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**A CONSTRUCT VALIDATION STUDY OF ERIKSON'S FOURTH STAGE
OF PSYCHOSOCIAL EGO GROWTH: THE SENSE OF INDUSTRY**

by

Andrea Rogow Kowaz

B.A., Brandeis University, 1978

M.A., University of Chicago, 1979

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
in the Department
of
PSYCHOLOGY

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ABSTRACT

This study is an attempt to establish construct validity for the concept of industry, Erikson's term chosen for the positive outcome of the fourth of his eight psychosocial stages. A definition of the industry construct and a conceptualization of the construct as comprised of three interactive components, spanning cognitive, behavioral and affective domains is described.

A child self-report measure of industry was developed as well as parallel measures for teachers and parents. The latter were used to establish convergent validity. An observational measure of industry was also constructed. Five dependent variables are described on which children with high, medium and low industry scores are expected to differ. In order to establish discriminant validity, intelligence and need for social approval were measured. Subjects were 205 pupils in grades 4, 5 and 6 from three different elementary schools. Ten specific hypotheses predicted the relationships expected among the independent variable of industry, dependent variables and discriminant validity variables.

Data analyses were performed on scores standardized within each group of pupils. Significant and positive correlation coefficients were obtained within each of the three industry questionnaires and all areas were significantly and positively correlated with mean scores. Positive and significant correlation coefficients were obtained across the three questionnaires. These correlations were not significantly higher between the same content areas on the different measures. The observational measure was significantly correlated with the teacher measure. Global ratings made by teachers and parents were positively and significantly correlated with mean scores. Generally positive and significant correlations were obtained between independent and dependent variables. These

were generally higher than correlations among these variables themselves. Intelligence and industry were not significantly correlated on the children's measure while positive and significant correlations were obtained for social desirability. Relationships between independent and dependent variables remained significant when controlling for intelligence and social desirability variables. No significant age differences were obtained. Principal component analyses on all items from the children's questionnaire suggest a one-factor solution as best reflecting empirical results and theoretical understanding. Results of the present study are viewed as providing a solid beginning to the construct validity process for the industry construct as defined.

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CHAPTER 1

INTRODUCTION

The theoretical framework for the present study is Erik H. Erikson's psychosocial theory of ego development. Erikson conceptualizes the human life cycle as being comprised of eight psychosocial stages, spanning human development from birth to death. Life, in his view, proceeds as a series of psychosocial crises, with each crisis marking a particular developmental stage of ego growth, and personality is seen as a function of the outcome of these crises. Erikson's theory incorporates a particular view of the relationship between the individual and society. During each phase of the life cycle, the developing individual has certain abilities and needs; society, at each period, makes certain demands on these abilities and provides certain rewards and opportunities gratifying those needs. Under favorable conditions, there is a "mutuality" between the developing individual and the social milieu, a "crucial coordination" between the individual and the human environment. "Cogwheeling of the life cycles" is Erikson's term to describe a law of reciprocal development, ensuring that caretakers in society are most able to provide care and support at the time when the developing individual needs it most. In addition, every society has institutions appropriate for the individual's needs at each of the eight stages of psychosocial development. David Rapaport (1959) has summarized Erikson's views:

"In Erikson's conception, neither does the individual adapt to society nor does society mold him to its pattern; rather, society and the individual form a unity within which a mutual regulation takes place. The social institutions are preconditions of individual development, and the developing individual's behavior in turn, elicits that help which society gives through its adult members directed by its institutions and traditions. Society is not merely a prohibitor or a provider; it is the necessary matrix of the development of all behavior." (p.104)

The paragraphs below offer a brief description of the eight psychosocial stages of development Erikson has proposed.

Stage 1: Basic Trust versus Basic Mistrust.

The psychosocial task at infancy involves the development of a greater proportion of trust over mistrust. Parents or primary caretakers play the major role in helping the child to form a sense of trust by the maintenance of an adequate environment, characterized by support, nurturance and love.

Stage 2: Autonomy versus Shame and Doubt.

As the child develops control over bowel and bladder functions, so too does he or she develop a healthy attitude towards independence and rudimentary self-sufficiency. The child who has successfully resolved the conflict of this stage will have a sense of his or her own importance and ability to manipulate the environment. Where the child has been made to feel that independent efforts are of negative consequence, then shame and doubt will likely predominate over a sense of autonomy.

Stage 3: Initiative versus Guilt.

Children at this age need to be encouraged to initiate activities, to develop a sense of initiative and "directedness". If successful, the child will be able to ward off the sense of guilt that may result when activities initiated conflict with parental or societal dicta. When the response to such conflict is firm, but not frightening to the child, a sense of confidence in his or her own planning can develop without the fear that anything he or she initiates will be "wrong".

Stage 4: Industry versus Inferiority.

At this stage the child ideally develops a sense of industry. Children should be encouraged to complete the activities they have initiated. Through these efforts, a sense of being able to do things and to apply oneself, is achieved. Without this sense, the danger of this stage is the development of feelings of inferiority with regard to the tasks one has undertaken, leading to more general feelings of inadequacy.

Stage 5: Ego Identity versus Identity Diffusion.

Those children who have positively resolved the previous stages, according to Erikson, are best able to resolve the conflict of the fifth stage. Dealing with the question "who am I?", the individual must discover and/or develop his or her own world philosophy, ideals and abilities, especially in terms of a future career. A sense of ego identity becomes the conviction that "one is developing a defined personality within a reality which one understands" (Erikson, 1980, p.95).

Stage 6: Intimacy versus Isolation.

The healthy individual at this stage is one who is ready to develop close interpersonal bonds, friendships and relationships with the opposite sex, risking, in a sense, the newly achieved sense of themselves by sharing it with intimate others. The individual not ready for the demands of intimacy faces the danger of retreating into personal isolation.

Stage 7: Generativity versus Stagnation.

Individuals develop useful lives by creating and helping children, expanding their love and their concerns beyond themselves. Active parenthood is one, but not the only, way of realizing generativity. Stagnation refers to the counterprocess of preoccupation with oneself, without concern for society or for future generations.

Stage 8: Ego Integrity versus Despair.

To look back on one's life and feel a sense of accomplishment and satisfaction is the ability of the individual with a sense of ego integrity. This stands in contrast to the despair experienced by the individual who reviews his or her life with feelings of futility, thinking of challenges untouched and experiences unencountered.

Much of Erikson's writing is devoted to the elaboration and implication of the various psychosocial tasks facing the individual throughout development. His conceptualization of ego development provides a framework within which human growth can be observed and come to be understood. It allows both for investigations within a particular age group and, given his general principles of development, the study of the transition from one stage to the next. It is the fourth of Erikson's stages that provides the specific focus of the present study, the development of a sense of industry in the school age child. It is important to understand the context of this stage within the progression of stages and within the theory as a whole. A review of Erikson's theory and its relationship to the psychoanalytic tradition from which it emerged, is presented in the section which follows.

ERIKSON AND THE PSYCHOANALYTIC TRADITION

One major contribution of Eriksonian theory to the psychoanalytic tradition constitutes a horizontal expansion of psychoanalytic theory; a broadening of the scope of psychoanalytic investigation and interest beyond libidinal investment and expression to include the individual and his or her social milieu. A second contribution, with the premise that development is a process continuing throughout the life cycle, is on the vertical plane, elaborating and extending the period within which significant personality development and change was thought to occur. A third major contribution is directly relevant to the present study; the attention paid by the theory to the "latency" period, a period long neglected in the psychoanalytic and child development literature. Each of these contributions will be dealt with in turn, with a focus on an understanding of Erikson's views and the theoretical base and climate from which they emerged.

1.1 Broadening the Scope of Psychoanalytic Theory

Psychoanalytic theory was initially and essentially concerned with the development and course of libidinal energies and their expression. The point of reference was the id, the "seething cauldron" containing the instincts and the first personality structure to be developed. The newborn child was the prototype of "pure id" energies, responding only to internal drives as they manifested themselves progressively through different body zones. Only gradually was it thought that more conscious components of the personality, i.e., the ego, emerged through interactions with the environment. Even as other personality structures came to be developed, the focus remained on sexual energy (broadly defined) and the attempt to keep the drives in check. When the ego was

considered or discussed, it was with reference to its handling of libidinal energies, from which it emerged. To Freud, the id strivings, wishes and passions formed the essence of what is human. His writings characterize the ego as the "helpless rider of the id horse", capable of directing the horse only to where the horse wants to go.

Freud's later writings began to evidence some shift in this conceptualization. In The Problem of Anxiety (1926), the ego appears as an agent of power and activity. Repressing the instincts and possessing a rich armament for defending itself against them (i.e. defense mechanisms), the ego was seen to act under the influence of external reality. As Rapaport (1967) notes, the "instinctual danger" was now seen as the "reality danger" that would be faced, were the instinctual demands given expression (p.596). Similarly, the anxiety experienced by the ego, previously passively expressed, was now seen as a signal to be used by the ego in the mobilization of its defensive structure. Even with these modifications, the ego's relation to reality remained in the background. The change in the status of the ego "remained grossly disregarded" (Rapaport, 1967, p.596). In a 1933 paper, Freud once again stated his view of the ego as originating from conflict, with reality only meaningful to the extent that it conflicted with the drives.

The period following Freud's death saw attempts to expand psychoanalytic theory with regard to the psychology of the ego. While opinions came from many quarters, there was a general consensus (or as White (1963) describes it--a "surprising unanimity" (p.163)) as to the proper focus of attention; namely how the ego mediates between the individual and his or her needs and the social world.

Anna Freud's (1936) The Ego and the Mechanisms of Defense aroused interest in the ego's complex roles in relation to other personality structures and to reality, as she at the very least, clarified and continued on with the trends Freud initiated in his later writings. With her elaboration of the defenses, the mechanisms with which the ego attempts control over id impulses, Anna Freud gave credence, however reluctantly or unintentionally, to the ego as worthy of more central focus. It was against this background that the first works of Hartmann (1939) and Erikson (1937, 1940) appeared.

Hartmann's (1939) major premise was a view of the preadaptedness of the human organism to an "average expectable environment" as a primary given. Concerning himself with processes and mental operations leading to adaptive accomplishments, Hartmann suggested that survival would not be guaranteed by instinctual drives alone. An assumption of mediation by an innate ego apparatus of the infant was needed in order for the conditions of the average expectable environment to be successfully met. The ego develops partly in situations of conflict and partly in situations which are "conflict free". The ego makes an independent contribution to the growth of a sense of reality. According to Hartmann, there were areas of ego functioning (mechanisms of primary autonomy) that were independent of the id, developing through maturation and learning. Other ego functions (mechanisms of secondary autonomy) became freed at a later point from the unconscious roots which gave them birth. Hartmann, Kris and Loewenstein (1946) further suggested that both the id and the ego differentiate from a common "undifferentiated matrix" during the course of development and maturation. Hartmann used Freud's notion of the neutralization of id energies becoming available to the ego through that process. Social and physical reality were given equal if not greater weight than

instinctual impulses as determinants of personality functioning. Hartmann was the first to provide a general theory of relations with reality within the framework of psychoanalytic ego psychology and did much of the groundwork regarding the psychoanalytic theory of adaptation. He did not, however, provide a full-fledged psychosocial theory. As Erikson (1982) later noted, "an average expectable environment seems to postulate only a minimum of those conditions that make survival possible...ignoring the enormous variations and complexities of social life that are the source of individual and communal vitality as well as dramatic conflict" (p.19).

Nevertheless, the shift from control over the impulses to concern with the ways and means of adaptation to the environment was underway. It is in the evolving work of Erikson that the shift from concern with ego control to ego adaptation, to the ego in relation to social reality, finds its best articulation and elaboration.

Erikson (1982) asserts that every instance of human behavior must be simultaneously evaluated and understood from three points of view or levels of analysis: the biological, reflecting the "hierarchic organization of organ systems constituting a body" (soma); the social, reflecting the "communal process of cultural organization of the interdependence of persons" (ethos), and the ego-principle, the "psychic process organizing individual experience by ego synthesis" (psyche) (p.25-26). While each of these processes may and should be investigated with methods and tools appropriate to each, in the end "all three apparatuses are necessary for the clarification of any intact human event" (Erikson, 1982, p.26).

Erikson's writings are centrally focussed on the importance of the meaning of experience for the individual within this cubic matrix of interaction. While one of these levels has been well-formulated in psychoanalytic thought (the biological), and Erikson himself links each of the Freudian stages of libidinal development (psychosexual stages) to a specific stage of ego growth (see Table 1), Erikson goes further to attend to social and cultural factors as well.

Table 1

Psychosexual and Psychosocial Stages

Age Group	Psychosexual Stage (Freud)	Psychosocial Stage (Erikson)
Infancy	Oral	Basic Trust Versus Basic Mistrust
Early Childhood	Anal	Autonomy Versus Shame and Doubt
Play Age	Phallic	Initiative Versus Guilt
School Age	Latency	Industry Versus Inferiority
Adolescence	Genital	Ego Identity Versus Identity Diffusion
Young Adulthood		Intimacy Versus Isolation
Adulthood		Generativity Versus Stagnation
Maturity		Ego Identity Versus Despair

Erikson formulates the social demands and external challenges associated with each stage of ego and id development. Libido development and organ and behavioral development are aspects of an integrated and indivisible epigenetic process. At each stage of development, the ego is still required to master inherent id drives. This is accompanied by the ego's role in mastering social and personal skills and tasks and the demands of the social world. The ego is seen as an integrating, stabilizing and adaptive structure and takes center stage in individual development. As the ego matures through various life crises, it gains increasing strength and increasing sophistication in dealing with both inner and outer reality.

Conflict, the central paradigmatic construct of psychoanalytic theory, still plays a major role, but the flavor or tenor of the conflict within the Eriksonian conception seems more of a flowing progression through a series of challenges and stages which the individual encounters during his or her lifetime than a waging of battles between self and society. Unconscious motivation is similarly an accepted fact, but Erikson is more interested in the process of socialization and the relationship of the ego to the outer world. In addition, these relationships are embedded within a social matrix, without which meaning is incomplete, if not lost. Relationships to caretakers exist within the context of the family and its historical/cultural heritage and further, "in direct relationship to social and political demands of the time". (1968, p.23)

Erikson's perspectives expand the scope and realm of legitimate psychoanalytic investigation. The ego is seen as central and the various functions and aspects of ego operations are given explicit voice. By placing the id within a social context and by superimposing a psychosocial layer on the fundamentals of psychoanalytic theory, much of the flavor and import of these

fundamental concepts change. This can be seen most clearly by contrasting classical and Eriksonian stages.

Within orthodox psychoanalytic theory development is assumed to have its origin in behavior constructed around specific body zones which are presumed to be differentially charged with libidinal energy through the stages of psychosexual development (as listed in Table 1). At different times in a child's development different body zones become important. The psychosexual stages represent a progression in dominance of body zones, with dominance determined by the zone's pleasuregiving importance. Certain behaviors develop around these zones and elaboration of these behaviors constitute the psychoanalytic view of behavior and development in general.

In Freud's view, libido in the first stage is organized around the pleasureable activities of the mouth, thus the term "oral" stage. Attachment to the breast is the prototype of pleasureable behavior for the infant and the stage is first marked by pleasure obtained from feeding and then by the development of purely sensual sucking.

For Erikson, it is not only the zone but a corresponding mode which characterizes the zone, and from which basic and fundamental behaviors emerge, (becoming further elaborated, reintegrated and increasingly sophisticated), that starts the unfolding of a life cycle:

"The modes also comprise basic configurations that dominate the interplay of a mammalian organism and its parts, as well as with the world of things....Each of the libidinal zones during "its" stage is dominated, both pleasureable and purposefully by a primary mode-configuration of functioning (1982, p.34-35).

The feeding situation becomes for Erikson, a model of social interaction between the infant and his or her interpersonal world. "This inborn and more or less

coordinated ability to take in by mouth meets the mother's more or less coordinated ability and intention to feed him and to welcome him (1980, p.58)."

The child is required to coordinate his or her own hunger with the mother's offer of food. The infant "lives through, and loves with, his mouth, and the mother lives through, and loves with her breasts" (1980, p.58). The psychosocial task is the development of a sense of trust so that the infant is able to accept nurturance from the environment. The repetitious handling, feeding and love-motivated attentions of the mother engender the infant's acquisition of a fundamental attitude towards him- or herself and the world. When such attentions have been given freely, lovingly and reliably, the infant will develop an attitude of basic trust. This attitude is first seen in the willingness of infants to let the mother out of sight without severe anxiety or anger.

Erikson illustrates how the modes he describes, such as the oral mode characteristic of the first stage, elaborate within and eventually between stages:

"The *oral-sensory stage* is dominated by two modes of incorporation. *To get* means at first to receive and to accept what is given...In *getting what is given*, what is wished for, the infant also develops the necessary groundwork to, someday, *get to be a giver*." (1982, p.35-6, italics in original).

1.2 A View of Development Through the Life Cycle

Erikson's second major contribution to psychoanalytic theory is his extension and elaboration of the time period within which significant personality development and change are seen to occur. Whereas Freud felt that no significant developments occur after age six or so, Erikson's schema provides a

psychosocial crisis and developmental stage from infancy through old age (see Table 1). Erikson's theory of development presents several basic principles, some of which have been touched on in the previous section and all of which will be detailed further below. Table 2 adapted from Erikson (1963) outlines the major issue of each stage as well as indicating their continuing presence throughout development.

A. Cogwheeling of the Life Cycles

Erikson has provided an "epigenetic diagram" (see Table 2) which presents and assumes a general principle of development. This principle is twofold, and encompasses Erikson's view of the mutuality or "cogwheeling" of the life cycles .

"1) that the human personality in principle develops according to steps predetermined in the growing person's readiness to be driven toward, to be aware of, and to interact with, a widening social radius, and 2) that society, in principle, tends to be constituted so as to meet and involve this succession of potentialities for interaction and attempts to safeguard and to encourage the proper rate and the proper sequence of their unfolding" (1963, p.270).

Thus the individual's growing needs and capacities in various epochs of the life cycle are met by society and its representatives during each time frame with appropriate demands on these capacities and support and opportunity for expressing and meeting those needs. Erikson (1950) has illustrated this mutuality as it exists, for example, in the first stage:

"A baby's presence exerts a consistent and persistent domination over the outer and inner lives of every member of a household. Because these members must reorient themselves to accommodate his presence, they must also grow as individuals and as a group. It is as true to say that babies control and bring up their families as it is to say the converse. A family can bring up a baby only by being brought up by him. His growth consists of a series of challenges to them to serve his newly developing potentialities for social interaction (p.189)."

Table 2

An Epigenetic Diagram

Stage 8	Maturity	Ego Integrity Versus Despair	8
Stage 7	Adulthood	Generativity vs Stagnation	7
Stage 6	Young Adulthood	Intimacy Versus Isolation	6
Stage 5	Puberty and Adolescence	Identity Versus Role Confusion	5
Stage 4	LATENCY	INDUSTRY VERSUS INFERIOR- ITY	4
Stage 3	Locomotor-- Genital	Initiative Versus Guilt	3
Stage 2	Muscular-- Anal	Autonomy vs. Shame and Doubt	2
Stage 1	Oral-- Sensory	Basic Trust vs. Basic Mistrust Mistrust	1

The sense of trust, for example, postulated as the task for the first stage, must have been developed in its own right, before it can become "something more" in the critical period for the development of autonomy, and so on (1963, p.272). Similarly, the infant may show rudimentary autonomy behavior from the beginning "in the particular way in which he angrily tries to wriggle himself free when tightly held" (1963, p.271). Under normal conditions, however, it is not until the child reaches the second year of life that he or she begins to experience the whole

"critical opposition of being an autonomous creature and being a dependent one; and it is not until then that he is ready for a decisive encounter with his environment, an environment which, in turn, feels called upon to convey to him its particular ideas and concepts of autonomy and coercion in ways decisively contributing to the character and the health of his personality in his culture" (italics in original, p.271).

It is this process that provides the encounter and resulting crisis described for each stage. It follows that any one aspect of development must be evaluated and understood within the total context of development.

"Even as one can understand oneself only by looking at and away from oneself, one can recognize the meaning of a stage only by studying it in the context of all the others" (1965, p.2; italics in original).

The resolution of each of the eight stages contributes to the ego's structural integrity. Each stage has its own phase-specific issue requiring certain ego characteristics ("strengths") in order to confront and resolve it, with that resolution adding further strength to the ego. The general outcome of a particular stage results from the way the individual experiences social demands and his or her own needs and, in turn, how the social environment responds to and attempts to meet those needs. The resolution of each stage further adds to the unfolding of a general mode of functioning characteristic of the particular

individual. The mutuality between the self and the social world, experienced by the individual as he or she moves from one stage the next, forms his or her sense of the world around and of a place within it.

Another aspect of the interrelationship and interdependence of the stages is found in Erikson's view of the elasticity of development. Development is a continuous and dynamic process, and a person is always in the process of growth and change. The forward movement from one stage to the next is essentially linear, but is marked by both peaks and valleys representing the progressive and regressive fluctuations that occur in even optimal growth. The psychoanalytic premise that "nothing ever goes away" is seen here in a more positive light. The developmental phases, in addition to presenting a uniquely defined psychosocial task, furnish repeated opportunities for mid-course correction. Rather than early events having an absolute and constricting effect on later experience, they are seen as forming the experiential matrix out of which the individual emerges with a new integration, and within which these events can be dealt with anew, from a position of greater strength and broader perspective. As Erikson claims--"Children fall apart repeatedly and, unlike Humpty Dumpty, grow together again" (Erikson in Senn, 1950, p.83). In addition, there is room for variations in both tempo and intensity, although accelerations and retardations are "assumed to have a modifying influence on all later stages" (1963, p.272).

B. Dialectical Interactions

A dialectical principle is embedded in Erikson's theory of ego development and manifests itself in several distinct areas. As mentioned, Erikson links his stages to the corresponding psychosexual stage, where such correspondence exists.

The consequences of the biologically determined libidinal style at each stage are important here because of the style of behavioral interaction with the environment that they engender. If the social environment provides sufficient opportunities and feedback, this behavioral style becomes integrated into the child's adaptive repertoire. It is the interaction of internal state and external conditions which determine the ego's resolution of a particular stage. While each of the first five stages are modelled after a dominant instinctual mode, outcomes are determined as well by the concurrently emerging maturational capacities and tendencies.

The dialectic principle is also seen in the process of moving from one stage to the next with the solution of the psychosocial dilemma of each phase generating the struggle for the next developmental conquest, and each resolution providing the possibility of new solutions for previous struggles. Anderson and Carter (1974) have described this dialectic as a set of teeter blocks balanced one upon the other. Each new balance in one area depends on the balance already achieved in preceding stages and demands subsequent adaptation to this new state. Such a readjustment, in turn, will affect all previous balances.

Erikson has come to emphasize a dialectical relationship between the "polar opposites" described for the conflict at each stage. Initially, Erikson described the desired outcome for each stage as a "positive ratio" achieved between the two poles. In more recent publications (e.g. 1975; 1982) Erikson has attempted to clarify misconceptions regarding his initial description of this relationship and has also modified his earlier views. Going beyond the idea of a positive ratio, he has come to stress the importance of incorporating such opposites in achieving an ideal resolution of each stage. It is clear, that Erikson does not intend an either/or solution at each stage. Similarly, it is wrong to describe the

poles as counterforces, each with the potential of neutralizing or cancelling out the effect of the other. The ideal resolution of the psychosocial crises involves "the individual's particular style of achieving a kind of creative tension between the polar alternatives, with an emphasis on the more positive pole" (Marcia, 1976, p.7).

In addressing misconceptions regarding the polar opposites, Erikson emphasizes that the positive poles are not "achievements, secured once and for all" at a given stage, and that the negative poles represent the "dynamic counterpart of the positive ones throughout life":

"The assumption that at each stage a goodness is achieved which is impervious to new inner conflicts and to changing conditions, is, I believe, a projection on child development of that success ideology which can so dangerously pervade our private and public daydreams and can make us inept in a heightened struggle for a meaningful existence in a new industrial era of history. The personality is engaged with the hazards of existence continuously, even as the body's metabolism copes with decay. As we come to diagnose a state of relative strength and the symptoms of an impaired one, we face only more clearly the paradoxes and tragic polarities of human life" (1963, p.274).

C. Universality of Epigenesis

One final principle evidenced and influential in Erikson's views is that of universality, whereby the progression of a central issue from one stage to the next is seen across cultures, although the context is relative to the particular culture.

The extent of Erikson's elaboration and expansion of psychoanalytic theory is clearly represented in Table 3. Adapted from Erikson (1982), the chart serves to summarize the relationships described above, as well as to provide a more complete picture of the theory as a whole.

Table 3 - The Life Cycle.

