1-1-1985

Toward a reconsideration and refinement of the pattern stage of self-knowledge development.

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TOWARDS A RECONSIDERATION AND REFINEMENT OF THE PATTERN STAGE OF SELF-KNOWLEDGE DEVELOPMENT

A Dissertation Presented

by

H. Frederick Sweitzer III

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF EDUCATION

September 1985

Education

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ACKNOWLEDGEMENTS

I'm not sure just when it happened, but sometime during the last decade I stopped being obsessed with establishing my independence and competence and began to be more appreciative of the many wonderful relationships I have been lucky enough to have. Therefore, although I am very proud of myself for writing this dissertation and finishing my degree, I also feel truly indebted to many people who have been a part of this project and of my life these past six years. I hope these words will confirm for them the appreciation I feel. If you are reading this dissertation, I hope you will also read these acknowledgements, for these people deserve a share of whatever credit is due for this paper.

Let me start with people at the University of Massachusetts. Every doctoral candidate has a committee, but not everyone is fortunate enough to have one that works as well for them, individually and collectively, as mine has. Jerry Weinstein, my chairperson, was the main reason I came to the School of Education. I heard him speak, I read the theory of Self-Knowledge Development that he and Al Alschuler wrote, and I knew he would be a great person for me to learn from. He has been that and more. He has been a teacher, a mentor, a colleague and a friend, and has moved

among these roles with fluidity and with a pervasive humanness that is as important to me as anything else about him. He has been intimately involved in every phase of this project. He has taught and advised me and also learned from me, and his enthusiasm has helped me get through times when my own was flagging. Thanks Jerry, I hope we do lots more work together.

I discovered George Forman several years ago when I was attempting to learn more about Piaget, a project I hoped to accomplish in a few weeks. My knowledge of Piaget and my relationship with George have been growing ever since. George's somewhat Socratic style is simultaneously challenging and supportive. He has been especially valuable in the design and methodology of this study, helping me combine the inspiration of a clinician and teacher with the precision of a researcher and scholar (a line which he himself walks in a way that I hope to emulate). George cares enough about me to push me to do my best work, and although I occasionally meet his criticisms with a touch of defensiveness and reluctance, both this paper and my education have benefitted tremendously from his thoughful attention. It's been a real pleasure.

Ellen Cooney was another real find. She has done this kind of work herself, and knows well the joys and the frustrations. Her comments are always helpful and

thought-provoking and, besides, I just like being with her. She stuck with me through a difficult year. I hope that other graduate students who are interested in structural development will find their way over to Hampshire to see her. It's worth the trip.

Sheldon Cashdan was good enough to come onto the committee fairly late in the game, and filled the role of outside member with sensitivity and flexibility. I appreciate his help and his interest.

As I come to the end of my time at the School of Education, I find myself thinking about what a truly remarkable group of teachers it has, many of whom have been important to my growth and training. Allen Ivey, Evan Imber Coppersmith, Doug Forsyth and Norma Jean Anderson are four people I feel lucky to have learned from. Don Carew and Sheryl Riechmann Hruska have been especially important to me. They have been inspiring teachers and dear friends, and they each have a lasting place in my heart and mind.

My fellow graduate students have given freely of their time and support as I nursed this project along. Don Margulis, Ned Norris, Donne Marchetto, Claudette Kiely, Jim O'Donnell, Lynn Pelletz, Bill Banks, Jane Hart and Juliann Martinez were willing guinea pigs and more. Their interest, comments and support have buoyed me and I thank them. I also thank Linda Kuralt and her Human Development class for

allowing me to pilot the instrument for this study. Betsy Howlett has been especially helpful. In addition to following this project with interest, she was the "novice coder" for the study. She learned the coding system quickly, and it is better for her comments. Betsy fulfilled and surpassed her all her commitments to me, and did so with efficiency and enthusiasm. I hope she knows that I learned a lot from working with her and I appreciate her support.

My students in Education of the Self for the last four semesters were a large part of the inspiration for this dissertation. They made up the sample for this study, but what is more important to me is their willingness to share their personal struggles with me and with each other in a way that is truly touching.

Finally, I would like to thank Jane Sibley, Betty Swasey, Gail Hopper Triplett and Eileen Besse, those long suffering secretaries who extended themselves for me many times and who have guided me with kindness and caring through the maize of graduate school.

I am also fortunate enough to have a wonderful system of family and friends who helped me in many ways. My good friends Mitchell and Annie Kosh, Mark Rosen, Will Ratliff, Phil Irish, Jerry Barilla and Jeff and Judy Bauman have kept me sane and made me feel special. They have been with me through times of great joy and pain (mine and theirs),

through seriousness and silliness. They have laughed, played, studied, worked, sung, and learned with me. I'm not sure what I did to deserve them but I'm glad to have them.

My parents have given me, in this and every other endeavor, unconditional love and invaluable emotional and financial support, even when they didn't exactly understand what I was doing. They believe in me, and that helps me believe in myself. Thanks Mom and Dad - I'm a doctor after all. The rest of my family, my sister Sally, her husband Joe and all my aunts, uncles, cousins and grandparents have cared about me, they have asked about my work and listened with interest, and they have celebrated my accomplishments with me. A real extended family and another on my list of blessings. Also in my extended family are my in-laws Bill, Jackie, Gram, Kathy, Carol, John, David (and Gretchen!). Many of them live close by, which is a treat, and all of them have loved me and cheered me on. The feeling is mutual.

Finally I want to thank my wife Donna, who, in addition to being the love of my life, has held two jobs, put up with me, patiently edited and re-edited this paper, celebrated the ups and smoothed out the downs, and somehow managed to write her comps. Now it's your turn, and I hope I can be as much of a companion to you as you have been to me.

ABSTRACT

Towards a Reconsideration and Refinement of
the Pattern Stage of Self-Knowledge Development

(September 1985)

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The purpose of this study was to explore the phenomenon of growth within the pattern stage of Self-Knowledge Development Theory, which is a neo-Piagetian theory of the development of self understanding (Weinstein and Alschuler, 1984). Specifically, the study attempted to discover dimensions of growth within the pattern stage and sequential steps along those dimensions occuring in the pattern and transformational stages. The study also examined relationships among steps from different dimensions.

A three part approach was used to study this problem. Using a variety of theoretical and logical analyses, theoretical formulations of dimensions and steps were developed. An instrument, the Pattern Inventory, was developed to test the presence or absence of reasoning from each step. Ordering theory was used to provide empirical support or disconfirmation for the proposed step sequences,

and to study relationships and ordering among all steps from all dimensions.

Three dimensions were posited and studied: differentiation/integration, causation, and change. In general, the data analysis supported the hypothesized ordering of steps on these dimensions. In two cases, two steps were found to occur at the same time, as opposed to sequentially. Evidence was also found of relationships between the dimensions. It appeared that a given step on the differentiation/integration dimension may be a prerequisite for a parallel step on the change dimension, and change a prerequisite for causation.

This study has relevance for those wishing to study self-knowledge and its development, and for practitioners interested in the promotion of self-knowledge in their clients.

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INTRODUCTION

Purpose

The purpose of this study is to explore the issue of growth within the pattern stage of Alschuler and Weinstein's Self-Knowledge Development Theory. This growth occurs along several dimensions. The study seeks to identify some of those dimensions, to see whether there are discrete, sequential steps of growth along those dimensions. It also analyzes the reasons behind any sequences found, and looks for evidence that any of them are invariant. Finally, the study looks for evidence of patterns of growth across dimensions within the pattern stage. It is hoped that this study will be a step in developing a model for a similar exploration of all the stages of the theory.

Background

Self-Knowledge Development Theory (which may hereafter be referred to as Self-Knowledge Theory or SKT) was developed by a team of educators at the University of Massachusetts (Alschuler, Evans, Tamashiro & Weinstein, 1975). It is a theory that takes a structural developmental

approach to self-knowledge, positing an invariant sequence of stages in people's reasoning about their internal experiences. The theory was developed in order to address what its authors believed were critical needs in the field of humanistic/psychological education, and subsequent studies have attempted to use the theory to answer those needs. Of particular interest to the present investigation are three areas in which the theory was expected to be helpful: goals, sequencing curricula, and outcomes (Alschuler, Evans, Tamashiro & Weinstein, 1975; Tamashiro, 1976; Phillips, 1980).

Goals

It was hoped that the theory would assist educators in setting educational goals that were precise and operationally clear. It was further hoped that these goals could be translated into curriculum objectives, and that the theory would assist in sequencing both goals and objectives in a logical manner.

Sequencing curricula

A logical extension of the sequencing of goals and objectives is the sequencing of curriculum interventions. The most deliberate attempt in this area was made by Phillips, McLain and Jones (1977), who developed a carefully sequenced curriculum, grounded in Self-Knowledge Theory,

which was designed to address substance abuse in adolescents. The need for carefully sequenced developmental interventions in education has also been discussed by Rest (1974, 1977).

Outcomes

It was hoped that Self-Knowledge Theory would provide a framework in which to discuss evidence of significant and relatively permanent learning. It was further hoped that such a theory would provide a way to measure such change quantitatively, and hence to evaluate educational interventions.

A structural developmental approach seemed especially well suited to these needs (Alschuler, Evans, & Weinstein, 1974; Alschuler, Evans, Tamashiro & Weinstein, 1975). Structural developmental theories posit invariant, irreversible sequences of stages in development. A structural theory of self-knowledge, they reasoned, would provide a guide to permanent changes in self-knowledge, and to sequencing goals and interventions in a way that would be relevant for everyone. As will be explained later, structural theories have these qualities because of their emphasis on the structure, as opposed to the content, of reasoning.

Self-Knowledge Theory has been used in areas other than curriculum to pursue the goals outlined by Tamashiro. Ziff

(1979) used it to sequence processing questions for use in human-relations training exercises. In the field of counseling, the theory has been used to differentiate clients (Sweitzer, 1980; Ivey, 1984) and to differentiate and sequence goals and interventions (Sweitzer, 1980). It has also been used in family therapy (Duhl, 1982).

Since the theory was formulated, there have been two major developments that affect the present investigation. First, the field of structural developmental theory has grown significantly. Reimer (1982) divided structural developmental theories into three "generations". He lists Piaget's seminal theory of cognitive development as the first generation, and the work of Kohlberg (moral reasoning development), Flavell (cognitive development, perspective taking) and Furth (cognitive development) as the second. In the third generation are theorists who are building on the ideas of the first two and extending them into new areas. Self-Knowledge Theory clearly falls into this area. There are other theorists in this same "generation" who have applied the principles of structural developmental theory in other domains of human development. They include Selman's theory of interpersonal understanding (Selman, 1980), Fowler's theory of faith development (Fowler, 1981), and Kegan's theory of ego development (Kegan, 1982). Some of these theories examine areas relevant to self-knowledge, as the term is defined by Alschuler and Weinstein (1974).

Also, as the field has grown, more has been written about the mechanisms and processes of development, both through original work by the theorists mentioned and by continued examination of the work of Piaget (Furth, 1981; Kegan, 1982).

These recent efforts affect the present investigation in two ways. First, although none of these theorists are concerned with self-knowledge exclusively, hypotheses about self-knowledge can be inferred from their stage sequences. Such inferences suggest that there may be dimensions of self-knowledge, missed in the original formulation of the stages, that have implications for additional characteristics of each stage and for within-stage sequences. Secondly, the work on mechanisms of development has implications for understanding the structural logic of self-knowledge stages. In structural developmental stage theories, differences between stages are indicated not only by empirical evidence, but by logical arguments that indicate qualitative differences between the reasoning of adjacent stages. The "cans and can'ts" of each stage, the abilities an individual does and does not have at each stage, are logically organized by the structures of that stage. The formulations of the stages of Self-Knowledge Theory emphasize the abilities and limitations of each stage, but are not as explicit about the underlying structures. One focus of the present study is to understand

the movements that occur within the pattern stage as the person moves from that set of structures to another (transformational). To the extent that the more recent work on the mechanisms of development sheds light on such structural logic, it may help to focus the search for within-stage dimensions and steps. Understanding the structural logic of the pattern stage, the structural differences between it and its adjacent stages, and the movement within it may also lead to a new and more structural formulation of the boundaries of each stage, although that is not the most important goal of the study.

Other work in human development, while not structural, seems to echo some of the movements described in Self-Knowledge Theory. Although this study will focus on achievements occuring after the pattern stage begins, it should be noted that the achievement of the pattern stage itself is a qualitative advance over the previous stage. In that stage, called situational, the person does not see consistency in his/her internal responses across classes of situations; s/he tends to see him/herself as responding differently in every situation. The self, then, is defined by the situation. At the pattern stage the self becomes more internal and stable, since consistency as well as difference in internal responses is now understood. This movement toward internal characteristics and consistency has been noted by several theorists. Rotenberg (1982) noticed

the growth of consistency and stability in character conceptions in very young children. Adolescence is a time often posited for the change from more external, shifting contexts for self and self concept to more internal and consistent contexts. Herzberger (1981), in a study of self-conceptions, found that older adolescents tended to describe their uniqueness in terms of stable personality traits. Similar trends have been noted by Secord and Peevers (1974), Broughton (1978), Bernstein (1980), Selman (1980) and Damon and Hart (1982). None of these theorists, however, seem to discuss the course of development beyond consistency and stability. Many of them end their studies with adolescence, and indeed, the pattern stage of self-knowledge is frequently found in adolescents. This study explores development beyond this point, and does so in a more microscopic way than Self-Knowledge Theory.

The second set of developments that have occured since the theory was written are the attempts, both formal and informal, to apply it in pursuit of the goals discussed earlier. The formal attempts have included dissertations (Ziff, 1979; Phillips, 1980; Schiller, 1983; Skinner, 1983), and papers both published (Weinstein, 1980) and unpublished (Sweitzer, 1980). Informally, Gerald Weinstein and several of his graduate students (including this author), have been attempting to use the theory to analyze and refine a college course in Education of the Self. This course, which is

offered to both undergraduates and graduates, attempts to help students learn and use a model for uncovering and interrupting dysfunctional internal response patterns (Weinstein, Hardin & Weinstein, 1976; Weinstein, 1981).

These investigations had many purposes, and were successful in many of their goals. However, some of the problems these investigators have encountered have implications for the present study. Two of the studies mentioned attempted to use the theory to measure change in self-knowledge as a result of particular interventions. Phillips (1980) studied self-knowledge levels in both test and control groups from four samples to see whether there was any significant difference in the increase of self-knowledge between students exposed to a developmentally based curriculum in substance abuse and those who were not. Although a statistically significant difference was found in two of the four samples, in no case was a significant increase found; the difference was that the test groups remained stable while the control groups decreased.

As part of a study of the Education of the Self course, Schiller (1983) examined the results of two administrations (one before and one after the course) of a test designed to measure the number of statements indicative of reasoning in each of the two highest self-knowledge stages. While an increase was shown, there is no evidence that a quantitative increase of this sort indicates any developmental stage

change. Research in progress by this author seems to indicate that no stage change occurs in the majority of Education of the Self students as a result of taking the course. However, both this author and other instructors in Education of the Self believe they have observed significant, qualitative change within stages during the course. This sort of change is documented in other domains of development. In a study on the development of formal operations, Kuhn and Angelev (1976) found quantifiable within-stage growth after a fifteen week educational intervention. This sort of within-stage change is not accounted for by the Self-Knowledge Theory as it presently exists.

Several authors have contended that stage change is a difficult and possibly inappropriate goal for short term interventions. They have stressed that within-stage elaboration, the application of same-stage capabilities to more and more tasks, is a critical part of the developmental process and an important goal (Kohlberg & Mayer, 1972; Cooney,1977; Collins, 1977; Weinstein & Alschuler, 1984). Piaget refers to the spread of same-stage capabilities as horizontal decalage. Although there has been disagreement about how to promote this growth (Phillips, 1980; Kuhn, 1979), the goal itself has remained a constant. Schiller's study would seem to indicate that such change may be measureable in self-knowledge development. However, it

seems clear that such processes are poorly understood.

In summary, Self-Knowledge Theory provides a map of growth in the self-knowledge domain, positing a sequence of qualitative stages. It does not, however, outline sequences or patterns of within-stage growth. Such sequences, if they can be found, should be of interest to both theoreticians and practitioners. The discovery of such sequences within the pattern stage of Self-Knowledge Theory is the primary goal of this study. Self-Knowledge Theory also needs to be reconsidered in light of recent writings in the field of human development. Since many of these writings were used in pursuit of within-stage growth, this study will serve that end as well.

Significance

This study should have significance in four major areas. It should have implications for educational programs and clinical theories and intervention strategies aimed at identifying and interrupting dysfunctional patterns. Secondly, it will assist, in several ways, those who wish to apply Self-Knowledge Theory. It will also contribute to the refinement of the overall theory, and to the pattern stage in particular. Finally, it will contribute to the development of effective instruments and scoring systems for assessing self-knowledge.

Significance for Educational and Clinical Interventions

The course in Education of the Self already mentioned in this chapter is the only intervention known to this author that a) is designed primarily for educational purposes and b) deals with interrupting dysfunctional response patterns (Weinstein, Hardin and Weinstein, 1976; Weinstein, 1981). There are, however, several forms of psychotherapy that focus on interrupting these patterns, although they differ in their explanations of the origins and exact nature of patterns, and in their prescriptions for interruption. All of them, in addition to focusing on patterns, have been used as the basis for educational interventions, support groups, etc. Therapies of this sort known to this author include Rational Emotive Therapy (Ellis & Harper, 1975; Ellis & Grieger, 1975), Transactional Analysis (James and Jongeward, 1971; Harris, 1967) and Re-evaluation Counseling (Jackins, 1965). Anyone interested in these approaches, or in other clinical and/or educational interventions concerning patterns, could benefit from understanding differences in the ways people reason about their patterns. This knowledge would assist them in differentiating, refining and planning treatment and curricula.

Significance for Applications of Self-Knowledge Theory

This study outlines an approach to the refinement and elaboration of one stage of Self-Knowledge Theory. As such, it lays the groundwork for further study of the pattern stage, and of all the stages. The principal goal is to look for dimensions and steps within the stage. These dimensions may develop independently of one another, or they may be horizontally related; that is, step 1 in sequence A may co-occur with step 1 in sequence B, etc. If that is the case, there may be substages within the pattern stage that each contain steps along several dimensions. A third possibilty is that certain steps in one dimension develop before certain steps in another, even if there are no horizontal clusters of steps. In any case, or in all cases, the study will assist practitioners in the helping professions (teachers, counselors, therapists, trainers, etc.) in three major areas, many of which intersect with the original goals for developing the theory.

Goals

If more is known about the dimensions and steps of within-stage growth, helpers will be able to be more precise in setting realistic, achievable goals for a variety of interventions. This ability should be especially helpful for those concerned with relatively short-term interventions, such as a one semester course, or a series of

training workshops. Also, if more is known about the precise nature and order of within-stage sequences and/or substages, goals and objectives for within-stage growth can be more intelligently sequenced, regardless of the approach used to induce it. It should be noted that a sequence need not be invariant and linear to be useful in these ways. It may be that A sometimes leads to B, or that either A or B, whichever develops first, leads to C. It may also be that people develop A, then B, and then may go to C or D, or to C and D together. The more that is understood about the nature of within-stage sequences, invariant and linear or not, the more effective helpers can be in sequencing goals (and interventions). Finally, if at least some dimensions of within-stage growth can be measured, practitioners and researchers can more precisely measure the effects of different interventions.

Understanding Target Populations

In their final report on Self-Knowledge Development Theory, Alschuler et al. (1975) call for investigations to uncover additional characteristics of the stages. To the extent that this study uncovers additional dimensions of the pattern stage it will allow practitioners a deeper understanding of the self-knowledge levels of their clients. Knowledge of dimensions and steps within stages will also aid practitioners in differentiating among members

of their intended population.

Planning Interventions

Knowledge of "natural" sequences along various dimensions within the pattern stage will assist practitioners who are interested in promoting growth within that stage to select and sequence their interventions. These interventions might be curricula, counseling strategies, human relations exercises, etc. Practitioners will also be able to analyze interventions to see whether they are matched to the clients' developmental level(s), and modify them if they are not.

Significance for Self-Knowledge Development Theory

It has already been noted that this study uncovers additional characteristics of the pattern stage. It also helps to tighten the structural logic of the stage. By analyzing the structural logic of the stage, and of movement through it, the study also helps clarify exactly when a person enters and exits the stage. Finally, a greater understanding of the process of movement through a stage along various dimensions enhances the scope of the theory.

Significance for Measuring Self-Knowledge

The present instrument for assessing self-knowledge levels is the Experience Recall Test (ERT). Since the theory at present does not contain within-stage progressions, the ERT does not, in any precise way, allow researchers to determine where in a stage a person is. The present study will isolate subjects who are found to be at the pattern stage, and attempt to develop a system for placing them on within-stage continua. Another limitation of the ERT is its scoring system. The present scoring method for the ERT yields a profile, reflecting the amount of reasoning from each stage a subject has displayed. This information may be very useful for some purposes, but for others, including the present study, all that is needed is an indication of the highest level of reasoning in a subject. Also, Ziff (1979) and Schiller (1983) have argued that the ERT does not pull for the maximum capability of subjects. This study employs a new instrument, a modification of the ERT called the ERT2, that was developed by this author and Gerald Weinstein. The ERT2 attempts to maximize the chance of assessing a subject's highest capacity for self-knowledge, and has a simplified scoring system that saves time and is easier to learn than that used for the ERT. Since neither the ERT nor the ERT2 test for within-stage growth, another instrument, the Pattern Inventory, has been developed to perform that function. To

the extent that all these goals are accomplished, this study contributes to the development of a group of assessment techniques that is useful for a variety of purposes, and encourages independent research.

Definitions

Structural Developmental Theory

Structural developmental theory is an approach to understanding human development. Its most eloquent and comprehensive exponent is Jean Piaget. Piaget used this approach to study cognitive development, which has led some authors to refer to theories using this approach as cognitive developmental theories. This designation, however, is somewhat misleading. Piaget's work was largely concerned with non-social cognition, ways in which people understand and reason about inanimate objects. However, the approach has also been used to study social cognition, ways in which people reason about animate beings, including themselves. It has been argued that both cognition and affect are involved in reasoning of every kind (Kegan, 1982; Kegan, Noam & Rogers, 1982). This study will use the term structural developmental theory to refer to all theories using an approach to development similar to that used by Piaget.

These theories are concerned with the structure, rather than the content, of reasoning. They examine how people reason, not what they reason about. They assume that people's ways of making sense of the world are organized by structures, and that these structures are both the result and the instruments of interaction with the environment. The process of human development, according to these theories, is one of constant interaction between individuals and their physical and social environment. An individual is constantly acting on the environment in that s/he is always organizing environmental input, and making sense of it according to his/her present system of understanding. Interaction with the environment involves both assimilation and accommodation. An individual assimilates input, organizes it using his/her present system, but in the process the system is always modified, even if only slightly, and that is accommodation. The organizing systems referred to here are called structures. As structures are extended and modified, they eventually give way to new, qualitatively different structures, which allow the individual to organize the environment in qualitatively new ways.

Through the processes discussed above, reasoning takes successive forms throughout the lifespan. These successive forms are called stages of development. Structural developmental stages have four major characteristics

(Piaget, 1971; Kohlberg, 1969). First, they form structured wholes. The rules for organizing input in any stage are logically connected to one another and are internally consistent. Thus, stages have stability. However, since the structures are extended, modified, and eventually transformed through use, the system also produces change. Secondly, stages are qualitatively different from one another; it is not just that more is understood, but that things are understood in a new way. Third, each stage is a hierarchical integration of the one before. The structures of preceeding stages do not disappear; they are reorganized by the new structures, which will, in turn, be reorganized at the next stage. Because of this hierarchical integration, the stages occur in invariant sequence in everyone. Individual factors may affect the rate of development, but not the order of the stages. A final important note about stages is that since structures are constantly extending and modifying, it is misleading to speak of an individual as being "in" a stage. Development is, above all, motion, and individuals are constantly moving through a stage (for a more complete discussion of structural developmental theory see Sweitzer, 1984).

Self-Knowledge

There are many definitions of the self, and of self-knowledge (for a partial review see Hopkins, 1974). The definition of self-knowledge used in this study, however, is the one developed by Weinstein and Alschuler:

> Self-knowledge consists of verbalized categories by which one describes oneself. In general these categories identify one's stable distinctiveness and similarity to others along with any associated judgements. When people categorize themselves they refer to such aspects as their behaviors, abilities, characteristics, relationships to themselves, to others, and to the environment; values associated with experiences; and goals, ideals, expectations and intentions. (1984, p.4)

According to Alschuler and Weinstein, self-knowledge is generated by the self-system (Alschuler, Weinstein & Evans, 1974; Alschuler, Evans, Tamashiro & Weinstein, 1975: Weinstein & Alschuler, 1984). This system has three components: experience, mental operations and self-describing behaviors or theories. Alschuler and Weinstein emphasize that these three components form a system, and that each affects the others in dynamic interaction. An individual's personal experience is organized through mental operations which in turn organize that individual's description of and theories about him/herself.

Experience

Experience consists of all of a person's sensations, feelings and thoughts. Experience is private, and in this definition it is conscious. Experience, then, is the raw data of self-knowledge. Alschuler and Weinstein do not deny the importance of subconscious or unconscious awareness, but did not make that awareness a subject of their inquiry.

Mental Operations

Mental operations transform and organize the raw data just described. These operations are guided and interrelated by structures, which develop and change over time, forming a qualitative, hierarchical and invariant sequence.

Self-Describing Behaviors

Self-describing behaviors are verbal actions that describe experience. A person's verbalizations reflect the way in which s/he has used mental operations to organize experience. Therefore, there will be an internal logic to these verbalizations. This internal logic can be thought of as an organizer through which a theory of self is formulated. These organizing structures are not necessarily in a person's conscious awareness; they are inferred from self-describing behaviors. Note that self-describing behaviors are limited to verbal actions. Alschuler and

Weinstein have limited their inquiry to verbal actions for pragmatic reasons; a host of problems arise in attempting to interpret non-verbal self describing behaviors (Alschuler, Evans, Tamashiro & Weinstein, 1975).

Self-Knowledge Development Theory

Self-Knowledge Development Theory describes the way in which self-knowledge develops over time. Because mental operations are structured, and because these structures evolve in a qualitative sequence, self-theories also evolve in a hierarchical, invariant progression. Alschuler and Weinstein posit four stages of self-knowledge development: elemental, situational, pattern, and transformational.

The Elemental Stage

In the elemental stage, descriptions of experience are rendered in terms of the external elements of the experience; what is described are the overt, observeable aspects which could be seen by anyone watching events unfold (I went to a party. There were a lot of people there. I didn't know very many of them). Internal, private aspects such as thoughts and feelings are largely absent from reasoning at this stage. The descriptions are also fragmented. The elements described are not connected in any truly causal way, but rather are juxtaposed; they are reported together, but often out of sequence. Finally,

there is no sense of a situation as a whole; the elements are not described as comprising connected parts of a single event.

The Situational Stage

At this stage the person is no longer centered on the elements of experience. Instead, s/he is able to see the relationship between them in a number of ways. First of all, causal relationships between elements are understood; events are reported in sequence, with a clear sense of intra-situational causality. Also, elements are seen as related by a more inclusive set, the situation. Situations are referred to as a unified entity for the first time (It was the first time I'd gone out since we moved). Another major accomplishment of this stage is that internal experience is included in descriptions of experience. Thoughts and feelings are now integrated into these descriptions. Finally, the relationship between the more external elements and these new internal elements can be described (Isaw that my jacket was gone and realized that my brother had lied. I felt hurt and angry at him). The principle limitation of this stage is that persons at this stage do not see any consistency to their responses across situations; they see themselves as literally different in every situation.

The Pattern Stage

Persons at this stage can see their internal responses as consistent across classes of situations, and can describe the commonality between the situations (Whenever I meet new people I become very anxious and it is hard for me to talk). Thus, situations are seen as members of a more inclusive set, an internal pattern. The limitation of this stage is that the person is centered on patterns; s/he cannot see how s/he could take control of patterns, take internal action on an internal pattern.

The Transformational Stage

At the transformational stage people come to see their internal patterns as part of a larger self-system. Patterns are seen as one element of the system, an element that can be related to and affected by other aspects of this internal system. They understand the nature of the relationship between patterns, and between themselves and their patterns. Integrated into descriptions at this stage is the ability to "get above" patterns and take internal action to interrupt or change them.

