subject-group accompanied four independent interviewers to separate offices for the posttest interview. The interviewers were unaware of the subjects' levels. Once the team members were completed with the interview, they returned to their classroom and the opposing team called down by the experimenter and the identical procedure was followed with them.

The lower level subjects, Level 1, were organized likewise into groups of four and participated in a tug-o-war contest. This task, as with the basketball competition, contained a dilemma when one member "chooses" not to participate. Again, the absent team member was the captain. The group was told that the captain had decided to go to a friend's house to play with a new video game the friend had gotten. The dilemma was in essence the same as the higher level task dilemma.

There was no opportunity for interaction between the groups prior to the in vivo test and interviewing. The interview questions were again taken from Selman's Manual, this time adapted to the task, i.e., basketball foul shooting and tug-o-war contests. The interviews were conducted by the four trained interviewers, taped and transcribed for scoring. The interviews were again scored by independent scorers who were unaware of the subject's level.

The Vineland Social Maturity Scales (1984, Revised edition), developed by Doll in 1947, were used as another measure. The Scales are widely used today in evaluating pre-school and elementary school children in terms of their social development. The Vineland Scales consist of 117 items of performance in respect to which children show a progressive capacity in the maturation of social development. The age range for use of the scales is birth to 25 years. A method of report by the teacher, administered by a trained examiner, is employed with allowances in scoring for the possibility of "no opportunity" to observe a particular behavior. The fact that the test was administered by a clinically trained examiner, and the careful basis for scoring items and questioning the respondee, assured an accurate evaluation as to whether a behavior is or is not evidenced by the subject.

The final score was computed from the total number of items successfully performed, with consideration given in scoring for lack of opportunity, as noted above, and for performances which are in a transitional stage. Scores are converted very simply into a social age and thence, if desired, into a social quotient.

In summary, there were two assessments for each subject. In the hypothetical dilemma situation, each

boy responded by way of open-ended probe questions within a structured interview to an interpersonal dilemma, developed by Selman. Based on levels obtained in the hypothetical situation, twelve groups of five subjects, four groups on each level were organized. Each group contained the same level subject.

Once the groups were established, a foul shooting/ tug-o-war contest was organized by the appropriate group and the experimenter.

In the in vivo phase, each child participated in another structured interview, adapted from Selman, in order to respond to the social dilemma created by the real-life dilemmas. These interviews were conducted by four trained interviewers, blind to subjects' levels.

Finally each homeroom teacher responded to the Vineland Social Maturity Scales for each of her children involved in the study.

Once the in vivo interviews had been completed, the groups were gathered together for a debriefing (see attached).

CHAPTER IV

RESULTS

There were three principle analyses of the data. The first analysis sought to determine if there were significant correlations between the hypothetical and in vivo conditions for global scores across levels. The second analysis sought to determine if there were significant correlations between the two conditions for the global scores on each of the seven basic issues. The third analysis sought to determine whether or not there was a significant correlation between the hypothetical global score and the Social Quotient as measured by the Vineland Scales.

A total of 90 subjects, in grades 1 through 8, were tested on Selman's social dilemmas, of which 60 participated in the study. A total of 48 subjects actually participated in the complete study with 12 subjects necessarily discounted in the final data analyses, as a result of the deception factor in the design. The 12 excluded subjects were the captains of each team, whose absence from the contest was a crucial factor in creating the in vivo dilemma.

A Pearson Correlation was conducted on the global scores across levels for the two conditions.

Using the Table of Critical Values for Pearson Correlation Coefficients, a correlation of .98 significant at the .01 level was found between global hypothetical and in vivo scores across levels. A value of .37 or greater was needed for significance at the .01 level.

There were only three subjects, one from each level, who did not maintain their level of social understanding in the two conditions. In each case, the subject indicated a drop in level in the in vivo condition.

Table 3 presents the correlations between global scores across levels of social understanding for each of Selman's seven basic issues. The data indicate that the correlations between the two conditions were highly significant for each issue across Selman's levels.