	A	B	C	D	E	F	G	H
1. INFANCY	Psychosexual stages and Modes Oral	Psychosexual crises	Radius of Significant Relations Maternal Person	Basic Strengths Hope	Core Pathology/Basic antipathies Withdrawal	Principles of Social Order Cosmic Order	Binding Ritualizations Numinous	Ritualisms Idolism
2. EARLY CHILDHOOD	Anal	Autonomy vs Shame and Doubt	Parental Persons	Will	Compulsion	"law and order"	Judicious	Legalism
3. PLAY AGE	Genital	Initiative vs Guilt	Basic Family	Purpose	Inhibition	Ideal Prototypes	Dramatic	Moralism
4. SCHOOL AGE	"LATENCY"	INDUSTRY VS INFERIORITY	"NEIGHBOURHOOD", SCHOOL	COMPETENCE	INERTIA	TECHNOLOGICAL ORDER	FORMAL (TECHNICAL)	FORMALISM
5. ADOLESCENCE	Puberty	Identity vs Identity Confusion	peer groups and outgroups	Fidelity	Repudiation	Ideological World View	Ideological	Totalism
6. YOUNG ADULTHOOD	Genitality	Intimacy vs Isolation	partners in friendship, sex, cooperation, competition	Love	Exclusivity	Patterns of Cooperation and Competition	Affiliative	Elitism
7. ADULTHOOD	(procreativity)	Generativity vs Stagnation	divided Labor and shared household	Care	Rejectivity	Currents of Education and Tradition	Generational	Authoritarianism
8. OLD AGE	(Generalization of Sensual Modes.)	Integrity vs Despair	"Mankind" "My Kind"	Wisdom	Disdain	Wisdom	Philosophical	Dogmatism

The psychosocial crises which Erikson has proposed as central for each age period are found in column B, strategically and theoretically located between the psychosexual stages outlined in the classical theory (column A) and the social radius (column C) which expands, moving down the column (as in life development), towards maturity. These crises represent the development of a specific "syntonic polarity" (e.g. Basic Trust) which must, for healthy, unimpaired development, outbalance its "dystonic antithesis" (e.g. Basic Mistrust). (Erikson, 1982, p.8) It is from each of these core crises that "strengths" or "virtues" (column D) emerge as outcomes. For example, the infant with a greater sense of trust over mistrust has acquired the capacity to hope, with hope being the ego strength of the first stage. Erikson has recently counterbalanced these strengths with "antipathic" counterparts (column E).

When the more negative alternatives predominate, a "specific core pathology" may develop. The counterpart to hope, for example, is withdrawal. These more negative trends remain "a constant threat to the individual and social order", especially where certain segments of a culture are restricted or limited in their exposure to or participation in the belief systems conveyed in daily life. The mechanism by which such belief systems are transmitted across generations are "age-specific and stage adequate *ritualizations*" (column G) (1982, p.81, italics in original). It is through the constant repetition of these ritualizations that patterns of life within a culture become familiar and consistent to its members. Ritualizations serve to introduce the child into the culture:

"It is only a seeming paradox that newly born Man, who could, in principle and probably within some genetic limits, fit into any number of pseudo-species and their habitats, must, for that very reason, be coaxed and induced to become "speciated" during a prolonged childhood by some form of family: he must be *familiarized by ritualization* with a particular version of human existence". (1977,

Ritualizations are thus orienting or socializing mechanisms prescribed by the culture in which the child develops. Noting the adaptive role of ritualization for the individual and society, Erikson suggests that the interplay of ritualization is subjectively experienced as "the only proper way to do things; and the question is only why does not everybody do it our way". (1977, p.80). It is for the same reason that ritualizations are easier to see in a culture different from one's own, or even in a different family context.

Despite their familiarity, the study of ritualization provides the "single opportunity" to study "how persons and conflicts find mutual fit in generational patterns" (1977, p.83-4). Without such mutual fit, the ritualism related to every basic ritualization, may be manifest. Erikson defines ritualisms as the "ritual-like behavior patterns marked by stereotyped repetition and illusory pretenses that obliterate the integrative value of communal organizations" (1982, p.46). Where the ego and the ethos, the person and society, "lose their viable interaction", the disintegration from ritualization to ritualism (column H) threatens to occur.

The remaining column (column F) pertains to related principles of social order, the strength and logic of which are received and internalized by the individual as he or she progresses through the psychosocial stages, developing the ability, when all goes well, to convey them to the next generation.

Everyday events are those that hold the most significance within Eriksonian theory, and as seen here, are the means through which the all-important relationships are developed and cultural values, lifestyle and practice are transmitted. Erikson (1982) has himself noted that "to see what is

most familiar in our daily life in terms of relativity (as well as complementarity) may do better justice to some aspects of psychoanalysis than some of the quantitative terms that were of the essence to the theories of the founders". (p. 103).

The changes and elaborations offered by Erikson create a partial if not a complete, transcendence of the classical view. In terms of normal and pathological development, Erikson addresses the potential for successful resolution of developmental crises and provides an optimistic premise for the opportunities of human growth throughout life. The individual is seen as meeting challenges with increasing skills, with every crisis furnishing the very components needed for further growth. This optimistic outlook, which views the developing individual as embedded within and mutually interacting with a social context, stands in marked contrast to Freud's prediction that the individual left to the full expression of instinctual energies would bring on social doom. Erikson, who has gone to some lengths in his writings to emphasize his adherence and allegiance to the classical theory, has come to make the following observation on his contributions to psychoanalytic theory:

"I really thought I was merely providing new illustrations for what I had learned from Sigmund and Anna Freud. I realized only gradually that any original observation already implies a change in theory. An observer of a different generation, in a different scientific climate, cannot avoid developing a field if it is a vital one" (quoted in Evans, 1967, p.13).

This is clearly seen in the third of Erikson's major contributions to the psychoanalytic tradition, a discussion of which follows.

1.3 The Latency Period

Within the historical/theoretical context just reviewed, the contribution most directly relevant to the present study is Erikson's assignment to the "latency" period a significance of its own. This period has long been the victim of a theoretically-based neglect especially within, but also outside of the psychoanalytic tradition. Redl (1966) has referred to this period as "a stretch of no-mans land" in child study work. Erikson himself devotes more time and emphasis both to the stage prior and subsequent to latency. Even so, however, his efforts in elaborating significant psychosocial events of the period have given rise to an increasing interest in this period and stands in marked contrast to the treatment of the period within the classical theory.

In the classical model, the latency period is seen as a time of the relative "quiescence" of the otherwise all-pervasive sexual energies. The problem of "control over the instincts" is essentially a nonissue to the child in the latency period. Freud theorized that the superego, emerging as a resolution of the Oedipal conflict, becomes strong enough to keep the instincts under control, thus allowing the ego to grow. The term "latency" came to be applied, suggesting, as White (1960) has noted, that "nothing of importance could happen until Nature enlivened things again by dramatically strengthening the sexual impulse at puberty" (p.127). White suggests that "Freud seems to have found the period something of a bore" (p.127). While the events and vicissitudes of the preceding and subsequent stages received great attention and detail in the classical theory, no revelations or dramatic events were proposed for this stage.

Freud at times referred to a diversion of impulses into sublimatory activities (e.g. 1905, p.178), while in other works he claimed that sexual

impulses actually diminish in strength (1926). Whether due to a diversion or a decrease, questioning of Freud's premise that sexual energies are in a quiescent state at this time has come from several quarters. Within psychoanalytic theory, these questions are framed in terms of the development of the superego which, as an outcome of the oedipal struggle, marks the resolution of the fervent but forbidden wishes of the child. The development of this personality structure is suggested to be a more gradual process than that described in the Freudian model. Hartmann, Kris and Lowenstein (1946) for example, describe the "evolution of the superego" through several phases. To begin with, the superego is harsh and rigid and is characterized by an erratic quality as it comes to terms with its role as the "moral arbiter" of the personality. With time and with increasing sophistication in the child's cognitive capacities, the superego becomes more flexible. It is thus more amenable to cooperative work with the ego in mastering external reality.

Bornstein's 1961 paper is seen by many as the classic work on the period from the orthodox and essentially pre-Eriksonian psychoanalytic perspective. She posits a division of the latency period into two parts. The first phase, until age eight, is characterized by an ambivalence which results from the conflict between the superego and the drives regarding incestuous wishes. Such ambivalence "is expressed in the child's behavior by an alternation between obedience and rebellion; a rebellion is usually followed by self-reproach" (p.280). In the second phase, sexual urges become less powerful and the superego less rigid. In addition the child now has greater control of ego defenses and greater experience in dealing with the outside world. The ego is more able to cope with reality and the superego more available to working with, rather than against, the ego in this regard.

Rather than assuming the emergence of the superego in final form at the end of the Oedipal period, a more gradual evolution is suggested by these post-Freudian perspectives, with problems of "control" extending well into the period. Robert White (1960) has suggested, with eight or so years of a child's life subsumed under a "single, somewhat negative shading, in striking contrast to the fine discriminations upon which he insisted for the first five years", Freud's treatment of this period be "rated as one of those conceptualizations which tend to stifle research". White suggests that Freud's attitude toward the period "seems to imply that it is not worth investigating". (1960, p.128)

At a minimum, as Thomas and Chess (1972) have noted, latency is an "confusing and inappropriate" term. Freud did acknowledge the importance of the period, albeit in an indirect fashion. In 1905 he noted that the period of latency "appears to be one of the necessary conditions of the aptitude of man for developing an higher civilization". (p.234) Erikson's writings provide a basis upon which a reframing of such acknowledgement can begin, allowing and fostering a positive emphasis on the incredible neurobiological, perceptual, and cognitive developments that occur around the age of seven and the consequential opportunities provided to the growing child. The diversion of or decrease in sexual energies may be precisely because of the child's increasing ability to express and experience his or her increasing competencies in a widening number of spheres. As such Erikson's work constitutes an important and "corrective" contribution to the psychoanalytic literature on and understanding of the latency period.

CHAPTER 2

ERIKSON'S VIEW OF THE LATENCY PERIOD: INDUSTRY VERSUS INFERIORITY

Erikson's emphasis is on the child's acquisition of tools, skills and attitudes necessary for full participation in the culture and the development of a healthy personality.

"Once you speak of the whole child, and not only of libido and defense, you have to consider that in each stage the child becomes a very different person, a person with increased cognitive capacities and a much greater ability to interact with a much wider range of people in whom he is interested, whom he understands and who react to him" (quoted in Evans, 1967, p.26).

Erikson describes this period as one of apprenticeship, a time for the child to develop the abilities and skills seen as important in the culture and to experience the pleasure derived from their diligent application. The dormancy of sexual drives serves to allow the child greater focus and attention to the task at hand, unimpaired by the need to battle internal forces. Similarly, while this stage may not offer new developments in the vicissitudes of libidinal energies, it is a no less decisive stage in terms of the child's psychosocial development.

This is the time for the child to "undergo whatever schooling is provided for in his society and learn the technical and social rudiments of a work situation" (Erikson, 1982, p.75). The psychosocial task for the school age child is the development of a sense of industry which Erikson (1980) has defined as: "a sense of being useful...a sense of being able to make things and make them well and even perfectly (1980, p.91). The sense of industry refers to the child's feelings of competence and mastery with regard to the technical tools of his or her society, be they the more cognitive tools of literate societies or the physical

tools of preliterate cultures. How the child handles the psychosocial task of the development of a sense of industry and the procurement of a viable membership in society, will, in the spirit of Erikson's theory, reflect the successes and failures of previous stages and will come to bear on subsequent development. It is helpful, therefore, to preface discussion of the psychosocial task of the fourth period with a review of the development of a sense of initiative, the psychosocial task of the preceding stage.

2.1 The Stage Prior to Industry: The Play Age

The third stage in Erikson's schema is the period of the Oedipal conflict. In addition to Oedipal issues, and a more psychosocial reading of such issues, there are three other crucial developments during this stage. The child acquires a wider radius of movement as a result of the capacity to walk; language has become more sophisticated and is used more accurately; and the combination of mobility and language allow for the expansion of the child's imagination. Within each of these spheres, evidence is found for the child's growing ability to initiate, which is the defining characteristic of the period. In movement, language and imagination, the child discovers what he or she is able to do, as well as what is permissible to do. For the superego emerges here as the governor of the child's initiative.

The strength or virtue emerging from the resolution of the stage-relevant task is that of purpose; "the courage to envisage and pursue valued goals uninhibited by the defeat of infantile fantasies, by guilt, and by the foiling fear of punishment" (1964, p.122).¹ It is one of the complexities of development

¹ Erikson's writings are cited at length in this chapter. Citations noting year and page all refer to Erikson unless otherwise noted.

that place the child in a situation in which he or she must fail. The child cannot "capture and possess" the opposite-sexed parent. If parents have been supportive and consistently loving, the failure may serve to teach the child to move beyond exclusive attachment to parents to a wider range of attachments and identifications, leading to growth and participation in the culture, eventually becoming a carrier of tradition. The failure can serve to free the child's initiative and sense of purpose for adult tasks, such as those encountered in the next phase, the stage of industry, "which promise (but cannot guarantee) a fulfilment of one's range of capacities" (1968, p.122); and the basis for adult initiative and responsibility will have been achieved. On the other hand, if the "failure" is treated with excessive punitiveness, the child will experience resignation and guilt which will hinder and complicate the journey into a larger milieu and increasing expectations. In any case, in addition to the establishment of the superego, "restricting the horizon of the permissible", this stage also sets the direction toward the "possible and the tangible", permitting the fantasies of these years to be redirected towards the "goals of an active adult life" (1963, p. 258).

Erikson has characterized the developments of the third stage as crystallizing around the conviction "I am what I can imagine I will be" (1980, p.87). The achievements and struggles of preceding stages come together at this point, preparing the child for the task at hand:

"Such is the wisdom of the ground plan that at no time is the child more ready to learn quickly and avidly, to become big in the sense of sharing obligation, discipline and performance, than at the end of the period of expansive imagination" (1968, p. 122).

2.2 The Transition from Play to Work: A Period of Apprenticeship

The industry stage is the fourth of Erikson's eight psychosocial stages, intervening between early childhood and adolescence. This is the "apprenticeship" period, time for the child to acquire fundamental knowledge and basic skills (1968, p. 185). The child is now "ready, willing and able to apply himself to those rudimentary skills which form the necessary preparation for his culture's tools and weapons, symbols and concepts" (1965, p.2). From the depths and breadth of the child's imagination, "past hopes and wishes" must be forgotten and the child's "exuberant imagination tamed and harnessed to the laws of impersonal things--even the three R's" (1963, p.258).

The same energies which previously led the child to dream and play are now applied to "concrete pursuits and approved goals" (1968, p.124). Described by Erikson as the process of sublimation, this transition marks the shift to the child's preference and desire to make things, instead of making things up. "To bring a productive situation to completion is an aim which gradually supercedes the whims and wishes of play" (1963, p. 259). The child is now eager to actualize roles which earlier were only play-acted, and to envision him- or herself as a potential worker and provider within the culture's technology. Children at this age are concerned with how things are made and how to make them. in how things work and in how to make them work. As the child "once untiringly strove to walk well...he now wants to make things well" (1980, p.91). Extending the trends of earlier stages, children observe, participate and experiment as their capacities and skills grow and the sense of initiative is given new directions. The source of the child's recognition and gratification, and the focus of the child's attentions, is on the production of things:

"While all children at times need to be left alone in solitary play or later, in the company of books and radio, motion pictures and television, and while all children need their hours and days of make-believe in games, they all, sooner or later, become dissatisfied and disgruntled without a sense of being able to make things and make them well and even perfectly. It is this that I have called the sense of industry" (1968, p.123).

It is not that children at this age don't play or don't want to play. The point is that children now learn to distinguish between play and work, and that at least some of the activities engaged in, while at play, are things that provide a sense of pleasure and satisfaction in making and completing things. From an epigenetic perspective, play and work are not mutually exclusive. As Erikson notes: "there is an early form of serious work in the earliest play while some mature element of play does not hinder, but augments true seriousness in work" (1982, p.51). What is crucial here is that what work is, and what play is, take on some special meaning as the child faces the psychosocial task of the period. "One can say that a child at this stage loves to learn as well as to play, and to learn most eagerly those techniques which are in line with the *ethos of production*" (1982, p.175, italics in original). It is not a giving up, against one's will, the time spent in imaginative games and fantasies, but that the attraction such activities once held is no longer as compelling to the child.

"Children at this age *do* like to be mildly but firmly coerced into the adventure of finding out that one can learn to accomplish things which one would never have thought of by oneself, things which owe their attractiveness to the very fact that they are *not* the product of play and fantasy but the product of reality, practicality and logic; things which thus provide a token sense of participation in the real world of adults. (1980, p.88; italics in original).

There are certain skills and areas of knowledge to be mastered by the child, skills and knowledge which hold a special appeal to the child in that

their acquisition allows a sense of participation in the adult world. Whether it be the physical tools and skills of a preliterate society or the cognitive tools, such as the rules of grammar and algebra, "forming a more abstract demonstration of the workings of reality" stressed in literate societies, Erikson addresses the importance of given skills and tasks, sanctioned and defined as such by the culture (1964, p.124). While fundamental, they are not the exclusive focus of Erikson's concern. Regarding development in general Erikson noted a greater interest in "the overall configuration and integration of a child's developing approaches to the world than in the first appearance of specific abilities" (Erikson in Senn, 1950, p.104). The emphasis on a sense of workmanship and the subjective experience of applying oneself in productive endeavors would seem then to extend to both given and chosen tasks.

With the development of cognitive capacities, the child is able to become "an eager and absorbed unit of a productive situation" (1980, p.91). Here is the beginning of the capacity to "lose oneself in one's work", to apply oneself with concentration and to become absorbed in one's activities. "Steady attention" and "persevering diligence" are Erikson's terms for the qualities that teach the child the pleasure of "work completion" (1963, p.259).

In addition to a shift in the focus of activities, Erikson addresses developments in the affective sphere as well. The focus on productive endeavors and perseverance in tasks, aided by cognitive growth, provide the child, in turn, with pleasure, satisfaction and pride. It is through one's productive activities that recognition is gained at this age. Additionally, and in consequence, the child's sense of him- or herself comes to include the tools, skills and attitudes acquired. The child's ego boundaries now include the things the child is able to do well, the things learned, and the pride and pleasure thus derived. In that

the child is giving more of him- or herself to activities, the child receives more in return. It is here that the term "applying oneself" has some literal meaning.

From the psychosocial perspective, the school age child is faced with the task of learning and experiencing the fact that working is worthwhile. The steady application of oneself in learning to learn, learning to know and learning to do, is of value to oneself and is valued by others. Effort does matter and when applied in a productive, consistent and persistent manner, it will bring mastery of important aspects of the world.

This is not a process that occurs in isolation. The development of a sense of industry involves "doing things with and beside others" (1980, p.93). On the one hand, the child wants to be shown "how to get busy and how to be busy with others" (1980, p.87). The child is willing, eager and able to make things together with other children, to share the planning and construction with them. This differs from interpersonal strategies or modes of earlier periods where joint endeavors were more likely to be characterized by coercion and making other children do things. Here the sense of industry enables children to join together for the purpose of making and doing things together. On the other hand, as the child comes in contact with and familiarizes or orients him- or herself to a larger social reality, the child encounters other children with different backgrounds and families. While all facing the same psychosocial task within the school milieu, each has his or her own configuration and repertoire of past events and present skills and abilities. It is at this time according to Erikson, that the child develops a first sense of a "division of labor" as well as that of "differential opportunity" (1980, p.126). To achieve a sense of industry, the sense of differential opportunity must be experienced in a somewhat favorable way by the child. With a sense of one's own abilities and competencies, and,

importantly, the satisfaction and pride from the activities engaged in, the child can be aware of the skills and competencies of other children, without feeling overwhelmed or overshadowed by them. The child's positive experience of the skills and abilities he or she does possess, strengthened by the satisfaction derived from their application, means that the comparisons and contrasts the child perceives, as well as those pointed out to the child, will not be too threatening or debilitating. It is, this sense that will allow cooperative activity and healthy competition. It is also true that with a wider radius of interactions with peers in a variety of settings, the child has a greater range of comparisons and contrasts to make, and greater room for the expression of skills and competencies.

Parallel to shifts in relationships with peers, the child's relations with adults are extended beyond parental figures. By seeking the identifications and experiences allowing the child to envision him- or herself as a "worker and potential provider" the child works to ensure his or her future viability in the culture. Parents of other children and other emulatable adults are included in the child's social world. The child is now "able and willing to profit fully by association with teachers and ideal prototypes" (1980, p.88). Children at this age want to "watch and imitate people representing occupations which they can grasp--firemen and policemen, gardeners, plumbers and garbagemen" (1968, p.122). Erikson emphasizes the importance of this process in the development of a sense of industry, the "identification with those who *know* things and know how to *do* things" (1980, p.92; italics in original). Adults engaged in various and somewhat "visible" occupations hold a special interest to the school age child who, through imitation of and identification with them, can begin to see him- or herself as potentially viable in these roles and as a part of the work

world of their culture.

The identifications and experiences relevant to the school age child's development of a sense of industry is matched by society's provision of a social institution offering the opportunities and demands appropriate to the child's needs and abilities. It is at school that the child's imagination "becomes transformed" into the "duty to perform with full attention to the techniques which make imagination communicable, accountable and applicable to defined tasks" (1977, p.104). School provides the milieu for the transition from play age to school age where play and work can be meaningfully differentiated and developing capacities for perseverance and concentration can be fully expressed:

"The mental and emotional eagerness to make material things and facts reveal what can be done with them, in order to create new and lasting forms, matures only in the school age; or rather, because it is cognitively ready to arise then, children are sent to schools" (1977, p.103-104).

In all cultures, this age is sanctioned as the time to go to school, whether school is the "field", "jungle" or "classroom" (1963, p.258). The kind of school made available to the child may be culturally determined, but "all cultures meet this stage with the offer of instruction in perfectable skills leading to practical uses and durable achievements" (1964, p.123).

It is within the school context that the development of a sense of industry is most directly facilitated, with instruction in given skills and the teaching of knowledge seen as fundamental. In addition, school "seems to be a world all by itself, with its own goals and limitations, achievements and disappointments" (1980, p.88).

On another level, Erikson talks about the direct importance of "teacher selection, teacher training and the status and payment of teachers in the communities" in the development and maintenance of a sense of industry in the child (1980, p.92). The very important process of identification with those who know things and know how to do things is significantly and most readily applied to teachers, who are hopefully worthy objects. From a psychosocial perspective, Erikson notes that in the lives of very gifted or inspired people, one often finds reference to one teacher in particular, who was able to "kindle the flame of hidden talent" (1980, p.92). The point is not that every child is gifted, but that with an emphasis on what the child can do, teachers help to foster the sense of industry, and with such a positive focus, can elicit the child's potentialities which "if not evoked now, may develop late or never" (1980, p.91-92).

In a more general sense, Erikson gives weight to the role of educational philosophy as a determinant of the child's sense of workmanship. Within the American educational system for example, Erikson describes the fluctuation between an emphasis on "doing what one is told to do" and on being told to do "what one likes to do". The first trend, when applied in the extreme, may mean that the child will learn much of what is necessary, and, in addition, learn an "unshakable sense of duty and costly self-restraint" (1968, p.126). The second trend, in the extreme, ignores the importance of certain skills and areas of knowledge seen by the culture as fundamental and, because of their cultural value, facilitative of the child's sense of participation in the culture's technology. The point here is not only the particular import and impact of a specific educational philosophy, but of the role of teachers and society in general in "admitting the child to an understanding of meaningful roles in its

technology and economy", and how such roles are illustrated, defined and taught (1963, p.260).

The terms Erikson has used to define the psychosocial crisis of the fourth period are "industry" and "inferiority". His use and description of these terms, as well as how this usage has evolved, will be described in the two sections which follow. Two later sections describe the additional theoretical concepts (ritualization and ego strength) specific to the fourth stage.

A. The "positive" pole: A sense of industry

While Erikson has described this period as a time of "psychosexual moratorium", it is clear that there is nothing latent in the child's curiosity about the world. It is at this time that the desire and ability to learn the essential skills and tools of the culture arise, skills and tools which will allow full participation in the society, specifically in terms of a work role and more generally, in the application of oneself to tasks and goals. This is the apprenticeship period. There are certain fundamental skills and basic areas of knowledge to be mastered, valued by the culture, indicative of its "technological ethos", and stressed in the schooling provided.