Assumptions and Limitations

This dissertation is intended to begin an exploration of the pattern stage of Self-Knowledge Theory. Regardless of the results, more work will have to be done, even on this stage. The study has several methodological limitations that will be discussed later. There are, however, some important general assumptions and limitations.

First of all, this study assumes that structural developmental theory is a worthwhile approach to human development, and to self-knowledge. It is not an attempt to defend either the framework or its application to self-knowledge.

Secondly, this study assumes that Self Knowledge Theory is a valid and defensible theory. The original research will not be critiqued or defended except insofar as it provides clues for the present investigation. Finally, this study assumes that structural developmental theory provides a viable, justifiable base for the helping professions. This argument has been made at some length elsewhere (Kohlberg & Mayer; 1972, Kegan, 1982). It is further assumed that Self-Knowledge Theory in particular is a viable base for the helping professions. It has been argued elsewhere (Tamashiro, 1976) that SKT is the most viable and defensible base for humanistic education. This study will stop short of that claim, but does assume that it is one

theory that can help provide such a base for education and other helping professions.

C H A P T E R I I

REVIEW OF LITERATURE

Introduction

There are four major areas of literature to be reviewed. The first area is the literature describing the derivation of the stages of Self-Knowledge Theory. The analysis will focus on the method used to construct the stages, including the process of determining the structural boundaries of the stages. This review will shed some light on ways to approach the present problem, both by discovering methods that could also be used in this study and by uncovering missing pieces or faulty logic in the present stage formulations. Secondly, other structural developmental theories that concern themselves with self-knowledge (as defined by Weinstein and Alschuler) will be reviewed. The logic and boundaries of some of these stages will be examined in order to provide additional clues as to the logic and boundaries of the pattern stage. The specific characteristics of the stages will also be examined, in search of both additional characteristics of the pattern stage and of possible dimensions of within-stage growth. Thirdly, the review will explore both conceptual and methodological problems in the study of dimensions and

sequences. This body of literature will help focus the study and point out possible pitfalls and issues in the design. Finally, the approaches to within-stage growth used by four other structural developmental theorists, Piaget, Kohlberg, Selman and Kegan, will be reviewed, searching for ideas to use in this study.

Original Derivation of Self Knowledge Stages

The approach used in formulating the stages in Self-Knowledge Development Theory had three sequential steps; a theoretical step, an empirical step, and a combining of the two to produce the final stage descriptions (Alschuler, Evans & Weinstein, 1974; Alschuler, Evans, Tamashiro & Weinstein, 1975; Tamashiro, 1976).

The first step was to develop a theoretical framework. This framework was necessary both to provide an internal logic to the stages and to guide the observation of behavior that would make up the empirical step of the study. To develop this framework, Alschuler and Weinstein used four existing structural developmental theories: Piaget's theory of cognitive development (1968), Kohlberg's theory of moral reasoning development (1969), Loevinger's theory of ego development (1970), and Van den Deale's theory of ego-ideal development (1968). These theories were chosen because they represent four areas of structural development (Tamashiro,

1976). Although none of them dealt with the content of self-knowledge, they did share the underlying structural developmental framework that Alschuler and Weinstein wanted to make a part of their theory.

The stage progressions in each theory were aligned with each other according to similarity of stages. It was decided to use three of Piaget's stages, preoperational, concrete operations and formal operations, as the overarching progression. These stages were analyzed, along with the stages from the other theories that were aligned with each of them, for content relevant to self-knowledge. Content was identified as relevant if it seemed to speak to the question, "How do people differentiate and integrate antecedents, responses and consequences of their experiences...?" (Tamashiro, 1976, p.84). As a result of this analysis, three theoretical stages of self-knowledge were formulated (Alschuler, Evans and Weinstein, 1974).

In developing the empirical formulations of self-knowledge stages, Alschuler and Weinstein examined responses to the Experience Recall Test (ERT), an instrument developed by them specifically to measure self-knowledge. The ERT is a group administrable test in which subjects are asked to remember several significant experiences in their lives, and then to select one of those experiences to answer questions about. The questions are as follows:

1. Describe as fully as you can and in as much detail as possible the experience you remembered.

(Please include what led up to the experience, what your thoughts and feelings were, and what the results of this experience were).

2.How was this experience important or special to you then?

3. How is this experience important or special to you now?

4. From the experience you just remembered, please describe some things you know about yourself.

5.How could knowing this about yourself be useful to you? Specifically, how can it help you get what you want or avoid what you don't want?

(Weinstein and Alschuler, 1985)

This instrument was developed without a specific stage progression in mind; the results were used to derive the empirical formulations (the ERT will be fully discussed in the chapter on design and procedures and its full text can be found in the appendix). A coding system using graphic symbols was developed to categorize the statements according to their structural similarities. The analysis of these protocols yielded fifty-three such symbols. Each protocol was then analyzed for presence or absence of each symbol, and these units of presence and absence were subjected to the Cornell Scaling Technique (Tamashiro, 1976), to see which sets of symbols formed a linear, hierarchical sequence. Forty-one of the fifty-three symbols formed a scaled sequence.

Before constructing stages from these data, two additional steps were taken. First, some of the symbols which scaled very closely to each other and were

conceptually similar were combined into one symbol. Secondly, the symbols were analyzed in their rank order for similarities and internal relationships to each other. Finally, the four stages of self-knowledge were formulated. These descriptions have been modified over the years, and the descriptions given in chapter one are the most recent ones; they are modifications of the stages that were reported in the original research (Alschuler, Evans, Tamashiro & Weinstein, 1975). As a check of validity, the protocols were then assigned to the highest stage in which at least three symbols occured. Then these protocols were analyzed for symbols from earlier stages, and any missing symbols noted. Using Guttman's coefficient of reproducibility, a scalability score of .97 was obtained. Scalability is one way of measuring the internal consistency among items on a scale, and Guttman (1950) has set .90 as a minimum score for assuming scalability.

The principal problem with this method of formulating stages seems to be an insuffiency of structural logic. Phelps (1979), in a review of attempts to verify the existence of Piaget's stages, has pointed out that no statistical or quantitative procedure is sufficient to "prove" the existence of a stage. Rather, logical analysis must be used to argue that the stages form a structured whole. With regard to self-knowledge theory, the scaling technique used seems to have yielded a hierarchy of symbols,

but the authors have not been sufficiently clear as to the organizing structures of each stage, and, consequently, the structural boundaries of the stages. Understanding the structural movements leading toward and beyond the pattern stage would seem to be a critical step in searching for within-stage dimensions and sequences, and a more rigorous logical analysis of the stage is needed. Also, several theorists have pointed out problems with the use of a Guttman scaling technique in attempting to verify or construct developmental sequences (Flavell & Wohlwill, 1969; Wohlwill, 1973; Phelps, 1979). These problems will be fully discussed later in the review.

Other Developmental Theories of Self-Knowledge

A review of the literature yielded few other theorists who take a structural stage approach to the study of self-knowledge, as the term is defined by Weinstein and Alschuler (1984). It did, however, uncover work that is relevant to some aspects of self-knowledge, and that literature will be reviewed here. All of the theories covered are structural; they concern the organization of thought rather than the content. Some are stage theories and some are not. All of them examine aspects of human development that are relevant to and have implications for Self-Knowledge Theory.

Damon and Hart (1982) have provided a review of and classification system for theories addressing the development of self understanding from infancy through adolescence. They have proposed a three dimensional, integrated model of this growth. Some of the theories covered are structural stage theories, but many are not, nor is their integrated model. Self understanding, according to Damon and Hart, is the process of self conceiving as opposed to the resultant self concept. They refer to two aspects of this self conceiving process, which they call the "I" and the "me" (terms they borrow from William James [1961]). They further contend that an adequate theory of the growth of self understanding must take both of these aspects into account.

The "me" is the aspect of the self conceiving process that is concerned with the self as object. It concerns a person's conceptions of the social, material and spiritual characteristics that make him/her unique. Note that this aspect is not concerned with the specific attributes selected, nor with the value placed on them, but rather with categories of attributes. For example, the attributes of height and hair color both belong in the category of physical appearance. This aspect is not concerned with the history or future of these characteristics, nor with the process that generates them. Damon and Hart further divide this aspect into the physical, active, social and

psychological self. They assert that, while each of these categories is part of the self conception (in some form) at all times, each is focused on, in order, as the primary focus of self conceiving as the child grows older. A young child's primary concern with physical characteristics, for example, gives way to a concern with his/her activities at a later age.

The "I", on the other hand, is that aspect of the self conceiving process that focuses on the self as subject. It is concerned with the self as knower, and with the processes that generate self-understanding. The categories that make up the "me" are the results of these processes. Again, Damon and Hart have subdivided this aspect into four parts: continuity, volition, distinctness and self-reflection. Continuity is the term for the developing persons' understanding of what it is that causes aspects of themselves to change and other aspects to remain the same. Growth on this dimension proceeds from the notion that all such continuity and change is related to changes in the physical body to notions that emphasize both physical and psychological processes. Distinctness refers to the person's understanding of what makes people unique (which is slightly different from asking "what is unique about <u>you</u>"). Growth on this dimension proceeds from physical accounts (distinctness of body parts) to explanations that emphasize each person's subjective, psychological experience. Volition

is the term used to describe the person's understanding of how the self modifies or moderates its own processes. Again, growth proceeds from physical notions (one body part "tells" another what to do) to more psychological modifications. Finally, the term self-reflection refers to the person's understanding of what one thinks about when thinking about the self. As in all the dimensions, growth proceeds from physical (body features, typical activities, etc.) to psychological (internal psychological processes).

Damon and Hart assert that three movements take place as the child grows. The child grows from the physical to the active, to the social, etc., in his/her conception of "me" and from physical to psychological understanding of the processes making up the "I". The child also focuses less on the "me" and more on the "I" as s/he grows into adolescence. This last change brings with it an increased sense of volition and power, since the processes become the focus rather than the results.

Weinstein and Alschuler's Self-Knowledge Theory covers aspects of both the "me" and the "I". The emphasis, in each stage, on the components of internal experience falls into the "me" aspect, and the progression through the stages from physical descriptions (elemental) to feelings (situational) to psychological continuity (pattern) seems to parallel the movement suggested by Damon and Hart. As the person develops to the later stages, however, there is also an

increased concern with the "I". The notion of the possibility and process of change enters the picture at the transformational stage. This corresponds to the volition dimension of the "I". Continuity and distinctness are also addressed by the stages, as subjects move from seeing themselves as different in every situation to seeing that some parts of themselves change and some stay the same. However, this movement is again accompanied by a shift from an early concern with the results (the category of feelings, for example) to the processes (as awareness of patterns grows). At the transformational stage the person has moved solidly into the "I" and is aware of the processes of change. Perhaps one dimension of growth within the pattern stage is the greater understanding of the processes that produce patterns, and of the internal dynamics of a pattern. Understandings of the possibility for change might be another dimension for growth within the pattern stage. It seems likely that every stage would have some conception of change; even situational thinkers could explain why their feelings changed in that situation. Alschuler and Weinstein do not concern themselves with this dimension until their later stages, however. It also seems likely that notions of change would go from results to processes as a person moves through the self-knowledge stages.

The work of Robert Bernstein (1980, 1983), while not a stage theory, does examine aspects of self-knowledge.

Bernstein focuses on the the self-system, and its development during adolescence (ages 10-21). He defines the self-system as "...the hierarchical organization of differentiated self concepts into a coherent theory guiding one's behavior in the present and providing future directions and goals" (1983, p.75). He does not posit stages in the growth of the self-system, but does provide evidence that it proceeds from global, undifferentiated concepts to more differentiated and integrated ones. This sort of movement seems to be a part of all structural theories. Specifically, Bernstein did a cross sectional study that examined three aspects of the self system; differentiation, abstraction and integration (1980).

Bernstein used a structured interview in which subjects were asked three questions. The examiner probed their answers for clarity. The questions were:

> 1. Everyone behaves differently in different situations with different people. For example, someone told me that in school he is always getting in trouble, but at home, he is very helpful. List the different ways that you act.
>
> 2. You have just listed a number of different ways that you act. What does each of these tell you about yourself?
>
> 3. Put all of this together in a statement about yourself.
>
> (1980, p.234)

Bernstein developed a coding system for all three aspects and studied trends across ages. For differentiation, he set forth fifteen categories of

determinants. Determinants are the criteria for the parameters of the categories of situations, given by the subjects, in which the subject acts a certain way. For example, the statement "When other people lie to me I get very angry" uses other people's actions as a determinant. Bernstein counted how many of these determinants were used in each description of a category and how many were used overall. He also counted the number of different statements made in response to question 2 (he calls these statements self concepts). While he found no significant difference across ages in the number of determinants used, he did find that the number of self concepts expressed increased with age.

To study abstraction, Bernstein examined the breadth of the constructs used to go from the behavior described in question 1 to the self concept described in question 2. He categorized them according to five levels, each one more complex and inclusive than the previous one. Again, he found that the level of abstraction tended to increase with age. Finally, for integration, Bernstein studied the answers to question 3. He developed a category system for responses that was made up of four levels, again increasing in complexity, ranging from no integration to global, simplistic integrations to more systemic integrations. He once again found an increase in level used with age.

Bernstein's work spans both the "me" and the "I",

examining both the processes and the resultant categories of self conception. His work seems relevant to Self-Knowledge Theory, and to the present investigation, in a number of ways. Questions four and five on the ERT ask the subject to abstract the experience they have described into statements about themselves. Weinstein and Alschuler did not, however, analyze the answers to these questions for brea th of construct. Instead, they seem to have been more concerned with integration; they want to know whether the person can integrate elements into situations and situations into patterns. Abstraction would be an interesting dimension for further study, especially since several of the levels Bernstein describes seem to match up well with Self-Knowledge stages. On the integration dimension, Bernstein's levels seem to correspond to the elemental, situational and pattern stages, but he does not seem to go beyond the pattern stage; pattern thinking is a systemic explanation of the self, as is transformational, but there are important differences, as has been noted in chapter one. Differentiation and integration, however, might be important dimensions to consider within the pattern stage.

The integrative work of Damon and Hart, and the work of Bernstein, are not structural stage theories, although they do seem to have some themes in common with structural stage theories and with Self-Knowledge theory. The next body of literature to be reviewed are theories that take a

structural, stage approach, and have content relevant to self-knowledge.

John Broughton has written about the development of "cognitive developmental epistemologies" (1978, 1981). He is interested in the process of self reflection, in the self's understanding of self as subject (the "I") as well as object ("me"). He examines not so much what one knows about one's inner world as one's understanding of how one comes to know. He asserts that this domain is more than just an extension of formal operational capabilities, which have often been referred to as "thinking about thinking". A theory of epistemology would cover not just thinking about thinking, he says, but thinking about the thinker. Thus, Broughton would be less likely to ask subjects to tell about themselves than to ask "what is a self?". In a study published in 1978, Broughton examined people's conceptions of self, mind, reality and knowledge, looking for a central, structural framework that would link various levels of understanding of these concepts. He used a semi-structured interview, which required subjects to give their understandings of various epistemological and metaphysical relationships, such as self/world, reality/appearance, knower/known, etc.

Broughton has posited three phases in the development of these conceptions, each of which is divided into two levels. The three phases are predualism, dualism, and

postdualism. In the predualism phase, there is no distinction between subject and object. Reality is obvious and based on appearance (as it is in elemental self-knowledge). Self is seen as the same as a person, and uniqueness is a matter of physical attributes.

In the dualism phase, subject and object become distinct, and the relationships examined are, as the name implies, dualistic. The mental and the physical, for example, are seen as totally separate. This phase is associated with adolescence, and Broughton speaks of an adolescent sense of a "divided self", a distinction between the real self and the self one shows to others, which is often seen as phony (1981). Understanding the connection between subject and object is very difficult, since at this phase they are seen as so separate. Self understanding is still confined to understanding the object, to the known as opposed to the knowing process. Broughton further explains that the mind at this phase is understood as a pattern recognizer. Self-knowledge, then, consists of recognizing patterns. Reflection, at this phase, is a matter of prediction and control. Since the person does not grasp the connection between the results (the patterns) and the generating processes, there is no sense of true volition and change; one can only hope to understand what "is".

In the final phase of Broughton's scheme, the dualisms are resolved. Subject and object are seen, not as enmeshed

and indistinct as they were in phase one, but as inextricably linked. The person comes to understand that it is not possible to separate the results from the process. In order to achieve this phase, which Broughton calls true reflexivity, the person must focus on the self as subject (the "I"). Asked "What is the self?", a subject at this phase replied:

> "Whole ways I see myself. Although I am reacting to objective conditions... the perception of it is my own. There's some kind of filtering process that's filtering those and bringing them through to me in terms of my own feelings. Some mechanism that processes the interaction between what I am at the moment and what is going on outside of me... The part of me that sees myself is closer to the core of what myself is."
>
> (1978, p.96)

Although Broughton is clearly asking different kinds of questions than Alschuler and Weinstein, his work does seem to have relevance for their theory and for the present investigation. The predualist phase seems linked to elemental self-knowledge, as has been noted. Dualism seems parallel to situational and pattern, especially in its emphasis on understanding and controlling patterns, but not intervening in them. It would be interesting to speculate on what these three phases would look like when applied to the issues covered in self-knowledge theory. Of particular relevance to this study is the emphasis, echoed by Damon and Hart (who included Broughton in their review), on the movement from focusing on the "me" to the "I" in order to achieve true reflexivity. Again, it would seem that this

movement is an important part of the movement from pattern to transformational.

Robert Selman's work focuses on social perspective taking and its implications for a structural developmental theory of interpersonal understanding (1980). The term "social perspective taking" refers to a person's capacity to take many perspectives at once on a social situation. It is different from role taking, which involves knowledge about another's thoughts, feelings, actions, etc. Social perspective taking involves the additional ability to put one's self in another's position and consider one's own thoughts and actions from that perspective as well as from one's own (Selman, 1980). Selman has formulated a structural developmental sequence in the growth of social perspective taking. These basic structures of perspective taking, he believes, are applied to interpersonal understanding, which he defines as a person's understanding of concepts of individuals and of social interactions between individuals and groups. Selman has researched four areas of interpersonal understanding: individuals, friendship, peer groups, and parent-child relations. These areas are called domains. Selman has posited five stages of social perspective taking, and believes there are five stages of reasoning in each domain. Each domain is further divided into "issues", which are the aspects of a domain that people focus on in their reasoning. Just as there are

five stages of social perspective taking and five stages of general reasoning in a domain, there are five levels of reasoning about a particular issue. The domain of interpersonal understanding that seems relevant to self knowledge is the "individuals" domain. The issues for this domain are:

Subjectivity - covert properties of persons (thoughts, feelings, motives); conflicts between thoughts or feelings within the person.

Self awareness - awareness of the self's ability to observe its own thoughts and actions.

Personality - stable or predictive character traits.

Personality Change - how and why people change.
(Selman, 1980, p.4)

It seems clear that all of these issues are relevant to self-knowledge. It is important to note, however, that the reasoning examined by Selman's theory is reasoning about individuals in general, which is not necessarily the same as reasoning about any specific individual, including the self. Selman himself points out that "to understand the nature of sel -awareness does not necessarily guarantee that an individual will be functionally self-aware." (1980, p.208). The ability to understand conflicts between feelings within persons in general does not guarantee that a person will understand and report his/her own mixed feelings. Isomorphic relationships between Selman's stages and self-knowledge stages have been explored by Weinstein and Alschuler (1984). This study will continue such an

analysis, focusing on the pattern stage. Selman's theory provides cues to sequences within the pattern stage. For example, the pattern stage appears to span two or more of Selman's stages, and so the shift between stages defined by Selman may imply a within-stage shift in self-knowledge. It is also possible that Selman's theory focuses more minutely on aspects of self-knowledge that are only broadly defined in Alschuler and Weinstein's self-knowledge stages.

Robert Kegan is the most recent of the "third generation" of structural developmental theorists (Reimer, 1982). He refers to his stage progression as the development of meaning-making systems (Kegan, 1979, 1982). He argues that the structures he describes are the deep structure of human development; they subsume, or are logically prior to, all other domains of structural development (Kegan was not aware of Self-Knowledge theory when he formulated his stages, but has explicitly argued that his theory integrates many other stage progressions, including Piaget, Kohlberg, and Selman). Many of his ideas about the nature and process of development are heavily and explicitly influenced by Piaget. However, Kegan believes he has extended basic Piagetian principles far beyond the domains in which they were used by Piaget. Kegan's stage progression is a theoretical formulation; although he claims that it is logically coherent and consistent with Piagetian principles, to date there has been no empirical work done to

support his stage progression.

The basic structures in Kegan's stages of meaning-making are those of subject-object differentiation. The relationship between subject and object is dialectical rather than polar. In such a relationship there is a constant tension between the two extremes. This tension is literally creative; it creates the terms of the relationship, and the dialectical process is constantly moving and changing. Development, then, is a process of constant and successive reconstruction of subject, object, and the relationship between them. Subject and object are relational terms; Kegan is interested in what is subject and what is object at a given point in development. Elements of a person's experience that s/he is <u>subject</u> to are those on which s/he cannot reflect or take perspective; they cannot be the <u>object</u> of reflection. As development progresses, different elements move from subject to object. Each subject-object shift defines a new stage of development; the movement from subject to object requires a reorganization of preceeding structures. Kegan describes the process of moving from subject to object as an "emergence from embeddedness" (1982, p.31). Applying this language to Alschuler and Weinstein's stages, at the situational stage, elements of sensory experience have just become object; they are now organized into situations which can be described as an organized whole. Situations, however, are on the side of

the subject; the situational person is embedded in situations and cannot see the more subtle, psychological relationship between situations. That ability comes at the next stage, the pattern stage, in which situations are reorganized into patterns. At the situational stage, people describe themselves as different in every situation; they are literally defined by situations.

According to Kegan, each new stage of meaning-making has a central subject-object shift that forms the "deep structure" of the stage. This shift has consequences in both interpersonal and intrapersonal domains. It is the intrapersonal consequences of these shifts, the ways in which a person's organization of his/her internal experience changes, that are relevant to this study. In attempting a structural analysis of the pattern stage, it will be important to consider Kegan's account of the process and deep structure of development. A structural analysis of self-knowledge stages should include a consideration of the subject-object shifts in each stage. Perhaps demonstration of such a shift should be a criterion for determining the boundary of a stage.

In this section of the review, other theories that address self-knowledge have been discussed, in hopes of uncovering characteristics of stages and of structural movements that would be helpful in conceptualizing growth within the pattern stage. Damon and Hart (1982) introduced

the dimension of change as one on which subjects grow in the development of self understanding, and this may be a dimension to consider in the pattern stage. They also theorize, along with Broughton (1978), that the development of self understanding includes a shift from a focus on the "me" to one on the "I". This shift seems analogous to the shift from pattern to transformational self-knowledge. Within the pattern stage, subjects may grow in their understanding of the processes that govern the internal dynamics of a pattern, and of the processes that produce patterns. The work of Bernstein (1980, 1983) suggests that differentiation, abstraction and integration may be useful dimensions to examine within the pattern stage. Selman's work may give cues to within stage movement if his stages and the stages of self-knowledge are compared and aligned. Finally, Kegan's theory provides some cues as to the deep structure of the pattern stage, and to the nature of the structural transformation that occurs in moving from pattern to transformational.

In addition to the literature on self-knowledge itself, there is much to learn from the literature on the study of developmental sequences. Most of this work has been done in the area of cognitive development. The next two sections of the review will cover conceptual and methodological issues in the study of sequencing.

Conceptual Issues in the Study of Sequences

In reviewing the literature on developmental dimensions and sequences, it is clear that there are a number of conceptual issues to be considered. Any study that attempts to address the question of developmental sequencing should be placed in the context of these issues. The first issue to be explored will be the differences between sequences, dimensions and developmental stages. Another important issue is that of competence versus performance. Several authors have written about, and taken positions on, the interaction between the maximum competency of the subject and various task factors, an interaction that produces performance on a task. Thirdly, a number of theorists have stated that the mere fact of sequence is not intrinsically important. They state that an understanding of why a sequence occurs is of at least equal importance and interest, and advance various frameworks for considering this problem. Finally, this section of the review will examine two specific models of within-stage sequencing in the cognitive realm, which include positions on the issues outlined above.

A structural developmental theory, as explained in chapter one, describes an invariant progression of stages in a particular domain of human development. The abilities and characteristics of each stage are organized by the central structure of the stage, a logical system that governs all

the possibilities for reasoning within the stage. The question arises, then, if there are sequences within stages, why these sequences are not stages themselves. In addressing this question it is helpful to examine the literature on the course of the development of structures, a subject about which there is considerable controversy.

The concept of "structures d'ensemble", introduced by Piaget (1970), asserts that the abilities associated with each stage arrive all at once. A person, once arrived in a certain stage, should be capable of reasoning at that stage whenever the situation warrants. In such a scheme, within stage sequencing is not an issue. However, as a number of authors have pointed out, this kind of synchronous development has almost never been found in empirical studies (Fischer, 1980; Fischer & Bullock, 1981; Flavell, 1982b). Flavell (1982b) has pointed out that Piaget himself eventually put forth the concept of horizontal decalage to explain the spread of same-stage capabilities to various tasks. For example, conservation is an ability associated with the concrete operational stage of Piagetian cognitive development. Several studies suggest that the ability to conserve may appear in some areas before others (Hamilton, 1972; White, Michel, Butcher & Mebert, 1978; Silverstein, 1982). It is possible, then, to call conservation one dimension of concrete operations, and to suggest that there is sequential development along this dimension. If the

concept of "structure d'ensemble" represents one end of a continuum, the views of Charles Brainerd represent the other end. Brainerd (1978b) argues that the stage concept is not a useful one, and that development is a strictly additive process, with various skills and abilities being added to those already possessed.

Others take a position between these extremes, arguing that stages do exist, and that they are developments of a different, more inclusive order than steps in a sequence (Flavell, 1982b; Wohlwill, 1973). Wohlwill describes the distinction in this way:

> The underlying assumption is that in certain areas of development, particularly in the cognitive realm, but not necessarily confined to it, there exist regulating mechanisms that modulate the course of the individual's development so as to ensure a degree of harmony and integration in his functioning over a variety of related behavioral dimensions... The result is the formation of a broad structural framework of interrelated concepts appearing, not all at once to be sure, but within a fairly narrowly delimited period, with further progress along any component concept or dimension being assured to be deferred until the consolidation of this network - That is, the attainment of the 'stage'. Stage development, then, provides for <u>relative</u> consistency of behavior... and harmony and interrelatedness in the development of diverse concepts and skills across successive levels.
>
> (1973, p.192)

The word "dimension" has been used in describing this and other studies. Wohlwill has attempted to define that term, and to differentiate it from other terms (1973). He points out that there are important differences in both concept and methodology between the search for sequence and

the search for dimension. Establishing a sequence, he asserts, does not establish that it occurs along a single dimension, nor that that dimension is a valid one. He goes on to advance a number of criteria for legitimate developmental dimensions, and to make recommendations for procedures to study them.

This study accepts Wohlwill's (1973) and Flavell's (1982b) view on stages. It assumes that the ability to organize internal responses across situations into patterns is the overarching structure of the pattern stage. Within a stage, individuals may grow sequentially along any number of dimensions, that growth proceeding from and being organized by the central structure. In this case, of course, the central structure is the ability to recognize internal patterns. This study looks for evidence of sequence and suggests the dimensions involved. It is not, however, aimed at the formal establishment of dimensions. That task will be left for further research.

Another important issue, discussed by many authors, is that of competence versus performance. Flavell (1972) has pointed out that in studying sequences in development one must be clear about whether the sequence proposed is one of competence or performance. He argues that if a particular ability (A) develops before a certain other ability (B), but is slower in becoming a consistent part of performance (the extent to which it is used when the need arises), then the

sequence may appear to be B - A or A - B, depending on whether the assessment used measures competence or performance. Flavell and Wohlwill (1969) have pointed out that there are two kinds of horizontal decalage. One results from the increasing difficulty of the task, and concerns the spread, across tasks, of an ability once it has been acquired. In self-knowledge terms, one might ask whether certain kinds of patterns are identified before certain other kinds. The second kind of decalage results from certain competencies developing before others, as opposed to a single competency spreading across tasks. In self-knowledge terms, one might ask whether the ability to discuss changing a pattern by changing external circumstances preceeds the ability to discuss change through more internal manipulations. Both of these kinds of decalage are important to understand, but this study will focus only on the latter. The present study seeks to identify sequences in competence, not performance. That is a very difficult task, as several theorists have pointed out.