Pearson Correlations were also conducted to determine correlations between the Social Quotient Scores obtained from the Vineland Social Maturity Scales and the Hypothetical Global Scores across levels. The data indicate a nonsignificant correlation of .34

($p = .242$) for all subjects across levels. Thus, no statistically significant correlations were found between the Social Quotient Scores, as determined by the Vineland Maturity Scales and the obtained Hypothetical Global Scores.

Table 3

Correlations Between Hypothetical and In Vivo Global Scores for Each of the Seven Issues Across Selman's Levels of Social Understanding

Selman's Levels	Issue Hypothetical/In Vivo	Pearson r
Total (1,2,3) n = 48	Formation	.94*
	Cohesion	.90*
	Conformity	.89*
	Rule Orientation	.90*
	Decision-Making	.86*
	Group Leadership	.92*
	Termination	.96*

* $p < .01$

CHAPTER V

DISCUSSION

The purpose of the present st y was to investigate how well Selman's theory of social understanding explains children's behavior in everyday life. The study sought to determine if there was a relationship between one's social reasoning in a hypothetical situation and one's reasoning in an in vivo situation. It was hypothesized that there would be a significant positive correlation between Selman's hypothetical social dilemma and the in vivo social dilemma in terms of Selman's levels of social understanding. Secondly, the study sought to examine Selman's basic issues, which are the underpinning of the levels, in terms of their relationship to the two conditions. It was hypothesized that there would be a significant positive correlation between the hypothetical and in vivo situations in terms of these seven basic issues. Finally, the study proposed to examine how strongly Selman's theory correlated with a well-established scale of social development, the Vineland Scales of Social Maturity. It was hypothesized that there would be a significant positive correlation between global level scores obtained in the hypothetical situation and social quotient scores on

the Vineland Social Maturity Scales.

The data indicate a highly significant correlation between the hypothetical and in vivo conditions with regard to global scores. These data thus support the hypotheses that the theory does in fact reflect real behavior, with little variation of level in real-life.

The data also indicate that the global scores are more reliable indicators of in vivo reasoning than any of the individual level scores.

In terms of Selman's seven iss s or basic ingredients of social understanding, the data again show highly significant correlations between the hypothetical and in vivo conditions with regard to the global scores. Thus, the data support the hypotheses of a positive correlation between the issue and the two conditions.

The data indicate that any one of the seven basic issues is a powerful predictor of in vivo reasoning when using the global scores. The evidence substantiates Selman's position that all seven issues are essential ingredients in determining levels.

The hypothesis expecting a correlation between global scores and social quotient scores, as measured by the Vineland Social Maturity Scales, was not supported. The Scales appear to measure gross behaviors

and are not designed or "fine-tuned" to measure the nuances of social behaviors. Normal children very quickly achieve a ceiling score on the Vineland. That is, since the social behaviors measured are so general, Level 1 as well as Level 3 children reach a high social quotient which does not necessarily correspond to one's reasoning abilities.

Each of Selman's levels was found to be qualitatively different from each other and the interpersonal conceptions, as measured by each of his seven basic issues, pass through qualitatively different levels. This was evidenced by the distinct difference among levels, as measured by an Analysis of Variance across Selman's levels of Social Understanding (Appendix 6).

The data support Selman's (1975) position that there is always variation in level of awareness within an individual as one thinks about various interpersonal concepts and issues. This was evidenced by the variation of issue-levels within each level. For example, a subject may demonstrate an overall global score of Level 3, but actually function on a lower or higher level on one or more of the seven basic issues.

Sleman, Lavin, and Brion-Meisels (1978), in their review of the literature on social cognition, concluded that there is little direct knowledge about variation in level usage when an individual is faced with a real-life

social experience. This study contributes significantly to the literature with regard to this notion.