The development of a sense of workmanship and work participation that Erikson describes is fostered by school activities, with particular reference to those activities designed to inform and initiate the child into the productive or work ethos of the culture. The experience of commitment to a task may also result from and be applied to activities outside of the walls of the schoolroom. It is perhaps for this reason that Erikson includes "neighborhood" as a relevant social institution for this period in his chart (see Table 3), although he does not discuss it in his writings. The aspect of the construct emphasized here is

the "return" provided to the child from certain activities in the form of a sense of accomplishment. The child who goes about playing and learning to play soccer in an "industrious" way may well derive the feelings of satisfaction and pride that Erikson describes. For girls in particular, making and maintaining friendships may be an area in which industry behavior could be examined. The generalization of the sense of industry may be particularly true of those activities requiring practice or needing successive attempts at reaching a certain level of completion or standard. The child's application of him- or herself provides important information about the very ability to apply oneself, regardless of the specific content of the activity.

Erikson's term for the identity aspect of this stage, and the conviction around which the child's personality develops, is "I am what I learn". In many ways, this phrase has literal application. Given Erikson's emphasis on the child's identification with the tools and skills acquired, and the identification with various adults in work roles, the child's sense of him- or herself does include the things learned and skills mastered. The phrase "I am what I learn", however, does not seem to do complete justice to a full understanding of the achievements of the period. A sense of industry, as defined within the present study, is as much an attitude, a way of going about things, as it is a repertoire of specific skills or abilities and their application. The phrase "I am how I learn", or "I am how I go about applying myself to the challenges of the period" captures more of what is involved in the development of a sense of industry.

The sense of industry includes a desire and a need to feel useful, and to be involved in useful pursuits--useful as defined both by the culture and by the child's understanding and experience of cultural values. The child is interested

in how things work and how to make them work, in how things are made and in how to make them. Imaginative and playful activities of earlier times take on a different character here, and are surpassed in the attraction they hold for the child by activities providing the child with a greater appreciation of and sense of participation in reality. A sense of industry also means a conviction that effort is worthwhile, and developments in the cognitive sphere come together with the value placed on effort to provide the ability to apply effort in a steady and persevering manner. Work completion, seeing things through to the end, becomes a goal in and of itself. It is not the only goal however, and the child with a sense of industry is essentially a child with the ability to experience productive activity. The child with a sense of industry is not expected to stick to tasks "at all costs". A sense of industry includes the ability to "let go", a rational relinquishing of unproductive effort when the effort expended does not move the child closer to completion or satisfaction. The child who "gives up" on a certain task may do so because he or she lacks the "steady attention" or "persevering diligence" Erikson describes. The child may also do so because he or she has made a realistic appraisal of whether or not completion of the task is possible, either at all or given his or her particular competencies. Work completion is given special emphasis in Erikson's description and is seen as indicative of the "stick-to-itiveness" that a sense of industry entails. It is unlikely that he would take issue with a view of that process as one which includes the experience of fruitful application of oneself and one's abilities, and movement in a productive direction.

The achievement of a sense of industry signals changes in the interpersonal sphere. The child broadens the radius of interpersonal relations to include other children in more cooperative joint activities and adults other than

his or her parents. Parallel to changes in terms of new relationships, the nature of previous relationships change as well. With the child's increasing experience of the application of tools and skills and attitudes towards that application, the child comes to depend more consistently and more fundamentally on that experience. With an expansion of ego boundaries to include skills, methods and attitudes, the child at least partially relinquishes the dependency on others. Internal resources begin to provide feelings of satisfaction and pride derived from involvement in tasks and activities. Self-esteem, within the Eriksonian framework, is seen as positively correlated with the achievements of each period. Here that relationship is manifested in the child's expanding experience of productive activity. Feedback from others remains crucial but the child begins to evaluate that feedback with increasing acuity, and in light of his or her own perceptions and evaluations.

The child with a sense of industry is not necessarily the brightest or most able child, but he or she will have a sense of strengths and weaknesses, such that in the face of differential opportunity, and in the midst of other children with their own strengths and competencies, a perspective on and a recognition of limitations develops. This perspective and recognition serves not to hinder, but to foster a sense of industry as well as later growth. It is in this way that the sense of inferiority can be seen as an aspect of, rather than an alternative to, the sense of industry. (This issue will be discussed at greater length in a subsequent section).

The intersection of the construct of industry with the constructs of intelligence, capability or skill, is as yet undetermined. The terms, however, are clearly not conceptually equivalent. The important meaning of the construct of industry is not on content, on actual abilities or competencies, or on the

product of the application of these abilities and skills. The proper emphasis seems to be more on the process of applying oneself, of being involved in one's activities, and on how one goes about the application of oneself to tasks. The feelings of satisfaction or accomplishment result as much from the process as from the outcome of such involvement. For the child, it is the process of doing things and applying oneself that is compelling, rather than the specific content of the activity or the actual outcome of that process. This is not to say that the acquisition of certain skills, the mastery of basic areas of knowledge and the completion of tasks one sets out to do are not essential in the sense of industry. They are important, but not equivalent to a sense of industry as defined and understood in the present study. The subjective experience of a sense of industry, the skills and knowledge referred to and their application, have, in the spirit of Erikson's theorizing, a mutually reinforcing and dialectical relationship. The sense of industry is both the product of and a contributor to the skills and knowledge seen as fundamental. The sense of industry facilitates if not guarantees, that valuable knowledge and skills will be acquired and applied in productive pursuits, and the skills and their application in turn, lead to the development of a sense of industry.

The identification with those "who know things and know how to do things" is another integral process in the development of a sense of industry. As the child develops the skills and learns the knowledge important to the sense of industry, adult models involved in various activities and representing various occupations become the object of imitation and identification. In this way, the school age child can begin to envision him- or herself as a productive contributor in a work role. With the child's increasing experience of him- or herself working at stage-appropriate activities and tasks, the groundwork is laid

for the eventual actualization of work roles. At this stage the child with a sense of industry comes to appreciate and recognize the feasibility of such involvement, and works to ensure accession to a productive role in society.

As with many other constructs forming the focus of psychological investigation, the construct of industry is multi-faceted. The sense of industry, as understood here, consists of more than the total sum of these facets of components. The sense of industry includes an attitude, a repertoire of fundamental skills and the possession of basic knowledge, and the application of skills and knowledge. These components interact and it is their integration that constitutes the sense of industry as presently defined. It is a quality which allows the child to fully participate in the process of work, both as it is salient to the child at this stage and in terms of the child's ability to envision and eventually achieve participation in society in a productive role. The development of a sense of industry involves, most fundamentally, the child's learning how to work, with work being broadly defined as the application of oneself to constructive activity. It is a quality which will stand the child in good stead for a wide variety of activities and endeavors. It addresses that ability which allows and facilitates the application of oneself to given and chosen tasks and goals, and to life. The construct of industry pertains to how the child goes about learning to apply him- or herself, and how this comes to be incorporated into the personality, here as the stage-relevant psychosocial task, and later as one of the elements in a complex and healthy life experience.

There is one additional aspect or component of the sense of industry to be described. As mentioned in the discussion above, an awareness of and a perspective on one's limitations and weaknesses, of areas of "inferiority" is an important complement to a sense of one's skills and abilities, with both

necessary in the achievement of a sense of industry. This issue is addressed in the paragraphs below.

B. The "negative" pole: The sense of inferiority

The polar alternative to the sense of industry is the sense of inferiority. The juxtaposition of "inferiority" to "industry" is less immediately clear than that of the adjective pairs which describe other developmental stages. Erikson seems to have been more or less precise in the terms chosen, some of which seem to more definitively capture the stage-appropriate psychosocial issue. In the first stage the infant establishes some degree of integration of a process and counterprocess, trust and mistrust leading to either a basically trusting or mistrustful outlook on and experience of the world. Similarly, "Intimacy versus Isolation" (sixth stage) describes two alternative processes for the development of intimate interpersonal relationships. The essential dynamic between the polar alternatives seems in general to be one of a process versus a counterprocess, with the degree of integration towards the more positive pole signalling a more positive resolution of the appropriate developmental task. Here then, inferiority should be understood as the counterprocess to that of industry. While the reasons for it and the ways in which it may be manifested may vary, the sense of inferiority serves to stand in the way of the productive application of oneself to tasks, "of not being able to live up to the demands of physical performance and mental discipline required for the techniques taught" (1977, p.105).

Importantly, the relationship between the poles is not that of two forces of opposite valence such that a sense of inferiority cancels out the sense of industry or vice versa. Erikson, as mentioned, has come to increasingly

emphasize the importance of an integration of both poles, with greater but not exclusive weight given to the positive pole. The child must choose between and, at the same time, integrate the opposing trends to achieve a resolution of the psychosocial issue of the period. A sense of inferiority is then a necessary complement to and component of the sense of industry: "For the antithesis of a sense of industry, we have postulated a *sense of inferiority*...a necessary dystonic sense that helps drive on the best even as it can (temporarily) paralyze the poorer workers" (1982, p.75, italics in original).

The needed integration is seen here in terms of a sense of one's limitations, both in order to "let go" of certain activities, as well as to motivate the child in other areas. The child's comparison of him- or herself with other children, as well as comparisons made by others, may mean that in some sense or in some areas, the child "falls short". When the sense of inferiority predominates, particular deficits are more likely to be seen as evidence of a central failing, rather than as a particular limitation, leading to what Erikson describes as the feeling that one is "doomed to mediocrity or inadequacy" (1963, p.260). The modifying variable here is the "creative tension" and balance of integration achieved between the two poles, determining the degree to which such limitations are seen as critical. Without the forward movement experienced through productive involvement, Erikson has described the sense of inferiority as an "estrangement" from one's tools and activities. Given the element of identification with tools and skills as important, it is also experienced as an estrangement from oneself.

In contrast with the poles posited for other stages, here the dominance of the more negative pole represents more of a failure to resolve earlier issues than an alternative mode of resolving the stage-relevant issue:

"As *core pathology* of this stage, however, inferiority is apt to encompass much fateful conflict; it can drive the child to excessive competition or induce him to regress--which can only mean a renewal of infantile-genital and oedipal conflict, and thus a preoccupation with conflictual personages rather than an actual encounter with the helpful ones right at hand" (1982, p. 75, italics in original).

The child with a predominant sense of inferiority is still entangled in previous modes of interpersonal relationships and remains more involved with parental or authority figures than with adult models outside of the family. Whether the child is pulled back into, or has not yet left the previous stage, one of the major reasons outlined by Erikson for the predominance of inferiority in the school age child, is an "insufficient resolution" of the conflict of the previous stage:

"He may still want his mommy more than knowledge, he may still prefer to be the baby at home rather than the big child in school; he still compares himself with his father, and the comparison arouses a sense of guilt as well as a sense of inferiority" (1968, p.124).

The child who has more or less resolved the psychosocial issues of the preceding stage reaches a point of not wanting or not needing to be reminded of the basic inequality he or she has come to be aware of with the parent of the same sex. Resolving this through an identification with that parent, and the internalization of the "parental figures" in the formation of a moral conscience (the superego) other fields of initiative are sought; areas which, in Erikson's terms, do not elicit significant guilt (1980, p.86). With supportive parental involvement the relationship can take on a "more realistic identification based on the spirit of equality experienced in doing things together" (1980, p.86). In addition, the child has expanded the range and nature of his or her identifications, to other adult figures, to teachers, to other children, and to the tools and skills being developed. The child comes to be more genuinely

self-reliant as the sense of initiative is integrated with and contributes to the sense of industry. In the midst of other children, the child with a sense of industry comes to rely on growing inner resources in appreciation of differential opportunity and in the evaluation of feedback and comparison. This child has his or her own experience of growing effectiveness in the world of peers and the world of tools.

Instead of forming identifications with teachers and other children through constructive encounters, the child with a predominant sense of inferiority may still be preoccupied with relationships with conflictual figures, conflictual because of a lack of or insufficient resolution of these earlier issues. In contrast, the child with a sense of industry has come to realize "that there is no workable future within the womb of his family" and in this way, becomes fully ready to apply him- or herself "to given skills and tasks" (1963, p.259). Without sufficient resolution of the issues of the previous stage, it is with parental figures that the child is primarily entangled and with whom comparisons are made, necessitating, in terms of anatomy, size and skills, the child's experience of inferiority. In addition to a somewhat constricted radius of significant relationships, the child's modes of relating are characterized by the more dependent quality of earlier periods. Rather than a healthy competition between equals, the child may be overinvolved in often inappropriate comparisons. Rather than the positive experience of productive activity, serving to provide the child with internal sources of self-regard, the child seeks external verification of social worth, largely from authority figures on whom he or she remains dependent. Here is the stage-relevant example of how achievements or failures of previous stages become integrated and reorganized with issues of the current stage.

Autonomy and initiative, without new outlets and avenues of expression, remain

characteristic of stage-specific modes rather than taking on the character and dimensions of later stages, when earlier stages have not been sufficiently resolved.

Erikson notes that "family life" may not have prepared the child for school life. Parents, for example, may view efforts at making and doing with some disdain, seeing the child as "making a mess". Family life may have offered no consistency in terms of the values and activities the child experiences at school. On the other hand, school experiences may "fail to sustain the promises of earlier stages in that nothing (the child) has learned to do already seems to count one bit with the teacher" (1980, p.91). This may apply to children for whom the gifts and abilities they do have, and to which they may apply "steady attention" and "persevering diligence" are not matched by opportunities for expression or are not seen as valuable by others. The child who functions well in the school context and with regard to school requirements has the advantage over the child whose gifts are more evident in other activities. It is in school that skills and abilities expected of all children become most regularly subject to comparison and comment. The reasoning applied in this paper has been that if the child derives a sense of pride and satisfaction from one endeavor, if reflective of and contributing to a sense of industry, then this same sense should be somewhat generalizable to other tasks. Activities or skills possessed by the child may not be met at home or in school with supportive and/or realistic feedback. The value and meaning given to both skills and deficits is at least partly determined by reactions received from significant others. In this context, the content of the objects of the child's attentions and efforts may become important. However, the underlying assumption in Erikson's developmental schema, given "average expectable" conditions, is that every child

is potentially able to achieve a positive resolution of the psychosocial task of each period, whatever his or her particular competencies and limitations. This is also due to the evolution of social institutions themselves, which in turn are (hopefully) pre-adapted to the child. The critical factor is what the child derives from the abilities and skills he or she does possess, and from the activities to which these are applied. If the process of applying oneself has not been compelling enough to the child, it may not generate the attempt to recreate that experience with other endeavors. While it is true that certain skills must be developed for the successful completion of elementary school, and indeed, in order to "work", the importance of content remains relative to the process itself. Any activity that provides the child with the enjoyment and satisfaction of applying him- or herself is valuable, for it is that experience that the child takes with him or her to other endeavors in this period, as well as in later development. Feedback remains important and without support and encouragement, any limitations the child may have, when not balanced by a sense of recognized abilities, may take on exaggerated meaning. The sense of industry derives not simply from the possession of certain skills but also from the experience of learning and applying them, and the feelings of satisfaction and pride thus derived. In this way, the major consequence and danger held by the sense of inferiority for the child, in terms of current and future work orientation, is that "throughout the long years of going to school, a child will never acquire the enjoyment of work and pride in doing at least one kind of thing really well" (1968. p.125). It is the experience of such enjoyment that allows the child the beginnings of true self-reliance, of self-esteem based on one's own accomplishments and efforts. and sense of viability in the culture's work ethos.

These same issues are manifested in other ways as well. There are some children who, for any number of reasons, demand too much of themselves or are too unrealistic or unsure of their expectations. Despite the acquisition of certain skills, and necessarily, the application of attention and persistence, goals are never reached. The sense of satisfaction and pride from work completion and the enjoyment of involvement in the process of working towards a productive end, remain elusive. These may or may not be the children who are unable to "let go" of certain tasks. Missing here, is the evaluative component that the child applies in deciding whether or not their efforts are moving them in a productive direction. The "inability to reach closure", with the setting of unattainable goals, may be reflective of the lack of a clear sense of what the goals are or should be.

Erikson has described the process whereby as children come to include a wider array of methods and tools in their repertoire of technical mastery, the child "also permits accepted methods to make him their own" (1965, p.3). The extent to which this is true however, may leave the child with room for little else. Rather than incorporating the identifications with tools and skills into an expanding and more reality-based sense of self, an overevaluation of "what works" can become dominant. It is in this context that Erikson refers to Marx's description of "craft-idiocy": the danger of the child at this stage, and as an adult, becoming a slave to his or her technology (1968, p.127). If imagination and playfulness are sacrificed too readily, it results in what Erikson terms "man's restriction of himself and constriction of his horizons to include only his work". Work is seen as one's only obligation and "what works" as the sole of criterion of "worthwhileness". (1963, p.261). The child with this kind of relationship to his or her tools and skills may be a "good little worker" or

"good little helper", but has not established a relationship to work reflective of a sense of industry nor one conducive to unimpaired development.

C. *The process of ritualization: formality and formalism*

What comes to bear on the child's relationship to the expenditure and outcome of his or her efforts is the process of ritualization, the process through which the child comes to experience the "technological ethos" of the culture. The element of ritualization Erikson describes for the fourth stage is that of formality or methodological performance:

"In a prescribed series of tasks structured according to the verbal and physical nature of the cultural universe, basic techniques are taught which are essential to the participation in the economic and technical system...Each of these offers a minute *ritualization of method* which must remain related to a functioning as well as idealized way of life" (1977, p.104, italics in original).

Through the child's experience of making and doing, and the feedback and instruction received, the child comes to learn the value of methodological performance as he or she is introduced to the "proper form" of making and doing. Mastery of the formal aspects of work, and the application of skills and methods in accepted forms, allows the child an authentic sense of participation in the culture's work ethos and methodological performance comes to be valued. The "formal" aspect of ritualization of this stage gives to the ritualizations of previous stages (numinous, judicial and dramatic elements respectively) a "binding discipline", and gives to the child's current activities an overall quality of workmanship (1977. p.103).

Ritualizations are subjectively experienced as the "proper" way to do things, proper in terms of method and in terms of age. The school age child learns, for example, that while counting on one's fingers had its usefulness at

one time, the age has been reached where the "adult" form of addition needs to be mastered, and the child comes to appreciate the greater value or utility the "proper form of addition" holds for its application. Instead of doing things "any which way", the child learns and comes to value the proper form for the application of skills and methods in line with the demands of the task.

The flip side of formality is "formalism", the forgetting of the purpose of methodological performance in favor of proficiency in method. This ritualism is manifested, for example, in Marx's craft-idiot, who disregards or denies the human context of skill, becoming enslaved instead to the "trappings of efficient method". Formalism is similarly defined by Erikson, as the adherence to techniques without regard for purpose and meaning. If the grade six child, for example, learns to use flash cards in learning the multiplication tables, he or she has acquired an efficient method for the mastery of the task. If the child then begins to use a flash card system for every assigned task, the child will eventually be adding more to his or her proficient use of flash cards rather than to a sense of the useful purpose they can serve. Leaving room for wide variations in working styles and ways of going about various tasks, methods should not take on an importance exceeding ~~that~~ of the task at hand, and the proper form of making and doing includes the choosing of methods in light of the purpose they are meant to serve.

D. Positive resolution of the fourth stage: the strength of competence.

Each successive stage of development finds the child involved in the continuous pursuit and growing sense of "fit" and viability in the culture. As the child is increasingly accorded a sense of participation and belonging so too does the positive resolution of each stage reaffirm and enhance the child's

self-esteem. In all stages such enhancement is experienced as a belief that one is "learning effective steps toward a tangible future" and as an awareness that one's way of "mastering experience is a successful variant" of the way others master experience and "recognize such mastery" (1980, p.95). In the fourth stage, the child's self-esteem, sense of worth and of "praiseworthiness"--by the very nature of the psychosocial task of the period, is based on real accomplishments, on the attainment of real and valued skills and modes of approaching tasks. One notes however that the stage is described as "industry vs. inferiority" not "self-esteem vs. inferiority" (Shapiro, 1981, p.60). As Shapiro notes--self-respect or feelings of inferiority can be found in individuals of all degrees of ability and achievement. It would be mistaken, in Shapiro's view, to assume that inferiority derives in a direct way from actual deficiencies or that self-esteem is a direct result of accumulated achievements. The sense of industry as depicted in this study includes awareness of and a perspective on both abilities and limitations. When development moves in the direction of positive resolution of the stage this relationship is best termed "inferiority in the service of industry". It is the ego strength of competence, proposed by Erikson as the outcome of a positive resolution of this period, that allows this relationship to foster growth and development. Without it, and without its integration into the child's developing ego, criteria other than accomplishments and abilities may enter into self-evaluations and sense of worth here and in later development. The feeling of competence is defined by Erikson as "the free exercise of dexterity and intelligence in the completion of serious tasks, unimpaired by an infantile sense of inferiority" (1968, p.126).

This ego quality or strength allows the child with a sense of industry to move forward into new areas. The sense of industry provides, in a sense, the

ability to try. The feeling of competence comes to provide the safety net that allows the child to try again, in the face of failure or limited success. This is precisely because there is an enduring foundation formed by the feeling of competence.

The sense of industry by no means guarantees success in all of one's endeavors. It does not shield the child, adolescent, or adult from the pain of failure. It does facilitate a willingness to try again. David Shapiro (1981) has noted that it is not uncommon for very successful and hard-working people to experience the conviction that one's success is merely the result of freak accident, luck or false perceptions of one's abilities by others. Individuals in high-powered or high profile positions may experience feelings of not really belonging there.² When the sense of industry has been achieved, the ego strength of competence ensures that such individuals can continue to do productive work and to move forward in their activities, in spite of such feelings. This illustrates the relationship between a sense of industry and the consequent integration of the ego strength of competence. The value given to the expenditure of effort is furnished by the sense of industry. Appreciation of the efficacy of past efforts and a faith in the future efficacy of one's efforts is provided by the ego strength of competence.

According to Erikson, the sense of competence provides the "lasting basis for cooperative participation in productive adult life" (1968, p.126). The ability to cooperate with others, part of the sense of industry itself, is thus maintained in the face of wider exposure to and interactions with other people's successes and talents. That such encounters are not experienced as debilitating or

² This may be related to what recent popular literature has termed the "imposter phenomenon".

overwhelmingly threatening is a reflection of a positive resolution of the fourth stage.

For the school age child, in Erikson's words, the feeling of competence comes to integrate the various methods of "verifying and mastering factuality" the child has acquired with the "actuality" experienced in working with others in productive situations (1982, p.75-76). Without this quality, the child, in this stage and as an adult, feels inferior in his or her "equipment" and in the ability to "match an ever-increasing radius of reality with one's capacities" (1964, p.124).

Other writers have used the term competence in a variety of contexts with some overlap occurring with Erikson's usage. Within the psychoanalytic spectrum, Robert White (1963) uses the term to describe the "confidence one has in dealing with the various aspects of the environment" (p.186). This is in line with Erikson's use of the term. White uses the term most fundamentally to describe an ever-present principle, continually operative in the individual's interactions with the world. In acknowledging White's views, Erikson (1964) contends that "it should not be too difficult to agree that a quality which endows all living should yet have its epigenetic crisis during one stage of the life cycle" (p.122-123). Similarly, White (1960) notes that "the latency stage is when the sense of competence faces some of its most significant crises"(p.131). Thus Erikson's fourth stage may form a crucial period for the development of the sense of competence that White describes.

White's description of the latency period is similarly quite consistent with Erikson's views. At times however, he seems to be arguing the equivalence of competence and industry, rather than attempting to demonstrate the kinship of

conceptualizations. The struggle for a sense of industry over that of inferiority is, in this way, a rephrasing of the ever-present push towards efficacy and sense of competence. Here the comparison falls short for Erikson clearly refers to the ego strength of competence as the outcome of a positive resolution of the fourth stage. A feeling of competence is the form in which the sense of industry comes to be incorporated and integrated into the ego, but industry and competence are not synonymous terms. Industry is more the sense of something that allows one to try, and to keep trying, rather than the "accumulated feedback" providing information on whether one has succeeded or failed. Industry is relatively independent of the actual outcome of any particular activity, while competence is described by White as the "sum total" of successful interactions with the environment. The industry versus inferiority struggle is not the stage-relevant manifestation of White's effectance motivation, it is a psychosocial task which occurs within a certain developmental progression, and one having interdependence with the other elements of that progression. In addition, it is only compelling at one particular stage. The meaning of the term is more or less consistent in the descriptions of both White and Erikson, but competence is an additional notion to that of industry, not a replacement term. This distinction holds as well in Harter's (1978,1981) theoretical and empirical extensions and elaborations of White's concepts of effectance motivation and competence.

The antipathic counterpart to competence in Eriksonian theory is inertia. The failure to achieve a positive resolution of the fourth stage deprives the child of what has been described as a functional resiliency to failure, and fosters a cessation of new attempts and a retreat into inactivity. In Erikson's words, this inertia "constantly threatens to paralyze an individual's productive

life (1982, p.76-77). The integration of inferiority into the sense of industry results in the quality of strength of competence as an added dimension of the growing ego, serving to further the expansion and new application of productive endeavor. When the sense of inferiority prevails, the counterpart of competence, inertia, engendered by the sense of inferiority, is the result.