The major problem in studying sequences in competence seems to be in isolating this factor in human behavior. Flavell and Wohlwill (1969) have pointed out that behavior is always the result of the <u>interaction</u> between the competencies of the individual and the difficulty of the task. Berenthal (1981) has argued that these two factors

cannot be separated at all. Fischer (1980, 1983) has made the environment an integral part of his theory of development. He has argued that hierarchical development of skills is only one factor in sequence (Fischer and Bullock, 1981). Other factors are differential learning opportunities, maturation, and biased operating characteristics (systematic biases in the way an individual processes information). Flavell (1972) also argues that the structure of the individual's reasoning is only one factor in sequencing. He suggests that the structure of the environment and the structure of the task are equally important. In a later article (1982b), he points out the importance of the "person-specific environment" in development. This environment is the personal history, social, cultural and other factors that affect an individual's performance. A number of authors have commented on the importance of "task factors" in determining performance, and have cautioned researchers against misinterpreting results. Stone and Day (1980), for example, mention the importance of a variety of "task factors", factors in the structure, presentation, etc. of the task, in determining performance.

All these authors seem to agree that the individual's competence interacts with a number of other factors in actual performance. Some, like Berenthal (1981), seem to suggest that attempts to isolate competence are inherently

doomed to failure. Others, like Stone and Day (1980), merely caution that these factors must be isolated in the experimental situation before one can conclude anything about the development of competence. This study will attempt to study sequences of competence, and as such will attempt to control for as many task factors as possible. This choice is not meant to imply that other factors are not important areas for study; to the contrary, the "person specific environment" as it affects self-knowledge (issues of gender, culture, etc.) seems a very fruitful area for study.

As stated earlier, a number of writers have stressed that the existence of a sequence is at least paralleled in importance by the reasons for that sequencing (Flavell & Wohlwill, 1969; Flavell, 1972, 1982a; Berenthal, 1981; Campbell & Richie, 1983). Even assuming that the sequence is one of competence, there are many possible reasons why one competency develops before another. Flavell and Wohlwill state that:

> ...it seems to us that sequential variance or invariance should be regarded as only a symptom or indicator of something far more important, namely, the kind of functional relationship that holds among the acquisitions. If A preceeds B in everyone's development, there must be a reason for it, and this reason may be found in the kind of connection between A and B, or between each of these and other developmental events.
> (Flavell & Wohlwill, 1969, p.83)

Flavell has suggested five categories of sequences, each with a different relationship of B to A (1972). The

first is addition; the ability to do B is added to the ability to do A. The second is substitution; the ability to do B replaces the ability to do A, and A is no longer seen. The third is modification; here B also replaces A, but it develops from A, not merely after A. B is a transformation or derivative of A. The fourth category is inclusion. Inclusion is a special case of modification in which A is integrated into B. This is a hierarchical integration; A must exist first in order to be integrated into B. Inclusion sequences are the logical (as opposed to empirical) explanation for structural stage change. Such sequences are, of necessity, universal and invariant. The final kind of sequence is mediation. In a mediation sequence A forms a necessary bridge to B, but does not go on to be an integral part of B. Mediation sequences are not necessarily universal; there may be many mediators for B, of which A is just one. In terms of the present study, Alschuler and Weinstein have proposed a four step inclusion sequence in the development of self-knowledge. This study explores other sequences within the pattern stage. Any of the five categories of sequences would be of interest, and it will be important to try to determine the nature (category) of each sequence proposed. Berenthal (1981) has pointed out that the existence of these relationships is very difficult to prove, and has suggested procedures for doing so. This study does not attempt such verification.

Campbell and Richie (1983) have argued that a valid developmental sequence must contain both prerequisites and precursors. A prerequisite relationship is one in which A can be shown to lead to B. A precursor, on the other hand, is a prerequisite ability that is analogous to an ability at the next stage of development. While the existence of such precursors may be of interest, this study will confine itself to prerequisites.

Both Flavell and Wohlwill (1969) and Fischer (1980, 1983) have proposed models of sequencing in cognitive development that take into consideration many of the factors discussed above. Flavell and Wohlwill propose a model of within-stage growth based on consistency. Once a person reaches a certain stage of cognitive development, the consistency with which s/he will successfully apply reasoning from that stage to tasks that require it grows as the person moves through the stage. This growth is the result of the interaction between Pa (P representing performance), the degree to which the competency is fully established, and Pb, which is a combination of task factors and the likelihood that the competence will be called upon. In phase one, when Pa is very low, the subject fails all or nearly all tasks. In phase two, as Pa increases, the subject's performance consistency improves to about twenty-five percent, but is still marked by oscillations and retreats to earlier forms of reasoning. Phase three is a

period of consolidation and stabilization, and finally, in phase four, consistent success on all tasks is achieved.

Fischer (1980, 1983) has rejected the notion of stages, and has instead come up with a theory of levels and tiers in cognitive development. His theory is comprehensive and complex, and the reader is referred to his 1980 article for a complete discussion. Basically, Fischer rejects the notion of a structure d'ensemble. Instead, he proposes that each new skill develops independently of others, and it develops through a series of levels and tiers. He does believe that each person, at any point in time, has an optimum or ceiling skill level, and that his/her performance on any skill will not exceed that ceiling. Of particular interest to this study is his notion that the cycle of levels repeats itself from tier to tier.

There are three tiers of skills: sensory motor, representational and abstract. Within each tier there are four levels. Although the content of those levels depends on the tier, their structure is the same from tier to tier. In order to understand these levels it is necessary to understand the concept of sets. According to Fischer, a set is a source of variation, a category in which things can be placed, and which specifies a dimension along which they vary (size or shape are very concrete examples). The cycle of levels is a cycle of increasing comprehensiveness in terms of the number of sets that can be understood at once.

The kind of variation involved depends on the tier.

Level one is called single set. As the name implies, only one set, or source of variation, can be controlled or grasped. At the sensory motor tier, for example, a person at level one (normally an infant) can understand shifting position of an object, or shifting position of him/herself. S/he cannot, however, understand how one set affects the other. That ability comes at the next level, called mapping. At this level the person understands how change in one set affects change in another. At level three, called the systems level, the person can understand the relationship between two sets and their two subsets. S/he can see the relationship between each of two components of one set and two components of another. Finally, in level four, systems of systems are understood. The person can deal with one system while keeping in mind and accounting for the other. When this level is reached, a new tier has been achieved. For example, the structure that allows an understanding of systems of systems in the sensorimotor tier is the represe tatio al set. Now however, the subject can grasp only one representational set, so s/he is at once at level four of sensorimotor and level one of representational. The sequence of single set, mapping, etc. continues through each tier. This system is reminiscent of Campbell and Richie's prescription (1983) that developmental schemes have both prerequisites and precursors.

According to Fischer, this theory should be applicable to any domain of skills. A full application and testing of this framework i the self-knowledge domain would be a major undertaking. It would involve an investigation of all the stages, and of skills and levels within them. It may be, however, that the notion of repeating levels would be useful in formulating sequences within the pattern stage.

This section of the review has discussed various conceptual issues in the study of developmental sequences. It has also attempted to clarify the implications of those issues for this study. Finally, two specific approaches to sequencing and their relevance to this study were reviewed. In the next section methodological problems in the study of sequencing will be discussed.

Methodological Issues in the Study of Sequences

This section of the review will focus on the problems that arise in trying to verify or uncover developmental sequences. Instrumentation is the first such concern. There are many choices to be made in selecting or developing an instrument, and each has strengths and weaknesses. The second major concern is the method of empirical support selected. Again, each method has strengths and weaknesses. It is important to note that these two areas are closely related; the choice of instrument may be influenced by the

method of analysis to be used, or vice versa.

In choosing or developing an instrument to assess development, one critical choice to be made is between the standardized, group administrable test and the structured or semi-structured interview. The semi-structured interview was first proposed by Piaget, who called it the "clinical interview" (Flavell, 1963; Bringuier, 1980), and it has since been used by a number of structural developmental theorists (Kohlberg, 1976; Broughton, 1978; Selman, 1980; Kegan, 1983[a&b]). In this approach, the subject is interviewed individually about his/her response to a task. The examiner interacts with the subject throughout the interview, and many of the questions are determined by the responses of the subject. The principle advantage of this method is that it allows the examiner to probe the underlying logic of the subject's statements until s/he is satisfied that the structure of the reasoning has been uncovered. There are also many disadvantages to this approach. The clinical interview can only be administered to one subject at a time, making it more time consuming than group-administrable tests. Also, the examiner must be trained very carefully; estimates of the time required to learn various testing and scoring systems range from two weeks (Kohlberg, 1976) to two years (Brainerd, 1978b). Finally, since each interview is different, standardization and independent research are difficult (Colby, Gibbs and

Widaman, 1982).

Another issue in instrumentation is whether to require subjects merely to answer a question (or perform a task) or whether to require them to give an explanation that reflects a certain kind of reasoning (Brainerd, 1973; Larsen, 1977). Requiring only the answer (which is also called using "judgement" as a criterion) can lead to false positives. The subject may have gotten the answer right without using the required reasoning. Requiring an explanation, on the other hand, can lead to false negatives, especially if the criteria for passing the explanation are not carefully developed.

Another important choice in designing an instrument is whether to arrange the questions or tasks in such a way as to measure the subjects' spontaneous responses, responses made in a spontaneous or naturalistic setting, or their response to specific probes designed to push for a certain kind of reasoning. Hand (1981) has reviewed the strengths and weaknesses of each choice. Assessing spontaneous behavior, she asserts, is more likely to lead to an understanding of how an ability actually unfolds in context. It also allows the examiner to consider the role of the environment. On the other hand, she states, it is much less likely that subjects will display their highest competence in spontaneous situations. Also, although contextual factors are there to observe, they cannot be controlled and

so their precise effect is hard to measure. Of course, another limitation of this approach is that since no explanation is required, false positives are observed. Using more structured methods, she continues, allows the examiner to control for contextual factors and other problems mentioned, but loses the opportunity to see the contextual unfolding. Also, a highly structured situation is often geared only to one pathway of developing a certain ability, ignoring the possibility of multiple pathways to the same endpoint. Hand concludes by arguing for a combination of the two methods. Flavell (1982b) raises a similar issue when he discusses the choice between forced and unforced methods of assessment. He asserts that more homogeneity of response will be found using unforced methods, but that forced methods are more likely to uncover sequences.

The final issue in instrumentation is one of task sensitivity. Flavell (1972) has stressed the importance, in assessing sequences, of employing a series of tasks that are equally sensitive to the abilities they purport to measure. Otherwise, a subject may fail a task that is not as sensitive to one ability (A), and pass a task that is more sensitive to another ability (B). The order of acquisition would then appear to be B - A, when in fact the subject may have both capabilities. Several other authors raise this concern (Flavell & Wohlwill, 1969; Wohlwill, 1970, 1973;

Berenthal, 1981). All of these authors also stress that, in assessing sequences, a task must be presented for each proposed step in the sequence. Wohlwill (1973) in particular speaks against administering a single, multifaceted task, or a large number of tasks with no sense of ordering, and then using a statistical method to derive ordering of the tasks. Both Fischer (1980; Fischer & Bullock, 1981) and Berenthal (1981) recommend that, in the realm of cognitive development, tasks be sequenced so that everything is exactly the same, with only one slight variation for each new task.

In summary, the choice between clinical interview and other formats and between spontaneous and structured methods are important ones when selecting or constructing an instrument to measure developmental sequencing. The issue of judgements versus explanation and of task sensitivity must also be considered. The response of this study to these issues will be detailed in chapter five, where the process of instrument development will be discussed.

There are many different methods that have been employed to provide empirical evidence of, or support for, sequences in development. One of the most common methods seems to be to attempt to show that certain capabilities are associated with increased age. Typically, a cross sectional method is used where subjects of various age groups are administered a series of tasks. If consistency (Martorano,

1977) or performance on more complex tasks can be shown to be associated with higher ages, these studies offer that data as evidence of developmental ordering. This method has been used to test for ordering of Piagetian tasks (Lovell, 1961), for within-stage ordering of conservation (Hamilton, 1972) and for sequences in the development of economic concepts (Burris, 1983) and spatial concepts (Omari, 1975). While this method certainly does not contradict developmental ordering, Wohlwill (1970) has pointed out that correlation with age does not mean that the ability in question develops as a function of age; the cause and effect relationships are far from clear. Also, these studies do not give evidence that the proposed order is followed by everyone, nor do they help determine the extent to which this is true.

Several studies have used 2x2 contingency tables to assess developmental ordering. This work includes studies on within-stage development in concrete operations (Dimitrovsky & Almy, 1975; Jamison, 1977) and formal operations (Roberge & Flexer, 1979). Other methods used include cluster analysis (DeLuca, 1981) and factor analysis (Kambon, 1977).

The most popular method of testing for developmental sequence is through scalogram analysis. Before discussing this method and its uses, Wohlwill's comments on scalogram data will be reviewed to clarify the usefulness of this

method. Wohlwill (1973) asserts that, in attempting to order developmental capabilities, two kinds of scales can be constructed. The first are stimulus ordered scales, in which a set of stimuli are proposed in a sequence that is supported by empirical and other data. These stimuli are part of a dimension in the formal sense of the term, and they are ordered before the scale is applied to response data (Wohlwill calls this case II data). In a response scale, on the other hand, the ordering is derived from the responses of the subjects (Wohlwill calls this case III data). Scalogram techniques examine the response patterns of all subjects, determining which tasks were passed and which failed, and use these data to see which abilities seem to precede which other ones. They can be used to test a hypothetical ordering or to order a set of responses. In a scalogram analysis, the responses are analyzed in such a way as to order both the tasks and the responses, but Wohlwill contends that, since the ordering of the tasks is not supported by other data and the underlying dimension has not been shown to be valid, scalograms yield case III data, and are thus only one part of demonstrating sequences along a dimension.

The scalogram technique most frequently used in developmental studies is the Guttman scaling technique (Guttman, 1950). This was the technique used by Weinstein and Alschuler in deriving the empirical formulations of the

Self-Knowledge stages (Weinstein and Alschuler, 1984). The use of the Guttman technique in studying Piagetian cognitive development has been discussed by Kugelmaas and Bresnitz (1967) and by Wohlwill (1968, 1973). It has been used to study within-stage ordering in formal operations (Berzonsky, Weiner & Raphael, 1975) and concrete operations (Wohlwill, 1960; Kofsky, 1966; Treagust, 1982). While most often used with cross-sectional data, the method has also been employed with longitudinal data (Versey, 1978). The Guttman technique has also been used to study the development of patterns in adolescent drug use (Kandel and Faust, 1975), concepts of money (Schuessler and Strauss, 1950) and understanding of parental roles (Watson, 1983). Slightly different scalogram techniques have been used to study Piagetian development (Goldschmid & Bentler, 1968; Parnell, 1975; Walker, 1978) and development in other domains (Fein, Moorin and Enslein, 1982).

While the Guttman and other scalogram methods have been widely used, they have also been criticized. Some of Wohlwill's comments on the limitations of scalogram data have already been mentioned. He has also cautioned that the technique only works for deterministic data, data in which the subject is either absolutely right or absolutely wrong. Phelps (1979) points out other problems with the technique. She argues that it is only usable for cumulative ordering; sequences in which earlier forms of reasoning do not

disapppear, but are either added to or reintegrated. She also joins Wohlwill in pointing out that such a technique assumes, but does not prove, that development of the ability in question proceeds along a single dimension. Finally, she points out that these techniques will only yield linear ordering; items are arranged so that no two items can occupy the same place on a scale. If items do not meet these criteria they are not scaled.

Ordering Theory, developed by William Bart (Airasian & Bart, 1973; Bart & Krus, 1973; Bart, 1976), is a technique that addresses this last problem. Like scalogram techniques, ordering theory examines response patterns. Given a series of tasks, each measuring a separate ability, ordering theory examines the patterns of success or failure on those tasks and places them in a hierarchical order. Unlike the Guttman technique, however, ordering theory allows for non-linear ordering; two or more items may occupy the same place on the scale. Thus, a Guttman scale is a special case of a scale derived by ordering theory. This approach has been used to determine ordering among Piagetian tasks (Bart and Airasian 1974; Kingma, 1984). It can be used to test a hypothesized ordering or to find evidence of ordering in an unordered group of items.

In this section of the review empirical methods of studying sequencing have been reviewed. It is important to remember, as Phelps (1979) has cautioned, that such

techniques are not sufficient to support the existence of a sequence, but must be used with theoretical and structural arguments. For the final section of this review, specific conceptual approaches to within-stage growth used by structural developmental theorists will be considered.

Within-Stage Sequencing in Structural Development

In this section the approaches of four theorists to within-stage growth will be discussed. These four, Piaget, Kohlberg, Selman and Kegan, are all exponents of structural developmental theory, as the term was defined in chapter one. Other theorists have been omitted from this section because they either do not discuss within-stage growth (Broughton, for example), or do not take a strictly structural stage approach (Fischer, Bernstein).

Some specific approaches to within-stage growth in Piagetian cognitive development have already been discussed. Piaget himself appears never to have taken up the study of within-stage growth, except for his ideas on horizontal decalage. He has, however, written about compensation for knowledge disturbances in a way that may suggest within-stage sequencing (Furth, 1981).

According to Piaget, knowledge of every kind is an active process; the individual actively organizes the environment in order to make sense of it. A knowledge

disturbance occurs when an interaction with the environment causes the individual to focus his/her conscious attention on the way in which they are organizing the environment; something seems, at least momentarily, out of balance. There are three levels or methods of compensating for knowledge disturbances: alpha, beta and gamma. Alpha compensations include choosing not to treat contradictory information as significant or worthy of attention and incomplete or distorted registering of environmental evidence. Each time a particular balance is restored using an alpha compensation, it is more fragile and more likely to be disturbed again. Beta compensations involve a rebalancing at a more internal level. In a beta compensation, which often results from a series of alpha compensations, ways of organizing are extended and modified, although the basic structure of the reasoning remains the same. Old ways of understanding are seen as insufficient. A series of beta compensations may lead to a gamma compensation, which is is a rebalancing at the structural level. These three levels could help to define a sequence of within-stage growth. In the case of this study, they could be used to derive hypothetical steps in the movement from pattern to transformational self-knowledge.

Both Kohlberg and Selman have included transitional stages in their scoring systems (Kohlberg, 1976; Selman, 1980). Selman does not describe the structural logic of

transitional stages nor specific steps of within-stage growth. Instead, his formulation of substages seems numerical. His scoring system builds from the smallest units of scoring up to the largest. As explained earlier, Selman posits five stages of social perspective taking. These five stages can be applied to any of four domains: individuals, friendship, peer groups and parent-child relations. Each of these domains is further divided into issues. In assessing a person's level of interpersonal understanding, a series of dilemmas is presented, each designed to explore reasoning in one of the domains. The examiner then asks a series of questions about each dilemma. There are some questions that are always asked, and each of these introduces an issue-concept. The examiner then probes the subject until s/he feels certain that his/her level of reasoning has been uncovered. In scoring the dilemmas, the scorer reads the transcripted answers to the questions, and assigns a sore from zero to four, depending on the stage of reasoning represented, for each issue-concept. The scorer then computes an issue score. If the subject has shown more than seventy-five percent consistency in using a particular stage, then they are assigned a "pure" stage score. If not, then they are assigned a major/minor score. The major score is that stage which had the highest percentage. The minor stage is that stage which had fewer scores than the major stage, but equal to or greater than twenty-five percent.

Thus, a subject could score 0, 0(1), 1(0), 1, etc. The issue scores are then combined to produce a domain score, and the domains combined to produce an overall stage score (Selman and Jacquette, 1977).

Kohlberg uses a similar approach, although the specific possibilities for scoring and the specific method for assigning scores seem to be a bit different (Kohlberg, 1976). Each protocol is assessed using a series of criterion judgements, descriptions of reasoning at each possible stage (1, 1/2, 2/1, etc.). These criterion judgements are the result of extensive analysis of responses. However, like Selman, Kohlberg does not seem to offer a structural description of the positions within a stage.

Finally, Kegan has described four substages in each of his stages (personal conversations, 1984, 1985). In the first substage the logic of the next stage is being used to maintain the present way of making meaning. In the second and third substages, the two structures are each fully present, and seem to be in conflict. In the second substage, when the subject must choose which structure to use, s/he choses the earlier one. In the third substage, s/he uses the later one. In the fourth substage, the new logic is present, but the person keeps retreating into the old one and seems disturbed by this retreat. These substages seem to be descriptions of stages of transition; they begin at the point where the old structure begins to be

disrupted. This approach may be useful in searching for within-stage sequences in the pattern stage, although it would leave the early parts of the stage unexamined. Also, these descriptions are derived from a subjective analysis of subjects' statements, and while they seem logically consistent, there is no empirical evidence to support them as yet.

Of the four approaches examined in this section of the review, those of Piaget and Kegan seem the most promising for this study. They may be of assistance in formulating theoretical notions of the growth from pattern to transformational self-knowledge. Selman and Kohlberg's approaches are based on a system of issues and concepts that is far more detailed than anything developed by Weinstein and Alschuler, and offer few structural clues to the characteristics of their substages.

Conclusion

Since there appears to be very little literature that covers 1) within-stage sequencing in 2) structural developmental theories of 3) self-knowledge, this review has focused on several peripheral areas which seem to shed some light on the problem under consideration. Each section of the review outlined concepts and issues and attempted to show how they affect the present investigation. The section

on the original derivation of the stages of Self-Knowledge Theory showed the need for a structural analysis of the pattern stage, to clarify the structural movement involved in the shift from pattern to transformational self-knowledge. Developmental theories that had content relevant to self-knowledge were reviewed, and this review helped to clarify the structural movements just mentioned. Also, the content of those theories provided some cues to possible dimensions of growth within the pattern stage. The sections on conceptual and methodological problems addressed difficulties encountered in a study of this kind, and helped to clarify exactly what this study addresses and how it fits into a larger research program. Finally, a review of the approaches to within-stage growth used by four structural stage theorists generated some possible ways of approaching the theoretical formulations of dimensions and steps within the pattern stage.

C H A P T E R I I I

THEORETICAL FORMULATIONS

Introduction

This study sought evidence of sequences of development along various dimensions within the pattern stage. It also explored the relationships between steps from various dimensions. A three step approach was used in the study. First, theoretical formulations of steps were proposed along three dimensions: differentiation/integration, causation and change. These formulations formed the basis for the hypotheses of the study. The second step was to use empirical analyses to confirm or disconfirm the proposed sequences. Finally, the theoretical formulations were modified based on the empirical evidence. This chapter will describe the theoretical formulations. Chapter four will explain the method used to test those formulations and chapter five will present the results. As noted in the literature review, developmental sequences require both logical and empirical support. This approach yielded sequences along three dimensions that have both kinds of support.

The theoretical formulations of dimensions and steps were derived from a variety of sources and analyses. Most of these analyses were done in a "top down" manner; theories

about development, self-knowledge, or both were analyzed for their implications for Self-Knowledge Theory and growth within the pattern stage. Thus, the abstract was used to derive the concrete. Several theories that describe the development of self-knowledge were covered in the literature review. In particular, the work of Bernstein (1980, 1983), Broughton (1978, 1981) and Damon and Hart (1982) seemed to provide direct clues to the nature of growth within the pattern stage. In other cases, however, the links between theory and within-stage growth were not so direct. In these cases the theories provided ways to think about self-knowledge development, which in turn yielded ideas about dimensions and steps. Three such analyses were performed, each for a specific reason.

The first analysis was a structural analysis of the pattern and transformational stages. As mentioned in the literature review, an understanding of the structural logic of these stages, and hence of the structural movements that occur as one grows from one stage to the other, seemed an essential base for conceptualizing within-stage growth. The work of Piaget, Kegan and Selman on the nature of structures and stages formed the basis for this analysis.

Selman's stage progressions were another source for analysis. As discussed in chapter two, Selman discusses development in four domains of interpersonal understanding (1980). The domain that seems most relevant to

self-knowledge is the "individuals" domain. This domain is further divided into four issues, with five levels of reasoning on every issue. The level sequences were examined to assess their implications for dimensions and steps within the pattern stage.

The final analysis performed was based on Piaget's theory of knowledge disturbances (Furth, 1981). Although Kegan provides a description of movement within and across stages, called "emergence from embeddedness", he has not described the structural processes of this growth in a precise way. Piaget's theory of knowledge disturbances is one way of describing that emergence. Piaget describes a progression of compensations for knowledge disturbances: alpha, beta and gamma. These compensations were discussed in detail in chapter two. Each of them compensates for the disturbance in a more complex way. Although these three compensations often occur simultaneously, they do appear to form a hierarchical sequence. Beta compensations imply alpha compensations, although alphas may occur without betas, and gamma compensations imply both alpha and beta. This progression was applied to growth within the pattern stage.

These "top down" analyses were used in combination with a more "bottom up" method. An effort was made to examine people's actual statements about their patterns to see if any patterns of difference could be abstracted. In this

approach the abstract is derived from the concrete. The ERT2 is an instrument, developed by this author and Gerald Weinstein, used to assess stages in Self-Knowledge Theory. It is a modification of the ERT (the ERT2 was also used in this study, and will be discussed in detail in chapter four). As part of some research in progress, this author and Gerald Weinstein have administered the ERT2 to graduate and undergraduate students in a course in Education of the Self for several semesters. These ERT2 protocols provided a source through which to examine actual statements about patterns.

These "top down" and "bottom up" approaches were an important combination. They were conducted simultaneously, with the two approaches in dialectic interplay. This method yielded theoretical formulations grounded in both the abstract and the concrete.

Before presenting the theoretical formulations, the analyses just discussed will be presented in detail. This presentation serves two purposes. First, it allows the reader to see more clearly the sources of the theoretical dimensions and steps. Secondly, this study is a step towards a model for investigating within-stage growth in Self-Knowledge Theory, and the steps in the study will therefore be presented as explicitly as possible. After the major analyses have been presented, the proposed dimensions and steps will be explained. For each dimension, the

theoretical sources of the dimension and the progression within it will be explained. An attempt will also be made to categorize each proposed sequence, using Flavell's (1972) five categories.

The Structure of Self-Knowledge Stages

The stages of Self-Knowledge Theory, including the pattern stage, were described in chapter one. This analysis will be limited to the pattern and transformational stages. It will focus not on the abilities and limitations of the stages, but on the central, organizing structures that account for those abilities and limitations.

Each new stage of self-knowledge represents growth in both the number of aspects of internal experience that are reported and in the understanding of the cause and effect relationships between these aspects. At each new stage a new structure, itself a new aspect of internal experience, coordinates (reintegrates) the structures of the previous stage. The new structure at the pattern stage is the pattern, the ability to name an internal response that is consistent across a class of situations. Coordination is a term that describes the ability to keep two or more things, and their relationship to each other, in mind at the same time (Selman, 1980). An example from cognitive development may help illustrate this concept.

The ability to conserve is a hallmark of the concrete operations stage (Flavell, 1963). When a child looks at two beakers, one tall and thin and the other short and wide, that contain the same amount of liquid, the pre-operational child will conclude that there are different amounts of liquid in the two containers. S/he will persist in this assertion even after watching the liquid poured form the original beakers into containers of equal shape, and then back again. The concrete operational child, however, understands that the volume is <u>conserved</u> even though the appearance changes. This child can watch the liquid in one form (in the uneven beakers) and simultaneously consider it in another form. S/he can coordinate the physical appearances of the liquid.

In the case of Self-Knowledge Theory, at each new stage the person can coordinate two or more of a particular component of his/her internal experience. For example, situations are the coordinating structure of the situational stage, organizing the elements of the previous (elemental) stage and allowing an understanding of the relationship between them. At the pattern stage situations themselves can be coordinated; the person can consider his/her internal states in two or more situations, and their relationship to each other, at the same time.

Kegan (1982) has described the process of stage change as emergence from embeddedness. At each stage, the person

is embedded in the coordinating structure. S/he cannot take a perspective on that structure, nor consider more than one at a time. At the next stage, the person emerges from this embeddedness by virtue of the acquisition of a new structure. However, s/he is now embedded in the new structure. Kegan has described this shift as a change from "being" the organizing structure to "having" the structure. In the case of the pattern stage, the person has gone from seeing him/herself as different in every situation (I "am" my situation) to seeing him/herself as having some consistency and predictability across situations (I "have" situations). The structure of the internal pattern allows this change, and the person at the pattern stage now "is" his/her pattern.