Selman's age groupings for each level are, according to the data, too liberal. Whereas he sees Level 1 children between the ages of 5 and 11 years; Level 2 between 7 and 14 years; and Level 3 between 12 and adult, this study indicated that Level 2 began around age 10, with Level 3 evident by age 12 years. Whereas the data do not grossly contradict Selman's delineation of the groups, it lends evidence for decreasing the range within each group. Level 2 appears to be from age 10 years to 12 years. Further research with younger children would help define the parameters for Level 0 and Level 1.

This study confirms that Selman's criteria for identifying levels of social understanding are explicit and well-defined. These criteria were successfully developed into interview questions that be can used in an in vivo social situation. This validation of his criteria is a major contribution of this study.

Educational Implications and Future Research on Selmans' Theory of Social Understanding

Among educators and school psychologists we find a common concern with how children as they grow older

organize and relate to their social world, to friends, peer groups, parents, teachers and to themselves. By studying the development of interpersonal understanding through an ontogenetic sequence of hierarchical levels, Selman has shed light on the natural or universal growth of these human relations. This study, in looking at the boys' reasoning in a social situation, indicates that Selman's theoretical positions are accurate in terms of a child's social cognitive functioning.

School psychologists may benefit from this study in terms of its support of the conceptual framework established by Selman in defining progressive levels toward maturity in these interpersonal relations. The social dilemmas and subsequent interview questions may be used by clinicians in the schools to gain insights into the interpersonal understanding of the children they diagnose, counsel or provide with a therapeutic atmosphere. These techniques for gaining insight will be helpful to the school psychologist in answering teachers' queries as to why some children appear not to engage on an age appropriate level with the other students in the class.

Future research would contribute to extending our broad base of knowledge in social cognitive development

by focusing on sex differences within Selman's theory. Where the present study supports the theoretical position of a stage theory and the practical application of certain measures, it cannot be considered a theory of human social development until the research includes studies with girls. The theory is based on work with boys as is the present study.

This study focused specifically on verbal reasoning in boys. Future research might develop a design to study the implications of this type of social reasoning on behavior.

In addition, this study did not test the process by which children acquire social understanding. Future research might focus on the influence of modeling on social understanding using Selman's conceptual framework.

These research efforts must attempt to be ecologically valid, perhaps studying Selman's theory in the areas of parent-child or teacher-child relations.

APPENDIX 1

Appendix 1 shows the frequency of levels across subjects.

The Frequency of Selman's Levels Across Subjects

Selman's Level	Frequency	Percent
1	16	33.3
2	17	35.4
3	15	31.3

APPENDIX 2

Selman's Hypothetical Dilemmas

a. THE HOCKEY CLUB STORY

The Jets and the Cougars were two street hockey clubs that got together every week for a game of street hockey. In street hockey you try to get a little ball into a net or goal that is guarded by one player called the goalie. But you have to watch out because the other team is trying to get the ball in your goal and if they do it more times than your team does, they win the game. When the Jets and the Cougars got together to play, the Jets won every single game. In fact, the Jets were a much better club. They had uniforms, better players, they worked together, and they had better spirit. The Cougars weren't too good. They tried hard, but they just couldn't seem to work very well together. One of their big problems was that they didn't have a very good goalie. Scott was playing goalie for the Cougars now, but almost every time the Jets took a shot against him they would score. During a time-out the Cougars got together and agreed that they had to get a better goalie if they were to have any chance at all against the Jets. But who

could they get? They talked about it among themselves until Scott remembered a friend of his, Mike, who had just got over a broken ankle. Mike had been on a team before and was very good, so the Cougars went off to ask him to join their team.

But the Jets overheard the Cougars talking about Mike and they thought he might want to join a winning team. So the Jets ran over to Mike's house, just as Mike was saying he would really like to join a team. The Jets tried to get him on their team by offering him a uniform, a trip to a real ice hockey game, and a chance to be co-captain. The Cougars tried to get Mike on their team by telling him that he could really help their team, that Scott, his good friend, was on their team, and that he would be a great player on the Cougars, but only average on the Jets.

Mike agrees with some of the reasons for both teams, but can't decide which team to join.

b. WHO COMES FIRST--YOU OR THE GROUP?