2.3 Other Views on the Latency Period

Sullivan (1953) is one other theorist within the psychodynamic perspective who has given specific significance and attention to the latency period. With his interpersonal framework, Sullivan focussed on the behavior of children with their peers; the chief issue facing the child at this age being described as that of cooperation and competition. In addition, he sees this period as "the first developmental stage in which the limitations and peculiarities of the home as a social influence begin to be open to 'remedy'" (p.131).

Drawing on Sullivan's interpersonal model, Bemporad (1984) has criticised Erikson's work as a "prominent example" of the neglect of interpersonal issues, particularly that of the development of affiliative behavior in children of school age:

"The elongated period of human latency...stretching between separation and procreation, seems to be the optimal period for affiliative behavior which prepares the individual for later participation in complex cultural organizations that depend for survival on group effort and cooperation between members" (p.86).

According to Bemporad, while Erikson may be correct in his descriptions, he does not go far enough and excludes the central development of affiliative behavior. From this perspective, Bemporad further objects to his reading of Erikson's emphasis on "one's future marketability, on the terror of being doomed

to mediocrity or the emphasis on finding a place in the total economy", offering a "rather chilling version of the intrusion of economic materialism into the soul of the child" (p.89). Bemporad suggests that "the exclusion of friendship and camaraderie, or simply pointless fun, makes the child into a grim foreboding of the assembly line worker or the petit bureaucrat" (p.89).

Sullivan's point about the remedial possibilities of the period and Bemporad's comparative perspective on the elongated human latency period are well taken. Certainly when compared to the stages which precede this period, the school age is a much longer stretch, and a period within which, as in other stages, previous issues can be reworked with the added dimension and strengths of later periods. That the period is a relatively long one speaks of the importance of the task and its significance for continued growth. Bemporad's comments suggest, however, a misreading of some aspects of Erikson's treatment of the period. Erikson's emphasis on the satisfaction derived from engagement in tasks has been noted, and it is precisely this emphasis on what the child receives, in turn, from the expenditure of effort, that serves to avoid the "petit bureaucrat" mentality. It speaks as well to the child's relationship, to work, and the dangers which result when work becomes the only endeavor seen as worthy of effort or value. Related to this is Erikson's distinction between play and work. Rather than a neglect of pointless fun, having fun for its own sake is not valued less by Erikson, but he suggests that children reach a point in development where more is needed in return from both recreational and academic activities. Those that are particularly compelling to the school age child are activities which offer a sense of being useful and productive. Bemporad and other writers have a point with regard to Erikson's terminology, and Erikson chooses his words most carefully. His reasoning in the use of such

"economic" terms stems, at least partly, from an interest and background in cross-cultural issues. As Erikson (1967) notes:

"Some people see red when I use simple terms which have been taken over into the ideology of mass production or banking. But the word "industry" belongs to everybody and really means industriousness, being busy with something, learning to complete something, in the jungle or in the factory" (quoted in Evans, 1967, p.28).

Erikson, as noted, maintains the universality of a psychosocial task progression, with the specific cultural milieu distinct in its provision of context and content.

The themes stressed by the interpersonal theorists can be seen in Eriksonian theory, but Erikson differs with regard to the prevalence ascribed to them, at this particular stage. The affiliative trends noted in the school age child may well be precursors, elements of the ever-present but not yet dominant issue of the sixth stage, intimacy versus isolation. One could attempt to expand Erikson's concept of industry to give more central focus to interpersonal issues, beyond what is already included in terms of cooperative activity and identification with peers. It first seems necessary, however, to explore what is provided by the theory, and, as is the aim of the present study, to validate the construct of industry, before embarking on major revisions.

There is a final point to be mentioned which addresses divergent views of what may be central in this period, and a point which offers a more general perspective on what is encompassed within the theory. As Erikson (1963) notes: "it must not be imputed that one outline of the psychological schedule is intended to imply obscure generalities concerning other aspects of development, or indeed, of existence" (p.270). Erikson's theory offers a succession of crises faced by the developing individual. This is not to say that all development is a "series of crises", only that "psychosocial development proceeds by critical steps"

(p.270). The "critical step" forming the focus of the present study is the development of a sense of industry, a development which may or may not be only one of several areas of growth or change. It is however the primary development during this period within the psychosocial sphere.

2.4 The Stage Subsequent to Industry: The Development of Ego Identity

There is one final area to be discussed which will conclude this review and elaboration of the fourth stage of Erikson's psychosocial theory of ego development, the relationship of the sense of industry to the stage which follows. The development of a sense of industry is the last psychosocial task faced by the child before the period of adolescence. In Erikson's words: "With the establishment of a firm initial relationship to the world of skills and tools and to those who teach and share them, and with the advent of puberty, childhood proper comes to an end" (1968, p.127). The nature and valence of these relationships, comprising the child's relationship to the world of work, will reflect both past successes and failures and will come to bear on later development. The achievement of a sense of industry suggests, on the one hand, that trust, autonomy and initiative have also been more or less positively resolved. The child with a sense of industry has integrated the accomplishments of previous stages with those of the fourth stage, achieving a new and unique configuration based on the child's experience and style of resolving these issues. On the other hand, what the child has experienced in the first four stages will come to bear on later development, which, in terms of the fourth stage, is most particularly and most immediately seen in the stage which follows, where the psychosocial task is the development of a sense of ego identity.

Erikson, along with other personality theorists, places pivotal emphasis on adolescence. The gains of previous stages are seen by Erikson as providing the "raw materials" for dealing with the psychosocial issues of adolescence. He has stressed, for example, the individual's ability to make ideological and occupational commitments as integral to the formation of a sense of identity. Without a sense of industry, the occupational commitments would be difficult to make. Serious questions about one's ability to work and to apply oneself, about the worthwhileness of one's efforts or doubts about one's skills and tools, would seem to complicate and hamper, if not prevent, the commitment to an occupational choice or even the ability to engage in the exploration and decision-making required.

Erikson has described the contribution of the fourth stage to the sense of identity as "the capacity to learn how to be, with skill, what one is in the process of becoming" (1968, p.80). The sense of industry manifests itself in this period in a fairly general way. In addition to its relationship to skills and abilities, the sense of industry is also reflective of a general approach to "tasks". The way the adolescent goes about working through and exploring alternatives, how he or she has chosen to invest in occupational and ideological commitments as well as in the interpersonal sphere, is affected by the manner in which tasks in general are approached. Thus the child's sense of industry is a determinant of the way in which ("how") the child goes about exploring alternatives and making decisions about identity issues ("what" the adolescent wants to become).

Several of the problems encountered in late adolescence reflect back on industry issues, allowing examination of the relationship between stages from the opposite direction. Erikson describes for example, the "diffusion of industry"

as a symptom of difficulties in the formation of identity manifested by the late adolescent. In the midst of "identity confusion", as part of an inability to make the decisions and commitments or to face them, the late adolescent may manifest a loss in the capacity to work. In addition to the inability to "apply oneself", difficulties in concentration and attention may also appear. This forms, in Erikson's view, the "logical sequence of a deep sense of the inadequacy of one's general equipment" (1968, p.184).

There are other adolescents who, while similarly unable to make commitments and decisions required in the process of forming an identity, do not view that process as valuable. A juvenile delinquent, for example, especially the individual maintaining that behavior pattern through late adolescence, also manifests problems in the sense of industry. Such individuals, in Erikson's description, make a "mockery of work" even while they "are in competition with it", noted in use of phrases such as "doing a job (that is, a burglary)" (1968, p.185). The juvenile delinquent has a basic disbelief "in the possibility that they could ever complete anything of value" (p.185). In order to enjoy and make use of the more positive outlets for the "heightened energies of the adolescent era", the child must have emerged from the school age with a positive relationship to activities and to work. The child needs to have learned to enjoy the process of applying him- or herself to tasks, "in order not to need the thrill of destruction" (p.185). Without the enjoyment of work and pride in doing something well, the sense of industry is incomplete and the consequent danger for identity formation is that elements other than the individual's "wish and will to learn" will enter into perceptions of worth. It is no less important to note that the difficulties which may be encountered in the adolescent years because of the degree of resolution of the industry phase are paralleled by the

ways in which a sense of industry can contribute to and facilitate a positive resolution of the fifth stage as well as later developmental tasks.

The nature of the relationship between the industry and identity stages and the ways in which difficulties in industry or earlier periods manifest themselves here remains to be explored in the empirical literature, as does the sense of industry itself. It is sufficiently clear however, that while a sense of industry is by no means all a child needs for successful encounters in the adult world, it forms a large and facilitative part of what is needed, with reference both to this particular stage of childhood and the ability to "work", as well as to the developmental tasks of later periods.

CHAPTER 3

THE PRESENT STUDY

The purpose of the present study is to validate the construct of industry. This aim is two-fold. First, with a goal of contributing to the empirical literature on Eriksonian theory, school-age children serve as the appropriate population within which the psychosocial issue of the fourth stage may be subject to empirical validation. Second, an interest in theory-testing cannot be fully separated from an interest in industry-related developments in their own right. As noted, there is a growing recognition of and interest in the events and issues of the latency period. Erikson has laid down a framework and a focal issue which, if measurable, provides a potential basis for exploring relationships with other psychosocial stages as well as with other constructs.

The psychosocial task for the school age child is to learn how to work, how to expend one's efforts in useful directions. While here pertaining most directly and most critically to its development in the school age child, the persistent application of effort is necessary for any "job" and any attempt to work towards the achievement of short or long range plans or goals. Erikson (1964) has also addressed the need to work from a more evolutionary perspective:

"Ever since his "expulsion from paradise" of course, Man has been inclined to protest work as drudgery or slavery, and to consider as most fortunate those who seemingly can choose to work or not to work. The fact however is that man *must* learn to work, as soon as his intelligence and his capacities are ready to be "put to work" so that his ego's power may not atrophy" (p.123, italics in original).

A wide variety of social scientists have seen work as a useful illustration of the relationship between the individual and society. The field of social

psychology in particular has examined work in terms of person-role fit and in terms of the broader issue of personality and social system interaction. While questions of "job satisfaction" and its relationship to the construct of industry await later empirical efforts, as do numerous other issues, it is possible here to begin to appreciate potential relationships.

Erikson writes within the ego psychoanalytic viewpoint. The construct of industry however is one of interest and importance ~~to~~ a wide spectrum of theoretical orientations. Cognitive-behaviorists, social learning theorists and others are interested in how children learn to work. Whatever work roles they choose as adults, it is at the school age that Erikson suggests the ability to apply oneself meets its critical period. The skill represented by the achievement of a sense of industry is one which will stand the child in good stead for a wide variety of endeavors.

Somewhat in contrast to other psychosocial stages, the task of the fourth stage is among the more demonstrable and visible, both to oneself and to others. As Erikson (1977) notes:

"The *work role* which we begin to envision for ourselves at the end of childhood is, under favorable conditions, the most reassuring of all, just because it confirms us in skills and permits us to recognize ourselves in visible work" (p.106, italics in original).

This quality stands in contrast to a central problem in empirical attempts to validate and test other constructs in psychoanalytic theory, that is, their intrapsychic and "unobservable" nature. Attempts to operationalize some constructs have often led to the validation of terms only vaguely reminiscent of their original theoretical context and meaning. Erikson's emphasis on the developmental relationship of the individual to significant others in the social milieu and his elaboration of attitudes and behaviors characteristic of particular

developmental stages have made his theory somewhat unique within the psychoanalytic approach in its amenability to research. There is now a substantial body of empirical literature investigating various aspects and stages of Erikson's theory. Studies have investigated the fundamental principle of ego epigenesis, the systematic development of psychosocial skills with increasing age, and the concomitant principle that the ego is "strengthened" by each successive development. Boyd (1961, 1964) used a semi-structured interview for adults, and a series of projective pictures with children, to devise a quantitative profile depicting ego stage development. Ciaccio (1971) developed another coding system specific to children, using Boyd's projective measure, to study the first four stages. In a factor-analytic study, Varghese (1981) used Constantinople's (1969) Inventory of Psychological Development and derived two factors. These factors were labelled retrogression and actualization, which Varghese interprets as supporting Erikson's notion of a bipolar interplay at each developmental stage.

In recent years a large proportion of the research on Eriksonian theory has focused on the fifth of his eight stages, the development of ego identity. This focus is not surprising, given the pivotal emphasis placed on adolescence by Erikson as well as many other personality and developmental theorists. There are now well over 150 studies using Marcia's (1966) instrument, the Identity Status Interview, to investigate the four modes of resolving the fifth stage Marcia has described. Investigations into the sixth stage, where the individual is expected to commit him- or herself to lasting intimate relationships, have followed this model, attempting to validate "types" or modes of resolution. With growing interest in the field of gerontology, Erikson's later stages have been seen as useful in investigating the changes and issues associated with the process of aging. A comprehensive discussion and summary of research using the

Eriksonian psychosocial paradigm has been written (Marcia, Waterman, Matteson, Archer and Orlofsky, in preparation).

In terms of the large amount of empirical work conducted on Eriksonian theory, the theoretical relationship of industry to the fifth stage on which so much of the research has focused, and, more centrally in terms of the issues intrinsic to the period itself, it is surprising that so little work has been done on the fourth stage. Only two published studies known to the author have addressed the fourth stage in a direct fashion, and both do so retrospectively and in reference to the fifth stage. Bauer and Snyder (1972) used Rasmussen's Ego Identity Scale (1964) as an identity measure. College students scoring high on this measure were also high in "achievement" imagery with achievement being the understanding of the industry construct. Rothman's (1978) findings indicated that the second and fourth stages (autonomy and industry) were the most important precursors to resolution of ego identity in a multivariate analysis of psychosocial crisis variables related to identity status. In a doctoral thesis, Gilmore (1970) studied high school boys and found feelings of competence positively related to the attainment of identity, with both identity and competence related to exploratory behavior. Cooke's (1979) master's research used school age children in an attempt to support a contention of differential developmental patterns between boys and girls, theorizing that intimacy (stage 6) precedes identity (stage 5) for girls (see Josselson, 1973). Leaving some methodological and conceptual difficulties aside, Cooke still found industry issues of more importance than intimacy issues for both school age boys and girls. This study suggests in a preliminary fashion the stage-relevant nature of industry concerns for both sexes.

There are also several lines of research that lend support to Erikson's description of the stage. Thomas and Chess (1972) reported on the New York Longitudinal Study of 136 children followed from infancy onward. Their efforts have included the latency period. They conducted an inductive content analysis, arriving at fifteen categories which they suggest characterize the latency period, many of which overlap with the industry construct, as they acknowledge. Several major anthropological studies (e.g. Whiting, 1963) have shown the cross-cultural emphasis on skill acquisition and the learning of fundamentals of the culture's technology during this period. In another vein, Dudek (1974) noted that ages eight and nine are frequently cited as a time when a drop in creativity is reported to occur. She interpreted this finding, supported by her own research, as a confirmation of the change in the quality of expressiveness of this age. Children at this age begin to paint more realistically: painting as they see, rather than as they feel, reality. Dudek understood this as the expression of mastery and as reflective of cognitive developments with the transition to concrete operations. The child sees and integrates reality in a differentiated, as opposed to a more global, way. Whether it be an actual decrease in creativity per se, or, in line with Dudek's interpretation, evidence of a change in the quality of expressiveness, support for a belief that this period is a time for the development of skills and knowledge is given.

Another relevant body of research is comprised of studies investigating a wide number of constructs using this age group. Some of the more central constructs, such as task mastery, effectance or mastery motivation, and others may well be related to the industry construct. One problem here is that the majority of these studies are done with exclusive focus on the constructs themselves without attempting to relate them to a larger theoretical context,

making it difficult to describe possible relationships.

One possible exception is the work of Harter (1978, 1979, 1981, 1982) whose work in this area began as an effort to refine and extend White's theory of effectance motivation. More recently she has formulated her own theoretical model which reflects results of her empirical findings. Her construct of perceived competence and its ties to White's concept, are in turn related to the industry construct as defined in the present study. One's sense of industry in fact likely incorporates and informs one's perceived sense of areas of specific competencies in different domains.

The attempt to validate the construct of industry, embedded as it is within a theoretical perspective, and one which has been empirically examined, may allow for a framework within which an understanding of the relationships between industry and other constructs, as well as other Eriksonian stages, can be achieved.

3.1 Definition, Operationalization and Measurement of the Construct

Previous sections have provided a thorough and somewhat elaborated description of Erikson's theoretical views with particular regard to the fourth of his eight psychosocial stages of ego growth. The description of the sense of industry and concomitant concepts specific to the fourth stage is believed to reflect both the content and intent of Erikson's writings. It is not likely however, that they provide a complete description of reality. As stressed earlier, it is both unlikely and undesirable for any stage to result in an either/or solution. The dangers for example, of seeing work as the only criterion of one's importance, have been discussed. From an empirical standpoint, research on

other stages in Erikson's progression add support to the contention that an either/or description of the outcome of a psychosocial stage is an unlikely and incomplete account of possible outcomes. The work of Marcia (e.g. Marcia, 1976) and others using his paradigm on the fifth of Erikson's stages has produced a well-replicated identification of four modes of ego identity. These four modes have been discriminated on a wide range of personality, cognitive and behavioral variables. Similarly, research efforts on Erikson's sixth stage have shown that the alternatives of intimacy versus isolation describe only two of the possible resolutions of the stage. While the research described in the present study forms only the beginning of any attempt to differentiate modes or alternative styles of resolution, it is important here to appreciate the possibility of similar findings of alternative modes of resolution for the fourth stage.

In addition to empirical findings there are theoretical grounds on which the expectation of an either/or resolution may be questioned. While the term "sense of inferiority" is used by Erikson to designate the polar alternative to industry, it has been discussed in the present paper as a complement to and a component of the sense of industry. An integration of the "positive" and "negative" poles into a resolution for the fourth stage is expected. This expectation is consistent with Erikson's more recent writings and discussion of the relationship between the two poles. A child's awareness of both limitations and strengths in comparison with other children can serve as a motivational factor which propels the sense of industry to useful directions. A sense of industry does not provide the child with success in all areas. It does come to bear on the forward movement and effectiveness of the child's efforts and the return such efforts provide. The awareness of particular competencies and areas of difficulty, evaluated in a realistic fashion, would seem to complement this

process. Other children are important in serving as yardsticks and objects of comparison for the school age child. The process of social comparison itself seems to follow a developmental sequence, becoming a significant factor for the first time during this period. Ruble, Bogiano, Feldman and Loeble (1980), studying children in kindergarden through grade four, found that only the judgements of the grade four students were consistently affected by social comparison information. This finding may be reflective of the centrality of industry issues at this time and provides at least indirect support for the suggested inclusion of awareness of relative strengths and weaknesses into the definition of the industry construct. "Awareness of limitations" may in fact be a better term than "sense of inferiority" in this context, since it is the functional integration of both poles that is seen as focal and important in the sense of industry as understood here.

In light of both empirical and theoretical considerations it is suggested that the construct of industry as defined, is most usefully conceptualized as a continuum, with children manifesting greater or lesser degrees of the sense of industry. The balance along the continuum is determined by the degree of integration of the poles, resulting in a higher or lower placement on the continuum. This may constitute a revision of Erikson's description but seems entirely consistent with his intent. It may also be that different modes of approaching the task and different styles of resolution will emerge for this stage. The first question however, must be whether or not the construct as defined here can be reliably and validly measured.

There have been several other attempts to define the industry concept in the form of inventories designed to tap each of the eight psychological stages, some of which were used in the studies mentioned in the previous section.

These inventories typically have ten or so items specific to each stage. Such efforts are of limited value on their own. While the items specific to industry issues tap aspects of the construct stressed here, they are unidimensional in nature. The present study presents a more multifaceted definition of industry. This definition is believed to be consistent both with the theory and with constructs defining other psychosocial stages.

The most concise definition of the industry construct offered by Erikson is that of "a sense of being able to make things and make them well and even perfectly" (1968, p.123). Erikson has also referred to the sense of industry as "stick-to-itiveness" and "industriousness". Reference to the period as one of "apprenticeship" also serves to clarify the importance and meaning of this period of psychosocial development. In the present study the construct is most parsimoniously understood as the child's relationship to the process of "work". Work is broadly defined here to include any task or activity requiring one's application. More specifically the construct refers to the school age child's acquisition, application and affective experience of fundamental skills and knowledge, designated as important in the culture's work ethos. Thus the sense of industry is understood here as being comprised of several components. These components are: skills and knowledge; their application; and attitudes towards and affective experience of their acquisition and application in useful directions. These three components, spanning the cognitive, behavioral and affective domains respectively, are seen as having an interdependence and a reciprocity such that each component contributes to and is facilitated by the other two components.

It is the integration and interrelationship of some level of each of the three components that describes and defines the industry construct as understood

here. The separation of the construct into component parts is a useful tool in the attempt to operationalize and validate the construct, but an understanding of the interrelationship and reciprocity of the components is equally important in deriving meaning from the construct.

For the purposes of the present study, industry is conceived as a continuum with a child's placement on the continuum indicative of the "degree" to which a sense of industry has been achieved. Degree of integration of the three components will reflect agreement in level obtained across the three components. This approach provides the potential to obtain a number of "industry profiles". The child with a first language other than English, for example, might receive a higher placement in the second and third areas than in the first component, which is comprised of culturally designated skills and knowledge. A variety of other profiles may be descriptive in terms of what they suggest about the child's sense of industry. The sections which follow describe each of the three component areas and their dependent variables, along with a description of how they will be measured and the criteria for demonstrating construct validity.

A. The Three Components of the Industry Construct

1. Skills and Knowledge: The Cognitive Component

The cognitive component is comprised of the skills and knowledge seen as basic and fundamental by the culture. In the present context, these are presumed to include those skills and content areas stressed and taught in school. These skills and knowledge areas are important to the sense of industry because of their culturally-designated value. The central issue addressed by this first component is the degree to which the child possesses the skills and

knowledge societally valued as important.

Determination of the degree to which the child has acquired skills and knowledge were made primarily on the basis of scores on the most recently administered standardized ability test. Such tests provide an indication of the presence or absence of particular skills as well as information about the child's relative standing among peers. The use of a standardized and objective measure, administered nationally on a regular basis seems preferable to other less objective means. In addition, items tapping the first component were included in both the teacher and child industry measures.

2. Application of Skills and Knowledge: The Behavioral Component

Erikson describes the acquisition of skills and knowledge as important in and of itself. Their application in useful and productive directions and in an effective manner is regarded as a necessary aspect of industry. Without this component, the fact that the child has acquired skills and knowledge seems reduced in significance, in the same way that the experience of applying what one can do and what one knows provides the opportunity to use them more or less effectively, to experience their value, and simply, to practice and refine them. One without the other seems to alter their respective import, but together they combine to account for much of what is intended here by the construct of industry.

The child's ability to apply skills and knowledge with concentration ("steady attention") and to stick to tasks ("persevering diligence") are two qualities which are stressed within the classroom setting. The latter includes the ability to see things through to completion by means of steady effort. Children's involvement in useful and productive activities, "being busy with something" is

a third quality which provides evidence of this second component. A fourth aspect of the application of skills and factual knowledge is the effectiveness of work and goal-directedness. This includes the importance of planning and evaluation of alternative strategies. A fifth aspect, the ability to work with other children, stems from Erikson's emphasis on industry as involving the ability to work "with and beside" others. A sixth aspect stems from Erikson's description of the age appropriate ritualizations, loosely translated here as work habits and the use of appropriate methods for given ends. Thus the six content areas comprising the second component are: concentration, perseverance, involvement with activities, effectiveness of work/goal directedness, the ability to work with other children, and work habits.

All six areas comprising this component were included in child, teacher, and parent questionnaires. In addition, an observational measure of concentration and perseverance was included, in which on-task versus off-task will be monitored while children are engaged in desk work.

3. Attitudes Toward and Experience of the Acquisition and Application of Skills and Knowledge: The Affective Component.

The child who possesses basic skills and factual knowledge and applies them in a productive manner should also experience the associated affective component. Stemming directly from Erikson's description of industry is the child's feeling of being "useful" and a sense of being able to do things well. A second aspect is enjoyment of the process of applying oneself, satisfaction from one's efforts and from what one has learned, as well as pride in one's accomplishments. A third aspect is the child's identification with "those who know things and know how to do things". This aspect also includes a sense of

the relevance of schoolwork as preparation for the eventual realization of roles which the child now experiences through identification and, in general, a sense of participation in the culture. An attitude of curiosity and interest in learning is also among the affective elements entering into the reciprocal and reinforcing relationship described between the components. A fifth aspect considered is the experience and awareness of limitations and strengths, representing the "sense of inferiority", regarded as an important aspect of an integrated sense of industry. This aspect includes a sense of one's accomplishments and of the importance of one's own evaluation of work quality. A sixth and final aspect of this third component of the industry construct is the child's attitude towards school.