Another way to look at the stages is as a sequence of qualitatively different answers to the question: "What causes one's internal experience?". At the elemental stage, there is no causation; elements are seen and reported out of sequence and connections are often synchretic. At the situational stage, the situation causes the reactions, and cause-and-effect links between thoughts, feelings and actions are understood within each situation. At the pattern stage, the thoughts, feelings and actions that make up the causation of the situational stage are integrated into patterns. There is a set of conditions, which may exist in a number of situations, that "cause" the internal

reaction.

The structure of the transformational stage is a bit more elusive. The abilities seem clear. The person at the transformational stage emerges from his/her embeddedness in patterns and can take a perspective on them. S//he can change patterns, but change is not the critical determinant; even a situational person understands that his/her feelings can change, and a pattern thinker might describe an external strategy for changing a pattern. Rather, the transformational thinker conceives of change in a way that portrays the change process as internal and the self as proactive and conversational. The self is not a prisoner of its own patterns, but can converse with itself about its own internal experience, about its patterns and the self-beliefs that drive them. For example, a belief that one is intellectually inferior might drive a pattern of paralysis in classroom situations. The self can also operate on those self-beliefs, and, in changing them, change the pattern.

What, then, is the new structure that allows this emergence from embeddedness? Weinstein and Alschuler are essentially silent on this point. This analysis will suggest that the new structure is an understanding of an intrapsychic system. Internal experiences are seen to be the result of the interaction of the environment with this system. This system contains all four of the elements of the previous stage (actions, thoughts, feelings and

patterns), but the notion of intrapsychic system coordinates these elements, and hence the individual sees the relationships between all these elements. S/he sees that patterns are not fixed, and can be affected by actions, thoughts and feelings. Equally important, s/he also sees how any combination of these can affect the other. Thus, this understanding includes a grasp of the system (the pattern) and the processes that generate and modify it. Of course, it could be argued that a pattern, or even a situation, is a system. This intrapsychic system, however, is the most inclusive of all; it is the process by which the others are derived. It mediates situations (both internal responses and environmental conditions), patterns, thoughts, feelings, actions, etc. An individual at the transformational stage can participate in this process rather than just react to it. It is important to note that the specific system proposed and the specific generating processes described by any particular individual are matters of content, not structure. The "correctness" of these systems and strategies is not at issue here, only their complexity.

The movement from pattern to transformational could also be understood as a shift in focus from the "me" to the "I", as the terms are used by Damon and Hart (1982). Such an understanding was suggested in chapter two. In order to coordinate patterns, the person must shift the focus of self

understanding from the pattern (the results) to the process of generating and modifying those patterns, and to the self that does that generating and contains those processes. This movement from "me" to "I" is a movement that has been in progress throughout the stages. A pattern thinker understands something about his/her internal processes as well as about the results. However, the shift must continue in order to take the next qualitative step in the development of self-knowledge. As Damon and Hart have suggested, this change leads to a greater sense of agency and volition; the person sees greater possibility for changing and controlling his/her internal processes.

If this analysis is correct, then the structural journey from pattern to transformational is a journey from pattern to system, and from "me" to "I". Conceptions of change within the pattern stage should reflect those journeys.

Analysis of ERT2 Protocols

A total of about seventy-five ERT2 protocols, all scored at the pattern stage, were analyzed for this phase of the current study. The analysis attempted to uncover ways in which the protocols could be grouped by identifying dimensions along which there seemed to be some systematic variations.

One source of variation noticed in this analysis was the ability to use pattern capabilities whenever a question asked the subjects to do so. Some subjects referred to their pattern as a pattern only once, in response to question five on the ERT2. In their responses to subsequent questions, all of which referred to a "typical way of responding", these subjects reverted to a description of the specific situation described in response to questions one through four. They appeared unable to use their pattern capabilities very consistently.

Another source of variation noticed was the basis on which subjects integrated or connected the various situations that made up the class of situations eliciting their patterns. Some subjects wrote as if their pattern existed only in one relationship or in one specific, repeating situation, such as a particular seminar. Others wrote as if the pattern were elicited by something happening to them, such as being criticized. Others, while including these sources of integration, also included their internal state as a common factor. They might say, for example, that in the kinds of situations mentioned they felt powerless and frustrated.

A third source of variation was found in subjects' responses to questions seven and eight, which ask subjects to discuss the possibility of changing their patterns. These questions were designed to probe for transformational

thinking, and while these subjects did not exhibit such thinking, there seemed to be some similarities in their "errors". Some subjects replied that they could not change their patterns, often saying that their patterns are part of their personalities, and as such unchangeable. Others explained change strategies, but the strategies were behavioral; they would go for a run, watch TV, etc. These responses did not meet the criterion of internal change that was needed for transformational scoring. Still others gave strategies that sounded like platitudes and cliches. Finally, others posited that they could change their patterns by simply willing themselves to behave differently. It should be noted that the reason these strategies did not qualify as transformational had nothing to do with whether they might work. These subjects did not show the internal, proactive, self-conversational strategies required for transformational.

Analysis of Selman

Selman discusses five domains of interpersonal understanding (1980). It is the "individuals" domain that seems the most relevant to self-knowledge, as Alschuler and Weinstein have defined the term. This domain concerns a person's understanding of several issues regarding individuals in general. This understanding may or may not

coincide with his/her understanding of any particular individual, including the self. There are four issues in this domain, all of which seem as if they might have counterparts in self-knowledge: Subjectivity, Self Awareness, Personality and Personality Change. There are five levels of reasoning about each of these issues, corresponding to Selman's five levels of social perspective taking.

After examining the level progressions for each of these issues (Selman and Jacquette, 1977), it seems clear that the shift from level two to three is equivalent to the shift from situational to pattern self-knowledge. In the personality progression, for example, it is at level three that a person's personality is first seen to have some consistency across contexts; up until then personality was seen as context specific. Similarly, in the subjectivity progression, inner states are not seen as having any consistency until stage three.

There are some differences between levels three and four in some of these progressions that seem very similar to differences noted by this author and Gerald Weinstein between protocols at the pattern stage. At level three in the subjectivity progression, inner states are seen as consistent, but <u>rigidly</u> consistent; instead of varying from situation to situation they are now seen as the same all the time. Similarly, in the personality progression level three

subjects see personality as overgeneralized and rigid; they tend to describe personality "types". In both of these progressions, the more rigid constructions of level three give way to a construction at level four that allows for both generalization and specificity. In the self-knowledge protocols, some subjects described their patterns in global, rigid terms (In social situations I always get defensive and suspicious, and I shut people out). Other subjects could integrate the general and the specific. They could describe aspects of their experience that are different, as well as those that are consistent. These subjects showed an increased ability to differentiate; they could specify <u>different</u> kinds of situations that elicit their patterned response. They could also integrate, however, describing what it is about all these kinds of situations that is the same (When I'm out socially with new people, or even with old friends if I'm somehow in the spotlight, I get very nervous and suspicious, etc.). Thus, through this differentiation and integration they could integrate the general and the specific in their internal experiences.

Finally, in the personality change progression, level three subjects see change in personality as the "natural" result of a person's experience in the world, in contrast to level four subjects who seem to see the <u>potential</u> to control important core issues in a more proactive way. This corresponds to differences we noted between pattern subjects

who saw change of a pattern as a mysterious process that went on without their control and those who saw the potential to take a more active role. This analysis seems to suggest that the three to four shift in Selman's progressions may be parallel to some within-stage shifts in the pattern stage of self-knowledge.

Piaget's Theory of Knowledge Disturbances

People at the pattern stage are embedded in patterns. Lacking the structure of the psychic system, they cannot see how the pattern relates to and is affected by other elements of that internal system. Questions seven and eight on the ERT2 ask the respondents to consider how they have, or how they might, change their typical way of responding. These questions could be seen as knowledge disturbances; they raise the possibility of changing, or operating on, that in which the pattern subject is embedded. A person newly arrived in the pattern stage would say there is no way to change (How can I change what I "am"?). This corresponds to an alpha compensation; the person has ignored the disturbance or not treated it as significant. As subjects move through the pattern stage, perhaps they resolve or compensate for the disturbance in a way that corresponds to alpha, beta and gamma compensations discussed in the review of literature. A beta compensation would involve admitting

the possibility of change without recognizing the new, transformational structure. A gamma compensation would reflect an emerging awareness of the need to reorganize conceptions of change. Thus, development moves from a pattern level notion of change towards a transformational notion.

This movement in the understanding of change is probably related to growth in the understanding of causation. The pattern stage is a qualitative advance over the situational stage in that internal experience is seen as being "caused" by patterns, rather than by each unique experience. The situational notion of causation implies a notion of change in which change is a matter of changing the situation. At the transformational stage, the psychic system is seen as the locus of causation, and thus change emanates from that system. It might be expected that understanding of causation within the pattern itself would be an important dimension of within-stage growth.

Proposed Dimensions and Steps

In this section, three dimensions of growth within the pattern stage will be proposed. Before proceeding with the descriptions, however, a few qualifications are in order. First, these are not proposed as the only possible dimensions for growth. They are merely three dimensions

which seem to be suggested by the theories reviewed in chapter two and by the analyses presented in this chapter. Secondly, these dimensions are not necessarily limited to the pattern stage; they may well be features of growth in every stage. Finally, they are not proposed as formal dimensions, as Wohlwill (1973) used the term; although they may well be formal, this study will not attempt to examine this issue.

Each dimension will now be described. The theoretical sources of the dimension will be noted and briefly reviewed. Then a series of steps along each dimension will be proposed. It is hypothesized that these steps occur sequentially in an individual's development, and the empirical section of this chapter will describe the evidence in support and contradiction of that hypothesis. An attempt has been made to extend the steps along each dimension into the transformational stage, so as to differentiate pattern from transformational reasoning in each dimension. The three dimensions to be presented are differentiation/integration, causation, and change.

Differentiation/Integration.

A description of a pattern is an abstraction; the person abstracts, for a set of experiences, a rule or rules about his/her internal responses. The differentiation/integration dimension is related to the

ability to abstract, and has two components:

Differentiation

In examining a person's ability to differentiate at the pattern stage, there are two areas of interest. First, how many different classes of situations can the person name that can, or might, set the pattern in motion? It is hypothesized that early in the pattern stage a person can name only one class of situations, and cannot even imagine another class which might set off the pattern. As the person grows on this dimension, s/he is able to recognize and/or speculate about other classes of situations. Secondly, how well can the person identify the special conditions necessary for a particular pattern to engage? At the beginning of this dimension are global statements; the subject makes very broad generalizations about the conditions (It happens in groups). As growth along this dimension progresses, each class of situations that is offered is also more specifically described (It happens in groups of strangers; It happens in groups of strangers when I am concerned about what they will think; etc.).

Integration

Integration involves the ability to place these differentiations in a common context; in addition to saying what is different and unique about the situations that

elicit the pattern, subjects can say what is the same. Another way to look at integration is to ask: "What is the single most important condition that must be present to set this pattern in motion?" It is hypothesized that growth on this dimension moves from external to internal contexts. As the person grows, s/he identifies more internal, and hence more stable, common contexts that unite the differentiations and hence "cause" the pattern.

Of course, differentiation and integration are closely related. The more internal the context for integration, the greater the number of situations that can be included, and the greater the understanding of what specifically must be present in each class of situations in order to activate the pattern.

The differentiation/integration dimension was suggested by several sources. The work of Robert Bernstein (1980), reviewed in chapter two, described growth in both differentiation and integration in the development of the self-system. Analysis of ERT2 protocols suggested some differences in the basis for integration among pattern thinkers. Finally, the shift from level three to four in Selman's theory, hypothesized to correspond with intrastage growth in the pattern stage, suggests a shift in both differentiation and integration (Selman and Jacquette, 1977).

It is proposed that there are three steps that occur in sequence along this dimension within the pattern stage. Each one represents a qualitative change in integration, accompanied by a quantitative increase in differentiation.

Step 1 - Situational Integration

In this first step, the subjects are somewhat newly arrived at the pattern stage. Given a specific request to describe a cross-situational response, they can do so. In answering subsequent questions, subjects at this step retreat back to situational answers, as if the pattern were operating only in that one situation. It is almost as if the common context for the pattern is the situation. Here is an example of this kind of reasoning excerpted from an ERT2 protocol:

"... I am very possesive of my relationships with certain people. Maybe because he is of the opposite sex" (emphasis added).

In another example, the subject makes a pattern statement when s/he says: "...I sometimes say or do something before thinking. It tends to get me in situations where I end up hurting someone else in the process." Yet, after describing an experience in which s/he did just that, s/he later says: "There was really no pattern because in different situations I tend to act differently."

Subjects at this step have the capacity to make pattern statements, but do not use that capacity often, even when it is directly elicited.

Obviously, in this step there is very little differentiation. Only one group of situations is being identified, and that only once. It is hypothesized that subjects at this step will provide very little information about the specific conditions necessary to elicit their patterns.

Step 2 - External Integration

In the second step, the common context is a set of external circumstances. More than one situation is referred to, but what unifies these situations is an external circumstance such as a relationship or some common thing that happened to the subject. Here are some ERT2 excerpts:

"There have been many times when I avoid telling my parents things because I don't want to hurt them. I would rather deal with something alone than involve them."

"This seems to happen whenever someone questions my integrity."

The pattern here is seen as the result of relationships or events, not of some set of internal circumstances that are present in those relationships and events, but could also be present in other situations. Internal circumstances are circumstances inside the subject, such as their feelings and thoughts, rather than things outside of them.

Step 3 - Internal Integration

Finally, in the third step, the pattern is seen to result from a set of internal circumstances. The integrative context has moved from external to internal. Subjects at this step may report an external context for integration, but they also report an internal one; they report that they respond in a certain way when they are thinking and feeling certain things. The set of situations is united by the presence of these psychological reactions:

"I can never let go of someone or something I love. I get selfish, angry at them for leaving me, feel as though they'll never come back or will stop loving me."

"I seem to buy into the negative judgements by pulling inside and doubting myself."

It is expected that steps two and three will be accompanied by quantitative increases in differentiation.

Transformational
Differentiation/Integration

Differentiation and integration could also a part of the transformational stage. It is hypothesized that at the transformational stage subjects can integrate <u>across</u> patterns; they can connect patterns in a common context. That context is an overarching pattern that is part of their intrapsychic system.

In each new step, the old context for integration is included in, and organized by, the new one. This sequence, then, would be one of either modification or inclusion.

Causation

In Self-Knowledge Theory, the ability to understand cause and effect first appears in the situational stage and is never discussed after that point. It is proposed here that each new stage provides a qualitatively new context for understanding cause and effect, and that there are steps occurring along this dimension in every stage. This discussion, however, will be limited to the pattern stage. The new context is, of course, the pattern. The components of that pattern are the typical thoughts, feelings and actions engaged in by the individual in response to a class of situations. The dimension under discussion concerns causation among those components. Causation is an important structural feature of the stages of Self-Knowledge Theory, as discussed earlier in this chapter. It is also closely related to change, the final dimension to be presented. Finally, an understanding of causation within a pattern is part of understanding the processes or internal dynamics of a pattern, another part of the shift from the focus on the "me" to the focus on the "I".

A three step sequence is posited in this dimension. Selman's progression of social perspective taking stages is

the metaphor for this sequence. Selman (1982) describes a progression from one way (first person) to two way (second person) to mutual (third person) to societal (systemic) perspective taking. In this within-stage progression, the steps progress from one way to two way to mutual causation among the components of the identified patterned response. It should be noted that Selman's is an across-stage progression, being used here as a model for within-stage growth. Perhaps this dimension unfolds in levels and tiers like those described by Fischer (1980). One way, two way, mutual and systemic causation could be levels of understanding causation within each stage. The system constructed in the final step would be a new structure, and would be the subject of first person causation at the next stage. Such a theory would require careful testing and is outside the scope of this study, but examining the progression within one stage will be a start.

Step 1 - One Way Causation

At this step a person could describe how any one of these components (thoughts, feelings or actions) affects any one other component, but could consider only one pair at a time, and would see the causation going in only one direction (My thoughts affected my actions). These pairs could be strung together in a one-way chain (My thoughts affected my feelings, which then affected my actions).

Step 2 - Two Way Causation

In the second step, two way causation is understood. The person can describe the way any pair of components affects each other; the causation goes both ways (My thoughts affect my feelings, which then affect my thoughts, etc.). The number of components is not limited to two. The limitation of this step is that the causation is seen to progress in a sequence, and the components are seen as separate from one another; they are merely interacting for the moment.

Step 3 - Mutual Causation

At the third step, the mutuality of the relationship between components is understood. Thoughts, feelings and actions are not seen as separate entities, but as inherently and inextricably linked with one another and always in dynamic interaction. A person at step two, for example, might talk about his/her response in this way:

"I get into a vicious circle. I imagine I'm not being well received, then I think it's because there's something wrong with me and I feel bad about myself. That all makes me act like an even bigger jerk, and then I know I'm not going over well, and it just keeps on going. If I could just get the circle going the other way."

A person at step three might say:

"It's really hard to say where it starts. I just feel terrible about myself, and of course that affects my thoughts about my performance, but really it's like they're both affecting each other right then, they're kind of the

same thing."

Transformational Causation

The limitation of step three is that each mutuality is seen as separate; there is no intrapsychic system that coordinates all of them. The ability to understand such a system is a characteristic of the transformational stage. Transformational subjects should be able to describe how one pattern affects another, and should also be able to explain how their internal system is really what causes all of these patterns.

This hypothetical sequence would also seem to be one of modification or inclusion. Each new level of causation reorganizes the previous one.

Change

This dimension involves the subjects' ability to see the possibility of changing a pattern and the way in which they imagine that change taking place. This dimension is, of course, related to causality; an understanding of what is causing a problem underlies any attempt to solve it. It is expected, therefore, that growth on this dimension will parallel growth on the causation dimension. The steps on this dimension are steps toward a transformational notion of change. The transformational subject, seeing the pattern as just one component of an intrapsychic system, understands that change comes from the self taking internal actions on

its own system. Thus the self is conversational and proactive.

This dimension and the steps along it are suggested by a variety of sources. The ERT2 protocols indicated a difference in conceptions of change. Selman's shift from level three to level four on the issue of personality change (Selman and Jacquette, 1977) also suggested a within-stage shift on this dimension. Damon and Hart (1982) included change as one dimension in the growth of the "I". Also, as has been discussed, they posit a change in focus from the "me" to the "I" as the person grows, and this change is expected within the pattern stage. A focus on change that leads to a better understanding of the processes that generate and change the pattern indicates such a shift. Finally, Piaget's description of alpha, beta and gamma compensations for knowledge disturbances (Furth, 1981) will be used as an organizing structure for the steps on this dimension.

Step 1 - No Change (Alpha)

In this step people see no possibility for change. They reply to questions about changing their patterns by saying that it cannot be done, or that their patterns are their personalities, and therefore are fixed. Here are some examples:

"I don't see how [I could change it], short of becoming a different person. I think one can raise self-esteem, but I'm not sure anyone can really change their life."

"I couldn't change it because that's just my personality, and I wouldn't want to change that."

Step 2 - External Change (Beta)

In this step subjects understand that patterns can be changed, but they explain the change process without having to reorganize their concept of internal causation, without crossing the line into the transformational stage. Thus their strategies for change are essentially external; the pattern is seen as a fixed entity that can be manipulated by simple actions. There is no sense of how these actions function in an internal system, and no sense of an internal self acting on an internal pattern. These strategies include:

a. Change by repetition of platitudes:

"Keep an open mind. Live and let live. Realize I'm not the center of the universe and people are entitled to their feelings and actions. Try to place myself in their position and understand where they're coming from."

Note here that even though the self appears to be talking to the self, it is doing so in a cliched manner, almost as if it were some other person talking.

b. Change by getting into a new situation (a new relationship, school, etc.):

"Perhaps if I really did get involved with someone again - if I allowed someone to know me - and if it was a pleasant experience from beginning to end, I wouldn't have a problem again with getting close to others."

c. Change by an act of will:

"I have to reinforce myself so that when things don't go well I won't be so hurt and disappointed."

This kind of change is also evident in subjects who, when asked what they would have to do to change a pattern, merely state the opposite of their pattern behavior without indicating how they would or could produce that change. Thus, a person who rarely speaks up in class might say, "I just have to be more assertive and say what I want to say."

d. "Natural" change

This notion of change revolves around a process of growth over which the subject has no control. They seem to be saying "the pattern might change, but I can't change it". It might sound like this:

"Well, I'm different now than I was in high school, and maybe I will grow out of this too."

Step 3 - Internal Change (Gamma)

In this step the subjects are in transition into the transformational stage. They struggle with the locus of the ability to change, considering more external notions but coming down on the side of the internal. They seem to realize that the change must be internal, that they have to find a way to affect the feelings and self-beliefs that underlie the pattern. They do not yet know how they will do this, or quite how it will work:

"I've tried to control myself and to balance out my feelings about the situation and also the other person's feelings...It just doesn't work!!...I've sat down so many times, but I just can't think of anything [else to try to change the pattern]. But that won't stop me, I'll find something no matter if I have to dig <u>really</u> deep!"

"I'm not interested in changing myself from the outside in, but from the inside out. I'm not interested in becoming better, even to meet my own ideals, if it means modifying my behavior from the outside in...My only <u>idea</u> of [how to to that] is to be more diligent in my evening review."

Transformational Change

Transformational notions of change have already been described several times. The process described by the subject is fully internal, proactive and self-conversational. All these abilities stem from an implicit grasp of the intrapsychic system. Two factors separate transformational change from step three of the change dimension within the pattern stage. The first is that the transformational subject has a clear, internal explanation of his/her strategy and how it works. Second, the struggle in deciding between internal and external strategies displayed in the pattern stage is gone.

<u>Summary</u>

Three dimensions of growth within the pattern stage have been proposed: differentiation/integration, causation and change. In each dimension, three steps have been posited within the pattern stage. The dimensions have also been extended into the transformational stage. The

following table shows the three dimensions and the steps within them.

Table 1

Dimensions and Steps

	Differentiation/ Integration	Causation	Change
Step 1	Situational	One Way	No Change
Step 2	External Integration	Two Way	External Change
Step 3	Internal Integration	Mutual	Internal Change
	TRANSFORMATIONAL		
Step 4	Related Pattern	Between Patterns	Transform. Change
Step 5	Pattern Integration	Systemic Causation	

Conclusion

This chapter has presented the theoretical formulations of dimensions and steps within the pattern stage. These formulations were derived from a combination of sources. Some of these were reviewed in chapter two, but four major sources, ERT2 protocols, Selman, Piaget, and a structural analysis of the pattern and transformational stages, have been presented here. Each of the three dimensions was then described in detail, along with the steps, which are hypothesized to occur in sequence.

C H A P T E R I V

Methodology

Research Questions

In general, this study seeks to determine whether there is evidence in support of the hypothesized sequences along three dimensions of growth within the pattern stage of Self-Knowledge Theory: differentiation/integration, causation and change. It also explores the relationships between steps from various dimensions, including the possibility of the existence of substages, each containing a step from several sequences. The questions this study is designed to address are:

1. Is there evidence that growth in any of the three dimensions occurs sequentially?

2. What is the nature of the relationship between the steps across the various dimensions?

3. Is there any evidence that some of the steps in different dimensions are horizontally related such that they make up substages within the pattern stage?

There were several steps in the empirical portion of this study. An instrument designed to test for the presence of reasoning representing each of the hypothesized steps on each dimension was developed and refined. This instrument, the Pattern Inventory, was then administered to a group of

college students. The ERT2 was also administered. Three coders scored the protocols and met to resolve scoring disagreements. Then, a variety of data analyses were performed on the resulting data. The instruments, sample, data analysis technigues and procedures will now be described in more detail.

Instrumentation

The ERT2

The instrument used to assess subjects' stage of Self-Knowledge was the ERT2, which was developed by this author and Gerald Weinstein in 1984. Three other instruments have been developed for assessing stages of Self-Knowledge Theory: the Experience Recall Test (ERT), the Mirroring Questionnaire (MQ), and the Modified Experience Recall Test (MERT). Although elements of each of these instruments were used in developing the ERT2, none of them seemed appropriate for this study. To support this assertion, a description of each instrument, highlighting both the procedures used to elicit self-knowledge data and the scoring system, will now be presented.

The ERT was the instrument developed as part of the original research on Self-Knowledge Theory (Alschuler, Evans, Tamashiro & Weinstein, 1975). Tamashiro (1976) has described the properties that were sought in the development

of the ERT:

> 1. The instrument should elicit data relevant to the working definition and the theoretical frame of stage characteristics...
>
> 2. Since the instrument would eventually be used by educators at all levels, the test should be appropriate to a broad range of subjects.
>
> 3. The instrument and its administration should be as objective as possible, and the factors which bias subjects' responses should be minimized.
>
> 4. The instrument should be feasible in terms of available skills, time and financial resources.
>
> 5. The instrument and the testing procedure should meet ethical standards. The human rights and personal dignity of the subjects should be respected by the test and the testing process.

Using these criteria, Alschuler et al. developed an instrument that had two parts. In the first part, subjects were asked to think back on a number of events in their lives. Then, they were asked to recall in detail a particular significant experience. In the second part, subjects were asked to respond to a standard set of questions. The questions were presented in written form, as opposed to being read to subjects by the examiner, and were always the same. Subjects' answers could either be written or spoken into a tape recorder.

Because of their concern with criteria three and four above, Alschuler et al. decided not to use a "clinical interview" format. Instead, they chose to use a standard set of questions, and administrators were trained to keep the administration of the test as standard as possible. As a

further measure to maximize objectivity, they were careful in their instructions not to influence the subjects' selection of a significant experience.

A standardized scoring procedure is used for the ERT. Each coding unit is identified as belonging to one of the four self-knowledge stages. The percentage of responses at each stage is computed and a summary score for each subject is obtained using a mathematical formula (Ziff, 1979). Learning to score the ERT is time consuming; Tamashiro estimated that it would take about a month (1976). Ziff (1979) has developed a procedure for assigning a single stage score to ERT protocols. According to this procedure, stage score is defined as the single highest stage response in a protocol. Presumably, this method is faster than that for arriving at a summary score. The assumption of this method is that the highest stage response of an individual reflects that person's capacity to reason at that stage, regardless of whether s/he always uses that ability. This scoring system seems preferable for the present study, since the goal of the assessment is to identify subjects who are capable of reasoning at least at the pattern stage.

The Mirroring Questionnaire was developed by Ziff (1979). The instrument was used as part of a study on the effects of matching the questions used to process a human relations exercise with the self-knowledge reasoning level of the participants. It was designed to measure success and

interest in responding to questions linked with various self-knowledge stages. Ziff was concerned with eliciting the maximum possible level of self-knowledge reasoning in his subjects, and argued that the ERT, by virtue of the open ended nature of the questions used, was more suited for assessing spontaneous reasoning. The MQ consists of a structured human relations exercise and a standard questionnaire probing subjects' reactions to the exercise. The questions are written down and occur in a sequence linked to the self-knowledge stages; there are eight questions, two for each stage. Each pair of questions is designed to stimulate reasoning at a particular stage of self-knowledge. The MQ is scored by assigning a score of one or zero on each question, depending on whether the answer meets the criteria for the stage associated with the question.

Ziff (1979) and Schiller (1983) have both pointed out one drawback to the MQ that has relevance for the selection of instruments in this study. They point out that since the MQ involves a structured exercise and questions about that exercise, the answers may be more a reflection of subjects' experience of that activity than a pure reflection of their self-knowledge level. In addition, by breaking up the reporting of the experience into discreet sections (for example, "What did you do?" and "What were you feeling?" are asked as separate questions), the instrument may interfere

with the subject's reflection on the experience, as opposed to a format that allows for more free-flowing reporting.