Six members of a rock band are trying to work on a new piece of music. But as usual, Marty, their star musician, is not there. Most of the band agreed that Marty is important to them; some say because he is a good musician, others because he holds the band together by his joking around. But as the group gets to talking, some of the members start getting angry over Marty's not putting in equal time. One member says, "I've had it with him and this band, too. If he isn't staying for jam sessions, neither am I." Others agree and things start to look pretty shaky with some arguing that the group should get rid of Marty and others insisting that they need him because he keeps them together. Finally one of the group agrees to talk to him.

Marty appears at the next practice session, but only to tell the group that he's off to make a date for the weekend. The band explodes with bitter feelings toward Marty and starts to question whether the group can stay together at all. Finally they decide to give Marty an ultimatum: either he commits himself to the group totally or there won't be any group at all.

Marty is faced with a real problem: should he give up

some of his outside interests and devote more time to the group or leave the group in shambles?

APPENDIX 3

Selman's Hypothetical Dilemma Interview Questions

-- Open-Ended Probes

1. What do you think the problem is in this story?

*2. Do you belong to any groups like those street hockey clubs? How about other kinds of clubs or sport teams or school groups? What about a group of your friends that hang around together, is that kind of like a group? What kind of things do you do? (Use this information for probing personal knowledge of remaining group relations issues.)

I. FORMATION

A. Why Join or Form Groups?

*1. What do you think Mike should do, join the Jets or the Cougars? Why?

*2. Why do you think Mike and the rest of the kids want to be part of a group like a street hockey club? Anything besides just playing street hockey?

B. How Are Groups Formed--How Does One Join?

*3. Do you think it would be easy or hard to become a member of a group that has already been together, like those clubs or sports teams? Why?

*4. The Cougars don't have a good club yet. If you were made captain what would you do to really get their club going? What does it take to turn just a bunch of kids into a really good club?

*5. Sometimes when a person joins a group, like a club or sports team, there are things they have to do before they are let in called initiations. Why do you think groups do that?

C. What Type of Person as a Group Member?

*6. What kind of person makes a good member of a club or sports team?

II. COHESION

*1. Some sports teams or regular clubs just can't seem to stay together. Why do you think it will take to keep the Cougars together as a group?

*2. Do you think something like team spirit would help the Cougars stay together and get their club going? Why? What is team spirit, anyway? (If S does not know the contest, say: a feeling that they are all part of the same group.) How would you get team spirit going on the Cougars? Why do you think it is important for a group to have team spirit?

*3. Would it help the Cougars if they were all loyal to their club? Why? Would Mike's loyalty to the Cougars be pretty important? Why? What is loyalty anyway? (If S does not know, say: a feeling that each person will stick with the group no matter what.) Do you think loyalty would help a group stay together? Why?

4. What makes members of a group, like these sports clubs, get along well? What about a regular club that has meetings and things, what makes them get along really well?

III. CONFORMITY

*1. Before the Jets got together as a club everybody acted differently. But now they all act alike, they are all show-offs. What do you think makes them all act the same?

*2. One problem that sometimes happens in clubs and other groups is that a person might go along with what the group is doing, even though he doesn't really want to, just because the rest of the group is doing it. Why does that happen?

*3. Is it better when people in a club are pretty much the same or when they are different from each other? In what ways should they be the same? In what ways should they be different?

IV. RULE ORIENTATION

*1. Would it help the Cougars get going if they made rules for their club? Why? Why might rules help a group?

2. What kind of rules should a group have? Why those?

*3. Should all members of the club obey the rules? Why?

V. DECISION-MAKING AND ORGANIZATION

*1. What is the best way to decide what rules the Cougars' club might have? Should the leader decide or should everybody help decide? Why?

*2. How would the Cougars decide what they are going to do, like who they are going to play or when they are going to practice?

3. Is voting a good way for a club to decide on things? Why? Is better when everyone votes the same or is it enough to have a majority? (If S does not understand, say: where a little more than half the members vote one way.) Why might it be better if everyone votes the same way?