It is the child's subjective experience of this component which is seen as most informative here, but all six aspects were included in each of the three industry questionnaires (child, teacher and parent measures).

Summary scores were derived for each of the five measures mentioned above--ability test scores, child, teacher and parent questionnaires, and the observational measure.

4. Global Assessment

In addition to measures of the three component areas, teachers and parents were also asked to provide a global judgement (high, medium or low) of the child's manifestation of a sense of industry as defined in the present study.

B. Convergent and Divergent Validity

The validation of the construct of industry as defined here requires a convergence among the measures developed to tap the construct: a child self-report measure (the Child Industry Questionnaire), the Teacher Industry Questionnaire (tapping the teacher's perspective on the child's manifestation of a sense of industry); and the Parent Industry Questionnaire. Some degree of agreement in level of a sense of industry (high, medium or low) across these measures is needed to demonstrate such convergence. In addition, agreement across the three component areas within these three measures as well as with the two measures specific to the first two components (children's most recent score on a standardized ability test and the observational measure, respectively) will be supportive of the validity of the integrative definition of the construct offered here. Similarly, agreement among items tapping the various aspects of each of the three components is needed to further validate the definition of industry described.

Demonstration of construct validity also requires the differentiation of the concept of industry from other related constructs (Campbell and Fiske, 1959). Children high in industry should score higher on an intelligence test, given the hypothesized relationship between skills and industry. However, industry and intelligence are not equivalent terms. The relationship among the hypothesized components of industry should remain even after controlling for the variance accounted for by intelligence scores achieved on Raven's Standard Progressive Matrices. In addition all pupils completed the Children's Social Desirability Scale (Crandell, Crandell, and Katkovsky, 1965), allowing an assessment of the degree to which the child's tendency to respond in a socially desirable direction has influenced scores on the child industry measure.

C. Dependent Variables

It is important to note that here, as in other construct validity studies, the traditional distinction between independent and dependent variables is somewhat blurred. A judgment is involved in assigning areas to one or the other variable category. The criterion applied here is that aspects or qualities placed on the independent variable side are directly reflective of the three component areas described as comprising and defining the industry construct. Children's scores obtained on each of these components should then be predictive of differences obtained on hypothetically derived dependent variables.

A number of corollaries of the sense of industry have been discussed in earlier sections, areas on which children high, medium and low in industry are expected to differ. These variables stem from Erikson's writings or derive from hypothetical relationships consistent with the construct as defined in the present study.

The transition from the preceding stage to the industry stage is marked by several changes, one of which is the attraction held by certain activities in terms of what they provide to the child in return. This change is described most simply by the adjectives Erikson uses to describe the two periods, the "play" age and the "apprenticeship" period respectively. A first dependent variable is thus a preference for making things ("reality") as opposed to making things up ("fantasy"), with children higher in industry expected to prefer the former more frequently than children lower in industry.

A second dependent variable is comprised of several aspects, all reflective of a distinction between the process of being involved in an activity or task and the outcome of that involvement. The child with a sense of industry has

been described as being involved in the process of applying him- or herself to tasks, in addition to being concerned with the outcome of that process. Children high in a sense of industry are expected to be concerned with the process itself, somewhat independently of its outcome, in contrast to children low in industry who are expected to make less of a distinction between process and outcome. The value placed on the expenditure of effort is also included in this variable. Children high in industry are expected to place greater value on the process of applying themselves in a productive manner, that the expenditure of effort and the application of oneself provide, in and of themselves, a return to the child, independent of actual outcome. As part of this distinction between process and outcome, it is also expected that children high in industry are less likely to be deterred by failure experiences. The sense of industry has been described as providing the child with a "functional resiliency", allowing the child to try and try again. A final aspect of this variable involves a distinction between "task" and "ego" involvement with tasks. In presenting children, several studies have used situational cues to enhance characteristics of the task itself (task-involvement) or to emphasize the task as a test of personal ability (ego-involvement). The task-involved child is concerned with how to complete the task, how to go about approaching the task in light of task characteristics. The ego-involved child approaches the task with a view of how to avoid looking less able than his or her peers, or to demonstrate superior ability. Task-involvement implies mastery as a goal, and learning is seen as an end in itself. In ego-involvement, concern is whether the task will lead to demonstration of superior or inferior ability. (Nicholls, 1979). Little attention has been paid to individual differences with regard to this distinction, with the focus having been more on facilitating differential involvement by different situational sets. Some suggestion of individual differences has been made in the literature, and the

greater effectiveness of task-involvement for learning and maximizing achievement has been noted (Nicholls, Jagacinski, and Miller, in press; Nicholls, 1979). The conceptual affinity between the sense of industry and the task-involvement versus ego-involvement distinction, and its specific correspondence to the process/outcome distinction, provide a strong rationale for inclusion of this issue. While this distinction has not been used in this precise form, past research does suggest that individual differences may be expected and that such differences will correspond to different levels of industry. Children higher in a sense of industry are more likely to approach tasks with an interest in the task itself and the process of completing it, whereas children lower in industry are more likely to focus on how performance on the task will reflect on themselves and on their ability.

A third dependent variable is overall contentment. As discussed, the positive resolution of any psychosocial stage is seen within Erikson's theory as positively related to self-esteem. While not tapping self-esteem per se, items asking about the child's overall self-contentment are included, with the expectation that the child who has positively resolved the fourth stage is more likely to express overall satisfaction or contentment.

These three variables: preference for making things as opposed to "making things up", process/outcome orientation (which includes value placed on effort, attitude towards failure and mistakes, and task versus ego involvement) and overall contentment were included as items on the Parent, Teacher and Child Industry Questionnaires.

There are two other dependent variables to be discussed. With a belief that a sense of industry generalizes across tasks and situations, a fourth

dependent variable is formed by responses to open-ended questions included on the Children's Industry Questionnaire. These questions were designed to tap expected differences between high and low industry children in terms of both content and completeness. With regard to content, there are some responses seen to be more reflective of a high sense of industry than others (more in terms of degree of thoughtfulness than specific content). In terms of completeness, these questions form a work sample such that the way in which a child approaches their completion and the degree of thoroughness in his or her answers is seen as a "one-shot" sample of the child's approach to work in general.

A final dependent variable is level of reasoning with regard to the concepts of effort and ability. This variable stems from a theoretical domain different from that of the dependent variables already discussed and as such, while it is clearly relevant to the industry construct, is also more sharply differentiated from it.

The fact that developments in the psychosocial sphere are related to developments in the cognitive realm has already been hypothesized, with the inclusion of a cognitive component in industry's definition. Erikson (1982) has discussed the theoretical affinity between his stages and the cognitive stages of Piaget. (See also Greenspan, 1979). The work of Nicholls (e.g. 1978) offers a bridge between the cognitive realm and the construct of industry.

Nicholls and his colleagues have investigated the developmental progression of concepts related to the child's perception of his or her own ability and general performance in school. In particular, his work on the understanding and discrimination of the concepts of effort and ability is important here.

Nicholls (1978) has identified four levels of reasoning involving children's understanding regarding effort and ability. At the first (and lowest) level, effort, ability and outcomes of performance are insufficiently differentiated as cause and effect. Children at this level of reasoning focus exclusively on effort: children who are seen as trying harder on a task are seen as smarter, even if they receive a lower score on the task. Less frequently, but also indicative of reasoning at this level, children center on outcome: children who receive a higher score on a task are said to work harder, even if they do not, and are seen as smarter. At the second level, effort is seen as the cause of outcome, and equal effort is expected to lead to different outcomes. When scores on a task are the same but effort differs, children explain this by suggesting compensatory efforts by students who try less (e.g., the lazy child worked hard for a while) or in terms of misapplied effort by the child who displayed more effort (e.g., they went quickly and made mistakes). At the third level, children see effort as one of several possible causes of outcome, and effort and ability are partially differentiated for the first time. Explanations offered by children at this level, when equal outcomes follow different levels of effort, involve suggestions implying the conception of ability as capacity (e.g., the person is faster or brighter). The notion that equal outcome should follow equal effort may still be asserted here. It is only at the fourth and highest level that effort and ability are fully differentiated. Ability is seen as capacity which may constrict or facilitate the effect of effort on performance.

These four levels of reasoning follow a developmental progression, and are linked to developments in the cognitive sphere. While seven year-old children (concrete operations) are expected to be at lower levels, by age thirteen (formal operations) attainment of the highest level is expected. This development is not

uniform across children however. In Nicholl's work, moderate variation was noted among the grade levels of present interest (grades 4-6). What is suggested in the present study is that such variation across levels of reasoning will correspond to measures of the degree of industry manifested by the child. Here the attempt is to demonstrate that children high in industry will be found more frequently higher levels of reasoning categories than will children lower in industry.

To tap the level of reasoning attained, a videotape modelled after a film used by Nicholls was made. The videotape depicts three scenarios showing two children working on the same task and expending different degrees of effort. The hardworking and the "lazy" child receive identical task scores in the first two scenarios, and different scores on the third scenario, with the hardworking child receiving a lower score than the "lazy" child. After viewing each scenario children were asked to account for the similarity and difference of scores, given differing amounts of effort. In addition to Nicholl's questions, the videotape was also used to provide another measure of the value placed on effort by asking children to decide which of the children they believe will be more successful in the future. The expectation is that children higher in industry will both better differentiate the role of effort in outcome and will ascribe a higher value to effort, independent of its perceived effect on performance.

The social desirability measure, included to separate the tendency to respond in a socially desirable manner from industry scores also serves as a dependent variable in a specific context. Children with high scores on both industry and social desirability will be differentiated from children with a high industry score and low to moderate scores on the social desirability measure. These two groups are seen as representing two possible "types" of high industry

children with the former characterized by a more "driven" quality than the latter. Table 4 provides a review and summary of the independent, dependent, and discriminant validity variables (intelligence and social desirability).

Table 4

Independent, Dependent and Discriminant Validity Variables

I. The Independent Variable: The construct of Industry

- a. Component #1 - Skills and knowledge (Cognitive Dimension)
- b. Component #2 - Application of Skills and Knowledge (Behavioral Dimension)
 1. concentration ("steady attention", paying attention, distractability).
 2. perseverance ("persevering diligence", work thoroughness)
 3. busyness and involvement with activities ("being busy with something")
 4. effectiveness of work and goal-directedness.
 5. ability to work with other children ("doing things with and beside others").
 6. work habits (neatness, promptness, appreciation of standard methods).
- c. Component #3 - Attitudinal/experiential (Affective Dimension)
 1. feeling useful and able to do things well.
 2. enjoyment of work, pride and satisfaction in doing something well.
 3. sense of participation in the culture (relevance of schoolwork, identification with adults).
 4. interest in learning and general curiosity.
 5. appreciation of one's own strengths and weaknesses.
 6. attitude toward school.
- d. Global Rating - An overall (high, medium, low) rating of child based on above.

II. The Dependent Variables

1. preference for making things ("reality") versus making things up ("fantasy").
2. process/outcome orientation (a) importance of grades versus learning; (b) attitude toward mistakes; (c) value placed on effort; (d) task or ego involvement.
3. overall contentment.
4. work sample (content and completeness).
5. level of reasoning with regard to concepts of effort and ability.

III. Discriminant Validity Variables

1. Intelligence
2. Social Desirability

3.2 Hypotheses

The present study is an initial attempt at establishing construct validity for the industry concept. As discussed in the preceding section, several relationships are expected to be observed if the definition and operationalization of the construct are valid. These relationships are summarized in the following hypotheses:

1. Hypothesis #1: The three component areas of industry should be significantly and positively correlated with each other.

Industry has been defined as being comprised of three components tapping cognitive, behavioral and affective domains. It is expected that a child will be roughly the same across component areas, thus significant correspondence across the three areas is predicted. Agreement among the component areas will be indicative of the integrative structure of the construct.

2. Hypothesis #2: Each of the three component areas should be positively and significantly correlated with the overall mean of the three areas combined on each of the questionnaire measures of industry.

Such correspondence would provide an indication of the usefulness of such a mean score to represent the component areas.

3. Hypothesis #3: The three measures of industry (the Child, Parent and Teacher Industry Questionnaires) should be positively significantly correlated with each other.

Such correspondence is important in demonstrating the convergent validity of the construct.

4. Hypothesis #4: Correspondence among measures of the construct should be higher among measures (or sections of measures) tapping the same component area of the construct.

Specifically:

A. Mean Scores:

1. There should be a positive correlation between mean scores on the three questionnaire measures.

B. Component #1: skills and knowledge.

1. There should be a positive correlation between ability test scores and teacher ratings of ability (as measured by items on the Teacher Industry Questionnaire).

2. There should be a positive correlation between ability tests scores and children's evaluations of their own mastery of skills and factual information (as measured by items on the Child Industry Questionnaire).

3. There should be a positive correlation between children's evaluations of ability and that of the teacher (as measured by items on the Child and Teacher Industry Questionnaires, respectively).

C. Component #2: application of skills and knowledge.

1. There should be a significant positive correlation between the observational measure of this component and items on the Child, Teacher and Parent Industry Questionnaires tapping this component.

2. There should be a significant positive relationship between the items on the Child Industry Questionnaire and items on the Teacher and Parent Industry Questionnaires tapping the second component.

3. There should a significant, positive correlation between items on the Teacher Questionnaire and items on the Parent Questionnaire tapping this second component.

D. Component #3: attitudinal/experiential.

1. There should be a moderate but positive correspondence between items tapping the third component on the Child, Parent and Teacher Industry Questionnaires.

A finding of significant agreement among measures or sections of measures tapping the same component area would lend support to the conceptualization of the construct into three interactive yet distinguishable components.

5. Hypothesis #5: The global rating of industry made by the teacher and parent should positively correlate with the level assigned on the basis of the total of other items on the teacher or parent questionnaire, respectively.

6. Hypothesis #6: Children higher on the independent variable of industry are expected to differ significantly from children with lower industry scores on a number of dependent variables:

a. *making things as opposed to "making things up"*- it is expected that children high in industry will show greater preference for making and doing things, as opposed to fantasy activities, than will children low in industry. This expectation is held partly as an indication of the shift from

the earlier stage, and in light of the appeal held to the child by activities engendering a sense of being productive.

b. *process/outcome orientation*- children high in industry are expected to be more concerned with the process of engaging in productive endeavors than they are with the outcome of that process whereas children lower in industry are expected to be more concerned with outcome. Similarly, children high in industry are expected to be more "resilient" to failure and mistakes than children lower in industry, and to value effort to a greater degree than children low in industry. Children high in industry are expected to be more likely to be task-involved, whereas children lower in industry are more likely to be ego-involved

c. *overall contentment*- children high in industry are expected, on the whole, to be more content with themselves than are children low in industry. This expectation stems from the positive relationship suggested by Eriksonian theory between successful resolution of a psychosocial stage and self-esteem.

d. *work sample* - Children scoring high in industry are expected to provide work sample responses that are more complete and whose content reflects a higher level of thoughtfulness than those of children scoring low in industry.

e. *level of reasoning*- children scoring high in industry are expected to be represented in the higher levels of reasoning described by Nicholls (1978) more frequently than are children scoring low in industry.

7. Hypothesis #7: Industry and Intelligence (as measured by Raven's progressive matrices) are expected to be positively and significantly related, but there should be variance accounted for in dependent measures by the industry construct not accounted for by intelligence and error variance alone.

8. Hypothesis #8:

a. While a relationship between industry and social desirability (as measured by the Children's Social Desirability Scale) is expected, there should be significant variance accounted for in dependent measures by the industry construct not accounted for by social desirability and error variance alone.

b. It is also expected that children with high scores on both industry and social desirability can be differentiated from children with a high industry score and a low or moderate social desirability score, with the former group characterized by a more "driven" quality than the latter group. These two groups would be seen as representing two "types" of high industry children.

9. Hypothesis #9:

Given the three grade levels participating in the study (grades four, five and six), some developmental progression and age difference is expected to be observed.

Specifically:

a) children in grade six should show higher consistency across measures of industry than will children in grade four, indicating a higher degree of resolution achieved by the older children.

b) this developmental progression should also be apparent in higher industry scores, on the average, for the older children.

10. Hypothesis #10: There should be a positive correspondence among items designated as reflecting the industry construct on the Children's Industry Questionnaire, as reflecting in factor loadings. In addition to expecting one large factor, items should be highly correlated within particular content areas. The factor analysis process will be conducted with a view to developing a parsimonious and valid measure of the industry construct.

CHAPTER 4

METHODOLOGY

4.1 SUBJECTS

Subjects were 205 pupils from three public elementary schools. The total sample was composed of 67 fourth graders, 59 fifth graders and 79 sixth graders. There was a total of 113 boys (55.1%) and 92 girls (44.9%). The participating schools provided a broad and diverse range of children with respect to socioeconomic status and ethnic background. The number of pupils from each of the three schools is as follows: S1=121(59%); S2=27(13%); S3=57(28%). The total subject pool represents 8 classes (2 grade 4 classes; a 4/5 grade split class; a grade 5 class; a split grade 5/6 class; 2 grade six classes; and the sixth graders from a split grade 6/7 class). The age range was 8.6 to 12.8.

While the industry period refers to the "school-age" child, grades 4, 5 and 6 were chosen to allow for some observation of developmental progression and to avoid the introduction of puberty and other concomitant early adolescent identity issues.

4.2 MEASURES

A total of nine measures were used in this study: there are three industry questionnaires (for teachers, parents and children) developed specifically for the purposes of this study; an observational measure of industry; a written adaptation of a film interview developed by Nicholls (1978); the Children's Social Desirability Scale; Raven's Standard Progressive Matrices; and ability test

scores and grades already obtained by the schools. Each of these measures and their relevance to the industry construct, is described in detail below.

1. Ability Test Scores and Grades - Scores on the most recently administered standardized ability test provide a main measure of the first component of the industry construct, skills and knowledge. Such scores are seen to reflect a standardized estimate of the degree to which the child has acquired culturally-valued skills (i.e. spelling, language arts, mathematics, reading, and work skills). Scores on the Canadian Test of Basic Skills (a Canadian adaptation of the Iowa Achievement Tests) for a total of 7 classes from two schools were obtained. Grade equivalency scores for two of these classes were adjusted to accommodate the time difference in when the test was administered. The class from the third participating school had used the Canadian Achievement Test which is a Canadian adaptation of the California Achievement Test. While not identical, the scores on these two tests are seen as equivalent for present purposes. These were used as concurrent validators of the child's and teacher's assessment of the pupils' standing on the first component. Both percentile ranks and grade equivalencies were obtained. Grades from the end of the previous year (from the previous semester for one class) were also recorded and were used along with achievement test scores.
2. The Child Industry Questionnaire - This measure was developed to tap the three components of the industry construct from the child's perspective. With regard to the first component, skills and knowledge (cognitive), the child's perceptions of his or her mastery of basic skills and factual information in core subjects were elicited by items included in this measure. The second component, the application of skills and knowledge

(behavioral), is measured with items focusing on the child's judgment of his or her ability to concentrate and become involved in schoolwork and other projects; to persevere, to stick to tasks and see them through (work completion), and apply steady effort; involvement with activities; perceived goal-directedness and effectiveness of work; ability to work with other children; and work habits. The child's self-report is especially important with regard to the third component, the attitudinal/experiential (affective). Component items survey the child's feelings of being useful and able to do things well; enjoyment of work, and of applying oneself to tasks; and of pride and satisfaction in doing something well; sense of participation in the culture (i.e. viewing school as necessary/relevant to later participation in the culture in a work role) and identification with adults; interest in learning and general curiosity; the child's awareness and appreciation of his or her own strengths and weaknesses, and attitude towards school. In addition to tapping the three industry components, this measure includes items addressing the following dependent variables: preference for making things ("reality") versus making things up ("fantasy"); process/outcome orientation, including attitude toward mistakes/failure, perceived value of effort and task versus ego-involvement with tasks; overall contentment; and a work sample in the form of open ended questions covering industry-relevant areas.

The questionnaire is largely comprised of questions requiring a response on a Likert-type scale, where a "structured alternative format" (Harter, 1982) has been adopted. The child is asked first to decide which kind of child he or she is most like by choosing the child described on the left or right. For example:

REALLY TRUE
FOR ME

SORT OF TRUE
FOR ME

SORT OF TRUE
FOR ME

REALLY TRUE
FOR ME

Some kids feel that they
are very good at their
schoolwork.

BUT

Other kids worry about
whether they can do the
schoolwork assigned.

Once the choice is made between the child described on the left or right, the child is required to decide the extent to which the description is true for him or her, i.e. "sort of" or "really" true. Items with this format are scored from 1-4 where a score of one indicates the lower levels of the industry construct. This question format is considered to legitimize both choices for the child, and to minimize social desirability (Harter, 1982). Harter used this format in her Perceived Competence Scale (Harter, 1982) and obtained a correlation of .09 with the Children's Social Desirability Scale (Crandell, Crandell and Katkovsky, 1965). In developing questions for this measure, other measures served as valuable reference and provided some specific items adapted for present purposes: Harter's Perceived Competence Scale (1982), Constantinople's (1967) Inventory of Psychosocial Development, and the Erikson Stage Inventory, developed by Rosenthal, Gurney and Moore (1981).

While some items may be perceived as "personal" in nature, neither they nor the industry construct itself are substantively different from the issues which the school child encounters in the course of normal school activities and involvements. Sample items from the questionnaire are listed below (the Child Industry Questionnaire may be found in Appendix A):

e.g. component #1: skills and knowledge:

Some kids at my grade level really know the basics of spelling, arithmetic, reading and science.

BUT

Other kids don't really know the basics.

e.g. component #2: application of skills and knowledge:

Some kids finish doing everything they start to do.

BUT

Other kids don't get things finished.

e.g. component #3: attitudinal/experiential:

Some kids are satisfied in meeting minimum requirements.

BUT

Other kids get really interested in what they learn and follow up on their own time.

This measure is composed of 70 items, 54 of which are in the above format (27 are scored in the negative direction, 27 in the positive direction). Ten other questions are in multiple choice format, with each response option assigned a value. The remaining 6 questions are open-ended. One of these was deleted after data collection as the number of blank and incorrectly completed responses suggested it was overly complicated and confusing.

Responses to the structured format and multiple-choice items were pre-assigned a value of 1-4 with 4 being indicative of a higher level of the industry construct. Responses to the open-ended questions (which comprise one of the dependent variables, the work sample) were scored (1, 2 or 3) on the basis of two criteria: content and completeness. A score of 1 (low) was assigned to responses that simply answered the question. E.G. Q: "What is the activity you most enjoy?" A: "Sports". A score of 2 (medium) was assigned to responses that reflected one of the two criterion

dimensions. E.g. A: "Sports. I like to challenge myself".(This reflects the content dimension). A score of 3 (high) was assigned to responses that reflected both the completeness and the content dimension. E.g. a more elaborated response reflecting the same content as above.

These scores were checked for interrater reliability with two experienced raters on a subsample of 56 pupils. Percentage agreement over all 5 items was 89% (249/280). None of the 31 disagreements in assigned scores exceeded a 1 point difference. (23 of the disagreements were between a score of 2 and 3; 8 were between scores of 1 and 2). Pearson correlations for assigned scores given by the two raters was calculated over all 280 items ($r = .91$, $p = .0005$). Pearson correlations between total scores summed over the five items using scores assigned by the two raters were also calculated. ($r = .96$, $p = .0005$) A matched-group t-test was performed on these total scores to determine if the differences were significant. A non-significant t-score of .027 ($df = 55$) was obtained. Kappa statistics were calculated for each of the five open-ended items in the subsample of 56 pupils. Kappa statistics of .75, .83, .76, .97, and .80 were obtained for open-ended items 1-5 respectively. An overall kappa calculated over all five items of .82 was obtained. (see Table 5)

Table 5

Interrater Agreement on CIQ Open-Ended Items

Percentage Agreement (249/280) n=56

89%

Pearson correlation between individual
item scores assigned by Rater A and B

r=.91 (p<.0005)

Pearson correlation between total
scores obtained by Rater A and B

r=.96 (p<.0005)

Matched Group t-test

t=.027 df=55 ns.