The MERT was developed by Schiller (1983) as part of a study on the effects of a course in Education of the Self on participants at various self-knowledge stages. This instrument is similar to the MQ in that it employs questions designed to stimulate reasoning at specific stages. The major difference between the MERT and the MQ is that the MERT does not use a human relations exercise as the experience to be recalled. Instead, the MERT is similar to the ERT in allowing subjects to select an experience from their own memory to report. The MERT, however, is significantly different from the ERT in that the instructions to subjects do attempt to influence the selection of the experience to be recalled. The MERT asks subjects to recall " a recent time when you ... felt uncomfortable with how you were feeling or acting. Perhaps there was some type of conflict or problem and you didn't do or say what you might have wanted to in retrospect" (1983, p.211). Schiller argues that a situation in which the subject was uncomfortable or wishes s/he had acted differently is more likely to stimulate higher stages of self-knowledge reasoning than more pleasant or consonant experiences, since the highest stage has to do with taking action to change an internal pattern. Also, he reports that an informal review of ERT protocols indicated that those

situations that involved difficulty or conflict provided more opportunities for pattern and transformational statements than those that did not involve difficulty or conflict. The questions on the MERT are very similar to those on the MQ, as is the scoring. There are, however, time constraints on subjects' responses; a specific time is allotted for answering each question, with times ranging from 1.5 to 4 minutes.

The MERT has several features that seem useful for the present study. As mentioned earlier, the use of an actual, subject-selected situation seems preferable to the use of a structured exercise. Also, the use of situations involving discomfort or conflict seems important for two reasons. First, the criterion for the highest stage of self-knowledge, the transformational stage, is the ability to operate on and change an internal pattern. The desire to make such a change is less likely to occur when focusing on a positive memory, and so individuals capable of this stage may not display codable reasoning from it when recalling a positive experience. Secondly, a situation involving discomfort and/or conflict presents a contradiction, at least for part of the time, between what happened and what was desired. The effort to resolve this contradiction, either at the time of the conflict or at the time of recall, challenges the subject to make sense of his/her experience and hence to reason at his/her maximum level.

The MERT, however, has several disadvantages for this study. First of all, the MERT instructions contain no time for the subjects to scan their memory for a number of significant events. Such a step seems important to allow the subjects to get used to self-reflection and to review a number of experiences before selecting one to recall in detail. Secondly, subjects are asked to select a recent experience to recall in detail, a restriction that seems unnecessary. Third, although the advantages of asking subjects to recall an experience of discomfort or conflict have already been discussed, the specific instruction in the MERT is phrased in a way that demands at least situational self-knowledge, since it asks subjects to reflect on the experience as a whole and to discuss their feelings about their feelings. Finally, the use of time limits on each question further exacerbates the problem of compartmentalization and inhibition of reflection discussed in evaluating the MQ. Different individuals may take varying amounts of time to recall aspects of their internal experience, and may skip important aspects because of time pressure. This not only inhibits full and elaborate recollection of the experience, but it may cause the subject to omit statements that would satisfy stage requirements.

The ERT2 combines features of all the instruments discussed. In the first part, subjects are asked to scan their memory for events that they consider important. They

are then asked to select one experience in which they experienced a problem or conflict, and are guided in recalling that experience in detail. In the second part, subjects give written responses to a questionnaire. The first question asks for a description of the experience. Instead of asking only for events (an "elemental" question) and saving feelings (situational) for another question, the question instead asks the subject to include events, thoughts and feelings in a single description. Subsequent questions ask subjects to reflect on the experience as a whole in various ways:

> "How was that experience important or special to you then?"
>
> "From the experience you just described, please describe some things you know about yourself now."

Although the ability to reflect on a situation as a whole first appears at the situational stage, these questions can be answered in some way by even those at the elemental stage. The remaining questions test for the presence of pattern and then transformational thinking. The full text of the ERT2 can be found in an appendix to this dissertation).

Since the purpose of giving the ERT2 in this study is to determine which subjects are capable of reasoning at the pattern and transformational stages, the scoring was similar to Ziff's procedure for assigning stage scores. Protocols were assigned a stage score corresponding with the highest

stage of reasoning found in the protocol. Reasoning within a protocol was assigned a stage based on the stage descriptions most recently outlined by Weinstein and Alschuler (1984). The coding manual for the ERT2 can be found in an appendix to this dissertation.

Demographic Information

In order to identify the demographic characteristics of the sample, all subjects were asked to give their age, sex, primary language and race.

The Pattern Inventory

The Pattern Inventory (PI) is an instrument developed specifically for this study. Like the ERT2, it is a group administrable test, consisting of two parts: an experience recall and a questionnaire. The PI contains a question, early in the questionnaire, that tests for pattern reasoning. The rest of the questions assume that capability. In the questionnaire, subjects are given the explicit opportunity to demonstrate reasoning associated with each step in each dimension. The PI was piloted twice before it was used in the study. In developing and refining the PI, careful attention was paid to the methodological issues reviewed in chapter two. Because the development of the PI was so explicitly linked to the theoretical formulations and was an integral part of the empirical

process, a full description will not be presented now, but will be undertaken in chapter four.

Sample

The sample for this study was drawn from undergraduate and graduate students at the University of Massachusetts who participated in a course in Education of the Self during the spring semester of 1985. The students came from two sections of the course with two different instructors, one of whom was this author. Participation in this study was voluntary, but a high percentage of students from both sections chose to participate. Although demographic information was collected, no attempt was made to randomize or match within the sample.

Data Analysis

Data analysis in this study was aimed at two main goals. Since scoring systems were used for both the ERT2 and the PI, data on intercoder reliability was sought. Secondly, ordering theory was used to look for evidence that the steps identified in each dimension occur in sequence, and to explore across-dimension relationships.

Intercoder Reliability

Two people, this author and Gerald Weinstein, were involved in developing the scoring procedure for the ERT2, which was done prior to this study, and the scoring procedure for the PI. One novice coder was trained in both coding systems and participated in a portion of the study (see section on procedures). This coder had some familiarity with the stages of Self-Knowledge Theory. Intercoder reliability was analyzed on each scoring system. Comparisons were made between the scores of each pair of coders, and among all three.

Ordering Theory

Ordering theory, as explained in chapter two, is a procedure for determining sequences, groupings and hierarchies among dichotomous items. It is a more useful method for the present study than methods such as the Guttman scaling technique because it allows for both linear and non-linear sequences (Airasian & Bart, 1973; Bart, 1976). When a Guttman is used, it is not possible for two items to occupy the same place on a scale. Ordering theory allows for this occurrence, thus showing groups of items that are hierarchically arranged.

This technique can be used to confirm or disconfirm a hypothetical ordering or to generate an ordering without a prior hypothesis, with the latter procedure being somewhat

more complicated. In this study, the procedure was used for both purposes. Each step in each dimension was scored for its presence in each protocol. Ordering theory was used, first of all, to test the hypothetical step sequences developed earlier in the study. In some cases the sequence was disconfirmed, and the technique was used to derive alternative formulations of grouping and sequence on each dimension. Secondly, the procedure was used to examine the relationships among all steps on all dimensions.

Procedures

The procedures for this study can be divided into three phases: the development of the Pattern Inventory; the development of empirically based formulations of dimensions and steps; and the comparison and possible merging of the theoretical and the empirical formulations. Each phase will now be described in detail.

Developing the Pattern Inventory

The Pattern Inventory was developed based explicitly on the theoretical formulations of dimensions and steps. Because it is tied so directly to those formulations, the Pattern Inventory will be described in the next chapter.

Developing a Coding System

A coding system was developed for the PI, and a coding manual written. The manual describes the scoring system, which is a method of assigning a pass or fail to each step on each dimension based on subject's response to the PI. The manual gives explicit criteria for assigning a pass or a fail on each step.

Training Coders and Piloting the Coding System

One novice coder was trained in the scoring systems for the ERT2 and the PI. This person had some familiarity with Self-Knowledge Theory. Had this not been the case, the coder would have had to spend some time learning the theory, but that would not have excluded a totally inexperienced coder from the study.

At the time of this study, five administrations of the ERT2 had been conducted with Education of the Self classes as part of an on-going research project. Protocols from the first two administrations were used to train the novice coder. The coder was given the scoring manual and a set of protocols to code. She then met with this author to check her scoring against that agreed upon in earlier research conducted by this author and Gerald Weinstein, and she then scored another set of protocols. This procedure was repeated three times. The coding manual was revised based on discussions between this author and the novice coder.

Finally, the novice coder and this author both scored a larger set of protocols, and compared their scores.

The coding manual for the PI was written by this author as part of this study. The manual was given to the novice coder and to Gerald Weinstein, along with PI protocols from pilot administrations of the instrument. The three coders met and checked their scores. Disagreements were settled, and the coding rules and manual were revised.

Data Collection

Both sections of Education of the Self were given the ERT2 at the beginning of the semester, and the PI at the end of the semester. They were not given both at the same time because the PI was not ready for administration at the beginning of the semester, and because the instruments are each time consuming (about an hour each) and somewhat similar, making administration of both at the end of the semester impossible. This was a decision made at least in part on pragmatic grounds, and it created some problems which will be discussed later.

The PI protocols were scored by all three coders. Only those protocols that showed pattern reasoning were included in the study. The coders met to resolve any coding disagreements on those protocols. The ERT2 scores for all subjects in the study were scored by all three coders, who again met to resolve disagreements. It should be noted that

because students both dropped and added the course after the first class it was not possible to obtain both ERT2 and PI scores for all subjects.

Data Analysis

Intercoder reliability was calculated for both the ERT2 and the PI scores. Calculations were done for each pair of coders and for the three coders combined.

The Pattern Inventory scores were analyzed in a variety of ways. Individual response patterns were examined for each dimension to see whether any of them disconfirmed the proposed sequences. The number of subjects passing each item was also calculated and examined. Ordering theory was used to determine an empirical ordering for the steps on each dimension. For the differentiation/integration dimension a Pearson product moment correlation was used to test for correlation between quantitative and qualitative growth.

Relationships between the steps on the various dimensions were also examined. The horizontal scores for each subject on each dimension were calculated and compared. Ordering theory was used to determine an empirical ordering of all the steps on all the dimensions.

The theoretical formulations posit steps along three dimensions. The major purpose of this study is to chart the course of development along these dimensions after the

person enters the pattern stage. However, it is also of interest to try to determine whether the upper steps on each dimension are representative of pattern or transformational reasoning. In fact, transformational steps on each dimension were hypothesized. As mentioned earlier, it was not possible to give subjects the ERT2 and the PI at the same time. It is possible, however, to examine those subjects who scored transformational on the ERT2 to see how they scored on each dimension. Obviously, it is possible that more subjects progressed into the transformational stage over the course of the semester, but this analysis will at least provide some evidence concerning the boundary of the pattern stage along each dimension.

Merging of Theoretical and Empirical Formulations

The empirical data were used to modify the hypothetical step sequences along each dimension. In addition, the empirical data on relationships between steps from various dimensions suggested some patterns to those relationships, and a logical case was developed in support of the indicated ordering and clustering.

Methodological Limitations

There are several limitations to this study that stem from the sample. First of all, the sample is a small one compared to those used by other developmental theorists, including Alschuler and Weinstein. It is large enough to provide evidence in support or contradiction of the proposed sequences, but larger samples will be needed to verify and strengthen the results. Also, it is assumed that since all subjects are either undergraduate or graduate students at a large state university, the degree of cultural and socioeconomic diversity in the sample will be relatively low.

The sample also coveres a limited age range. This is not as great a problem as it might be in some other studies. Although there are no strict ages for the achievement of stages in structural developmental theories, it is possible to examine age norms, at least within a given culture or subculture. The pattern stage is not generally found before adolescence (based on research done in the United States). Therefore, expanding the age range a few years would have been helpful, but it does not seem necessary to sample subjects below adolescence.

No attempt was made to randomize the sample, even within the university population. For this reason, no claim of universality can be made for any of the results, although

the study may suggest sequences that could be researched using a larger and more diverse sample.

The students in the sample were all participants in a course designed to promote self understanding. This choice was made at least partially out of convenience, but it does raise some interesting issues. Education of the Self is a course in which students are taught a method for detecting and intervening in dysfunctional internal patterns. The students, therefore, are experienced in thinking about patterns. However, they are not taught to think about their patterns in the specific ways tested by the PI. Therefore, the experience they have had in the self-knowledge domain makes them a fertile first population for study, and they are probably not exhibiting rote responses learned in class.

Ordering theory, while a useful technique for a study such as this one, has limitations that should be noted. First of all, as with any scalogram technique, it provides case III data (Wohlwill, 1973). While it certainly suggests an ordering of the items as well as the subjects, the evidence of ordering of items is incomplete, even in the context of this sample. The major gap here is that the dimensions posited have not been studied in a formal way, as Wohlwill (1973) recommends. Although the items on each dimension were ordered before the PI was given, the ordering was not grounded in the kind of research Wohlwill suggests. The across-dimension ordering was tested without any prior

ordering of items. Secondly, this technique provides information only about those item pairs that have a prerequisite relationship (they develop in sequence) or a horizontal relationship (they develop together); there may be many item pairs that do not fall into either category. This technique provides no way to compare these relationships to one another.

C H A P T E R V

RESULTS OF INVESTIGATION

Introduction

This chapter presents the results of the investigation described in chapter four. It is divided into three main sections. First, the development of the Pattern Inventory, an instrument developed specifically to test the proposed step sequences, will be described. This description might ordinarily be expected in the instrumentation section of chapter four, but since the instrument was a direct result of the theoretical formulations, it seems a more accurate representation of the research process to present it here. Next, the sample for the study will be described and discussed. Finally, the results of the data analysis will be presented. This last section will also discuss the implications of the empirical findings, and present formulations of dimensions, steps, and relationships between dimensions that combine the theoretical and empirical analyses performed in this study.

The Pattern Inventory

There were several steps involved in developing this instrument. First, there were several key decisions to be

made pertaining to the instrumentation issues discussed in chapter two. A draft of the instrument was then written and piloted in a graduate seminar in Psychological Education. Following the pilot, the instrument was revised and piloted again, this time in an undergraduate Human Development class. At this time the scoring manual was written and used by three coders to score the second pilot administration. The coders met and discussed their scores, as well as points of confusion in the manual. Both the manual and the instrument were revised again, based on this information, before being used to test the proposed sequences. In the description of the instrument to be presented here, the key decisions will be considered first. Then the structure of the Pattern Inventory (PI) and the specific questions will be presented. Finally, after examining the results of intercoder reliability and other data, the present state of the PI will be discussed, and strengths and weaknesses noted. The full text of the PI and the coding manual can be found in the appendix.

Key Decisions

The first important decision made in developing the PI was whether to use a clinical interview format. The strengths and weaknesses of this approach have already been discussed. It was decided not to use such a format, but rather to use a group administrable test with a standard set

of questions. The test could be given in either written or oral form, but given the age of the population a written response format was chosen for this study. The decision not to use a clinical interview was made for two major reasons. First, the time and resources available for this study prohibited such an approach, which is much more time consuming to administer, transcribe and score. Secondly, it is hoped that this study will be of use to educators as well as clinicians and that the instrument and scoring system can and will be used by both groups. A group administrable, standardized format seems better suited to the needs of educators. The obvious drawback to this approach is the loss of the opportunity to probe subjects to clarify the meaning of their responses and the reasoning behind them. Every effort was made to compensate for this loss in the wording of the questions and the construction of the scoring system.

Another related decision was that of spontaneous versus structured responses. It was decided that the test would be structured; it would ask questions specifically designed to elicit certain kinds of reasoning rather than asking open-ended questions. The principal disadvantage to this decision is that it is not possible to tell if subjects ever really use this reasoning on their own. However, since the study was designed to test sequences of competence, the questions were designed to push subjects to reason at every

level possible. Because the competence being investigated concerned the structure of the reasoning used by subjects, they were often asked to explain their answers, and were scored on their explanations. Again, because individual probing was not possible, this decision was made to try to ensure that the test measured reasoning and not just behavior (responses that could be made for any number of reasons). The danger in this choice is that subjects who get the "right" answer but offer a confusing explanation may be scored as not reasoning at a certain level, when in fact they are, as would be clear if the examiner could question them about their response.

A final issue in constructing the instrument was task sensitivity. The instrument is designed to see whether the steps described earlier occur in sequence. It was therefore necessary to give subjects the chance to reason at each step on each dimension. There is at least one question on the PI specifically designed to elicit reasoning from each step on each sequence (the only exception to this rule came in the change dimension, as will be discussed later). Also, every effort was made to give subjects all the information they needed to reason at the various levels. Questions were worded as carefully as possible. In constructing questions, it was as important to avoid leading the subjects as it was to avoid being so oblique as to confuse them. If the answer required to demonstrate a particular level of reasoning is

easily perceived from the question, then the results are questionable. Requiring explanations from the subjects was an additional safeguard in this area. Thus each question or "task" was designed to give subjects the maximum opportunity to demonstrate the reasoning required. Finally, every effort was made to ensure that success on any one question was independent of success on any other, so that for any two questions, A and B, it was possible to pass A and fail B, and also possible to fail A and pass B. This was done in order to ensure that the sequences were not logically dictated, a pitfall discussed by Flavell (1972). There were two instances in which this was not possible, as will be discussed later.

Structure of the PI

In the first part of the Pattern Inventory, subjects are asked, as a group, to recall some significant experiences of conflict or problems in their lives. This is done, as in the ERT2, to get them thinking about themselves and about difficult incidents. The procedure for facilitating this recall is identical to that used in the ERT2. Subjects are then asked to select one experience of a conflict or problem to focus on and write about. As explained in the description of the ERT2, subjects are directed to think of conflicts or problems because it is believed that reflection on those incidents elicits their

maximum level of self-knowledge. The examiner then asks them, as a group, specific questions about the incident. These questions are not answered formally; they are asked to orient the subjects to the aspects of the experience that they will eventually be asked to describe in writing. Finally, the subjects are given the written questions and asked to write their answers on the questionnaire itself.

Each question on the written portion of the PI has a specific purpose. The first three questions are designed to orient the subjects to a pattern that they might want to change. Question one asks for a full description of the incident they recalled. The first task is to see whether subjects are reasoning at the pattern stage, so question two asks whether the subjects' internal responses were in any way typical, and asks for an elaboration of the pattern if one exists. Question three asks the subjects to describe aspects of the pattern that they like and aspects that they do not like. This is done because the subjects will later be asked how they might change their patterned response. Often there are aspects of the pattern that subjects do not want to change. At this point, subjects who have not identified a pattern are asked to turn to a separate set of questions. These questions were not analyzed for this study; they were put in the test to discourage anyone from discontinuing participation in the questionnaire. If subjects were allowed to stop at this point if they had not

found a pattern, some subjects might have "decided" that they have no pattern after all.

Questions four through eleven address the dimension of differentiation/integration. Questions four through seven are differentiation questions, and ask the subject to consider the various situations and circumstances that do and do not elicit the pattern. Questions eight and nine address the first three steps in this dimension that were outlined earlier. These questions give the subject ample opportunity to refer to the pattern as a pattern (step one). Question eight asks the subject to integrate all the situations that elicit the pattern using a common external context, and question nine asks for an internal integration. Questions ten and eleven are designed to probe for the reasoning on this dimension identified as transformational. Question ten asks the subject to relate the pattern under discussion to another pattern, and question eleven asks for an integration of those two patterns.

Questions twelve through sixteen address the causation dimension. Here again, subjects are asked to explain causation in ways indicative of each of the three steps within the pattern stage, as well as of transformational thinking. Question twelve asks the subject to demonstrate one way causation and question thirteen asks for two way causation. Question fourteen tries to distinguish two way from mutual causation by asking whether

it is possible to tell which component "starts" the causation chain described in question thirteen. Questions fifteen and sixteen are designed to elicit transformational reasoning on the causation dimension. Question fifteen asks for cause and effect relatonships between patterns, and question sixteen asks the subject to account for this system of patterns, probing for their understanding of an intrapsychic system.

Finally, questions seventeen through nineteen address the change dimension. Question seventeen probes for the possibility of change and eighteen asks for an external change strategy. Question nineteen is designed to elicit either step three or transformational reasoning. This is the only case in which one question is used to test for two steps. The subtle nature of the difference between step three and transformational change made it difficult to develop separate questions. The major difference between the two steps is that at step three subjects are in turmoil about whether to use internal change strategies and unclear about how they work, while at transformational the internal strategy is clearly formulated and explained. It was decided to ask subjects what they think is the most important thing they would have to change in order to change their patterns. The use of a single question created scoring problems, since it is not possible to fail step three and pass transformational.

Evaluation of the Pattern Inventory

In assessing the current state of the Pattern Inventory, two areas will be discussed, construct validity and intercoder reliability. Construct validity refers to the extent to which an instrument measures the abilities it was designed to measure. One way to approach that assessment is to compare scores on the test in question with other measures designed to assess parallel or similar skills. That is not an option in this case. There is, however, some information that calls the construct validity of certain portions of the PI into question. Tables four, six and eight show the scores for each individual on the PI. The steps on each dimension are arranged across the top and the individuals listed vertically. It is possible, then, to examine the total number of respondents who passed a particular item (the vertical scores).

There are three items on the PI with very low vertical scores, all of which are part of the step sequence in the causation dimension. Only one person passed step three, meaning only one person was able to demonstrate understanding of mutual causation. No one passed step four, which required subjects to give cause and effect relationships between two patterns. It may be that no one who took the PI was capable of reasoning at that stage, or it may be that the questions did not provide an adequate

opportunity to display such reasoning. In order to regard these questions as valid measures of the abilities hypothesized for each step, more research will have to be done and some people will need to be found who can successfully answer those questions.

Step five on the causation dimension raises a different problem. Even using the coding manual, the three coders were unable to agree on a set of operational criteria for passing this item. The question asked was "Can you explain how all these patterns work together inside of you? Please explain as fully as you can". In order to pass the question, subjects were required to talk about an intrapsychic system. This question was revised many times during test construction. The problem was to give a clear opportunity to talk about an intrapsychic system without leading the subject to the answer. In examining responses to this question, the coders agreed that many subjects had given sophisticated answers to the question, yet had not clearly used a systemic construction of their intrapsychic selves. Ultimately no one was given a "pass" on this step, but the coders agreed to eliminate this step from further analysis, since it seemed to have failed to provide an adequate opportunity to display transformational reasoning.

In reflecting on this problem, this author has had difficulty arriving at a better question. Of all the steps on all the dimensions, this one requires the most

sophisticated understanding of the "I". It may be that the "I" is more difficult to assess without one-to-one probing than the "me". It does seem that individual probing could uncover the reasoning being sought here. Perhaps this method will have to be used in the future, in spite of the problems noted.

The data on intercoder reliability are presented in table two. Data are presented for each item separately. The items are listed down the side of the table. Total reliability scores are given for each dimension and for the PI overall. Intercoder data are given for each pair of coders, and for all three together, with the pairings listed across the top. The figures in the table were calculated using the following formula:

$$\text{Percentage of agreement} = \frac{\text{Total number of responses with coding agreement}}{\text{Total number of responses}}$$

Coder A is this author, the person most experienced with the dimensions and steps but also the most biased in reading the scoring manual. Coder B was Gerald Weinstein, who assisted in every phase of this project including the development of the theoretical formulations used as a basis for the PI. Coder C was a novice coder who was trained according to the procedures outlined in chapter three.

Table 2
Intercoder Reliability

D./I.	A/B	A/C	B/C	ALL
1	96.3	100	100	96.8
2	81.5	96.7	85.2	85.9
3	84.6	93.3	92.3	87.1
4	88.5	86.7	88.5	86.7
5	69.2	86.7	84.6	74.2
6	69.2	60.0	61.5	51.7
Total	**81.6**	**87.2**	**85.4**	**78.3**
Caus.				
1	88.5	90.0	88.5	83.9
2	84.6	76.7	76.9	71.0
3	100	100	100	100
4	80.8	76.7	76.9	71.0
5	76.9	76.7	70.4	67.8
Total	**86.1**	**84.0**	**83.1**	**78.0**
Change				
1	100	100	100	100
2	92.3	96.7	96.1	90.3
3	65.4	60.0	69.2	51.7
4	61.5	76.7	57.7	51.7
Total	**79.8**	**83.3**	**80.8**	**72.5**
Grand Total	**82.9**	**85.1**	**83.4**	**76.6**

As can be seen from the table, the majority of the scores are above the minimum standard of 80 percent reliability, with the combined scores from all three coders scoring from 3.3 to 8.9 below the pair scores. The scoring disagreements were easily resolved in a meeting among the three coders, and much of the disagreement was attributable to ambiguity in the scoring manual. The manual presented in the appendix has been revised based on that meeting and should produce higher reliability scores.

In summary, while the PI produced encouraging results, more work will have to be done on it before it can be said to be a reliable and valid measure of the steps on the dimensions under study. Specifically, a larger sample needs to be tested to evaluate items three and four on the causation dimension, and a better method of testing for step five on that dimension must be found. Finally, further study of intercoder reliability needs to be done, using the revised coding manual.

Description of Sample Population

The PI was administered to two sections of a course in Education of the Self taught at the University of Massachusetts. In all, thirty-seven subjects took the PI. Seven of the responses were eliminated from analysis because they did not identify patterns, leaving a total of thirty

protocols for analysis. The thirty respondents were mostly female (M 4, F 26), and mostly caucasian (27 caucasian, 1 black, 1 hispanic, 1 asian). All but one reported that English was their primary language. The subjects ranged in age from twenty-one to fifty. Specific age distributions are reported below:

Table 3
Age Distribution

Age:	21-25	26-30	31-35	36-40	40-45	45-50
Number	13	3	6	5	2	1

It is interesting to note that the sample for this study is overwhelmingly female. Gilligan (1982) and others have been critical of developmental sequences derived from samples in which males are over-represented. This study has avoided that problem, albeit by chance. However, the lack of males in the sample raises a similar concern. Further research should be sure to include larger numbers of men. It would also be interesting to examine gender differences in responses and/or scoring.

Results of Data Analysis

The procedures used to test the proposed sequences and to look for evidence of relationships between the dimensions were described in chapter four. In this section, the results of those procedures will be presented and discussed.

The dimensions will be discussed one at a time, beginning with differentiation/integration, followed by causation and finally by change. In the discussion of each dimension, response patterns, vertical scores and the results of the ordering theoretic will be presented and discussed. A modified version of the step sequences proposed in chapter three will also be advanced. After each dimension has been discussed, the relationships between dimensions will be examined, using data from ordering theory and from a comparison of horizontal dimension scores.

Differentiation/Integration

Table four shows the scores that each subject received on the Pattern Inventory. These scores are the scores agreed upon by all three coders. The scores are presented by dimension, with the subjects listed down the side and the steps in each dimension listed across the top. A plus in the box below a step indicates that the subject has shown reasoning associated with that step, and a minus indicates failure to demonstrate that reasoning.

Each subject's pattern of pluses and minuses is his/her response pattern. Note that this is different from the horizontal score for each dimension, which is the highest step passed by each subject and is listed in the last column of each subject's score. The same horizontal score could be generated by a number of response patterns. Subject A, for

example, who passes the first item, fails the next and passes the next two, would have the same horizontal score as subject B, who passed all four. If the steps along the dimension do occur in sequence, then no subject will fail an item and pass any succeeding items. Once a subject has scored a minus, then the rest of the items should be minuses as well. Table four shows that all subjects had response patterns that support the proposed sequence in differentiation/integration.

As discussed earlier in this chapter, the vertical scores, listed at the bottom of the column for each item, indicate the total number of subjects passing each item. If the proposed sequence is valid, these scores should decrease from left to right, as they do for this dimension. Also, at least nine out of thirty subjects passed each item. A low number in this column, while not disconfirming of the proposed sequence, raises questions about the validity of the questions, as discussed earlier.

The theoretical formulations of steps on the differentiation/integration dimension, unlike those of the other two, contained quantitative as well as qualitative sequences. It was hypothesized that as subjects moved from step to step on this dimension, their ability to differentiate would increase quantitatively. To measure differentiation, the answers to questions four and five on the PI were examined. The number of different classes of

situations reported was counted. Originally, it was expected that this information would be found in the answer to question four, with question five measuring the degree of specificity subjects could use in describing each class. However, it was found that subjects gave information about the number of classes in their answers to both questions, and often gave no information about degree of specificity. It was decided, therefore, to derive a single differentiation score from questions four and five (specifics on how this score is derived can de found in the coding manual). These scores are reported in table four in the column marked "D". To test the hypothesis that these scores would increase as subjects moved further on the dimension, a Pearson product moment correlation was performed on the relationship between the horizontal scores and the D scores. The relationship was weak ($r = .12$). It would appear, then, that this hypothesis was disconfirmed.