4. What should the Cougars do if all the members don't agree on what is the best plan to beat the Jets?

*5. What makes the Jets as a team work together better? What things would make the Cougars work well together? Would teamwork help? What is teamwork in a group, anyway?

VI. LEADERSHIP

*1. Would it be better if the Cougars had a captain (or leader) or if everyone was the same? Why?

*2. Why might having a leader help a group?

3. Could a club have more than one kind of leader? How is that possible?

4. What sort of person would make a good leader for the Cougars?

5. Do you think the Cougars might have any problems if they had a leader? Why?

VII. TERMINATION

A. Why Exclude a Member?

*1. Why might a member be thrown off a club?

B. Why Groups Break Up

1. If the Cougars keep losing all their games with the Jets, do you think their club might break up? Why?

*2. What things would make a club break up?

--Open-Ended Probes

1. What do you think the problem is in this story?

*2. Do you belong to any groups like a band? How about clubs, sports teams or school groups? What about a group of your friends that hang around together, is that kind of like a group? What kind of things do you do? (Use this information for probing personal knowledge of remaining group relations issues.)

I. FORMATION

A. Why Join or Form Groups?

*1. What do you think Marty should do, stay in the band and give up some of his other interests or go his own way and let the band fall apart? Why?

*2. Why do you think Marty and the rest of the band want to be in a group? Anything besides just playing music? Why do people like to be in a group in general?

B. How Are Groups Formed--How Does One Join?

*3. Do you think it would be easy or hard to become a member of a group that has already been together, like a club or friends that hang around together? Why?

4. When the band first started out it was just a bunch of people wanting to play music. What does it take to turn that bunch into a real close group? Why? Anything else? Do you think it would be easy or hard to get a group, like a band or club, started? Why? What kind of problems might you run into?

*5. Sometimes when a person joins a group there are things they have to do before they are let in called initiations. Why do you think groups do that?

C. What Type of Person as a Group Member?

6. If the band wanted to replace Marty, what kind of person should they get? Anything other than being a good player? Why would those things be important?

*7. What kind of qualities should you look for in a person who will make a good member of a group?

II. COHESION

*1. What do you think it will take to keep the band together? Why? What keeps a group of friends together, what keeps it from just falling apart?

*2. Do you think something like team spirit or group spirit would help the band stay together? Why? What is team or group spirit? (If S does not know concept, say: a feeling that they are all part of the same group.) How do you get group spirit going? Why is it often important to have group spirit in a group?

*3. It seemed like Marty's loyalty to the band was pretty important to everyone. Why would that be? Is a member's loyalty usually pretty important to a group? Why? What is loyalty anyway? (If S does not know concept, say: a feeling that each person will stick with the group no matter what.) Does loyalty help a group stay together? Why?

4. What makes members of a group like the band get along well? What makes friends who are all part of a group that hangs around together get along well?

III. CONFORMITY

*1. One problem that sometimes happens in groups is that a person will go along with the group, even though he doesn't really want to, just because the rest of the group is doing it. Why does that happen, anyway?

*2. Is it better when people in a group are pretty much the same or when they are different from each other? In what ways should they be the same? In what ways should they be different?

3. Is it good or bad when one member is different from everyone else in the group?

IV. RULE ORIENTATION

*1. Does it sometimes help a group, like the band, to have some kind of rules? Why might rules help a group?

2. Why would you need rules when you have a group, but not when it is just between two friends?

3. What kind of rules should a group have?

*4. Should all members of the group obey the rules? Why?

V. DECISION-MAKING AND ORGANIZATION

*1. What is the best way to decide what rules a club might have? Should the leader decide or should everybody help decide? Why?

*2. How should the band decide what they are going to do, like where they are going to play and how often they are going to rehearse?

3. Is voting a good way for the group to decide? Why? Is it better when everyone votes the same or is it enough to have a majority (where a little more than half vote one way)? Why might it be better if everyone votes the same way?