Kappa for each Item:

Item 1

$\kappa = .75$

Item 2

$\kappa = .83$

Item 3

$\kappa = .76$

Item 4

$\kappa = .97$

Item 5

$\kappa = .80$

Kappa Over All 5 Items

$\kappa = .82$

3. The Teacher Industry Questionnaire - This questionnaire parallels the Child Industry Questionnaire to a large degree, including most of the content areas for both industry components and dependent variables, but here tapping the teacher's perceptions of the child's sense of industry as manifested in the classroom or in other activities of which the teacher may have knowledge. This measure is especially important with regard to the second component, the application of skills and knowledge. The format described above for the Children's Industry Questionnaire, the "structured alternative format" is used here as well. Sample items from the Teacher Industry Questionnaire are listed below (the Teacher Industry Questionnaire may be found in Appendix B):

e.g. component #1: skills and knowledge:

This pupil possesses a comfortable knowledge of basic skills and factual information.

OR

This pupil does not possess a comfortable (working) knowledge.

e.g. component #2: application of skills and knowledge:

This pupil can concentrate for a long period of time when he or she is really interested in what he or she is working on.

OR

This pupil can only work (concentrate) for short periods of time, no matter what he or she is working on.

e.g. component #3: attitudinal/experiential:

This pupil is satisfied in meeting minimum requirements.

OR

This pupil gets really interested in what he or she learns and follows up on his or her own time.

This measure is composed of 33 items, 14 of which are scored in the negative direction, 18 in the positive direction and a global item where the child is ranked as high, medium or low in industry.

4. Parent Industry Questionnaire - The Parent Industry Questionnaire is essentially a shortened version of the teacher questionnaire, and asks parents to base their answers on their child's behavior/attitudes/activities with which they are most familiar, and over at least the past month. The format of the Parent Questionnaire is the structured alternative format already described. Parents are also asked to provide a global estimate of their child's manifestation of a sense of industry by assigning a rank of high, medium or low. Sample items from the Parent Industry Questionnaire are listed below (the Parent Industry Questionnaire may be found in Appendix C):

e.g. component #2:

Some children like to spend their free time hanging around and, in general, do not make good use of free time.

BUT

Other children like to be busy with something all (most) of the time and, in general, make good use of free time.

e.g. component #3:

Some children tend to get angry or resentful in response to constructive feedback or criticism.

BUT

Other children tend to use feedback or criticism as a guide to improving themselves or their performance.

This measure is comprised of 19 items, 9 of which are scored in the positive direction, 9 in the negative direction and the global item asking parents to assign their child a rank of high, medium or low

5. Observational Measure - A measure of on-task versus off-task behavior was used as an additional, observational measure of the second industry component - application of skills and knowledge with one of the eight participating classes. In particular this measure was used to assess the ability to concentrate ("steady attention") and stick to tasks ("persevering diligence"). This measure is comprised of the total proportion of time spent on-task while being repeatedly observed over a specified time period by two observers. Ratings were obtained for one class of 31 pupils.

A significant amount of "practice coding" took place in the classroom. This allowed the two coders familiarity with the pupils and with regular classroom activities and procedures as well as allowing the pupils to "habituate" to their presence. During this time, discrepancies, questions, and areas of ambiguity were ironed out and types of activities amenable to an on-task/off-task distinction were determined. Coders each wore a small earphone which was connected to a device that beeped at seven-second intervals. The coders together observed the same pupil for this interval, moving to the next pupil at the sound of the beep in a predetermined order. The following definitions of the behaviors of interest were used:

A. On Task Behavior. On-task behavior is defined to include those behaviors clearly indicative of attention to an assigned or specific task or to "desk work" (where teacher instructs pupils to work on any projects or assignments needing completion). These behaviors include looking at work, writing, underlining, drawing, looking for appropriate utensil and attending to the teacher. Such behaviors were assigned a score of 2.

B. Off-Task Behavior Off-task behavior was defined to include those behaviors clearly indicative of a lack of attention to an assigned or specific task or desk work, such as talking and laughing with another pupil during time designated for specific work, looking around the room and looking out the window. Such behaviors were assigned a score of 0.

C. Uncodeable Behavior Uncodeable behavior was defined to include the following situations: when the teacher called on the child; when the child left the room; activity change in the classroom; the very beginning or the very end of a new activity; coughing or sneezing. Such behaviors were scored with a blank.

D. Ambiguous Behaviors Ambiguous behavior was defined to include the following kind of behavior: pupil walking across the room; talking with other children when unclear if work-related; child interrupted by another child (if child went immediately back to work such segments were scored as on-task). Such ambiguous behaviors were scored 1.

All four categories as applicable were coded for each child over the observation period. Periods of uncodeable behavior or segments where class activity was unscorable (e.g. a film) were clearly indicated. The measure of interest is the total proportion of on-task segments over the total number of on and off task observations for each child. Ambiguous behavior segments were not included in data analyses but are included in calculation of interrater agreement and kappa estimates where appropriate. (see Table 6)

A total of 683 observation segments were obtained where scores of 0, 1 or 2 were assigned by each of the two trained observers. There was a

mean number of 22 segments per pupil, with a range of 4-27.

Overall percentage agreement over the 683 segments in which a score of 0, 1 or 2 was assigned was 92%. (627/683). Percentage agreements for each child were also calculated and may be found in Table 7. These ranged from a low of 72% to perfect agreement.

An overall Kappa of .83 was obtained on the total 683 segments with matched observations. Kappa statistics were also calculated for each pupil and ranged from .44 to 1.00. The average kappa for the 31 pupils was .82. These individual kappa statistics are reported in Table 7.

To determine the actual degree of disagreement Pearson correlations were obtained on total scores (total score = total number of on-task segments / total number of on and off task segments) for Rater A and Rater B. A Pearson correlation of .975 was obtained between rater A and rater B ($n=31$, $p=.0005$) on these total scores. Chi-square analyses were also calculated for each pupil over respective number of observation segments. These are reported in Table 7. An overall Chi-square analysis was performed over all the observation segments ($n=683$) for the 31 pupils. As reported in Table 6 a Chi-Square of 786.67 ($df=4$ $p=.005$) was obtained.

A matched-group t-test was performed as an additional index of whether or not the differences on total scores from rater A and rater B were significant. A non-significant t of $-.082$ ($df=29$) was obtained. (see Table 6).

In terms of the nature of the disagreements themselves, only 8 instances of a disagreement between on versus off task behavior occurred

(4 of these were given a final scoring of off-task, 2 were scored on-task and 2 were scored ambiguous) out of the 683 observation segments. Other disagreements ($n=48$) reflect discrepancy in whether the segment was scored as on or off task behavior versus ambiguous behavior. When one rater scored a segment as on-task and the second rater scored the segment as ambiguous a final score of on-task was assigned 19 times, and a final score of ambiguous behavior was assigned 14 times. When the disagreement was between off-task and ambiguous behaviors, a final score of off-task was assigned 7 times, and a score of ambiguous was assigned in 8 instances. Total scores obtained by Rater A and Rater B respectively were both highly and equally associated with the arbitrated score (the score for individual segments in which disagreement in scoring occurred). A correlation coefficient of .99 was obtained for both raters with the arbitrated score. (See Table 6).

Global ratings on industry were made (high, medium or low) for each child by the two raters based on their impressions and observations of each child during the time they spent in the classroom. The two raters agreed on 24 out of 28 ratings (86%). (There were also three children for whom the raters felt insufficient observation had taken place for this rating to be made). There was no disagreement greater than one level. A Pearson correlation on these ratings was also obtained ($r=.86$ $p=.005$).

Table 6

Interrater Agreement on Observation Segments

Overall Kappa (n=683, matched observations scored 0, 1 or 2)	.83
Overall Percentage Agreement (627/683)	92%
Pearson Correlation between Total Scores for Rater A and Rater B over all observation segments.	r=.975 p<.0005 s.d.=.14
Chi-square analysis between scores (0, 1, or 2) assigned by Rater A and Rater B over all observation segments. (N=683)	$\chi^2 = 786.67$ p<.005 df=4
Matched Group t-test between total scores obtained by Rater A and B	t=-.82 df=29 ns.
Pearson correlation between Rater A and Arbitrated Score	r=.99 p<.0005 s.d.=.14
Pearson correlation between Rater B and Arbitrated Score	r=.99 p<.0005 s.d.=.14

Table 7

Interrater Agreement on Observation Segments by Pupil

<u>s#</u>	<u>χ^2</u>	<u>df</u>	<u>p</u>	<u>%agree.</u>	<u>#segments</u>	<u>Kappa</u>
1	17.31	4	.005	85.0	26	.68
2	40.65	4	.005	96.0	27	.92
3	45.51	4	.005	96.0	28	.94
4	27.00	4	.005	100.0	27	1.00
5	41.94	4	.005	94.0	18	.89
6	18.01	4	.005	88.0	12	.73
7	16.84	4	.005	72.0	18	.54
8	4.63	4	.500	100.0	6	1.00
9	30.86	4	.005	92.0	26	.78
10	50.00	4	.005	100.0	25	1.00
11	23.08	4	.005	100.0	23	1.00
12	22.26	4	.005	89.5	19	.80
13	26.11	4	.005	91.3	23	.84
14	37.90	4	.005	91.7	24	.85
15	44.53	4	.005	100.0	21	1.00
16	28.35	4	.005	88.9	27	.73
17	13.36	4	.010	87.5	16	.67
18	12.05	4	.025	91.7	12	.64
19	24.36	4	.005	87.0	23	.78
20	31.15	4	.005	88.0	25	.78
21	4.00	4	.500	100.0	4	1.00
22	26.44	4	.050	80.8	26	.69
23	34.29	4	.005	88.9	27	.72
24	44.43	4	.005	96.3	27	.91
25	24.37	4	.050	87.0	23	.69
26	30.87	4	.005	88.0	25	.78
27	13.97	4	.010	84.6	26	.44
28	52.62	4	.005	100.0	26	1.00
29	25.00	4	.005	96.0	25	.81
30	27.63	4	.005	94.7	19	.90
31	40.67	4	.005	95.8	24	.93

6. Levels of Reasoning: The levels of reasoning described by Nicholls (1978) regarding the concepts of effort and ability were measured with the use of a film patterned after that employed by Nicholls. The four levels of reasoning are:

Level One - effort, ability and outcome are not differentiated as cause and effect; children who work harder than others are seen as smarter even when they get a lower score, thus the main focus is on effort; less commonly, focus is on outcome where children who get a higher score are seen to work harder, even if they do not, and are seen as smarter.

Level Two - effort is seen as the cause of outcomes, and equal effort is expected to lead to equal outcomes ("if they worked the same, they'd get the same score"); when scores are the same, but level of effort differs, children at this level explain the outcome in terms of compensatory effort ("at the end the lazy one tried really hard to catch up") or in terms of misapplied effort by those who try harder ("they went too quickly and made mistakes").

Level Three - effort is not seen as the only cause of outcomes; explanations at level three include suggestions that imply the conception of ability as capacity ("the person trying less is faster or brighter") but such implications are not systematically followed through (e.g. the child may still assert that individuals would achieve equal scores if they applied equal effort).

Level Four - a clear differentiation is made between ability and effort; ability is conceived as capacity which, if low, may limit or, if high, may increase the effect of effort on performance; when achievement is equal,

lower effort implies higher ability.

The film depicts a pair of school age girls working at examples from mathematics textbooks sitting at a table side by side. In each of the three film scenarios, one child spends all the time (90 seconds) either looking at the test or writing on the answer sheet. The other child spends a total of 40 seconds in similar fashion and 50 seconds in nonwork activities such as fiddling with an eraser or gazing around the room. As described by Nicholls (1978), these nonwork activities were chosen to make it clear that the child was not working continuously, but not in a manner disruptive enough to evoke strong teacher response. Two versions of the film were made with the two children alternating the "hardworking" and "lazy" roles to control for appearance or other child-specific effects.

In the first two scenarios, both children receive the same score. ((10/10) on the first scenario, 2/10 on the second). In the third scenario, the child who worked continuously received a score of 2/10, while the other child received a score of 8/10. As discussed by Nicholls, the third scenario was included to provide a more direct test of the strength of the tendency to identify ability with effort.

The following questions were included on the question set completed by each pupil after watching each of the three film scenarios:

- a. Was one child working harder or were they the same?
- b. Is one child smarter or are they the same?
- c. How come they received the same score when one worked hard and one didn't work hard?

For the third scenario, this question will read:

How come the one who didn't work hard got more than the other one?

- d. If both worked really hard would one get a higher score than the other or not?

Following the third scenario, one additional question was asked. This question was not included by Nicholls and was used here to tap the value the child places on the expenditure of effort in general:

- e. Which child is going to accomplish more in the future?

Some changes in question format (i.e. multiple choice instead of open-ended) were made to accommodate the different procedure (group administration versus Nicholl's individual administration) used in the present study. (A copy of the Film Question Set may be found in Appendix E.)

Some questions on the film question set are "validity check" items. If a child incorrectly identified which of the two children were working harder on a particular scenario then the rest of his or her responses for that scenario were considered invalid. This was a rare occurrence ($n=3$). The second question also involved the pupil's justification for his or her response to which child was smarter. Responses which reflected use of an irrelevant rationale (e.g., one child behaved better than the other) were also considered "invalid". Question 3 was eliminated for the first and second film scenarios after data collection because response options reflected only two levels of reasoning. Thus a total of seven questions were scored and used to determine a total score and a level assignment. Each of these seven items was scored as valid or invalid. Invalid responses also included those where two response options were indicated. Each of the items had a

number of response options, reflecting invalid or irrelevant reasoning or the first, second or third level of reasoning. (Eighty-three percent (83%) of the subjects gave 5 or more valid responses.) In this way it was possible to obtain a total score over the three film scenarios for each child. In addition to this continuous variable an overall level was assigned to each child based on the number of responses reflecting each level. In cases where two levels were equally represented, the lower level was generally assigned. A Pearson correlation of $r=.80$ ($p < .00005$) was obtained between score obtained and level assigned in this fashion. In addition a Pearson correlation was calculated between the number of valid responses and score obtained ($r=.75$ $p < .00005$) reflecting the possibility that number of correctly answered items also reflects level of reasoning ability. To address this possibility a third variable was computed for each pupil with the score being divided by the number of valid responses, in effect providing an average score over all items answered.

7. Raven's Standard Progressive Matrices - This measure is a test of the ability to form comparisons and to reason by analogy. It is a measure that is relatively free of the cultural environment in which the child grows up (i.e. is relatively "culture-free"). The test is comprised of a series of patterns with a missing piece, requiring the child to identify the piece that is missing (i.e. fits the pattern) from a number of options listed below each pattern. The test begins with the easiest items, ending with more difficult ones in each of five sets of 12 problems. The total score provides an index of intellectual capacity at the time of testing. It was used in the present study for the purpose of establishing discriminant validity for the industry construct. Percentile ranks and raw scores were

obtained.

8. The Children's Social Desirability Scale - This measure was included to assess the possible confounding effects of social desirability. This scale was developed by Crandell, Crandell and Katkovsky (1965), and is patterned after Crowne and Marlowe's (1960) adult scale, but developed specifically for children. It consists of 48 true/false items such as "I tell a little lie sometimes". The total number of items on which a socially desirable attitude or behavior was endorsed constitutes the subject's score. A maximum score is 48, with higher scores indicative of a greater tendency to respond in a socially desirable way. The measure was included to differentiate social desirability responses from items tapping the industry construct, as well as to examine the relationship between industry and need for social approval. Social desirability may have an additional dimension here in light of the psychosocial task Erikson has described for the fourth stage where children are supposed to be concerned with fit and viability in the culture and aware of cultural values concerning hard work and effort. Table 8 below provides a review of the measures used and the areas they address.

Table 8

Measures Used to Tap Independent, Dependent and Discriminant Validity Variables

Measure	Independent Variable: Industry			Global Rating	Dependent Variables				Discriminant Validity Variables		
	Component 1 (Cognitive)	Component 2 (Behavioral)	Component 3 (Affective)		#1 Fantasy/Reality	#2 Process/Outcome	#3 Overall Containment	#4 Work Sample	#5 Level of Reasoning	Intelligence	Social Desirability
1. Ability Test Scores	X										
2. Grades	X										
3. Children's Industry Questionnaire	X	X	X		X	X	X				
4. Teacher's Industry Questionnaire	X	X	X	X	X	X					
5. Parent's Industry Questionnaire		X	X	X	X	X					
6. Observation				X							
7. Film & Film Question Set		X							X		
8. Raven's Progressive Matrices										X	
9. Children's Desirability Scale											X

4.3 PROCEDURE

Prior to the onset of data collection teachers in the three schools whose principals had consented participation were given the letter contained in Appendix D. Then consent forms were sent to parents along with information about the study and the Parent Questionnaire. Parents were asked to return the completed questionnaire along with the consent form by a specified date. Parents were informed that were the form not returned by that date, it would be assumed that they were giving "passive consent". Fifty-eight (28%) of the parents gave "passive consent", 4% (n=8) returned the consent form without the questionnaire, and a total of 2 parents indicated that their child would not participate in the study. Sixty-eight percent of all parents returned both the consent form and the questionnaire. Pupils were also asked to complete a consent form prior to completing any measures and were told that they could stop at any time. No pupil refused to participate. Children, parents and teachers were all assured that their answers would remain confidential. Children not participating in the study were assigned other work by their teachers while the study's measures were administered. (Copies of parent and pupil consent forms may be found in Appendix F).

Pupils were seen in the classroom during regular class time and completed the various measures as a group. Each class was seen for a total of 5 sessions which were consecutive some classes. The total time required for each class was approximately 3 hours. Observation of pupils in the designated class took place one month following completion of written measure. Observers were blind to questionnaire results. The written

measures were all completed within a maximum of a 2 week period for all classes (minimum = 5 days). All written measures were counterbalanced with the exception of the Raven's test which was administered last for each group. Answers on this measure are more clearly right or wrong. It was given last to reduce the likelihood of a right/wrong expectation for other measures or the carryover of any anxiety it may have aroused. All data were collected within a four month period. The specific procedure followed for each measure is outlined in the paragraphs below. Appendix I presents the six orders of measure presentation and order broken down by school, class, group and grade.

1. *Ability Test Scores and Grades* - These scores were obtained from school records for those children with parental consent, and when such scores were available. Grade equivalents and percentile ranks were recorded and a standard correction factor was subtracted from the scores of two classes to adjust for a 3 month time difference in the test administration. Ability test scores were obtained for 189 of the 205 subjects (92%). Grades were obtained for 195 pupils (95%).

2. *Child Industry Questionnaire* - Responses to a pilot test of this measure on several children and a hope of preventing reading speed from becoming a factor led to the decision to read all but the open-ended questions on this measure aloud to the class. The following instructions (patterned after Harter, 1979) were read to the class after the distribution of questionnaires:

"We have some sentences here and as you can see, the questions ask how you feel about schoolwork and other activities. This is not a test. There are no right or wrong answers. Since kids are very different from one another, each of you will be

putting down something different.

Now, let me explain how the first set of questions work. There are two sample questions at the top. I'll read the first one aloud and you follow along with me:

Some kids like to play outdoors. BUT Others kids prefer to stay home and watch TV.

This question talks about two kinds of kids. To answer the question you need to decide about two things:

- a. What I want you to decide first is whether you are more like the kids on the left side who would rather play outdoors or whether you are more like the kids on the right side who would rather watch T.V. Don't mark anything down yet, but decide which kind of kid is most like you and go to that side.
- b. The second thing I want you to think about, now that you have decided which kind of kid is most like you, is to decide whether that is "sort of" true for you or "really" true. If it is only sort of true, then put an "X" in the box under sort of true. If it is really true for you, then put an X in that box, under really true.
- c. For each sentence you put an X in only one box. Sometimes it will be on one side of the page, and other times it will be on the other side of the page. But you can only put an X in one box for each sentence.

Are there any questions?

(Then the second example is read aloud and 1-3 above are repeated.)

- d. Okay. Those were just for practice. Now we have more sentences which I'm going to read out loud. For each one, just put an X in one box, the one that goes with what is true for you, what you are most like."

This measure was completed by 199 subjects (97%). Of these, 3 questionnaires were completed invalidly (e.g. crayon drawings on all pages with no responses). Six pupils were absent when their classmates completed

~~this measure.~~

3. *Teacher Industry Questionnaire* - Teachers were given descriptive information regarding the study and the construct of industry before they were asked to complete the questionnaires, allowing time to answer questions. Along with the questionnaires, teachers were given a scoring guide and manual which elaborated on items on the questionnaire.

(Appendix H) Most teachers completed the questionnaires while their class was completing other measures. Eight homeroom teachers completed the questionnaires for their respective classes. This measure was obtained for all but one pupil whose name was inadvertently omitted by the school from the class list.

4. *Parent Industry Questionnaire* - These questionnaires were sent home with pupils. In addition the parent consent form and information sheet were sent (See Appendix F) and were returned to the homeroom teacher. A total of 139 (68%) of the parent questionnaires were returned, 18 of which were incorrectly or invalidly completed.

5. *Observational Measure* - Observation of pupils in one of the 8 participating classes (grade 4) took place one month following the completion of the written measures and were completed within a two week period. Observers sat in the rear of the classroom. The initial sessions were spent learning the children's names and making some final decision rules. The observers spent more than actual observation time in the classroom in order to desensitize the pupils to their presence. Pupils were repeatedly observed for 7 second periods. Each period was scored 0, 1 or 2. This measure was obtained on 31 pupils which includes four grade 3

pupils who were in this classroom.

6. *Film Question Set* - In contrast to the procedure used by Nicholls (1978) the film was shown to pupils as a class, rather than individually. The instructions given to the children were included on the films themselves prefaced by a brief introduction "We are going to see 3 short films showing how kids do schoolwork. After each film, we'll answer a short question set. Let's watch the first film". The instructions on the film were identical for each scenario and asked the pupils to think about two things while they were watching the film: "Was one child working harder or not" and "Is one child smarter or not". The film question set, found in Appendix E, was completed by 198 pupils. Seven pupils were absent when their classmates completed this measure.

7. *Raven's Standard Progressive Matrices* - Record forms were distributed along with the test booklet to each child. The examiner read the standardized instructions, contained in the Raven's manual, to the class. After approximately 1/2 hour, children were asked to indicate when they were finished. As each child finished, a check was made to see that the form has been correctly filled out. Children who were finished were asked to work quietly at their desks while others were still working. This measure was completed by 196 (96%) of the pupils.

8. *The Children's Social Desirability Scale* - Each child was given a copy of the Scale. The following instructions were written on the page and read out to the class.

This questionnaire lists a number of experiences that most children have at one time or another. I will read each of the statements to you and then I would like you to decide whether it does or does not fit you. If it does fit you, circle true, if it does not fit you, circle false. If you

have any questions just stop me and I will explain it to you. Be sure to mark either "true" or "false" for all of the statements.

Each of the 48 items was then read aloud to the class, giving time for pupils to mark down their response to each item. This instrument was completed by 199 (97%) pupils.

CHAPTER 5

RESULTS

Results of the present study are given in the sections which follow. The first section deals with order of measure presentation, treatment of missing data, and characteristics of subjects (and their respective groups) involved in the study. The second section presents results for each of the ten hypotheses dealing with the construct of industry and its relationship with dependent and discriminant validity variables. Finally, some preliminary and exploratory results on sex differences are presented.

I. COUNTERBALANCING OF MEASURES, MISSING DATA, AND SUBJECT AND GROUP CHARACTERISTICS.

A. Counterbalancing of Measures

To test for effects of the order of presentation of the measures used, analyses of variance between classes with the same grade pupils, but receiving a different order of measure presentation were conducted. To reduce the possible confounding influence of any school differences, these comparisons were made between classes within the same school. A total of four contrasts were performed, involving seven of the eight classrooms, (eight of the ten groups), which in turn represent five of the six orders in which measures were presented. One of the three participating schools had only one classroom involved in the study so no appropriate contrast could be made in that school. Appendix I shows order of measures presented and numbers of pupils, school and grade level receiving each order. As

mentioned in an earlier section, the Raven's Progressive Matrices measure was given last to all classes to avoid carryover effects of a "right/wrong" answer set to other measures. For each comparison, pupils with scores on measures involved in the comparison were included (i.e., even if missing on the last measure presented). These analyses are discussed below.

When two groups of grade 4 pupils from School 1 were compared, receiving order 1 and order 2 respectively (group 1 and group 2), no significant order effects were obtained. This was true for all "versions" of relevant variables derived from the Children's Industry Questionnaire (i.e., CIQMEAN which is the mean of the three component area summary scores; CIQEVER which is the mean of all items designated a priori as representing the independent variable of industry; and CIQALL which is a variable used only in testing order effects and which is the mean of all items on the questionnaire, including those designated a priori as representing dependent variables). Appendix J presents the results of these analyses. Similarly when two groups of grade 5 pupils from School 1 were compared (groups 3 and 4), receiving order 2 and 3 respectively, no effects for order reached levels of statistical significance.