Table 4
Response Patterns
Differentiation/ Integration

Subj.	1	2	3	4	5	D	Tot.
01	+	+	+	-	-	1	3
02	+	+	+	+	+	3	5
03	+	+	+	-	-	2	3
04	+	+	-	-	-	1	2
05	+	+	+	+	+	3	5
06	+	+	-	-	-	3	2
07	+	+	+	-	-	4	3
08	+	+	+	-	-	1	3
09	+	+	+	+	-	3	4
010	+	+	+	+	-	4	4
011	+	+	+	-	-	4	3
012	+	+	+	+	+	2	5
013	+	+	+	+	+	6	5
014	+	+	+	+	+	2	5
015	+	+	+	-	-	3	3
016	+	+	+	+	+	6	5
017	+	+	+	+	+	3	5
018	+	+	+	+	-	1	4
019	+	+	+	+	-	2	4
020	+	+	+	-	-	2	3
021	+	+	+	+	+	2	5
022	+	+	+	-	-	2	3
023	+	+	+	+	-	3	4
024	+	+	+	-	-	3	3
025	+	+	+	+	-	6	4
026	+	+	+	+	-	2	4
027	+	+	-	-	-	3	2
028	+	+	+	-	-	3	3
029	+	+	+	-	-	2	3
030	+	+	+	+	+	4	5
	30	30	27	16	9		

Ordering Theory was used to look for further evidence of sequencing among the steps on each dimension. Ordering Theory looks at the relationship between passing and failure on each pair of items. If a pass is scored as a 1, and a fail is scored as a 0, then a pairing of 01 disconfirms a sequential relationship between the two items, and a 10 confirms the relationship. Table five shows relationships

between item pairs on the differentiation/integration dimension. Each cell is divided into two sections, 10 and 01. The number in each of these sections indicates the percentage of subjects whose response patterns showed a 10 or 01 relationship between the two items represented by the cell (these percentages have been rounded off to the nearest whole number). A zero in either section, but not both, indicates a prerequisite relationship between the two items If the zero is in the 01 section, then the item in the vertical column is a prerequisite for the item in the horizontal column. If the zero is in the 10 section, then the relationship is reversed. A zero in both columns means that all subjects either passed both items or failed both items, indicating that the items are logically equivalent (Bart and Airasian, 1974). Since the vertical scores for this dimension indicate that at least nine people passed each item, a zero in each column indicates that all subjects passed both items. Any other relationship between two sections indicates that nothing definite can be said about their relationship; they are logically separate.

A zero in either section, but not both, is a strong indication of a sequential relationship. However, there are cases in which the scores are very close to zero, and it is necessary to decide whether to view these scores as also indicative of a prerequisite relationship. The percentage deemed acceptable is called a tolerance level (Airasian and

Bart, 1973; Bart and Krus, 1973). All of the articles on this method recommend setting a low tolerance level; Bart and Airasian (1974) used a level of one percent in their study. Since the sample for this study is small, however (N=30), allowing even one disconfirmatory pairing would lead to a tolerance level of 3.3. It was decided to accept one disconfirming response, and so the tolerance level was set at 3.3.

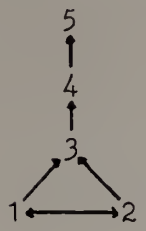
Table 5
Item Pair Relationships
Differentiation/Integration

	1	2	3	4	5
	01 . 10	01 . 10	01 . 10	01 . 10	01 . 10
1		0 0	10 0	47 0	70 0
2			10 0	47 0	70 0
3				37 0	60 0
4					24 0

Using the data from table five, it is possible to construct a diagram showing the relationship, or ordering, between items. Figure one shows the relationships between the steps on the differentiation/integration dimension. An arrow going one way indicates a prerequisite relationship while an arrow going both ways indicates an equivalent relationship.

Figure 1

Ordering Diagram - Differentiation/Integration



The results of the data analysis indicate that steps one and two on this dimension may be a single step in a sequence. Also, since every subject passed both of these items and every subject, of course, showed the ability to name a pattern, it seems that the ability to name a pattern, to name it consistently as a pattern, and to give an external context for integration all arrive at the same time in the course of self-knowledge development. The sequence then appears to go in the hypothesized order. The ordering across dimensions (to be fully explained later) indicates that this set of abilities is a prerequisite for all other steps in all other sequences. Therefore, this set of abilities may not only be the first step along the differentiation/integration dimension, but also, when combined with the criteria for naming a pattern, a description of the minimum set of capabilities required for the pattern stage. It should be noted that because item five asks for an integration of two patterns and item four asks the subject to name two related patterns, it is not possible to fail item four and pass item five. These items,

then, form a logical sequence and are in need of no empirical support. However, it is also true that they do not appear to be equivalent.

There is an additional issue to consider in this and all other dimensions. The steps on each dimension do appear to occur in sequence, and all sequences begin with the ability to name patterns, but it is not possible to tell whether the upper steps on each dimension are still representative of pattern reasoning or whether subjects passing these items are transformational. The theoretical formulations included steps thought to represent transformational thinking on each dimension. As explained in chapter three, the Education of the Self classes that made up the sample for this study were given the ERT2 at the beginning of the semester. These scores were examined in order to address this problem of stage boundary. It was hoped that an examination of the PI scores of subjects who showed transformational reasoning on the ERT2 would at least address this problem, even though the time lapse between the two instruments creates obvious problems, as discussed in chapter four.

The ERT2 protocols of the twenty-one subjects who took both tests were scored by the same three coders who scored the ERT2. Two of the coders were extremely experienced in the ERT2 coding system while one learned the system from the coding manual. That person was trained according to the

procedures outlined in chapter three. Intercoder reliability was calculated using the same formula used for this data on the PI. Again, reliability was calculated for all pairs of coders and for all three combined. Perfect intercoder agreement scores ranged from forty-three to seventy-one percent. Intercoder reliability within one third of a stage was found to range from eighty-five to ninety-five percent. Coding disagreements were settled in a meeting of all three coders. Unfortunately, none of the protocols analyzed showed transformational reasoning, making the planned analysis impossible.

Steps four and five were hypothesized to be transformational steps on this dimension. The comparison of ERT2 and PI scores yielded neither support nor disconfirmation of this hypothesis. A logical case could be made either way. On the one hand, it would seem logical that at least step five, the ability to integrate on a more inclusive level than the pattern, should be in place before a person can conceive of <u>change</u> on that level. In fact, the across-dimension ordering seems to indicate that this is the case. However, it could also be argued that the ability to integrate two or more patterns does not necessarily require an implicit grasp of the intrapsychic system, but only of a larger pattern, which could itself be seen as a fixed entity. The answer to this problem lies in further research. This study indicates evidence of a sequence; it has not

clarified the stage boundary.

A modified version of the step sequence along this dimension will now be presented. This version combines the theoretical and empirical analyses used in this study.

Step One - External Integration

This is the first step in the sequence and it is synonymous with entry into the pattern stage. A person at this step can identify an internal response that is consistent over a class of situations. S/he will identify this response as a patterned response consistently when asked to do so. The context for integrating the class or classes of situations that elicit the pattern is an external one. The person sees the pattern as being set off by a relationship, a set of external circumstances, or some set of events that happen to him/her.

Step Two - Internal Integration

At this step the person may give an external context for integration, but s/he also gives an internal context. This context is a way that s/he was thinking and/or feeling that was consistent in all situations eliciting the pattern, and that might be present in external circumstances other than those given. The external context has not been lost or replaced, but is seen as less inclusive than the internal one.

Step Three - Multiple Patterns

In this step, the person can name at least two related internal patterns.

Step Four - Integration of Patterns

In this step the person can integrate more than one pattern into a more inclusive set. The context for integration may be a sort of "metapattern", an internal pattern that accounts for one or more other component patterns. It may also be an integrated self-system. The critical factor is that the context for integration must have some logical, internal way of integrating the patterns mentioned.

This step sequence is a qualitative one. In all cases a qualitatively different form of integration is being used. It is not clear how the ability to differentiate develops and intersects with the ability to integrate. It does not seem that a quantitative increase in the ability to differentiate, to name greater numbers of classes of situations that elicit the pattern, accompanies growth on this dimension. It was not possible, in this study, to test the ability to make finer distinctions within a class of situations, but that is another ability that may grow quantitatively on this dimension.

Causation

The evidence in support of the proposed sequence on this dimension is not as clear as it is for the previous one. An examination of table six shows that there are two disconfirming response patterns. It is important to note, however, that they are different from one another. In one case, the subject failed item one and passed item two. Item one asks for an explanation of one way causation within the pattern. The subject was able to demonstrate an understanding of such a relationship, but used a specific situation, rather than the pattern, as the context. However, on the next item, the subject described two way causality and did use the pattern for a context. Therefore, although the scoring system dictated that the subject fail item one, it seems likely that this person is capable of such reasoning. The second subject failed item two (two way causation) but passed item three (mutual causation) and was the only subject to do so. The vertical scores for this dimension do decrease from left to right, but, as has been discussed, scores on the last three items are very low. Also, for reasons already explained, item five was eliminated from further analysis.

Table 6
Response Patterns - Causation

Subj.	1	2	3	4	5*	Tot.
01	+	+	-	-	-	2
02	+	-	-	-	-	1
03	+	-	-	-	-	1
04	+	-	-	-	-	1
05	-	+	-	-	-	2**
06	+	-	-	-	-	1
07	+	+	-	-	-	2
08	+	+	-	-	-	2
09	+	-	-	-	-	1
010	+	-	-	-	-	1
011	+	-	-	-	-	1
012	+	+	-	-	-	2
013	+	-	-	-	-	1
014	+	-	-	-	-	1
015	+	-	-	-	-	1
016	+	-	-	-	-	1
017	+	+	-	-	-	2
018	+	-	+	-	-	3**
019	+	+	-	-	-	2
020	+	+	-	-	-	2
021	+	+	-	-	-	2
022	+	+	-	-	-	2
023	+	-	-	-	-	1
024	+	-	-	-	-	1
025	+	-	-	-	-	1
026	-	-	-	-	-	0
027	+	-	-	-	-	1
028	+	-	-	-	-	1
029	+	+	-	-	-	2
030	+	-	-	-	-	1
	28	11	1	0	0	

* - This item was removed from analysis.
** - These horizontal scores are skewed because of a disconfirmatory response pattern.

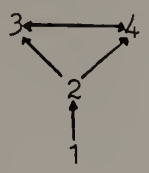
Table seven shows the item pair relationships for the four remaining items in the causation dimension, and figure two shows the resulting diagram of ordering among the items, with a 3.3 tolerance level.

Table 7
Item Pair Relationships - Causation

	1		2		3		4	
	01	10	01	10	01	10	01	10
1			60	3	90	0	93	0
2					37	3	37	0
3							3	0

Figure 2

Ordering Diagram - Causation



The proposed sequence seems to be supported at least through the first two steps. The data suggest that steps three and four, the ability to understand mutual causation and to draw cause and effect relationships between patterns, are logically equivalent. Given the low horizontal scores for both of these items, however, this evidence is far from compelling. More work will need to be done on the PI, and a larger sample studied, before the sequencing and/or grouping among these last items (as well as item five) is clear.

The issue of transformational reasoning was a particular problem in this dimension. Step four was hypothesized as transformational reasoning, yet it may develop simultaneously with step three. The PI appears to have failed to present adequate opportunities for subjects to display step five reasoning, so no conclusions can be

drawn about that step. Finally, the data comparing ERT2 and PI scores failed to produce any useful evidence.

The modified version of the steps along this dimension will now be presented. Because of the problems noted, only two steps will be presented here.

Step One - One-Way Causation

This ability appears to develop somewhat after the ability to identify patterns. A person at this step can give a one way cause and effect relationship between any one thought, feeling or action in his/her pattern and any one other. These one way causations may be strung together in a chain, with a thought affecting a feeling, which then affects an action, which then affects a different feeling, etc.

Step Two - Two-Way Causation

At this step the person understands how two or more components of his/her pattern affect each other. S/he can identify cause and effect loops among the thoughts, feelings, and actions that make up his/her patterned response. For example, the person can explain how a thought affected a feeling, which then affected an action, which then affected the original thought, etc. These chains may have as few as two components, or an unlimited number, but the chain must always come back to where it started.

Change

Table eight shows that there are no disconfirming response patterns for this dimension, and the vertical scores show a decrease from left to right, as well as at least ten subjects passing each item. Table nine shows the item pair relationships for this dimension, and figure three the resulting diagram of sequencing and grouping (tolerance = 3.3).

Table 8
Response Patterns - Change

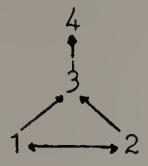
Subj.	1	2	3	4	Tot.
01	+	+	-	-	2
02	+	+	+	+	4
03	-	-	-	-	0
04	+	+	-	-	2
05	+	+	+	-	3
06	+	-	-	-	1
07	+	+	-	-	2
08	+	+	-	-	2
09	+	+	+	-	3
010	+	+	-	-	2
011	+	+	+	-	3
012	+	+	+	+	4
013	+	+	+	-	3
014	-	-	-	-	0
015	+	+	-	-	2
016	+	+	+	+	4
017	+	+	-	-	2
018	+	+	-	-	2
019	+	+	+	-	3
020	+	+	+	-	3
021	+	+	+	-	3
022	+	+	+	-	3
023	+	+	-	-	2
024	+	+	+	-	3
025	+	+	-	-	2
026	+	+	-	-	2
027	+	+	-	-	2
028	+	+	-	-	2
029	+	+	+	-	3
030	+	+	+	-	3
	28	27	14	3	

Table 9
Item Pair Relationships - Change

	1		2		3		4	
	01	10	01	10	01	10	01	10
1			3	0	47	0	83	0
2					43	0	80	0
3							37	0

Figure 3

Ordering Diagram - Change



There appears to be strong evidence to support the proposed sequence along this dimension. The data suggest that items one and two, the ability to see the possibility of change and the ability to give an external change strategy, are logically equivalent and, therefore, that these abilities develop at the same time. However, not every subject passed item one, so these two abilities seem to develop after the ability to recognize a pattern. The fact that these two abilities appear to develop at the same time does not change the hypothesized sequence of steps. Item one asks people to entertain the possibility of change. People who fail this item are at step one; they can identify patterns but cannot consider changing them. Once they can consider change, thereby passing item one, their change strategies are external, which allows them to pass item two. However, not all people who pass this item pass the next, which requires internal strategies. This item and the last one each represent a single step, and they appear to develop in sequence.

It should also be noted here that it is not possible to fail item three and pass item four. This problem is the result of using one question to test for both steps. Since step three requires an internal change strategy and step four an explanation of the workings of that strategy, and since one question was used, a pass on item four implies a pass on item three. It should also be noted, however, that these steps could have been equivalent; they could have arrived at the same time. This, however, does not seem to be the case.

The issues concerning transformational reasoning on this dimension are slightly different from those on the other dimensions. Step four in this sequence, transformational change, uses the same criteria as the stage descriptions of Self-Knowledge Theory. Indeed, change appears to be the only dimension included in Weinstein and Alschuler's description of the transformational stage. Therefore, any subjects who scored at transformational on the ERT2 would automatically score at step four on this dimension. The lack of data from the ERT2 scores, then, is not as big a loss in this case.

The more elusive issue is the distinction between the final step on this dimension in the pattern stage and true transformational thinking. Two separate steps were conceptualized. The intercoder reliability on the two items representing these steps was relatively low, ranging from

sixty to seventy-six percent, and fell below the minimum standard for acceptability. Although the meeting between coders seemed to indicate that the problem on these items was a lack of clarity in the coding manual, further research should be done using the new manual to make sure that coders can actually distinguish these two forms of reasoning consistently. These two steps do appear to develop in sequence, but it is not possible to tell whether they belong in the pattern or the transformational stage. Determining stage boundaries was not a major goal of this investigation, but it would be an interesting question for further study.

The modified version of the steps will now be presented. The last two steps will be presented as pattern and transformational, respectively, but the reader is cautioned to keep in mind the issues raised above.

Step One - No Change

When people are newly arrived in the pattern stage, they cannot entertain the possibility of taking a proactive role in changing internal patterns. They are, to use Kegan's term, "embedded" in their patterns. Any suggestion of change is dismissed as impossible (an alpha compensation). The pattern is often portrayed as synonymous with the personality, rather than as just one changeable piece of it.

Step Two - External Change

At this step people begin to see the possibility of change, but they employ or hypothesize strategies that are centered outside of their internal systems. They might suggest a physical activity, an act of willpower, or a maturational process. People at this step may describe "telling themselves" something that affects their behavior, but the words are so cliched that they sound as if someone outside of them is doing the talking. In order to qualify for step three or four, these descriptions must be more idiographic.

Step Three - Internal Change

At this step people recognize the limitations of external change strategies. They struggle, however, with a clear formulation of how internal change would work. They may reject the external and not be able to specify an internal strategy, only that the strategy must be internal. Even people who can identify a pattern are unable, at this step, to explain how it will work to affect their patterns.

Transformational Change

A transformational understanding of change emanates from an implicit understanding of an intrapsychic system. It has three characteristics, all of which must be present. First, a specific strategy must be presented. Second, the

strategy must involve internal action on an internal pattern. An external action or strategy may be presented, but it is an instrument or representative of internal change, and that relationship is explicit. Finally, the person must be able to explain why his/her strategy works to change the pattern.

Relationships Between Dimensions

Relationships between development on the three dimensions were explored in two ways. First, the horizontal scores on the three dimensions were compared for each subject (the two subjects exhibiting disconfirming response patterns were eliminated from this comparison, since their horizontal scores may be inflated). The horizontal scores are listed in table ten. In every case but one, the highest horizontal score was obtained on differentiation/integration. Four subjects (14.8%) had higher causation scores than change scores, and four showed the same score on these two dimensions. The majority of subjects (71.4%), however, scored higher on the change dimension. Thus it appears that the most common pattern is that subjects show the highest development on the differentiation/integration dimension, followed by change and then by causation.

Table 10
Horizontal Scores on Pattern Inventory

Subj.	D./I.	Ca.	Ch
01	3	2	2
02	5	1	4
03	3	1	0
04	2	1	2
05	5	2	3
06	2	1	1
07	3	2	2
08	3	2	2
09	4	1	3
010	4	1	2
011	3	1	3
012	5	2	4
013	5	1	3
014	5	1	0
015	3	1	2
016	5	1	3
017	5	1	4
018	5	2	2
019	4	3	2
020	4	2	3
021	3	2	3
022	5	2	3
023	3	2	3
024	4	1	2
025	3	1	3
026	4	1	2
027	4	0	2
028	2	1	2
029	3	1	2
030	3	2	3

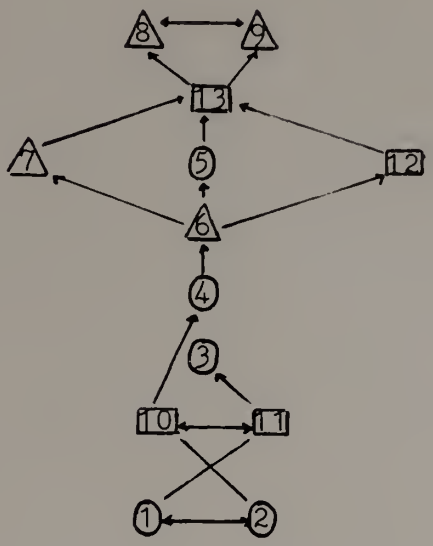
These data, however, indicate nothing about the ordering of the individual steps across dimensions. To explore these relationships, ordering theory was used again. In this case there was no hypothetical ordering proposed. An item pair relationship table (table eleven) was constructed using all thirteen items (one item had been eliminated from the causation dimension). Figure four is a diagram of the ordering obtained from this table (tolerance level = 3.3).

Table 11
Item Pair Relationships - All Items

		1	2	3	4	5	6	7	8	9	10	11	12
1	10												
	01												
2	10	0											
	01	0											
3	10	10	10										
	01	0	0										
4	10	47	47	37									
	01	0	0	0									
5	10	70	70	60	23								
	01	0	0	0	0								
6	10	7	7	7	7	3							
	01	0	0	10	0	67							
7	10	63	63	53	37	17	60						
	01	0	0	3	20	23	3						
8	10	97	97	87	50	30	90	37					
	01	0	0	0	0	3	0	3					
9	10	100	100	90	53	30	93	37	3				
	01	0	0	0	0	0	0	0	0				
10	10	7	7	7	3	3	7	0	0	0			
	01	0	0	10	43	67	7	57	57	93			
11	10	10	10	3	3	3	10	0	0	0	3		
	01	0	0	6	40	63	7	53	87	90	0		
12	10	53	53	43	23	7	50	13	3	0	47	43	
	01	0	0	0	17	23	3	23	47	47	0	0	
13	10	90	90	80	43	20	83	33	3	0	83	80	37
	01	0	0	0	0	0	0	7	10	10	0	0	0

Figure 4

Ordering Diagram - All Items



1- situational integration
2- external integration
3- internal integration
4- rel. betw. patterns
5- pattern integration
6- 1 way Caus.
7- 2 way Caus.
8- mutual Caus
9- Ca. btw. pat.
10. Ch. possible
11- external Ch.
12- internal Ch.
13- Transf. Ch.

Note that steps from the differentiation/integration dimension are represented as circles. Steps from causation are triangles and steps from change are squares. Looking at this diagram, several points stand out for analysis. First of all, it does not appear that there are any clusterings of developmental steps from different dimensions; there do not appear to be discrete sub-stages made up of steps from each dimension. While items seven, five and twelve are all from different dimensions, and they appear at about the same level in the diagram, the data are inconclusive concerning their relationship.

Secondly, this chart offers further evidence that development within the pattern stage begins with differentiation/integration, then moves to change, and then to causation. The progression of steps in the differentiation/integration dimension begins at the first level in the diagram, followed shortly by change. Causation is the last to begin. The steps appear to end in the same order; the last step of differentiation/integration comes at the sixth level in the chart, change ends at the seventh level, and causation at the highest level (the levels are being numbered here for convenience in reading the diagram; the numbers have no other meaning).

One of the research questions for this study was whether there appear to be substages in the pattern stage, each containing a discrete step, or horizontally related cluster of steps, from each dimension. There seems to be no evidence of such substages. The only clustering across dimensions seems to come at the very beginning of the stage, when the ability to identify a pattern first develops. It appears that at this time the person can name patterns consistently and integrate externally. S/he cannot see the possibility of change, nor can s/he understand one way causation within the pattern.

Although there do not appear to be discrete substages, there is evidence of patterns in how the dimensions grow, and in prerequisite relationships between steps from

different dimensions. It appears that there may be a cyclical pattern to growth within the pattern stage. In these cycles, a level of differentiation/integration is achieved, followed by a parallel level of change, and then by causation. The next step is the succeding level of differentiation/integration, and the cycle continues.

It appears from the data that a certain level of growth on the differentiation/integration dimension is a necessary condition for parallel growth on the change dimension. The ability to grasp external integration (step 2 on figure four) precedes the ability to posit an external change strategy (step 11), and internal integration (step 3) precedes internal change (step 12). Finally, the two steps posited as transformational integration (4 and 5) both appear to develop before transformational change (13). This ordering also seems to make logical sense. The level of integration could be thought of as the level at which a pattern is organized by the subject; it is that level that is seen by him/her as the common context for eliciting the patterned response. It follows that the same level would be the highest level on which the subject could imagine changing the response.

The relationship between causation and change in the diagram is not quite as elegant as that between differentiation/integration and change, but a similar pattern does seem to exist. The first step on the change

dimension is a prerequisite for the first step on the causation dimension (see figure 4). Internal change, the second step, and two way causation have no relationship to one another, but transformational change does precede transformational causation. Part of the difficulty in conceptualizing the relationship between steps on these two dimensions is that, unlike the other two, the causation dimension was not conceptualized as moving from external to internal in the same direct way. Obviously, causation and change are logically related. If one action changes some facet of experience, then a causal relationship of some kind is implied. Just as notions of change become more sophisticated, so do conceptions of causation. However, it appears that people may grasp the more complex change strategy first. Perhaps they learn about causation through experiencing change, moving, as development typically does, from the concrete to the abstract. This ordering is also consistent with Damon and Hart's assertion (1982) that self understanding moves from the "me" to the "I". Change strategies could be thought of as results, and causation as the generating processes.

Conclusion

In this chapter the results of the investigation described in chapter three have been presented. In order to find empirical support for the proposed sequences, two major steps were taken. The Pattern Inventory, an instrument designed to give subjects a chance to reason about their patterns at each stage on each dimension, was developed and administered. Secondly, a variety of data analysis techniques was used to search for evidence of sequencing, both within and across dimensions. The theoretical and empirical formulations were combined to make an integrated formulation of dimensions and steps, and of relationships between steps from various dimensions.

C H A P T E R V I

Summary and Discussion

Introduction

This chapter will summarize the conclusions and implications of this study. In the first section, the results of the investigation will be summarized. Next the implications of this study will be discussed. Four main areas will be covered: implications for Self-Knowledge Theory, implications of this design for the continued study of that theory, implications for the measurement of self-knowledge and implications for clinical and educational practice. The final section of this chapter will make recommendations for further research.

Summary of Research Findings

The empirical portion of this study investigated step sequences along three dimensions within the pattern stage. There were five proposed steps on the dimension of differentiation/integration, five on causation and four on the change dimension.

An instrument, the Pattern Inventory, was developed to stimulate and test for reasoning about patterns that

reflects each step on each dimension. The PI was given to thirty graduate and undergraduate students. The PI protocols were scored by three coders. Intercoder reliability was fairly high, and the three coders met to resolve their scoring disagreements. Ordering Theory was used to test the proposed ordering of steps along each dimension, and to seek evidence of ordering among all the steps from all dimensions.

In general, there was support generated for all the proposed sequences, with especially strong support generated for differentiation/integration and change. In the differentiation/integration sequence, the first two proposed steps appeared to be part of a single step, as well as synonymous with entry into the pattern stage. The revised sequence contained four steps. There appreared to be no strong relationship between quantitative increase in differentiation (as it was measured in this study) and qualitative advances in integration.

The data on the causation sequence was less clear than on the other two. The final step in the proposed sequence was eliminated due to problems with the question on the PI used to test for this reasoning. The step may well be a valid one, but a better way to test it is needed. The last two of the remaining hypothetical steps appeared to be part of a single step. The revised sequence had three steps.

Although the first two items tested on the change dimension appeared to be part of a single step, this combining did not alter the proposed sequence of steps. The final sequence contained four steps, each developing in the hypothesized order.

Several analyses, including Ordering Theory, were used to test the relationships between steps from various dimensions. A comparison of the horizontal scores on all three dimensions revealed a clear trend. The vast majority of individuals showed the highest step of development on the differentiation/integration diemnsion, followed by change and then by causation. Ordering Theory suggested a cyclical relationship between steps on the three dimensions, a hypothesis that has logical support as well.

Implications for Self-Knowledge Theory

This study has implications for Self-Knowledge in three major areas. It has, first of all, widened the scope of the theory by raising the possibility of additional dimensions both within and across stages. Secondly, the characteristics and structural logic of the pattern stage have been clarified. Finally, steps have been taken toward a better understanding of transformational self-knowledge.

The self-knowledge stages, as they are currently formulated (Weinstein and Alschuler, 1984) discuss

sequential, qualitative growth on two dimensions. The first concerns the components of internal experience; at each new stage (except transformational) a new component is added. The second is the relationship between those components; at each new stage comes a new understanding of how the components are related to each other. Other possible dimensions, such as understanding change and understanding feelings, are introduced at one stage but do not appear to be present in the others. This study raises two possibilities. First, there may be additional dimensions, such as differentiation/integration and causation, that can be studied in all the stages. This study has illuminated growth on those dimensions beginning with the pattern stage. Secondly, there may be ways to examine and conceptualize certain dimensions in <u>every</u> stage that are now only discussed in one. This study, for example, has examined <u>pattern</u> notions of change. Change may well be a dimension that can be examined in every stage. If more of this kind of work is done, then the stages can be conceptualized as qualitative advances in a central structure, each of which produces qualitative change on several dimensions. It is even possible to think of these dimensions as Selman (1980) thought of issues. These are the issues in the self-knowledge domain, and individuals may be at different levels, both within and across stages, on each issue or dimension.

This study has added to the understanding of the pattern stage. Additional criteria for the achievement of pattern capabilities have been suggested. Also, as called for by Alschuler et al. (1975), additional characteristics of the stage have been uncovered. Three dimensions for growth within the stage have been suggested and studied. Of equally importance, growth on all these dimensions has been tied to the central structural movements from pattern to transformational self-knowledge. The structural movement proceeds from pattern to intrapsychic system, which is a more internal, comprehensive and stable structure. The intrapsychic system is the structure through which the person transcends his/her embeddedness in the pattern. As this movement progresses, contexts for integration become more internal, understandings of cause and effect among the components of the pattern become more complex, and notions of change move from external to internal.