4. What should a group do if all the members don't agree on what is the best plan?

*5. What things make a team or band work well together? Would teamwork help? What is teamwork in a group?

VI. LEADERSHIP

*1. Is it better when a group like a club or band has a leader or when everyone is the same? Why?

*2. Why might a leader be important to a group?

3. Could a group have more than one kind of leader?

4. What sort of person makes a good leader for a group?

*5. Are there any problems in having a leader for a group?

VII. TERMINATION

A. Why Exclude a Member

*1. For what reasons might someone be thrown out of a group?

2. If everyone thinks Marty is a goof-off, what do you think will happen to him? What happens to a person when everyone thinks something bad of him?

*3. Sometimes a group will scapegoat one person, throw all the blame on him, even though it's not all his fault. Why is that, anyway?

B. Why Groups Break Up

1. Could Marty's not showing up for practices and meetings make the group break up? Why?

2. Why was it that when Marty wasn't there the other members of the band started getting mad at each other?

*3. What things make a group break up?

IN VIVO INTERVIEW QUESTIONS

I. FORMATION

1. Why did you want to be a part of this team?
   Why do you think the other kids wanted to be members?

2. Do you think that it would be easy or hard to become a member of an intramural team that was already organized, like this one?

3. Our team just got started and already it has a problem. What would you do, if you were made captain to get the team going? What would it take to make us into a really good team?

4. If you were captain of this team, would you have initiations for new members? Why or why not?

5. What kind of person would make a good team member? Do you think _____ is a good team member? Why or why not?

II. COHESION

1. What do you think will happen to our team? What do you think we should do? What do you think it would take to keep us together, as a team?

2. Do you think something like team spirit would help us get through this problem? Would it help make us a better team? Why? What is team spirit, anyway?

3. Would it help if we could all be loyal to the team while deciding what to do? Why? What is loyalty?

4. What is it that makes members of a group, like our team, get along well?

III. CONFORMITY

1. Before we got together as a team, you were all just different kids in the same class. Now there is a different feeling among everyone, like everyone sort of thinks the same way. Why is that?

2. In deciding what we should do today, it is possible that some kids might just go along with the rest of the team, even if they don't really want to, but just

because the rest of the team wants it. Why does that happen?

3. Do you think that our group is pretty much the same or are they different? How should a team be?

IV. RULE ORIENTATION

1. Would it have helped our team if we had made rules up? Why?

2. Do you think all members would have to obey the rules? Why?

V. DECISION-MAKING AND ORGANIZATION

1. What would have been the best way to decide what rules the team might have? Should the captain have decided or should everyone have been involved? Why?

2. Would voting have been a good way? Why? Is a majority enough, or is it better is everyone votes the same?

3. What is teamwork? Would that help us with our problem?

4. What do you think we should do if all the kids don't agree on what is the best plan?

VI. LEADERSHIP

1. Do you think we needed a captain? Or should everyone be the same? Why?

2. Why might having a captain help a team?

VII. TERMINATION

1. Do you think _____ should be thrown out of the competition? Why?

2. What kinds of things would make a team like ours break up?

APPENDIX 5

Debriefing Procedure

The deceptive element in this study has essentially two components. First, subjects are led to believe that they will participate in a competitive game, either a basketball foul shooting contest or a tug-o-war depending on age, which in fact never materializes. Secondly, the subjects believe that the team captain has unilaterally decided not to participate in the contest, when in fact the experimenter has created the situation.

At the time of the scheduled game the team will be informed of the captain's decision and then individually interviewed in a post-test procedure. Technically, the subject's involvement with the study ends at this point. However, each team will be brought together and told that the entire situation was created by the experimenter for his own purposes. It will be emphasized that the team captain's absence had nothing to do with his decision-making; in fact, he was unaware of this aspect of his role until that day. It will be explained that the experimenter had again arranged for his absence. The subjects will be encouraged to express feelings and reactions to the study. This final interview will

be conducted by a trained clinical psychologist.