The next comparison involved two groups of grade 6 pupils from School 1, receiving order 1 and order 4 respectively (groups 5 and 6). Here a significant effect for order was obtained when initial contrasts were performed on the CIQEVER and CIQALL variables ($f=5.16$, $p=.03$; $f=4.63$, $p=.04$ respectively). When outlying scores were removed ($n=3$), this effect no longer reached statistical significance for either variable.

The final comparison also involved two groups of grade 6 pupils, this time from School 3 (groups 9 and 10). One of these groups was the grade 6 component of an imbalanced split grade 5/6 class (there were 21 grade 5 pupils, and 8 pupils in grade 6 in this class). Here significant effects for order were obtained on the social desirability measure and on one of the Children's Industry Questionnaire variables (CIQALL). When one extreme score was removed this effect remained statistically significant. Review of the order of measures presented to the two classes does not suggest a meaningful direction in which to understand this effect. For example, both groups received the social desirability measure prior to the Children's Industry Questionnaire so an argument of social desirability awareness or sensitization raising questionnaire scores cannot be made. All measures were given on different days (except for the CIQ and the film for group 9), suggesting that any effects due to measures themselves would likely have dissipated over time. Characteristics of the group of grade 6 students in the split class provide a more reasonable approach to understanding this result. This group of 8 pupils has higher scores on both the social desirability measure and on the Children's Industry Questionnaire. It may be that their ability to work independently and "industriously" played a role in their selection for the split class. While it is clear from the results that some effect is being observed on these two variables in this comparison, that this effect is one of order of measure presentation seems unlikely.

B. Item Deletion and Missing Data

Two items from the Children's Industry Questionnaire were eliminated prior to data analyses because of the relatively large number of incomplete or missing responses (items 62 and 68). Individuals absent when this measure was administered ($n=5$), missing a large number of items ($n=2$), or invalidly completing the questionnaire ($n=4$) were also eliminated from data analyses. Because of the centrality of this measure to the study it was decided that substitution of mean scores for missing data would be undesirable. For individual items missing in a random fashion across subjects ($n=49$), mean scores for that item within the individual's own group were substituted when the item was a priori designated as representing the independent variable of industry. If the item represented a dependent variable, the item was left blank ($n=3$) if that item might be used alone in any analysis. (Mean values were substituted for these three missing scores (on the same variable) in factor analyses.) If it was one of several items representing a dependent variable then the pupil's own mean on these other items was substituted for the missing item ($n=8$). Only one pupil in the final subject pool had more than 2 items missing. There was no observable pattern to missing items with the exception of the two items eliminated because of the number of missing responses.

Missing items on the Teacher Industry Questionnaire were handled in the same fashion (total missing items = 17). One child was eliminated from data analysis because the teacher had inadvertently only answered half of the questionnaire. This child was missing other data as well.

Appropriate group means were substituted for missing scores on the achievement test, grades and Raven's Progressive Matrices. (There was a total of 2 pupils missing grades only; 9 pupils missing only achievement test scores; 5 pupils missing both achievement test scores and grades; and 4 pupils missing a Raven's score). Individuals absent when the film was shown ($n=7$) or answering in an unscorable fashion ($n=1$) were also eliminated. A total of 18 subjects (some of whom are missing on more than one item) were eliminated because of missing data. Appendix K outlines the pattern of missing data on the above measures and the decision reached in each case by individual subject.

As mentioned earlier the overall return rate for the Parent's Industry Questionnaire was 68% (139/205). Of these, 18 were incomplete or invalid (e.g., several parents wrote comments on the form describing their child or reacting to the questionnaire items, especially from one of the 3 schools). After subjects were eliminated because of missing data on other measures, the return rate was 70% (131/187) of which 15 were incomplete or invalid. The total number of questionnaires fully completed, number incomplete or invalid, as well as the number of parents giving "passive consent" by not returning the questionnaire and consent form, and the number returning consent forms only, are reported by group in Appendix L. On completed questionnaires, a total of 26 items were missing for which substitutions were made as described above for the teacher and children industry questionnaires. Interpretation of analyses involving data from the parent questionnaire will take into account the possibility of a relationship between children's level of industry and parent's likelihood to complete the questionnaire.

C. Subject and Group Characteristics

The average age of pupils in each of the 10 groups and other subject characteristics are presented in Table 9. There was a total of 98 (52.4%) male and 89 (47.6%) female pupils in the final subject pool (N=187). These ten groups represent 8 different classrooms, two of which were split-level classes. One of the eight classrooms had two teachers (group 5), each of whom completed half of the teacher questionnaires. To address the issue of teacher differences, scores on the teacher measure for both teachers were compared with the mean score variables from the children's and parent's measure difference in pattern or direction of scoring were observed.

Because of the number of different classrooms in the three participating schools, there are a number of possible differences, such as teacher or school effects, not explicitly controlled for by the study design. It was decided to conduct data analyses on variables standardized within each of the ten groups and then pooled across the groups. This was done for variables from all measures used in the present study. While in effect eliminating between group differences (some of which might be of specific interest in later studies) this approach does control for factors not explicitly controlled for or identifiable in a meaningful way. One of the compromises involved in using this approach is that comparisons between means and standard deviations between groups, even if grade level is the same, have very limited value, as these are not the standardized within-group means or standard deviations that are entered into data analyses.

Table 9

Subject Characteristics

Group No. n	1 23	2 10	3 9	4 27	5 27	6 13	7 25	8 29	9 8	10 27	Total 187	
AGE												
X	9.44	9.49	10.52	10.46	11.56	11.63	9.84	10.60	11.70	11.74	10.70	
S.D.	.37	.39	.44	.28	.43	.43	.32	.39	.25	.47	.37	
SEX												
Male	N	19	6	5	14	13	5	13	9	2	12	98
	%	83	60	56	52	48	38	52	45	25	48	52.4
Female	N	4	4	4	13	14	8	12	11	6	13	89
	%	17	40	44	48	52	62	48	55	75	52	47.6
SCHOOL												
1	X	X	X	X	X	X					109 48.3%	
2							X				25 (13.4%)	
3								X	X	X	53 (28.3%)	
GRADE												
4	X	X					X				58(31%)	
5			X	X				X			56(30%)	
6					X	X			X	X	73(39%)	

A description of all variables and the items which comprise them may be found in Appendices M, N and O describe variables from the Children's, Teacher's and Parent's Industry Questionnaire respectively). Means and standard deviations for all variables (before standardization) are presented in Appendices P, Q, R and S, reporting on means and standard deviations for the Children's Industry Questionnaire, Teacher's Industry Questionnaire, Parent's Industry Questionnaire, and other miscellaneous variables (from the film question set, Raven's Progressive Matrices, and Children's Social Desirability Scale) respectively.

II. RESULTS FOR THE TEN HYPOTHESES.

1. Hypothesis #1:

THE THREE COMPONENT AREAS OF INDUSTRY SHOULD BE POSITIVELY AND SIGNIFICANTLY CORRELATED WITH EACH OTHER.

The first hypothesis has to do with the definition of the industry construct as being comprised of three component areas covering cognitive, behavioral and affective domains, presumed to be roughly equal in importance. The expectation was that a child would be roughly the same across the components, such that a positive and significant correlation among the components would be observed. This hypothesis was examined for each of the three questionnaire measures used to tap the child's sense of industry (Children's, Teacher's, and Parent's Industry Questionnaires). Results are described in the paragraphs below for each of these three measures. All correlations reported in the sections below, unless noted otherwise, were obtained from within-groups correlation matrices provided by the SPSSx Discriminant Analysis Program.

a. The Children's Industry Questionnaire

Relationships among the three component areas were explored on the Children's Industry Questionnaire (CIQ) using summary variables computed from all items representing each component area. The summary variables are the mean of all items within each component area. These variables are labelled CIQIV1, CIQIV2, and CIQIV3 respectively. Appendix M provides a listing of all CIQ variables and item composition. Appendix P shows all means and standard deviations for these variables by group.

Observed correlations among the three component areas on the CIQ are all positive and statistically significant. These correlations are reported in Table 10. The correlation between the behavioral and affective components ($r=.71$) is higher than that of each of these two components with the cognitive component ($r=.44$; $r=.46$, for component 1 with component 2 and component 1 with component 3 respectively). All probabilities listed in all tables are for two-tailed tests of significance.

The Williams modification of the Hotelling test (Kenny, 1987) allows examination of whether the relationship among any two variables differs from that of the relationship of one of these two variables and a third variable, when, as in the present case, the variables are from the same individual (i.e. the correlations are correlated). The first comparison reported in Table 11, for example, looks at the relationship between components one and two compared with that of components one and three, while taking into account the relationship between components two and three. The resulting t-scores and significance levels are reported in Table 11.

The differences in the correlations between components 2 and 3 (the behavioral and affective components) with the first component (the cognitive component) is not statistically significant, while the relationship between these two components does differ significantly from either's relationship with component 1 ($t=4.77$, $df=176$, $p < .00001$; $t=-4.37$, $df=176$, $p < .00005$ for the correlation between components 2 and 3 compared with component 2 and component 1, and component three and component 1, respectively). The relationship between the behavioral and affective components is then significantly different from the relationship of either the behavioral or the affective component with the cognitive component on CIQ.

Table 10

Relationship Among the Three Component Areas on the CIQ (N=187)

	CIQIV1		CIQIV2		CIQIV3	
	r	p*	r	p*	r	p
CIQIV1	1					
CIQIV2	.44	< .000001	1			
CIQIV3	.46	< .000001	.71	< .000001	1	

* All p values for significance tests are two-tailed.

Table 11

**T - Test Results Between Correlation Coefficients Among the
Three Component Areas On the CIQ**

<u>Correlations Between</u>	<u>Compared with Correlation Between</u>	<u>t</u>	<u>p*</u>
CIQIV1 and CIQIV2	CIQIV1 and CIQIV3	-.39	ns
CIQIV2 and CIQIV3	CIQIV2 and CIQIV1	4.77	p <.00001
CIQIV2 and CIQIV3	CIQIV3 and CIQIV1	-4.37	p <.00005

*Two-tailed

b. The Teacher's Industry Questionnaire

Using the three summary variables representing each of the three component areas (TIQIV1, TIQIV2, and TIQIV3), Hypothesis #1 was examined on the Teacher's Industry Questionnaire (TIQ). Appendix N lists all TIQ variables and the items which comprise them. Appendix Q provides all means and standard deviations for these variables.

Significant and positive correlations were obtained between all three component areas on the TIQ. These are reported in Table 12. As on the CIQ, the relationship between the behavioral and affective components (components 2 and 3) ($r=.90$) is higher than that between components 1 and 3 (cognitive and affective components; $r=.67$) or component 1 and 2 (cognitive and behavioral; $r=.73$).

Comparisons between pairs of components and the third component area using the William's modification of Hotelling's test were made and t-values are reported in Table 13. The relationship between components 2 and 3 is a statistically stronger relationship than that of either component two or three with the first component on the TIQ ($t=6.45$, $df=176$, $p < .00001$; $t=-9.15$, $df=176$, $p < .00001$, respectively), as found on the CIQ measure.

Figure 1 illustrates the pattern of inter-component relationships on the CIQ and TIQ measures.

Given the apparent similarity of this pattern, the question of whether these relationships differ in a statistically significant fashion across the two measures is of interest. The Pearson-Filon test (Kenney, 1987) allows comparisons between two sets of variables based on the same subject. Three

Table 12

Relationship Among the Three Component Areas on the TIQ (N=187)

	TIQIV1		TIQIV2		TIQIV3	
	r	p*	r	p*	r	p
TIQIV1	1					
TIQIV2	.73	< .000001	1			
TIQIV3	.67	< .000001	.90	< .000001	1	

*All p values for significance tests are two-tailed.

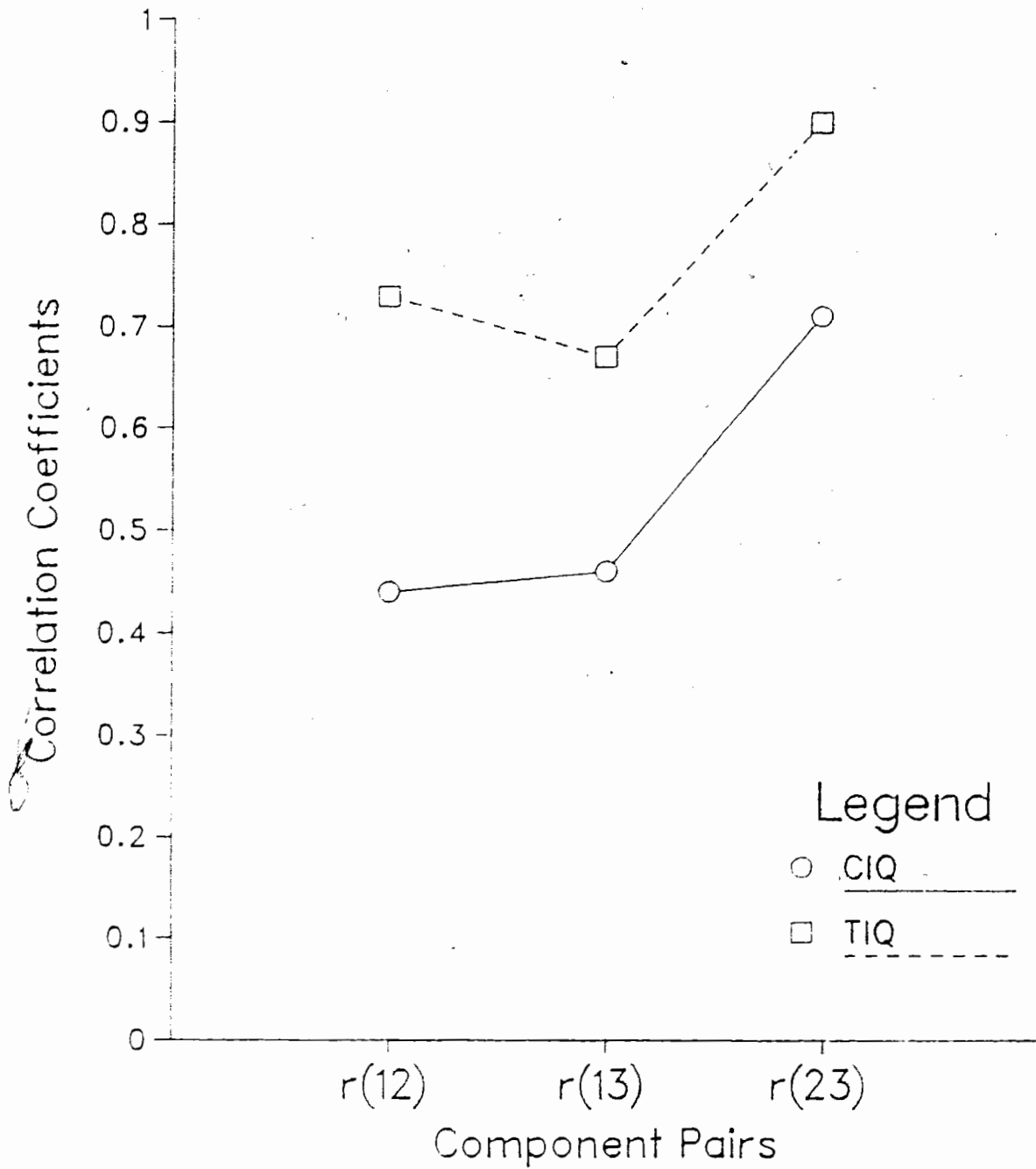
Table 13

**T - Test Results Between Correlation Coefficients Among the
Three Component Areas On the TIQ (N=187)**

<u>Correlations Between</u>	<u>Compared with Correlation Between</u>	<u>t</u>	<u>p*</u>
TIQIV1 and TIQIV2	TIQIV1 and TIQIV3	2.58	p <.01
TIQIV2 and TIQIV3	TIQIV2 and TIQIV1	6.45	p <.000001
TIQIV2 and VIQIV3	TIQIV3 and TIQIV1	-9.15	p <.000001

*Two-tailed

Figure 1. Correlations among component areas on the CIQ and TIQ $n=187$.



comparisons were made using this test, exploring the statistical similarity of relationships between each of the three pairs of two component areas on the two questionnaires. Results in the forms of Z scores, which are approximately normally distributed when $n > 20$, are presented in Table 14. The largest difference between the measures is seen when the relationship between components 2 and 3 is compared ($t = -5.45$, $p < .0002$). All differences between correlation coefficients reach statistical significance. While the patterns are visually similar, the TIQ components have statistically stronger interrelationships than do these same components examined on the CIQ.

c. The Parent Industry Questionnaire

The Parent Industry Questionnaire (PIQ) was comprised of items tapping two of the three component areas (components two and three). Appendix O and Appendix R show the PIQ variables and their item composition, and the means and standard deviations for these variables respectively. The two component areas on this questionnaire, tapping the behavioral and affective component areas, are significantly and positively related to each other ($r = .61$, $p < .00005$). It is important to recall here, as in other comparisons using data from this measure, the possible response-bias this data may reflect.

Summary of Results for Hypothesis #1.

Looking across the questionnaire measures tapping the child's sense of industry, it is clear that the three component areas tapping cognitive, behavioral and affective domains, are significantly and positively related to each other. Components two and three are most strongly correlated with each other, especially on the TIQ, but clearly so on all three industry questionnaires. In

Table 14

**Comparison of Relationships Among the Three Component Areas
Between the CIQ and TIQ (N=187)**

<u>Correlations Between</u>	<u>Compared with Correlation Between</u>	<u>Z</u>	<u>p*</u>
CIQIV1 and CIQIV2	TIQIV1 and TIQIV2	-4.29	<.0002
CIQIV1 and CIQIV3	TIQIV1 and TIQIV3	-2.96	<.003
CIQIV2 and CIQIV3	TIQIV2 and TIQIV3	-5.45	<.0002

*Two-tailed

addition, the pattern of these relationships on the CIQ and TIQ are parallel, although not statistically equivalent.

2. Hypothesis #2:

EACH OF THE THREE COMPONENT AREAS SHOULD BE HIGHLY CORRELATED WITH THE MEAN SCORE OF THE COMPONENT AREAS COMBINED.

In addition to correspondence among the component areas explored by the first hypothesis, each of the component areas should be highly correlated with the mean score of the three areas combined. Such correspondence would provide an indication of the validity of using such a mean score as a summary score for the industry construct. In addition the three component areas are presumed to be roughly equal in importance. Their respective correspondence with the mean score of all three areas will provide information about the validity of this presumption. This hypothesis is examined for each of the three industry questionnaire measures in the paragraphs below. An additional section deals with the question of whether the mean score for the three component areas should be weighted equally for the three component areas.

a. The Children's Industry Questionnaire.

To investigate this hypothesis on the Children's Industry Questionnaire, variables representing each component area (CIQIV1, CIQIV2 AND CIQIV3, for components 1, 2 and 3 respectively) were correlated with CIQMEAN, which is the mean score of these three summary scores combined. All component areas are positively and significantly correlated with this mean score. Correlation coefficients are reported in Table 15.

For each of the three component areas, correlations with the mean variable is higher than that among any two of the component areas. Each component

Table 15

Relationship Among Component Areas and Mean Score on CIQ (N=187)

	CIQIV1		CIQIV2		CIQIV3		CIQMEAN	
	r	p*	r	p*	r	p*	r	p
CIQIV1	1							
CIQIV2	.44	< .000001	1					
CIQIV3	.46	< .000001	.71	< .000001	1			
CIQMEAN	.88	< .000001	.78	< .000001	.79	< .000001	1	

*Two-tailed

area appears to share general agreement with the other two components, as reflected in the relationship with the overall mean of the three areas combined. Each component area comprises one-third of the weighted sum the CIQMEAN variable represents. The higher correspondence of component 1 to the mean might be expected given the greater likelihood of agreement among only two items. Given the high and relatively comparable agreement of the three scores with the mean, it seems that at a minimum, the mean variable does an acceptable job of representing its component parts.

b. The Teacher's Industry Questionnaire.

These relationships are examined on the TIQ as well. Here a new variable was included, TIQIV4, which is the global rating (high, medium or low) made by teachers as they were completing the Teacher Industry Questionnaire. Table 16 reports the correlation coefficients among the three component areas and the mean score on the TIQ. All correlations are positive and statistically significant. Each of the three components appear more or less equally related to the mean of the three areas combined (TIQMEAN).

That each of the components is more highly correlated with the mean than with the global rating likely reflects each component's mathematical contribution to the mean score. That they are also highly correlated with the global rating suggests that the teacher's conception and understanding of the industry construct corresponds strongly to that reflected by the items themselves. This is also indicated by the high correlation between the global rating and the mean score.

Figure 2 presents graphic comparisons of the relationship of component areas to the mean score for the CIQ and TIQ measures.

Table 16

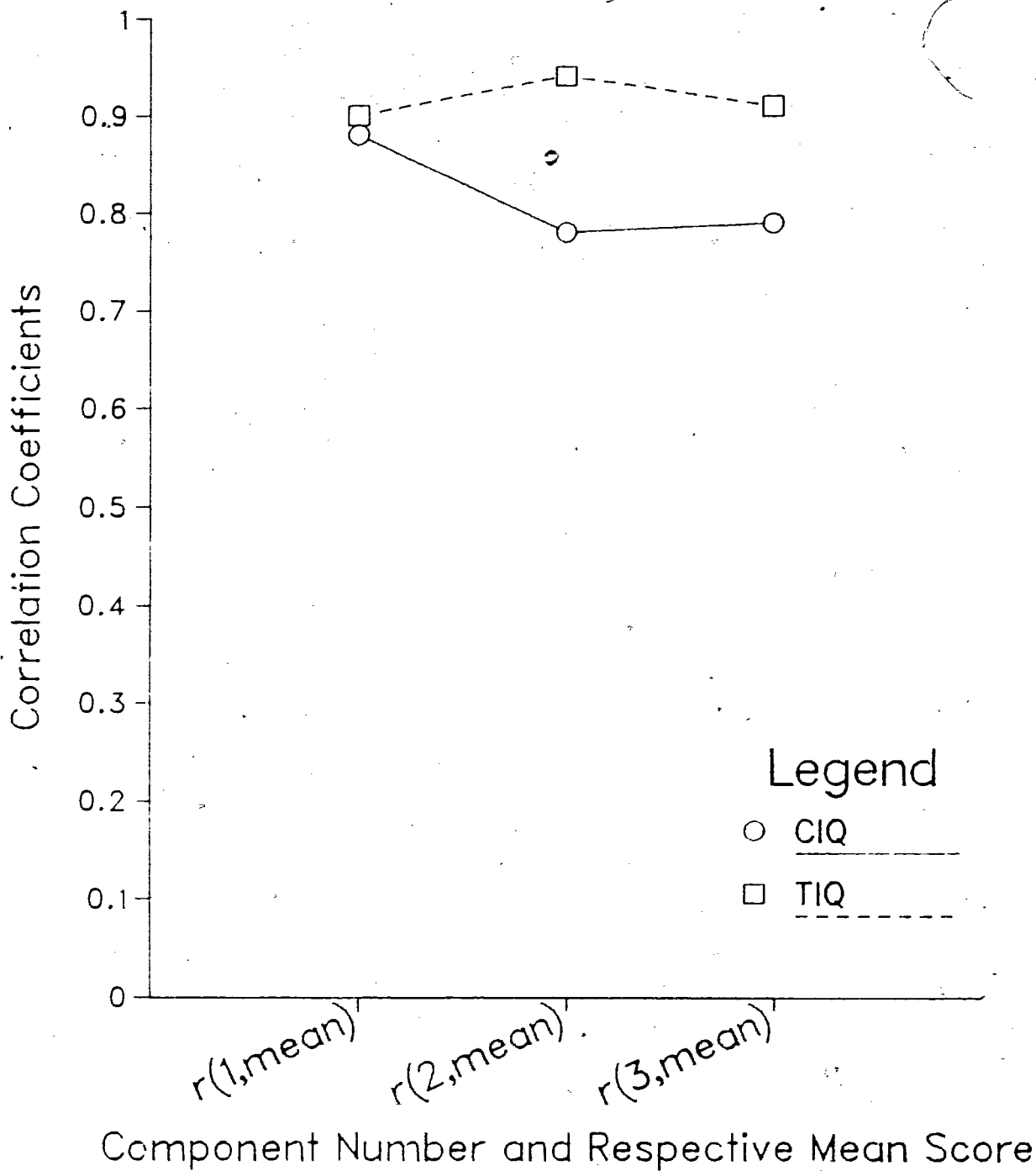
Relationship Among Component Areas, Global Ratings
and Mean Score on TIQ (N=187)

	TIQIV1		TIQIV2		TIQIV3		TIQIV4		TIQMEAN	
	r	p*	r	p*	r	p*	r	p*	r	p
TIQIV1	1									
TIQIV2	.73	<.000001	1							
TIQIV3	.67	<.000001	.90	<.000001	1					
TIQIV4**	.64	<.000001	.84	<.000001	.84	<.000001	1			
TIQMEAN	.90	<.000001	.94	<.000001	.91	<.000001	.83	<.000001	1	

** This variable is scored on a 3 point scale.

* Significance levels are all for two-tailed tests.