Understanding the transformational stage was not a primary goal of this study, but an understanding of the next stage is crucial to understanding growth within a stage. The nature of transformational self-knowledge, while clarified by this study, remains somewhat elusive. One major contribution of this study is to advance some hypotheses concerning the <u>structural</u> advance of transformational self-knowledge. The movement from pattern to intrapsychic system, and from the "me" to the "I" of

self-knowledge, seems to be central in this shift. Also, this study has explored the implications of that advance in several dimensions, not just the change dimension represented in the original formulation. It seems logical that the dimensions explored in the pattern stage ought to be present in transformational self-knowledge as well. It remains difficult, however, to specify the effect of the central shift on growth in those dimensions.

The implications of the intrapsychic system for the subjects' understanding of differentiation/integration and especially causation are as yet unclear. The problem is two-fold. First, it is difficult to conceptualize, especially in the causation dimension, what the qualitative change would be. The notion of an intrapsychic system "causing" the pattern, for example, was one attempt. Integration across patterns, using a systemic explanation, was another. What is even more difficult is to determine what these structural advances look like in action, how they actually affect behavior. Another way of posing the problem is: where do we look, in a person's actions and words, for evidence of these new understandings? Clearly, expecting the person to be able to discuss the mechanics of an intrapsychic system as such is not appropriate. A person does not have to be able to explain the INRC group, a key structure in formal operations, to be judged at formal operations. However, the implicit understanding of the INRC

group is evident in the person's behavior. The problems in constructing questions on the PI for the upper steps on the dimensions stemmed from this issue.

Perhaps one central factor in this problem lies in the shift from the "me" to the "I". A person's understandings of the generative processes that make up his/her self-system and self-knowledge are more difficult to test with a questionnaire than is his/her understanding of the "results". It is easier to ask "Can you think about yourself in this way?" than to ask "What is it in you that allows you to think about yourself in that way, and how does that work?". It may be that a clinical interview format in which the examiner interacts with the subject is the best method, or at least the best place to start. The examiner could ask all the clarifying questions necessary and also avoid leading the subject. Perhaps such an approach would lead to a more concrete understanding of the operational definition of transformational capabilities, and then a questionnaire would be more easily constructed.

This Study as a Model for Studying Other Stages of SKT

Chapter one stated that this study might provide a model, or a step towards a model, for studying and refining all the stages of Self-Knowledge Theory. Although the results are far from conclusive and there were some problems

with certain steps in the study, the author remains satisfied and encouraged about this approach to the further study of self-knowledge stages. There are several components to this approach, and those will now be reviewed. It is important, first of all, to ground the study of a stage not only in a thorough understanding of Self-Knowledge Theory, but also in an understanding of structural development in general. Understanding the structural nature of the changes in self-knowledge will guide the selection of dimensions and steps for study. Such study should also be grounded in the literature on dimensions and sequences in general. Another key component of refining a stage is a review of other theories. This review should include not only theories that study self-knowledge in general, but theories that speak to a particular aspect of a stage or a particular movement in development. This author, for example, uncovered considerable literature on the development of the understanding of feelings that, while not employing a structural stage approach, would be very helpful in studying the situational stage.

The development of theoretical and then empirical versions of dimensions and steps is another important element in such a study. The theoretical informs the empirical study, and by combining the two versions one is left with dimensions and steps that have both logical and empirical support. The theoretical formulations for this

study came from a variety of sources, each of which made a unique contribution. The other theories studied gave clues to missed dimensions and to new ways of conceptualizing change. A structural analysis of the stage under study has already been urged. The examination of old ERT2 protocols gave the author a chance to approach the study of change within a stage more inductively; by generalizing about the differences noted some possible dimensions and steps were suggested. These different approaches were not employed in any special order; in fact, they were pursued simultaneously. While this decision was not deliberate, it did result in a dynamic, dialectical interaction between these sources in arriving at the theoretical formulations of dimensions and steps, and such an approach is recommended.

The empirical testing of dimensions and steps had two components, each of which is critical. Although the ERT2 allowed the author to study self-knowledge protocols in an unstructured way, it is also important, when verifying sequences, to make sure that each subject has the explicit opportunity to reason at each step/level on the dimensions. Chances are the ERT2 will not provide such opportunities, and so another instrument like the PI is warranted. The construction of this instrument should be tied directly to the hypothesized dimensions and step sequences. Great care should be taken in the development and refinement of this instrument; even after two pilotings the PI and the scoring

system still need some work. Using other coders to check the validity of a coding system was also very helpful, particularly in writing the coding manual.

Ordering theory was the main data analysis technique used in this study. The technique was useful and productive in that it allowed the author to look at linear and non-linear trends both within and across dimensions. This technique could be used to study sequence and clustering both within and across stages.

Implications for the Measurement of Self-Knowledge

This study employed two instruments, both of which were useful and both of which can be seen as part of a group of techniques for measuring various aspects of the development of self-knowledge. Although the ERT2 was developed prior to this study, it was for this study that the coding manual was written, and this study was the first to employ novice coders trained in the scoring system. The ERT2 seems to be an improvement over both the ERT and the MERT as an instrument designed to elicit a person's maximum stage of self-knowledge development. It asks at least one question for every stage of Self-Knowledge Theory, and the instructions, choice of experience and time considerations are designed to maximize the chances that the person will exhibit the highest stage of which s/he is capable. Of

course, this study provided no empirical evidence that the ERT2 stimulated higher stages of self-knowledge than the ERT or the MERT. The stage scoring system, first suggested by Ziff (1979) is a much faster and more appropriate method than the ERT profile score for those wishing to know a person's highest stage. The ERT2 is not intended to replace the ERT. The ERT is a test designed to measure the spontaneous self-knowledge levels of subjects. This test, and its profile scoring system, yield a more accurate reflection of actual performance. The ERT2 awaits further study concerning intercoder reliability and construct validity.

The strengths and weaknesses of the Pattern Inventory have already been discussed in chapter five. It is an instrument that would be of use to those desiring to focus on one stage. Other instruments could be designed for other stages. It is not likely that one instrument will both differentiate between stages and test for within-stage dimensions and steps. A person trained in the dimensions and steps of a particular stage could be sensitive to them as they are manifested in the ERT2, for example, but could not draw any conclusions without administering an instrument like the PI.

Implications for Practice

In chapter one it was stated that this study would have implications for both clinical and educational practice. This section will not attempt to exhaust all the possibilities, nor will it outline specific interventions. Instead, implications for practice in general will be discussed in three main areas: goals, understanding target populations and planning interventions.

This study allows practitioners who want to facilitate the development of self-knowledge to be more precise in their goals. It is especially relevant to those who want to stimulate development in the understanding and managing of patterns. Goals can also be intelligently sequenced. This sequencing could be done on any or all of the three dimensions. The ordering of steps across dimensions could be viewed as a ladder of skills and abilities, and goals could be sequenced, across dimensions, in a total "map" of growth within the pattern stage and moving into transformational. A more detailed understanding of growth along these dimensions also allows practitioners to measure the progress of their clients. This ability is important for those to whom the practitioner is accountable, but it also will help the practitioner him/herself to recognize progress when s/he sees it.

An understanding of dimensions and steps along them

also aids practitioners in understanding their client populations. First of all, it affords them a more detailed understanding of how the client constructs his/her internal world, an understanding which can be communicated to the client. Secondly, this knowledge allows practitioners to distinguish among their clients. This is especially important to teachers and others who work with groups. Even though all their clients may be at the pattern stage, there are still some important <u>developmental</u> differences between them. This knowledge also lets practitioners know what the "growing edge" is likely to be for a given person. The ERT2 and the PI are available to practitioners. They do not require long training procedures to learn, and they assist practitioners in making the discriminations discussed above in something more than an intuitive manner. It would also be possible for a person to be assessed on only one of the dimensions if that seems relevant to the practitioner's purposes.

Finally, an understanding of dimensions and steps allows the practitioner to plan and sequence interventions more effectively. This planning can be done with individuals or groups. On a group level, practitioners can check their presentations for developmental relevance and can make sure that their interventions are meaningful to all clients. It would not be helpful, for example, to require students to talk about their patterns in a way that shows

internal integration, since not all students at the pattern stage can do that. Instead, the practitioner could allow for both internal and external integration. On an individual level, this knowledge allows the practitioner to know where and how to probe, to nudge the client or clients toward their growing edge. To pursue the example just given, a student who gives an external integration might be questioned about any internal factors s/he sees in common in all the situations s/he has described. The practitioner could also use an across-dimension map to know which dimensions to stimulate in order to promote growth. For example, suppose a practitioner is interested in promoting development along the change dimension and sees that the client appears to be at step two. S/he would know that internal integration forms the foundation for internal change, and so would check to see if this reasoning were available to the client. If not, s/he would know that s/he should work on this dimension first, even though it is not the primary dimension of interest.

Suggestions for Further Research

Suggestions for research have been made throughout this dissertation. In this section they will be summarized and categorized.

One fertile area for research is in dimensions of self-knowledge. The dimensions suggested here need to be researched as dimensions. The reader is referred to Wohlwill (1973) for a thorough discussion of the process. Secondly, the possibility of dimensions other than those studied here should be investigated. One interesting possibility is suggested by Selman's work on subjectivity. Subjectivity concerns, among other things, the developing person's understanding of multiple feelings and of conflicts between thoughts and/or feelings. In Self-Knowledge Theory, the ability to report feelings arrives at the situational stage. However, further developments in this dimension are not reported. It seems likely that, as a person develops, s/he is able to understand and relate thoughts and feelings in qualitatively different ways. The possibility that dimensions extend through all four stages of Self-Knowledge Theory is another area for research. These dimensions might develop cyclically, in the manner described by Fischer (1980), or in some other way.

Another area for further research is the step sequences outlined in this study. These sequences need to be studied

with a larger and more diverse sample. A larger sample will help to establish the validity of each step, especially in the causation dimension, and will provide additional corroboration and/or modification to the ordering suggested by this study. Diversity of sample is important for three reasons. First, since structural developmental theories are supposed to be universal, it behooves a researcher to use as wide a spectrum as possible when deriving sequences of development. It should be noted that Self-Knowledge Theory was developed using a range of populations (Evans, 1974), but that the theory has never been studied outside the United States. Studying development across a range of populations also helps to separate form from content; what appears to be a universal trend may in fact be a cultural manifestation of a structural shift which, while existing in other populations, looks somewhat different. Finally, using a diverse sample allows researchers to compare developmental trends among as well as across demographic variables such as race, gender, etc.

Longitudinal research would also strengthen the case for or against the porposed step sequences. It is the only way to track an individual's development over time, and to see whether the hypothesized order, here derived from a statistical technique, is the order that actually occurs.

Another issue in the further study of the steps outlined in this study is the question of <u>why</u> the steps

develop in sequence, an issue raised early in this dissertation. As Flavell (1972) has pointed out, their are many relationships possible between items that appear in sequence. While all of the sequential relationships among steps on each dimension seem to be ones of modification or inclusion, this hypothesis needs to be tested, which is a difficult task (Campbell and Richie, 1983). A related issue is the relationships between steps from different dimensions. These relationships have been suggested in this study, but no attempt has been made at categorization. Also, one dimension unfolding before another does not prove that development on one causes development on the other. These hypotheses could be tested in a study explicitly designed for that purpose.

Both of the instruments used in this study could benefit from further research. More coders need to be trained in the ERT2 coding system, and data should be collected on intercoder reliability. Also, the hypothesis that this instrument is more effective than the ERT or the MERT could be tested by comparing individual scores across the instruments. Finally, a system for deriving a profile score such as that for the ERT could be developed for the ERT2.

The Pattern Inventory could benefit from a re-examination of the questions on the higher steps of the causation dimension. The training and testing of additional

coders would help in the evaluation of both the instrument and the coding manual. The Pattern Inventory is also in need of testing for construct validity. This is usually accomplished by comparing scores on this instrument with scores on another instrument designed to assess the same dimension, although not necessarily in the same way.

Another interesting and important project would be the development of a clinical interview format for studying and assessing self-knowledge development. As mentioned earlier, such a method would perhaps be especially well suited to the transformational stage, but it could be done for any stage, or for the theory as a whole. Such an instrument, while not as valuable to practitioners as the group administrable instruments used in this study, would allow researchers to probe and clarify the responses and thus be more certain of the connection between statements and structure.

As discussed earlier in this chapter, all the stages of Self-Knowledge Theory could be studied for within-stage dimensions and steps. A model for such investigations has been proposed. The study of transformational self-knowledge would be especially challenging, primarily because of the elusive nature of both the structural and operational characteristics of that stage.

A final and especially important area for research is the effect of various "task factors" on self-knowledge performance. Flavell has discussed the "person-specific

environment" (1982b). In self-knowledge terms, the study of such an environment would involve assessing the role and influence of such factors as experience with self reflection, support in the social system for self reflection, general intelligence, etc. in promoting or inhibiting the use of maximum self-knowledge capabilities. Another group of task factors are the conditions inherent in the "tasks" themselves, across individuals, that are easier or more difficult to understand at a certain level of self-knowledge. It may be, for example, that patterns involving intimate relationships are more difficult to discern, or that there are certain general environmental conditions that seem to promote or inhibit the exercise of maximum self-knowledge capabilities. These inquiries into performance, combined with studies of competence, will help to provide a complete picture of the development of self-knowledge across the lifespan.

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APPENDICES

A. The Experience Recall Test

B. The ERT2

C. Coding Manual for the ERT2

D. The Pattern Inventory

E. Coding Manual for the Pattern Inventory

A. The Experience Recall Test

Instructions for Administration of the Experience Recall Test

The following instructions are to be read aloud to an individual or in a group setting. The numbers in brackets indicate the number of seconds the reader should wait before reading the next sentence. The written answer sheets should be handed out before the instructions are given.

Instructions

We are involved in a project which is trying to find out how different people know about themselves. There are two parts to this exercise. First, I will have you close your eyes and help you remember an important experience in your life. Then, I'll ask you to open your eyes and answer some questions. The questions you have in front of you are the only ones we want you to answer. Read them over so you'll know what they are, and so you understand them. Your answers will be kept in strict confidence; no one except the project staff will see your responses with your birthdate on it. Are there any questions before we begin?

For the first part of this exercise, it is best if you get in a comfortable and relaxed position in your seat. Go ahead and get as comfortable as you can. Okay? Close your eyes, take a few deep breaths, and relax.

I am going to ask you to think back and remember your life and your experiences. I'll ask you to remember what you did and remember the things that happened to you. As I ask you to think about different times in your life, sometimes you will remember things while other times you might not. Don't worry if you can't think of anything; just relax and wait for the next instruction. (2)

First, see if you can remember anything important about yourself yesterday (12), last month (10), last year (10) three years ago (10), when you were of high school age (10), when you were of junior high school age (10),when you were of elementary school age (10), when you were a young child (10).

I want you to find an experience or an event in your life that stands out in your mind, an experience that is somehow important to you. It might be something you will always remember, something you won't ever forget (10). There might be several of these experiences you can think of, but pick one that you'd like to think about some more (20).

Now, I want you to remember that experience as much as you can. First, picture the place where you were. What did it look like, and who was there. (10) Can you picture what

you looked like? (10) Now, see if you can remember exactly what happened. What did you do and say? (10) What did other people do and say? (10) See if you can remember any of your thoughts, or what you were saying to yourself. (10) What were you feeling then? (10) What do you imagine other people were feeling and thinking? (10) Think a little bit about what lead up to this experience (10) And what happened as a result of this experience. (10)

Go ahead and finish the scene/event in your mind. Take your time (3) and when you are ready, at your own pace, come back to this room and open your eyes.

The next part is the written section. Take as much time as you need to answer all of the questions. If you need more space, you may write on the backs of the pages.

Unforgettable Experience Recall

Number_____

Age___
Sex___

A. Describe as fully as you can and in as much detail as possible the experience you remembered. (Please include what lead up to the experience, what your thoughts and feelings were, and what the results of this experience were.)

B. How was the experience important or special to you then?

C. How is the experience important or special to you now?

D. From the experience you just remembered, please describe some things you know about yourself now.

E. How could knowing this about yourself be useful to you? Specifically, how can it help you get what you want or avoid what you don't want?

F. Do you have any comments about what it was like answering these questions?

B. The ERT2

INSTRUCTIONS

Note to test administrator: As you read these instructions, you will come across numbers in parentheses. These numbers indicate pauses; you should pause for the number of seconds indicated before continuing. You will also come across instruction to you. These will also be in parentheses, but will be underlined.

In a moment you will begin an exercise whose purpose it is to find out how different people know things about themselves. There are two parts to this exercise. First, I will have you close your eyes and help you remember some important experiences in your life. Then, I'll ask you to open your eyes and write the answers to some questions. Your answers will be kept in the strictest confidence; no one except the project staff will see your responses with your identifying number on it. Are there any questions before we begin?

For the first part of this exercise, it is best if you get in a comfortable and relaxed position. Go ahead and get as comfortable as you can. (Wait until subjects have settled into position) Okay? Close your eyes, take a few deep breaths, and try to relax (10).

I am going to ask you to think back and remember some things that happened to you that you consider important. We'll start with yesterday and we'll go as far back as you can recall. As I ask you to think about different times in your life, sometimes you will remember things while other times you might not. Don't worry if you can't think of anything; just relax and wait for the next instruction.

First, see if you can remember anything important that happened to you yesterday (10), last week (10), last month (10), last year (10), three years ago (10), when you were of high school age (10), when you were of junior high school age (10),when you were of elementary school age (10), and finally, when you were even younger (10).

I want you to think of a time in your life when you had to deal with a problem or conflict; an experience that might have been uncomfortable, yet was and is important to you. It might be something you will always remember. You may already have recalled some experiences like this, and you may now be able to recall many more, but for now pick one specific incident (5).

Now, I want you to remember the incident as much as you can. First, picture the place where you were (2). What did it look like, and who was there (2)? Can you picture what you looked like? (2) Now, see if you can remember exactly

what happened(5). What did you do and say (5)? What did other people do and say (5)? See if you can remember any of your thoughts, or what you were saying to yourself (5). What were you feeling then (5)? What do you imagine other people were thinking and feeling (5)? Think a little bit about what lead up to this incident, and what happened as a result (5). Go ahead and finish the scene in your mind. Take your time and when you are ready, at your own pace, open your eyes. (Wait until everyone has opened their eyes before continuing).

The next part is the written section. Write as quickly as you can. If you need more space, you may write on the backs of the pages.

1. Describe as fully as you can and in as much detail as possible the experience you remembered. Please include:

- What you did and what others did
- What you were thinking and feeling in this situation
- Specifically, what conditions or events made you respond as you did?
- What led up to this experience
- What the results of this experience were

2. How was this experience important or special to you then?

3. How is this experience important or special to you now?

4. From the experience you just remembered, please describe some things you know about yourself now.

5. In what ways were your thoughts, feelings or actions in this situation typical or atypical of thoughts, feelings or actions you had in other situations? Is there a "pattern" to your responses in these situations? If so, please describe it in terms of your thoughts, feelings and actions.

6. What do you like and/or dislike about the ways you think, feel and act in such situations?

7. Describe anything you have tried to do to modify your thoughts or feelings in order to change your way of responding in these situations. Please explain how your strategy affected your response.

8. Do you have any ideas about ways you might try to modify any of your thoughts or feelings in order to change your way of responding?

CODING PROCEDURE - ERT2

Introduction

This paper will provide a step-by-step description of a coding procedure for the ERT2, a questionaire designed to elicit data on respondents' stages of Self-Knowledge Development. This paper will not stand on its own; it will not be sufficient for the reader who is not familiar with Self-Knowledge Development Theory. Such readers are encouraged to read Weinstein and Alschuler's 1984 article, "Self-Knowledge Development". In this paper, a brief description of the Self-Knowledge stages will be presented, followed by a step-by-step description of scoring procedures. Finally, rules for assigning stage scores to "codable bits" will be given.

This procedure will yield an overall stage score. It is designed to determine the highest stage of self-knowledge that a respondent has exhibited on the ERT2. There are other coding procedures that can be used to yield a stage profile - a picture of the relative strength of each stage in a respondents answers.

THE SELF-KNOWLEDGE STAGES

The ERT2 asks respondents to describe an important experience in their life (see appendix 1). The stages of self-knowledge development are qualitatively different ways of describing one's internal experience.

The Elemental Stage

At the elemental stage, descriptions of experience are rendered in terms of the external elements of the experience; these are overt, observeable aspects which could be noted by anyone watching the situation unfold. Internal aspects such as thoughts and feelings are largely absent from this stage. The descriptions are also fragmented. The elements described are not connected in any truly causal way; they are juxtaposed, reported together but often out of sequence. Finally, there is no sense of the situation as a whole; the elements are not described as connected parts of a single event. There are no meta-situational statements, statements that refer to the antecedents, consequences, or features of the situation as a whole.

The Situational Stage

There are two major advances in this stage. First, internal information, thoughts and feelings, becomes a part of the descriptions. Secondly, the elements, including thoughts and feelings, are now organized into situations.

This second advance has two implications. First, the person can now refer to the event as a whole, and talk about its consequences, antecedents, etc. Secondly, the person understands the cause and effect relationships between the various components of the experience; s/he can explain how thoughts affected feelings, how feelings affected actions, etc. The major limitation of this stage is that the person cannot see any consistency to their internal response across classes of situations

The Pattern Stage

At the pattern stage, groups of situations can be organized into patterns. People at this stage are able to describe a consistent set of internal responses that occur in response to a class of situations (I get very nervous and unsure of myself when someone I care about criticizes me.). The limitation of this stage is that the person sees no possibility for taking internal action on a troublesome pattern.

The Transformational Stage

At this stage people are able to describe taking an internal action to change a pattern. The self here is proactive; it can actively intervene in its own regulation. It is also self-conversational; it can intervene in its own regulatory processes.

How To Score The ERT2

1. Setting up a scoring sheet

The scorer should set up a sheet that allows him/her to enter the subjects name or I.D. number, and has spaces for entering the number of responses from each stage that are found in the protocol.

2. What to code

Not every thing in the protocol should be coded. Code only those statements that contain "I referents" (I, me, my we, our, etc.). Statements about other people (My father walked over to the door), or about events (it was raining) should not be coded. Sometimes the I referent is implied, as in the statement "Went for a walk in the woods". Also, sometimes the words "my" and "you" can be used in ways that are not I referents (You know yourself better than anyone). Often the context is the key in deciding, and the scorer will need to use his/her judgement.

Sentences often go on for a long time, and contain more than one I referent. All independent clauses should be coded separately. An independent clause is a clause that could stand on its own as a single sentence. For example,

the sentence "I wanted to go downtown with my friends, but we hadn't finished our chores and my mother said I couldn't go", contains three independent clauses.

In summary, then, each independent clause that contains an I referent is a codable "bit", and should be assigned a score.

3. Assigning a score to each codable bit

The scorer should consult the scoring guidelines and examples in the next section of this paper. On the basis of these guidelines, each bit is scored and noted on the scoring sheet. The most common notation method is hash marks, one for each bit coded at a particular stage. At the end of this process the scorer should have a list of the number of bits coded elemental, the number coded situational, etc. A few additional notes:

Try not to be influenced by the content of the experience you are reading. A person may have behaved in a way that you consider reprehensible, or they may provide what seems like a gross misassessment of the dynamics of the situation. Do not downscore them for these reasons. You are intersted only in the form of what is being said.

Be conservative. If you are not sure about a score and you can't resolve your dilemma, award the bit the lower score.

Sometimes a codable bit contains aspects of more than one stage, as in this bit: "The best part for me was getting a good grade (elemental) and feeling better about myself (situational)." This cannot be separated into two bits. In cases like this, award the higher score.

An important part of learning to code is learning when to consider context and when not to. Whenever possible, a bit should be judged on its own merits. You should NOT assume that because a person made a pattern statement once, for example, that s/he doesn't "really mean it" if they fail to do so at the next opportunity. However, sometimes context is useful and important in deciding what the person is saying. For example, suppose a person has made reference to a class of situations early in the protocol, as in: "My friends were all there, and I clammed up, That happens a lot." Now that same person, when asked to describe a pattern, says "I'm afraid that I will make a horrible mistake and I get terrified.". Normally, that statement would not be a pattern statement because it does not specify when this happens. However, since that has already been clearly established, the bit may be awarded a pattern score. You must avoid, however, making interpretations that are NOT backed up by the text of the protocol. If someone makes an ambiguous statement, like "I always do that same thing (here we cannot tell if this is an internal or external pattern)", and no clear evidence exists

earlier in the protocol, then the lower score must be awarded.

4. Assigning an overall stage score

The overall stage score for a protocol is the highest stage for which you found one clear example. Quantity is not an issue in assigning a score. However, if you only have one instance of the highest stage, go back and make sure it is a clear example of that stage. If you are not sure, try to resolve the dilemma by consulting the scoring rules. If you just can't decide, score the protocol between stages (Situational/Pattern, or S/P).

Scoring Guidelines

Elemental

Score a bit as elemental if it contains:

1. Physical descriptions:
   "I was wearing my favorite coat."
   "My friend was very tall and thin."

2. Sensory data:
   "We saw the car skid off the road."
   "I heard my brother crying in the next room"
   "My arms felt numb."

3. Overt actions:
   "She walked over to where I was standing"
   "We all went to the movies"
   "I was using a kerosene lamp for light"

If the bit contains thoughts, feelings, statements of cause and effect or references to the event as a whole, it is not an elemental bit.

Situational

Score a bit as situational if it contains:

1. Thoughts
   "I knew I shouldn't go in there."
   "I remember thinking that she was being really petty."
   "We wondered whether anyone would find us."

2. Feelings
   "I walked around in terror about it all, feeling bad about my part in it."
   "I was mad at myself for being so stupid."
   "My guilt was awful."
   "Later, I felt relieved and proud."

3. Statements of cause and effect between various elements in the situation. Words like so, because, therefore, since, etc. are good clues.
   "A feeling of terror shot through me, because I knew no light should have been on."
   "I thought it was inside, so I went back."
   "My father was angry because he knew what had really happened."

4. References to the situation as a whole. These include:

a. Consequences of the event:
"It made me realize that I need to ask for help"
"After that, I never felt comfortable there."

b. Antecedents of the event:
"Up until that day I never lost my temper."

c. Statements referring to the unique or special qualities of the situation:
"It was the first time my father cried in front of me."
"It was the hardest thing I had ever had to do at the time."

Pattern

In order for a bit to be scored as pattern, it must explain or refer to an internal response that is consistent across a class of situations.

1. An internal response:
"I always get down on myself as soon as I make a mistake"
"I never seem to feel that I can relax when I'm on a date."
"I have an undying need to prove myself."

2. A response the is consistent across a class of situations:
"When I do something wrong, I just dwell on it."
"I can't seem to speak up when I am angry."
"I feel and show hurt if I am criticized.

The following examples should not be scored as pattern:

"Whenever I go out with my friends I go wild."
- No internal information.

"I was his best friend for years"
- Statements about on-going roles and relationships should be scored situational.

"I always worry too much."

- There is no definition of a class of situations. Global statements such as "I always feel ____"., that give no information about what class of situations elicit that response, should be scored situational. Sometimes this statement of class of situations is implied, as in this example:

"I just do whatever my friends want to do, and never what I really want to do."

- Here the class of situations could only be times when the person's interests conflict with those of friends.

Transformational

In order for a bit to be scored transformational, it must describe an internal action on an internal pattern. It must also describe, directly or implicitly, the effect that the action has on the internal pattern.

1. Descriptions of external actions on a pattern are not scoreable, unless the external action is linked to an internal consequence:

"Whenever I start to feel nervous about a presentation, I go out running." - NOT scoreable.

"I read my letters of recommendation right before the interview. That helps me realize that there are people who think I'm O.K., and I feel much less nervous about my performance in the interview, and generally do better." - Scoreable.

2. Descriptions of internal actions on a specific situation are not scoreable, nor are internal actions on external patterns. The person must refer to action on an internal pattern:

"I tried to remember that he was only one person." - NOT scoreable.

"I relaxed about my responsibilities, and found that I stopped losing things." - NOT scoreable.

3. Here are some examples of transformational statements:

"I think about the people I respect who have made major mistakes, and how I am harder on myself than I have been on them. I still care for and respect them, and I try to allow myself that as well."