Finally, the teams will be allowed to actually participate in the competition as originally planned, with the winning teams receiving the reward of wearing "play clothes" to school for two days. All subjects will then be rewarded for their participation with a pizza party.

The study has been fully discussed in detail with the school principal and she has given her full consent. Consent letters, complying with departmental guidelines, were sent to the parents for signature.

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Appendix 6

Appendix 6 presents the one-way ANOVA TABLES of Selman's Issues Across Levels 1, 2 and 3 of Social Understanding.

One-Way Analysis of Variance of Selman's issues across levels one through three of Social Understanding.

Issue - Formation	Levels 1,2,3	D.F.	Sum of Squares	Mean Squares	F Ratio
Hypothetical	Between Groups	2	25.19	12.59	185.19
	Within Groups	45	3.06	.07	
In Vivo	Between Groups	2	27.43	13.71	131.14
	Within Groups	45	4.71	.10	

Issue - Cohesion	Levels 1,2,3	D.F.	Sum of Squares	Mean Squares	F Ratio
Hypothetical	Between Groups	2	27.37	13.69	144.90
	Within Groups	45	4.25	.09	
In Vivo	Between Groups	2	31.37	15.69	216.10
	Within Groups	45	3.27	.07	

Issue - Conformity	Levels 1,2,3		Sum of Squares	Mean Squares	F Ratio
Hypothetical	Between Groups	2	31.58	15.79	206.10
	Within Groups	45	3.45	.08	
In Vivo	Between Groups	2	27.13	13.57	127.83
	Within Groups	45	4.78	.11	

Appendix 6 (continued)

Issue - Rule Orientation	Levels 1,2,3	D.F.	Sum of Squares	Mean Squares	F Ratio
Hypothetical	Between Groups	2	15.71	7.85	71.44
	Within Groups	45	4.95	.11	
In Vivo	Between Groups	2	19.09	9.55	61.21
	Within Groups	45	7.02	.16	

Issue - Decisionmaking	Levels 1,2,3	D.F.	Sum of Squares	Mean Squares	F Ratio
Hypothetical	Between Groups	2	27.51	13.75	127.17
	Within Groups	45	4.87	.11	
In Vivo	Between Groups	2	25.69	12.85	98.73
	Within Groups	45	5.85	.13	

Issue - Leadership	Levels 1,2,3	D.F.	Sum of Squares	Mean Squares	F Ratio
Hypothetical	Between Groups	2	24.82	12.41	150.51
	Within Groups	45	3.71	.08	
In Vivo	Between Groups	2	28.65	14.32	115.11
	Within Groups	45	5.60	.12	

Issue -	Levels 1,2,3	D.F.	Sum of Squares	Mean Squares	F Ratio
Hypothetical	Between Groups	2	30.21	15.10	283.76
	Within Groups	45	2.39	.05	
In Vivo	Between Groups	2	31.04	15.52	450.28
	Within Groups	45	1.55	.03	

Appendix 6 (continued)

Global Scores	Levels 1,2,3	D.F.	Sum of Squares	Mean Squares	F Ratio
Hypothetical	Between Groups	2	29.02	14.51	526.28
	Within Groups	45	1.24	.02	
In Vivo	Between Groups	2	31.81	15.90	313.42
	Within Groups	45	2.28	.05	

Appendix 7

Examples of In Vivo Responses for Each of Selman's Levels of Social Understanding

Level 1

Ques: What kind of person would make a good team member?

Ans: "Someone who is nice and doesn't fight."

Ques: What is team spirit?

Ans: "Keep together and don't fight about losing. And don't get into fights and stuff . . ."

Level 2

Ques: What is teamwork?

Ans: "When a team does things together and helps each other out."

Ques: How would that help our team?

Ans: "Well, as long as we don't start getting angry with each other just because (captain) is not going to play. We should help each other and not say let's quit . . . we should be friends."

Appendix 7 (continued)

Level 3

Ques: Wh keeps a team together?

Ans: "The whole team has to work as one. Like we all have the same problem now . . . the same feelings, so we have to put our heads together."

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