"I try to give myself permission to feel my feelings, no matter what they are."

D. The Pattern Inventory

INSTRUCTIONS

Note to test administrator: As you read these instructions, you will come across numbers in parentheses. These numbers indicate pauses; you should pause for the number of seconds indicated before continuing. You will also come across instruction to you. These will also be in parentheses, but will be underlined.

In a moment you will begin an exercise whose purpose it is to find out how different people know things about themselves. This is not a test, and there are no right or wrong answers. There are two parts to this exercise. First, I will have you close your eyes and help you remember some important experiences in your life. Then, I'll ask you to open your eyes and write the answers to some questions. Your answers will be kept in the strictest confidence; no one except the project staff will see your responses with your identifying number on it. Are there any questions before we begin?

For the first part of this exercise, it is best if you get in a comfortable and relaxed position. Go ahead and get as comfortable as you can. (Wait until subjects have settled into position) Okay? Close your eyes, take a few deep breaths, and try to relax (10).

I am going to ask you to think back and remember some things that happened to you that you consider important. The incidents I would like you to focus on are times when you had to deal with a problem or conflict; experiences that might have been uncomfortable, but that were and are important to you. These incidents could have happened as recently as yesterday, or as far back as you can remember. Take a few moments now and just get a general picture in your mind of a few different incidents (90).

Now, I would like you to pick one specific incident of a conflict or problem to focus on and write about. I will be asking you to think about it some more, and during the written section you will be answering many questions about it, so make sure it is an incident you are ready to think about in some depth. Go ahead and pick one specific incident (5).

Now, I want you to remember the incident as much as you can. First, picture the place where you were (2). What did it look like, and who was there (2)? Can you picture what you looked like? (2) Now, see if you can remember exactly what happened(5). What did you do and say (5)? What did other people do and say (5)? See if you can remember any of your thoughts, or what you were saying to yourself (5).

What were you feeling then (5)? What do you imagine other people were thinking and feeling (5)? Think a little bit about what lead up to this incident, and what happened as a result (5). Go ahead and finish the scene in your mind. Take your time and when you are ready, at your own pace, open your eyes. (Wait until everyone has opened their eyes before continuing).

The next part is the written section. Please answer each question as fully as possible. You may need to think for a few moments before answering some of these questions. There is no time limit, but I don't expect any question to take more than three to five minutes to answer. If you need more space, you may write on the backs of the pages.

I.D. # _____
Today's Date _____

1. Describe as fully as you can and in as much detail as possible the experience you remembered. Please include:

- What you did and what others did
- What you were thinking and feeling in this situation
- Specifically, what conditions or events made you respond as you did?
- What led up to this experience
- What the results of this experience were

2. In what ways were your thoughts, feelings or actions in this situation typical or atypical of thoughts, feelings or actions you had in other situations? Is there a "pattern" to your responses in these situations? If so, please describe it in terms of your thoughts, feelings and actions.

3. What do you like and/or dislike about your typical way of responding in these situations?

.....

Questions 4 through 19 are going to be about the typical way of responding - your thoughts, feelings and actions - that you just described. From now on we'll call that typical way of responding your "pattern". If you didn't find a pattern in your answer to the last question, skips these questions and go to question 20, on page 9. If you are unsure, answer questions 4 through 19. Some of these questions may seem strange or repetitive. Please try to answer them as best you can. You may find that you need to think for a while before answering some of these questions, and you might want to make notes on some scratch paper before you start to write. Take all the time you need.

4. First, think about the different situations in which your pattern operates. It may be that these situations fall into one or more groups - kinds of situations that seem to bring out your pattern ("whenever I meet a group of new people" would be an example). Think about the different kinds of situations in which you use your patterned response. Please list as many of these groups of situations as you can.

5. Now, for each group you listed, please list any special conditions that have to be present that you haven't already named. Be as specific as you can about the conditions that must be present in the situations. For example, "It happens with big groups", is not as specific as "It happens with big groups of people that I don't know.".

6. Can you think of any kinds of situations that you haven't actually experienced that might set your pattern in motion?

7. Can you think of any kinds of situations that seem somewhat similar to the ones you have been describing, but that didn't set your pattern in motion?

8. Now look back over the lists you just made in your answer to questions 3 through 6, and think about what, if anything, all those situations have in common. First, try to describe things in the environment that are the same about all of those situations. Can you make any generalizations about things that are going on around you in all those groups of situations? (For example, maybe they all involved friends, or relatives, or people doing a certain thing to you, etc.).

9. Can you think of any personal qualities that are the same about <u>you</u> in all of those situations?

10. You have been answering questions about a particular "pattern" in your life. There are probably other patterns in your life that you can think of. Does the one you have been describing seem related to any others you can think of? If so, please explain.

11. Looking back now at the patterns you have described, can you make any general statements about yourself that pulls all those patterns together?

.....

Sometimes, when people think about their patterns, they think about the kinds of things that set that pattern in motion. That is what you have been doing in the last few questions. Other times, people think about the different ways that they react during their patterned response. That is what the next five questions are about. Before you go on, please look back at the description of the pattern that you wrote for question 2. Think about <u>exactly</u> how you respond in these situations. If there is anything new you

can think of now about your pattern, please write it in the space below. If not, turn to the next question.

12. We'd like to know more about how your thoughts, feelings and actions interact during the patterned response you described in your answer to question 2. We're interested in your thoughts about what causes what. First, are there times during that response where one of your thoughts, feelings or actions stimulates at least one other thought,feeling or action (a thought stimulates a feeling, or vice versa, etc.)? If so, please describe.

13. Are there instances where your thoughts, feelings and actions form an on-going cycle (like a vicious circle) - where your thoughts, feelings and actions stimulate <u>each other</u>? If so, please describe.

14. Do those cycles start with one particular thing (Does a thought usually start them, or a feeling)? Or do they just come together? Or does it work some other way? <u>Please explain your answer</u>.

15. How does the patterned response you have been describing affect other patterned responses in your life?

16. Can you explain how all these patterns work together inside of you? Please explain as fully you can.

For the last three questions, we'd like you to think about how changeable or unchangeable your pattern is, and about how change happens when it happens.

17. Think about the things you don't like about the patterned response you have been describing. Have you, or could you, do anything to try to modify that patterned response - to change something about your typical way of responding, even for just a while? If so please describe. If not, why not?

18. If you have modified or think you could modify your patterned way of responding, list some things you would do - specific actions you would take - and explain how they work to modify your pattern.

19. What is or would be the <u>most important</u> thing that would have to change in order for you to modify your patterned response, even if only for a short time? What makes that thing so important?

.....

The rest of the questions pertain only to those people who did not answer questions 4-19. Please turn to page 11 and give us a little routine, but important, information about yourself. Thanks very much for your time.

20. We'd like to know more about how your thoughts, feelings and actions interact during the situation you described - about what causes what. Were there times during that situation where one of those things (thoughts, feelings and actions) stimulated at least one other (a thought stimulated a feeling, or vice versa, etc.)? If so, please describe.

21. Were there times where your thoughts feelings and actions formed an on-going cycle (like a vicious circle) - where your thoughts, feelings and actions stimulated <u>each other</u>? If so, please describe.

22. Did those cycles start with one particular thing (Did a thought usually start them, or a feeling)? Or did they just come together? Or did it work some other way? Please explain your answer.

For the last three questions, we'd like you to think about how changeable or unchangeable your response to that situation was, and about how change happens when it happens.

23. Think about the things you don't like about the way you responded to this situation. Did you, or could you, do anything to try to modify that response? If so please describe. If not, why not?

24. If you have modified or think you could modify your response, list some things you would do - specific actions you would take - and explain how they work to modify your response.

25. What is or would be the most important thing that would have to change in order for you to modify your response? What makes that thing so important?

(Over)

Thanks very much for taking the time to do this. Please take one more moment to give us a little information about yourself.

Age _____ Sex_____

Race _____ Primary Language _____

E. Coding the Pattern Inventory

Introduction

This paper explains the coding procedure for the Pattern Inventory, which is an instrument designed to test for certain sequences in the development of self-knowledge, as the term is defined by Weinstein and Alschuler (1985). These sequences occur after the onset of the Pattern stage of Weinstein and Alschuler's Self-Knowledge Development Theory (1985). It is assumed that the reader has some familiarity with that theory.

There are three parts to this paper. In the first part, the sequences under study will be described. Each sequence consists of steps along a particular dimension in the development of self-knowledge. These dimensions and steps will be described and explained. The second section will describe the instrument itself. The purpose of each question and its relationship to the dimensions described earlier will be discussed. Finally, the third section will explain how to score the Pattern Inventory.

Sequences Within the Pattern Stage

A. The Structure of the Pattern Stage

Each new stage of self-knowledge represents growth in both the number of aspects of internal experience that are reported and in the understanding of the cause and effect relationships between these aspects. At each new stage the new structure, itself a new aspect of internal experience, coordinates (reintegrates) the structures of the previous stage, allowing for the nature of the relationships between all aspects available to the person to be understood in new ways. Hence the structure of internal patterns allows the individual to understand the nature of the relationship between situations. Situations were the coordinating structure of the situational stage, organizing the elements of the previous stage and allowing an understanding of the relationship between them. Another way to look at the stages is as a sequence of qualitatively different answers to the question, "what causes one's internal experience?". At the elemental stage, there is no causation; elements are seen and reported out of sequence, and connections are often synchretic. At the situational stage, the situation causes the reactions, and cause-and-effect links between thoughts, feelings and actions are understood within each situation. At the pattern stage, the thoughts, feelings and actions that make up the causation of the situational stage are integrated into patterns. There is a set of conditions,

which may exist in a number of situations, that "cause" the internal reaction.

At the transformational stage, internal experiences are seen to be the result of an intrapsychic system. This system contains all four of the elements of the previous stage (Actions, thoughts, feelings and sets of conditions), but the notion of intrapsychic system coordinates these elements, and hence the individual sees the relationships between all these elements. S/he sees that patterns are not fixed, and can be affected by actions, thoughts and feelings. Equally important, s/he also sees how any combination of these can affect the other. Of course, it could be argued that a pattern, or even a situation is a system, and that is true. This system, however, is the most inclusive of all; it is the process by which the others are derived. It mediates situations (both internal responses and environmental conditions), patterns, thoughts, feelings, actions, etc. An individual at the transformational stage can participate in this process, rather than just react to it.

Sequences within the Pattern Stage

The pattern inventory examines change on three dimensions: differentiation/integration, causation and change. Each of these dimensions, and the proposed steps within them, will now be discussed.

I. Differentiation/Integration

A description of a pattern is an abstraction; the person abstracts, for a set of experiences, a rule or rules about his/her internal responses. The differentiation/integration dimension is related to the ability to abstract, and has two components:

Differentiation

In examining a person's ability to differentiate at the pattern stage, there are two areas of interest. The first is how many different classes of situations the person can name that can, or might, set the pattern in motion. It is hypothesized that early in the pattern stage, a person can name only one class of situations, and cannot even imagine another class which might set off the pattern. As the person grows on this dimension, s/he is able to recognize and/or speculate about other classes of situations. The second is how well the person can identify the special conditions necessary for a particular pattern to engage. At the beginning of this dimension are global statements; subjects make very broad generalizations about the conditions (it happens in groups). As growth along this dimension progresses, each class of situations that is described is also more specifically described (it happens in groups of strangers, it happens in groups of strangers when I am concerned about what they will think, etc.).

Integration

Integration involves the ability to place these differentiations in a common context; in addition to saying what is different and unique about the situations that elicit the pattern, subjects can say what is the same. Another way to look at integration is to ask "what is the single most important condition that must be present to set this pattern on motion?" It is hypothesized that growth on this dimension moves from external to internal contexts. As the person grows, s/he identifies more internal, and hence more stable, common contexts that unite the differentiations and hence "cause" the pattern.

Of course, the two areas, differentiation and integration, are closely related. The more internal the context for integration, the greater the number of situations that can be included, and the greater the understanding of what specifically must be present in each

class of situations in order to activate the pattern.

There are three steps along the differentiation/integration dimension that occur within the pattern stage. Each one represents a qualitative change in integration, accompanied by a quantitative increase in differentiation.

Step 1 - Situational Integration

In this first step, the subject is somewhat newly arrived at the pattern stage. Given a specific request to describe a cross-situational response, they can do so. The Pattern Inventory first asks the respondent to describe a particular situation in detail, and then, in question two, it asks the respondent to generalize across situations:

"In what ways were your thoughts, feelings or actions in this situation typical or atypical of thoughts, feelings or actions you had in other situations? Is there a 'pattern' to your responses in these situations? If so, please describe it in terms of your actions thoughts and feelings."

Subjects at this first step respond to this question with an answer that is clearly pattern scorable. However, the Pattern Inventory asks several other questions about "your typical way of responding". In answering these questions, subjects at this step retreat back to situational answers, as if the pattern were operating only in that one situation. It is almost as if the common context for the pattern is the situation. Here are examples:

"... I am very possesive of my relationships with certain people. Maybe because <u>he</u> is of the opposite sex (emphasis added)"

In another example, the subject makes a pattern statement when s/he says: "...I sometimes say or do something before thinking. It tends to get me in situations where I end up hurting someone else in the process." Yet, after describing an experience in which s/he did just that, s/he later says: "There was really no pattern because in different situations I tend to act differently."

Subjects at this step have the <u>capacity</u> to make pattern statements, but do not use that capacity often, even when it is directly elicited.

Obviously, in this step there is very little differentiation. Only one group of situations is being identified, and that only once. It is hypothesized that subjects at this step will provide very little information about the specific conditions necessary to elicit their

pattern.

Step 2 - External Integration

In the second step, the common context is a set of external circumstances. More than one situation is referred to, but what unifies these situations is an external circumstance such as a relationship or some common thing that happened to the subject:

"There have been many times when I avoid telling my parents things because I don't want to hurt them. I would rather deal with something alone than involve them."

"This seems to happen whenever someone questions my integrity."

The pattern here is seen as the result of relationships or events, not of some set of internal circumstances that are present in those relationships and events, but could also be present in other situations. Internal circumstances are circumstances inside the subject, such as their feelings and thoughts, rather than things outside of them.

Step 3 - Internal Integration

Finally, in the third step, the pattern is seen to result from a set of internal circumstances. The subject reports that s/he responds in a certain way when they are thinking and feeling certain things. People at this step may report external commonalities, but they will also report the internal factors that tie the external ones together. The set of situations is united by the presence of these psychological reactions:

"I can never let go of someone or something I love. I get selfish, angry at them for leaving me, feel as though they'll never come back or will stop loving me."

It is expected that steps two and three will be accompanied by qualitative increases in differentiation.

Transformational Differentiation/Integration

Differentiation and integration are also a part of the transformational stage. Since this instrument is intended to look at growth within the pattern stage, it is important to give subjects a chance to demonstrate transformational responses on the dimensions under study, thereby enabling the researcher to distinguish the last step in pattern from the first step in transformational. It is hypothesized that, at the transformational stage, subjects can integrated across patterns; they can connect patterns in a common

context. That context is an integrative statement about the self-system.

II. Causation

The ability to understand cause and effect first appears in the situational stage, and is never discussed, in Self-Knowledge Develoment Theory, after that point. It is proposed here that each new stage provides a qualitatively new context for understanding cause and effect, and that there are steps occuring along this dimension in every stage. This discussion, however, will be limited to the pattern stage. The new context is, of course, the pattern. The components within that pattern are the typical thoughts, feelings and actions, and the dimension under discussion concerns causation among those components. A three step sequence is posited in this dimension. Selman's progression of social perspective taking is the metaphor for this sequence. Selman (1982) describes a progression from one way (first person), to two way (second person), to mutual (third person), to societal perspective taking. In this progression, the steps progress from one way to two way to mutual causation among the components of the patterned response.

Step 1 - One Way Causation

At this step a person could describe how any one of these components (thoughts, feelings or actions) affects any one other component, but could consider only one pair at a time, and would see the causation going in only one direction (my thoughts affect my actions). These pairs could be strung together in a one-way chain (my thoughts affected my feelings, which then affected my actions).

Step 2 - Two Way Causation

In the second step, two way causation is understood. The person can describe the way any pair of components affects each other; the causation goes both ways (my thoughts affect my feelings, which then affect my thoughts, etc.). The number of components is not limited to two. The limitation of this step is that the causation is seen to progress in a sequence, and the components are seen as separate from one another; they are merely interacting for the moment.

Step 3 - Mutual Causation

At the third step, the mutuality of the relationship between these components is understood. Thoughts, feelings and actions are not separate entities, but are inherently and inextricably linked with one another, and are always in

dynamic interaction. A person at step two, for example, might talk about their response in this way:

"I get into a vicious circle. I imagine I'm not being well received, then I think its because there's something wrong with me and I feel bad about myself. That all makes me act like an even bigger jerk, and then I know I'm not going over well, and it just keeps on going. If I could just get the circle going the other way."

A person at step three might say:

"It's really hard to say where it starts. I just feel terrible about myself, and of course that affects my thoughts about my performance, but really its like they're both affecting each other right then, they're kind of the same thing."

Transformational Causation

The limitation of step three is that each mutuality is separate; there is no psychic system that coordinates all of them. That ability is a characteristic of the transformational stage. Transformational subjects should be able to describe how one pattern affects another, and should also be able to explain how their internal system is really what causes all of these patterns.

III. Change

This dimension concerns the subjects' ability to see the possibility of changing a pattern, and also the way in which they imagine that change taking place. This dimension is, of course, related to causality; an understanding of what is causing a problem underlies any attempt to solve it. The steps on this dimension are steps toward a transformational notion of change. The transformational subject, seeing the pattern as just one component of a psychic system, understands that change comes from the self taking internal actions on its own system. Thus the self is conversational and proactive.

Step 1 - No Change

In this step the person sees no possibility for change. They reply to questions about changing their pattern by saying that it can't be done, or that their pattern is their personality, and therefore fixed. Here are some examples:

"I don't see how I could [change it] short of becoming a different person"

"I couldn't change it because that's just my personality, and I wouldn't want to change that."

Step 2 - External Change

In this step subjects understand that patterns can be changed, but they explain the change process without having to reorganize their concept of internal causation, without crossing the line into the transformational stage. Thus their strategies for change are essentially external; the pattern is seen as a fixed entity that can be manipulated by simple actions. There is no sense of how these actions function in an internal system, and no sense of an internal self acting on an internal pattern. These strategies include:

a. Change by repitition of plattitudes:

"Keep an open mind. Live and let live. Realize I'm not the center of the universe and people are entitled to their feelings and actions. Try to place myself in their position and understand where they're coming from."

Note here that even though the self appears to be talking to the self, it is doing so almost as if it were some other person.

b. Change by getting into a new situation (a new relationship, school, etc.):

"Perhaps if I really did get involved with someone again - if I allowed someone to know me - and if it was a pleasant experience from beginning to end, I wouldn't have a problem again with getting close to others."

c. Change by an act of will:

"I have to reinforce myself so that when things don't go well I won't be so hurt and disappointed."

This kind of change is also evident in subjects who, when asked what they would have to do to change a pattern, merely state the opposite of their pattern behavior, without indicating how they would or could produce that change. Thus, a person who rarely speaks up in class might say "I just have to be more assertive and say what I want to say."

d. "Natural" change

This notion of change revolves around a process of growth

over which the subject has no control. They seem to be saying "the pattern might change, but I can't change it". It might sound like this:

"Well, I'm different now than I was in high school, and maybe I will grow out of this too."

Step 3 - Internal Change

In this step the person is in transition into the transformational stage. They struggle with the locus of the ability to change, considering more external notions, but coming down on the side of the internal. They seem to realize that the change must be internal, that they have to find a way to affect the feelings and self-beliefs that underlie the pattern. They do not yet know how they will do this, or quite how it will work:

"I've tried to control myself and to balance out my feelings about the situation and also the other person's feelings...It just doesn't work!!...I've sat down so many times, but I just can't think of anything (else to try to change the pattern). But that won't stop me, I'll find something no matter if I have to dig <u>really</u> deep!"

"I'm not interested in changing myself from the outside in, but from the inside out. I'm not interested in becoming better, even to meet my own ideals, if it means modifying my behavior from the outside in...My only <u>idea</u> of [how to to that] is to be more dilligent in my evening review."

The Pattern Inventory

In this section, the questions in the Pattern Inventory will be described, as will their relationship to the dimensions and steps described in the previous section. (Note: the full text of the Pattern Inventory can be found in an appendix to this paper).

The Pattern Inventory is a group administrable instrument, consisting of two parts. In the first part, subjects are asked to remember an incident in their lives that contained a conflict or problem. The second part is a written questionaire, containing nineteen questions.

The first three questions are designed to orient the subject to a pattern that they might want to change. Question 1 asks for a full description of the incident. Question 2 asks whether the subjects internal response was in any way typical, and asks for an elaboration of the pattern, if one exists. Question 3 asks the subject to describe aspects of the pattern that s/he likes and aspects that s/he does not like. At this point, subjects who have not identified a pattern are asked to turn to a separate set of questions. That set of questions will not be covered in this paper.

Questions four through eleven address the dimension of differentiation/integration. Questions 4 through 7 are differentiation questions, and ask the subject to consider the various situations and circumstances that do and do not elicit the pattern. Questions 8 through 11 address the three steps in this dimension that were outlined earlier. The subject is asked to reason about his/her pattern in ways representative of each of the three steps in the pattern stage, as well as in ways that represent transformational thinking.

Questions twelve through sixteen address the causation dimension. Here again, subjects are asked to explain causation in ways indicative of each of the three steps within pattern, as well as of transformational thinking.

Finally, questions seventeen through nineteen address the change dimension. Questions seventeen and eighteen represent the first two steps described earlier. Question nineteen is designed to elicit either step three or transformational reasoning.

Scoring the Pattern Inventory

The scoring sheet for the Pattern Inventory can be found at the end of this paper. It consists of a grid, with one horizontal line for each protocol. Along that horizontal line are fifteen boxes, each of which is to be marked with a "+" or a "-". A plus indicates that the respondent has "passed" that box; s/he has shown reasoning of the step represented by that box. There are six boxes for the differentiation/integration dimension, five for the causation dimension, and four for the change dimension. Each of those boxes and the criteria for assigning a "pass" will now be discussed in detail.

One important note before beginning. Although the questions have been constructed so that the reasoning required to "pass" a box will be present in only one or two questions, sometimes a subject will, in answering some other question, meet the criterion for passing a previous question. When this happens, go back and score a pass on the earlier box.

Differentiation/Integration

Box number 1 should be scored a pass if the person has described an internal pattern. The questions designed to elicit this description are 2 and 3. If you are not familiar with the rules for scoring an internal pattern, please consult the scoring guidelines for the ERT2.

Box number 2 should be scored a pass if the person has moved beyond step one in the differentiation/integration dimension. The person must have made more than one clear statement of, or reference to, their pattern <u>as a pattern</u>. If they have only done so once, and then return to discussing the specific situation, they fail this box. If you are unclear about this box, look at questions four and five. If the subject is unable to list more than one situation in response to these questions, and has not made more than one clear pattern statement, then score this box "fail" (-).

Box number 3 should be scored a pass if the person has met the criteria for step two. Look at question 8. If the person has successfully generalized about at least one <u>external</u> condition that is the same in every instance where the pattern is elicited, score a pass. If no such statement is evident, look at questions 2 - 5. If the person cannot make even one generalization, score a fail. If the person makes a generalization that is both internal and external ("In every case, someone went over my head and I felt

inadequate."), score a pass on this box and on the next box.

Box number 4 should be scored a pass if the person, in answering questions 8 and/or 9, has described at least one internal quality that is the same about him/herself in all the situations discussed. If the person describes something s/he did (In all these situations I failed in a major goal), rather than something they thought or felt, score this box a fail; behavior, even when performed by the person, is not internal. Also, there must be a clear reference to thoughts and/or feelings. Someone who says "I always blow my stack", has not stated a thought or feeling, even though there are obviously feelings associated with such a statement.

Box number 5 should be scored based on the answer to question 10. If the person clearly describes another internal pattern, and clearly describes its relationship to the pattern s/he has been discussing, score a pass. You may want to check the original pattern statement before scoring this box.

Box number 6 should be scored based on question 11. In order to pass this question, the subject must describe an internally consistent pattern that accounts fr all the patterns s/he has been describing - a metapattern. Here is an example:

"I have a tremendous fear of vulnerability, a fear that I will be hurt if I expose myself. This is at the root of my tendency to withdraw in social situations, my inability to say no, my need to win arguments with my closest friends."

Be careful not to be fooled here by global statements, such as "I guess I'm just shy". The description must meet the same criteria as an internal pattern; the internal state or reaction must be linked to some superordinate class of situations.

Before going on to the Causation boxes you have one more task, scoring the "D" box. In this box you should place the number of classes or groups of situations described in questions four and five. Look carefully at these questions and see how many separate categories of situations are listed. If the subject lists a category that includes situations already named, do not give them an extra number in the score. The original class described in the pattern may count as one, as long as it is not superordinate to those described in questions four and five. Finally, not every answer to question five is a group of situations.

Sometimes subjects use this question to give greater detail to a category described in question four.

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Causation

Box number 1 should be scored a pass if the person has described at least one one-way causal relationship between one thought, feeling or action in their patterned response and another thought feeling or action in that same response (step one in the causation dimension). If the person is clearly referring to only one situation, score a fail. This description will most likely be found in the answer to question 12. .

Box number 2 should be scored a pass if the person has described a cyclical or circular relationship between at least one thought, feeling or action in the patterned response and one other thought, feeling or action. This description will usually be found in the answer to question 13. A description of how a thought affects a feeling, which then affects an action is not a passable response. This is a series of one-way causations. In order to pass, the circle must be closed; the feeling affects the thought which then affects the original feeling. Here are some examples:

"I think the person doesn't like me, and I feel depressed, so I act very shy." - Fail

"I think the person doesn't like me, so I feel depressed, which makes me think I might be crazy, which makes me feel frightened." - Fail; the circle does not return to the original thought, feeling or action.

"I feel depressed, so I act shy and withdrawn, which makes me even more depressed and even more shy." - Pass

"I think the person doesn't like me, which is depressing, so I get very quiet. I imagine that my quietness is really turning the person off, which is even more depressing, etc." - Pass.

Box number 3 should be scored a pass if the person has demonstrated, in the answer to question 14, an understanding of mutual causation between thoughts, feelings and actions in their patterned response. The person must explain that it is not possible to tell what one thing starts a cycle of thought and feeling, that they are so closely interrelated that they come together. It is important that the person give an explanation; a one word or one phrase answer is not

acceptable.

Box number four should be scored based on the response to question 15. If the person has clearly described another internal pattern, or made reference to another pattern described in the answer to question 10, and if s/he describes a cause and effect relationship between that pattern and the original pattern, score a pass. The connection between the two patterns must be clear. If it is not obviously implied, then it must be explicitly stated. If there is any doubt, score a fail.

Box number 5 should be scored based on the answer to question 16. To score a pass, the person must describe an internal system that coordinates all the patterns s/he has been describing. Here is an example:

"Just like I can't say where the cycle of thoughts and feelings starts in my pattern, I can't say which pattern is "the Boss". The patterns are affecting each other, all the time. because they are all an equal part of me."

.....

Change

Box number 1 should be scored a pass if the person admits the possibility of changing their pattern. Look at question 17. If the person says that the pattern could never be changed, or that it might change someday but s/he has no control over that, score a fail. Please note that saying it cannot change is different than saying it has not changed. If a person says "I've tried to change the pattern, but it hasn't worked. Maybe I could try relaxation techniques.", they should pass this box.

Box number 2 should be scored a pass if the person can describe some external action they have taken or could take to modify their patterned response. This description may be found in the answer to either question 17 or 18.

Box number 3 should be scored based on question 19. In order to pass, the subject must have identified something internal as the most important thing that would have to change. Please see the earlier descriptions of the steps on the change dimension for the distinction between internal and external notions of change. Remember that platitudes and reversals of the pattern do not count.

Box number 4 should also be scored based on question

19. Please refer to the descriptions of the steps on the change dimension for the distinction between step three and transformational thinking. There are several key factors in this scoring decision. If the person struggled with the internal/external question, or if they seem to know the most important thing is internal but have no idea what it is, score a fail. Also, the person must clearly explain <u>why</u> internal change is important; s/he must explain how the strategy s/he is proposing would help to change the pattern. If the person made a clear, unmuddled statement of internal change, and has given a clear explanation of why their internal strategy would work, score a pass.