Figure 2. Correlations among component areas and mean score on the CIQ and TIQ n=187.



c. The Parent's Industry Questionnaire

Relationships among component areas, mean scores and the global rating were examined on this measure as well. As shown in Table 17, all correlation coefficients are positive and significant. The correlations between the Parent's global rating and the mean of the two component areas (PIQMEAN) and with the two component area summary scores alone suggest that parents may have been more consistent responding to the items themselves than in translating them into one representative score. Variables on the PIQ measure were also more closely associated with the mean score than with the global rating but here the correlation between the global rating and mean is lower than on the teacher's measure.

d. Weighted versus Unweighted Means

The mean score as described is the equally weighted combination of the mean of all items representing each of the three components. This gives the same weight to component 1 as to components 2 and 3 although these are represented by 2, 24 and 21 items respectively. To explore how well this equal weighting represents the direction of the items themselves, this mean score variable was compared to a new variable (CIQAVER, TIQAVER AND PIQAVER for the childrens' teachers' and parents' questionnaires respectively). This variable is the mean of all of the items representing the independent variable of industry. This variable in effect weights the resulting score according to the number of items contributed by each component.

As shown in Table 18, the mean score (CIQMEAN, TIQMEAN and PIQMEAN) and the item average score (CIQAVER, TIQAVER, and PIQAVER) are all positively and significantly correlated within each of the three

Table 17

Relationship Among Component Areas, Global Ratings
and Mean Score on PIQ (N=116)

	PIQIV2		PIQIV3		PIQIV4**		PIQMEAN	
	r	p*	r	p*	r	p*	r	p
PIQIV2	1							
PIQIV3	.61	<.000001	1					
PIQIV4	.49	<.000001	.45	<.000001	1			
PIQMEAN	.94	<.000001	.84	<.000001	.53	<.000001	1	

** This variable is scored on a 3 point scale.

*Two-tailed

Table 18

Correlation Coefficients Among Component Areas, Means Scores, Item Average Scores and Global Ratings for the CIQ, TIQ and PIQ

Variable	N	Correlation Coefficient With:		
		Mean Score	Item Average Score	Global Rating
CIQIV1	187	.88	.55	—
CIQIV2	187	.78	.93	—
CIQIV3	187	.79	.91	—
CIQMEAN	187	1.00	.89	—
CIQ AVER	187	.89	1.00	—
TIQIV1	187	.90	.75	.64
TIQIV2	187	.94	.99	.84
TIQIV3	187	.91	.96	.84
TIQMEAN	187	1.00	.96	.83
TIQ AVER	187	.96	1.00	.86
TIQIV4	187	.83	.86	1.00
PIQIV2	116	.94	.92	.49
PIQIV3	116	.84	.86	.45
PIQMEAN	116	1.00	.99	.53
PIQ AVER	116	.99	1.00	.53
PIQIV4	116	.53	.53	1.00

All correlation coefficients in above table are significant at $P < .000001$ (two-tailed).

questionnaire measures. The largest difference among the relationships of the component areas to mean and item average scores appears to be with component 1 within both the CIQ and TIQ measures suggesting that the few items representing this component become outweighed by the large number of variables comprising this variable on both measures.

Table 18 also includes global ratings made by parents and teachers when completing their questionnaires (TIQIV4, PIQIV4). These comparisons serve as a check on how well mean scores represent the items themselves. Mean and summary scores for component areas are all highly correlated with the item average variable. Thus an equal weighting for the three component areas does not appear to misrepresent or distort existing relationships.

Summary of Results for Hypothesis #2.

As expected each component area is positively and significantly correlated with its respective mean score on the three questionnaire measures of industry. The relationship between the mean score and component 1 on the CIQ is higher than the relationship between the other two components and the mean score. That this finding is not seen on the TIQ may reflect other differences between these two measures which are discussed in a later section. (See discussion for Hypothesis 3.B).

Component 1 is more highly correlated with the mean score, on which it has equal weighting, than it is with the item average score, on which it is weighted only by number of items on both the CIQ and TIQ measures. Bearing in mind the overlap between component areas and both variables, component scores are highly correlated with both the mean score and item average score and to a generally comparable extent.

3. Hypothesis #3:

THE THREE MEASURES OF INDUSTRY (THE CHILDREN'S INDUSTRY QUESTIONNAIRE, THE TEACHER'S INDUSTRY QUESTIONNAIRE AND THE PARENT'S INDUSTRY QUESTIONNAIRE) SHOULD BE POSITIVELY AND SIGNIFICANTLY CORRELATED WITH EACH OTHER.

This hypothesis, support for which is important in demonstrating convergent validity for the industry construct, is examined using mean scores and scores for each of the three component areas for the 3 questionnaire measures of industry. Other measures (i.e. grades and achievement test scores for component 1 and the observational measure for component 2) are included where appropriate.

3.1. Hypothesis #3A: Mean Scores

THERE SHOULD BE A POSITIVE CORRESPONDENCE AMONG MEAN SCORES, ITEM AVERAGE SCORES AND GLOBAL RATINGS ACROSS THE THREE QUESTIONNAIRE MEASURES OF INDUSTRY.

As shown in Table 19, the expectation of a positive and significant correspondence among mean scores, item average scores and global ratings across the three measures is generally supported by the correlation coefficients obtained among the measures. The correlations between variables on the CIQ and TIQ are all positive and significant. The correlation coefficient between the two mean variables (CIQMEAN, TIQMEAN) is .52 ($p = .000001$). Between item average scores the coefficient is .49 ($p = .000001$). These correlations seem comparable to

Table 19

Correlation Coefficients Between Mean Scores, Item Average Scores and Global Ratings on the CIQ, TIQ, and PIQ

<u>Variables</u>	<u>N</u>	<u>r</u>	<u>p (Two Tailed)</u>
CIQMEAN and TIQMEAN	187	.52	< .000001
CIQ AVER and TIQ AVER	187	.49	< .000001
CIQMEAN and TIQIV4	187	.49	< .000001
CIQ AVER and TIQIV4	187	.46	< .000001
CIQMEAN and PIQMEAN	116	.41	< .00002
CIQ AVER and PIQ AVER	116	.44	< .000005
TIQMEAN and PIQMEAN	116	.51	< .000001
TIQ AVER and PIQ AVER	116	.57	< .000001
PIQIV4 and TIQIV4	116	.12	ns
TIQMN23 and PIQMN23	116	.56	< .000001
PIQMN23 and CIQMN23	116	.45	< .000005
CIQMN23 and TIQMN23	116	.45	< .000005
(CIQMN23 and TIQMN23)	(187)	.48	< .000001

those obtained between CIQMEAN and CIQAVER with the global rating variable on the TIQ (TIQIV4); ($r=.49$ and $r=.46$ respectively). Turning to correlation coefficients obtained between these variables and variables on the parent measure, all correlations are positive and significant with one exception. Looking at CIQ and PIQ variables, the correlation between CIQMEAN and PIQMEAN is $.41$ ($N=116$) and between CIQAVER and PIQAVER, $r=.44$. For the TIQ and PIQ variables, a correlation of $.51$ was obtained ($n=116$) for the relationship of TIQMEAN and PIQMEAN, and $r=.57$ for the respective item average scores TIQAVER and PIQAVER. The correlation between the global ratings given by parents and teachers does not reach statistical significance. Parents' lower consistency between how they scored individual items and their global rating may be a factor here with teachers being considerably more consistent in these two scores. In addition to concerns related to the return rate of the parent questionnaires and links with the industry construct, parents' observations are apparently not reliable, at least not to the same extent as ratings made by teachers. A new variable was computed for the CIQ and TIQ measures to correspond to the mean variable from the PIQ. This variable is the mean of the behavioral and affective components only (CIQMN23 and TIQMN23) which are correlated with the comparable PIQMEAN variable. These variables are positively and significantly correlated with each other.

3.2. Hypothesis #3B: The First Component (COGNITIVE COMPONENT)

i. THERE SHOULD BE A POSITIVE CORRESPONDENCE BETWEEN ABILITY TEST SCORES AND TEACHER RATINGS OF ABILITY AS MEASURED BY ITEMS ON THE TEACHER INDUSTRY QUESTIONNAIRE AND GRADES.

ii. THERE SHOULD BE A POSITIVE CORRESPONDENCE BETWEEN ABILITY TEST SCORES AND CHILDREN'S EVALUATIONS OF THEIR OWN MASTERY OF SKILLS AND FACTUAL INFORMATION AS MEASURED BY ITEMS ON THE CHILDREN'S INDUSTRY QUESTIONNAIRE.

iii. THERE SHOULD BE A POSITIVE CORRESPONDENCE BETWEEN CHILDREN'S EVALUATIONS OF ABILITY AND THAT OF THE TEACHER (AS MEASURED BY ITEMS ON THE CIQ AND TIQ RESPECTIVELY, AND GRADES).

Variables from different measures tapping the child's level of basic skills and mastery of factual information are as follows: scores from the most recently administered achievement test (both grade equivalent (ATTOTLG) and percentile scores (ATTOTLP)); the pupil's most recent grade average (GRDAVER); his or her own ranking of how well he or she is doing in various subjects (CIQSBV); and the specific items on the CIQ (CIQIV1) and TIQ (TIQIV1) asking about the child's level of basic skills. Correlation coefficients obtained are reported in Table 20. The correlation among the two variables representing achievement test scores is .93 ($p < .000001$). These two variables appear similarly correlated with other

Table 20

Correlation Coefficients Among Measures of Component 1:
Skills and Basic Knowledge (N=187)

	ATTOTLG	ATTOTLP	GRDAVER	CIQIV1	CIQSBAV	TIQIV1
	r	r	r	r	r	r
	p*	p*	p*	p*	p*	p*
ATTOTLG	1					
ATTOTLP	.93	1				
GRDAVER	.70	<.000001	1			
CIQIV1	.32	<.000002	.27	<.0005		
CIQSBAV	.26	<.0005	.29	<.0001	.47	<.000001
TIQIV1	.66	<.000001	.61	<.000001	.40	<.000001
					.26	<.0005
						1

All p values are two-tailed.

variables tapping this first component area.

The significant correlation between the child's own evaluation of his or her level of skills and knowledge tapped in a general fashion (CIQIV1) with that in particular subjects (CIQSBAV) suggests correspondence between pupil's reports of how well they think they are doing in general and in more specific subject areas. Both of these variables correspond significantly with achievement test scores and grade averages, along with the teachers' general assessment (TIQIV1). It may be sufficient to obtain the child's own general subjective ranking of himself or herself when tapping the first component area.

Looking at the values presented in Table 21, the higher correlations among TIQIV1 and achievement test scores and grade average than between CIQIV1 and these variables are apparent. These differences are all statistically significant. T-values obtained for differences between correlation coefficients with TIQIV1 compared with those with CIQIV1 are as follows; $t = -5.06$; $t = -5.31$; and $t = -6.28$ for ATTOTLG, ATTOTLP and GRDAVER, respectively. All t-values are significant at $p < .00001$ ($df = 176$) and are reported in Table 21. Teachers seem to relate industry more strongly to external performance criteria than do pupils themselves in reporting on their subjective experience. This tendency may also be reflected in a finding discussed with regard to Hypothesis #2, where the relationships of the first component to mean scores on the two measures were compared. That component one is more closely associated with the mean score on the TIQ may reflect the general tendency of teachers to relate all aspects of industry to external or performance criteria.

Table 21

T - Tests for Differences Among Correlation Coefficients for Component 1

Correlations Between	Compared with Correlation Coefficients Between	t	p*
TIQIV1 and GRDAVER	CIQIV1 and GRDAVER	-5.06	p < .00001
TIQIV1 and ATTOTLG	CIQIV1 and ATTOTLG	-5.31	p < .00001
TIQIV1 and ATTOTLP	CIQIV1 and ATTOTLP	-6.28	p < .00001

*Two-tailed

3.3. Hypothesis #3C: The Second Component (BEHAVIORAL COMPONENT)

i) THERE SHOULD BE A POSITIVE AND SIGNIFICANT CORRESPONDENCE BETWEEN THE OBSERVATIONAL MEASURE OF THE SECOND COMPONENT AND ITEMS ON THE CHILDREN'S, TEACHER'S AND PARENT'S INDUSTRY QUESTIONNAIRES TAPPING THIS COMPONENT.

ii) THERE SHOULD BE A POSITIVE AND SIGNIFICANT CORRESPONDENCE AMONG ITEMS ON THE CHILDREN'S, TEACHER'S AND PARENT'S INDUSTRY QUESTIONNAIRES TAPPING THE SECOND COMPONENT.

i) The observational measure was obtained on one of the eight classrooms (group 7, n=25). The measure obtained was the proportion of time spent on task divided by the number of observational segments for that child ($X = .78$, $S.D. = .16$). Reliability statistics for these observations were reported in the Methodology section. Pearson correlation coefficients were computed on this group only (using SPSSx Pearson Corr program) to examine the relationship between this variable and other measures of the behavioral component. Significant results were obtained for the teacher's summary variable for the second component (TIQIV2: $r = .45$, $p = .024$, $n = 25$) but not for the equivalent variables on the CIQ or PIQ (CIQIV2, PIQIV2) with the observation variable (OBSERVE). Teachers and observers do share the classroom context as the basis for their observations. This may reflect the flip side of the tendency noted above whereby teachers, more so than pupils, are focussed on performance or observational aspects of industry.

Table 22

Correlation Coefficients Between the Observational Measure, Observer's Global Rating and CIQ, TIQ and PIQ Variables

	OBSIV4		Observe		n
	r	p*	r	p*	
CIQIV1	.04	ns	-.16	ns	25
CIQIV2	.40	<.05	.19	ns	25
CIQIV3	.11	ns	.08	ns	25
CIQMEAN	.18	ns	-.03	ns	25
CIQAVR	.30	ns	.13	ns	25
TIQIV1	.25	ns	.27	ns	25
TIQIV2	.55	<.009	.45	<.024	25
TIQIV3	.45	<.01	.51	<.009	25
TIQMEAN	.42	<.05	.41	<.043	25
TIQAVR	.51	<.009	.47	<.02	25
TIQIV4	.49	<.01	.49	<.02	25
PIQIV2	.53	<.009	.32	ns	11
PIQIV3	.51	<.01	.05	ns	11
PIQMEAN	.67	<.001	.28	ns	11
PIQAVR	.66	<.001	.25	ns	11

* Two-tailed

The global rating made by observers (OBSIV4) had better agreement with other variables. The correlation coefficients between this rating and CIQMEAN and CIQAVR were .18 and .30 respectively. With TIQ variables, the correlation coefficients obtained between OBSIV4 and TIQMEAN and TIQAVR were .42 and .51 respectively. In terms of agreement with the second component area, the correlation coefficient between this variable and CIQIV2 was .40, and a correlation coefficient of .55 was obtained between this variable and TIQIV2. It seems that a more global rating based on direct observations in the classroom has more to do with the industry construct than do the direct observations themselves.

The lack of significant findings between the OBSERVE variable and measures of component 2 on parent and children questionnaires, along with the generally higher correlations obtained for OBSIV4, suggests the importance of a multidimensional and broadly based, definition of the industry construct.

ii) Correlation coefficients between variables comprised of items tapping the second component are all positive and statistically significant. Parents and teachers seem to have a somewhat higher level of agreement than do children with either teachers or parents. These values, including the comparable correlation when the $n=116$, are reported in Table 23.

Table 23

**Correspondence Among Measures of Components Two and Three on
The CIQ, TIQ and PIQ**

Variable	N	r	p (two-tailed)
CIQIV2 and TIQIV2	187	.42	< .000001
(CIQIV2 and TIQIV2)	(116)	(.44)	< .000005
PIQIV2 and TIQIV2	116	.57	< .000001
CIQIV2 and PIQIV2	116	.42	< .000001
CIQIV3 and TIQIV3	187	.44	< .000001
(CIQIV3 and TIQIV3)	(116)	(.40)	< .00005
PIQIV3 and TIQIV3	116	.40	< .00005
CIQIV3 and PIQIV3	116	.30	< .002

3.4. Hypothesis #3D: The Third Component (AFFECTIVE COMPONENT).

THERE SHOULD BE A MODERATE BUT POSITIVE CORRESPONDENCE BETWEEN ITEMS TAPPING THE THIRD COMPONENT ON THE CHILDREN'S, TEACHER'S AND PARENT'S INDUSTRY QUESTIONNAIRES.

As indicated by the correlation coefficients reported in Table 23, the summary scores representing the third component across the three measures are all positively and significantly related to each other. It was expected that agreement among the three measures for the second components would be higher than that for the third component area, which taps into the most subjective level of the experience of a sense of industry. This is seen in the generally higher correlation coefficients observed among component 2 variables on the three measures, and given significance levels taking into account the possibility of Type 1 error, the marginal significance of the correlation between parents and children on this third component (CIQIV3 and PIQIV3). Z-tests between correlation coefficients did not produce statistically significant results.

Summary of Results for Hypothesis #3.

There are positive and significant correlations among variables across the 3 measures of industry for mean scores, item average scores, global ratings, and for each of the three component areas including among non-questionnaire measures). Some differences in degree of relationship were observed between the measures. These relationships are important to the process of establishing convergent validity for the construct of industry. There is clear and significant

agreement between the child's own report with regard to level of basic skills and knowledge and their application, as well as to more subjective and emotional experiences and that of outside observers (i.e. teachers and parents). Having examined the direct or one-to-one correspondence among the same component areas of the different measures, this process continues with the next question, that of whether or not these relationships significantly differ from those between different component areas across these measures. This issue is addressed by Hypothesis 4 which follows.

4. Hypothesis #4:

THE CORRESPONDENCE AMONG THE VARIOUS MEASURES OF THE INDUSTRY CONSTRUCT SHOULD BE HIGHER AMONG MEASURES OR SECTIONS OF MEASURES TAPPING THE SAME COMPONENT AREA OF THE CONSTRUCT.

Higher correlations among sections of measures tapping the same area is important for a concept of industry as being comprised of three interactive yet distinguishable components. Table 24 provides the correlation coefficients obtained across mean scores and component areas on the CIQ and TIQ. These values are presented in Table 25 for all three questionnaire measures on the smaller N of 116. Underlined values in these tables are those expected to be the highest values in their respective rows and columns within the outlined area. These results will be explored in the paragraphs below which address relationships among mean scores and each of the three component areas in turn.

a) MEAN SCORES:

The correlation coefficient obtained between the mean scores on the CIQ and TIQ (CIQMEAN, TIQMEAN) is higher ($r = .52$) than that obtained between the mean score and components on the other questionnaire. Although strong and significant positive correlations are observed across all variables, as shown on Tables 24 and 25, the differences between these coefficients do not reach statistical significance when significance levels accounting for Type I error are used. One significant result provides an exception, where the relationship between the two mean variables (CIQMEAN, TIQMEAN) is stronger than that found between TIQMEAN and CIQIV2 ($t = 3.01$, $df = 176$, $p < .005$). Please see

Table 25

Correlation Coefficients Between Component Scores, Mean Scores, Item Average Scores and Global Ratings on CIQ, TIQ, and PIQ (N=116)

VARIABLE	CIQV1	CIQV2	CIQV3	CIOMEAN	CIQAVR	TIQV1	TIQV2	TIQV3	TIOMEAN	TIQAVR	PIQV2	PIQV3	PIOMEAN	PIQV4	PIQAVR
CIQV1	1														
CIQV2	.50	1													
CIQV3	.46	.72	1												
CIOMEAN	.87	.82	.79	1											
CIQAVR	.58	.94	.91	.90	1										
TIQV1	.49	.31	.38	.49	.39	1									
TIQV2	.43	.44	.41	.51	.47	.72	1								
TIQV3	.47	.42	.37	.52	.45	.67	.90	1							
TIOMEAN	.51	.41	.42	.55	.47	.90	.94	.91	1						
TIQAVR	.47	.44	.41	.53	.48	.75	.99	.96	.96	1					
TIQV4	.44	.38	.37	.48	.42	.58	.80	.81	.82	.82	1				
PIQV2	.29	.42	.43	.43	.44	.35	.57	.56	.52	.58	.38	1			
PIQV3	.19	.28	.30	.29	.46	.27	.35	.40	.36	.38	.27	.61	1		
PIOMEAN	.28	.41	.42	.41	.45	.36	.54	.55	.51	.55	.37	.94	.84	1	
PIQV4	.16	.25	.16	.22	.31	.11	.20	.25	.19	.22	.12	.49	.45	.53	1
PIQAVR	.29	.40	.42	.42	.44	.37	.55	.57	.52	.57	.39	.92	.86	.94	.53

If r > .47 p < .000001
 If r > .43 p < .000005
 If r > .39 p < .00005
 If r > .34 p < .0005
 If r > .28 p < .005

Table 24 for the correlation coefficients obtained among these variables.

The correlation coefficients obtained between the item average scores (CIQ AVER and TIQ AVER) on these two measures is .49 ($p < .000001$). One higher coefficient is observed between CIQ MEAN and TIQ AVER ($r = .52$, $p < .000001$). Differences among correlation coefficients, small on visual inspection, are not statistically significant.

These relationships are explored with PIQ variables as well for the N of 116. Correlation coefficients are presented in Table 25. No differences among correlation coefficients found between CIQ and PIQ variables reach acceptable levels of statistical significance, given adjustment for Type I error.

When variables from the teacher and parent measures are compared a significant difference was observed between the correlation coefficient obtained between the mean scores (PIQ MEAN, TIQ MEAN) compared with that between TIQ MEAN and PIQ IV3 ($t = 3.14$, $df = 105$, $p < .005$). A significant value was also obtained when this relationship was compared with TIQ MEAN and the global rating on the PIQ (PIQ IV4) ($t = 3.88$, $df = 105$, $p < .0002$). The correlation between the two item average scores on these measures (PIQ AVER, TIQ AVER) is significantly greater than the correlation between TIQ AVER and PIQ IV3 ($t = 4.57$, $df = 105$, $p < .00002$), between TIQ AVER and PIQ IV4 ($t = 4.43$, $df = 105$, $p < .00005$), and between PIQ AVER and TIQ IV4 ($t = 3.73$, $df = 105$, $p < .0005$). The correlation between the two global rating variables (TIQ IV4, PIQ IV4) is also significantly different from other variable pairs, but here the comparison relationship is stronger than that between these two variables ($t = -12.42$, $df = 105$, $p < .00001$).

b. COMPONENT #1

For component 1 this hypothesis was first investigated with variables from non-questionnaire measures (ATTOTLG, ATTOTLP, GRDAVER, for achievement test grade equivalent scores, achievement test percentile scores and grade average respectively). On visual inspection the correlation coefficients found for these variables with mean scores seems comparable to that observed for component 1, but higher than that observed for components two and three. These differences do not reach statistical significance. On the TIQ, the relationship between percentile scores on the achievement test and the TIQIV1 variable is significantly higher than that of ATTOTLP scores with component 3 ($t=3.45$, $df=176$, $p < .001$).

Comparisons between correlation coefficients obtained between component 1 on the child and teacher industry questionnaires to those obtained between component one and other component and mean scores produced no statistically significant differences. Thus the items tapping this component on the two questionnaires are not significantly more related to each other than they are to other items tapping either the second or third component, or to the mean score, although all relationships by themselves are positive and significant.

c) COMPONENT #2

The relationship between the second component variable for the CIQ and TIQ measures is statistically different from that of CIQIV2 and TIQIV1 ($t=2.96$, $df=176$, $p < .005$). None of the other differences between these two components and other variables were statistically significant for these two measures. No significant differences were observed when correlation coefficients were obtained

and compared across CIQ and PIQ variables (n=116).

When the teacher and parent measures are compared, the relationship between variables representing component 2 on both measures (TIQIV2, PIQIV2) is higher than that between component two on the teacher measure (TIQIV2) and the third component on the parent questionnaire (PIQIV3) ($t=3.04$, $df=105$, $p < .005$), but no differences were statistically significant when this relationship is compared with either PIQIV3 or PIQMEAN, or with TIQIV3 and TIQMEAN.

The observation measure's correlation with CIQIV2 is higher than that between this measure and the mean score on the CIQ ($t=4.02$, $df=24$, $p < .005$), although the correlation coefficient itself is not statistically significant, as shown in Table 23. On the TIQ, while the relationship here is a statistically significant one its difference from the correlation between the observational measure and the TIQMEAN, TIQIV1, TIQIV2, and TIQIV3 variables are not statistically significant.

d) COMPONENT #3

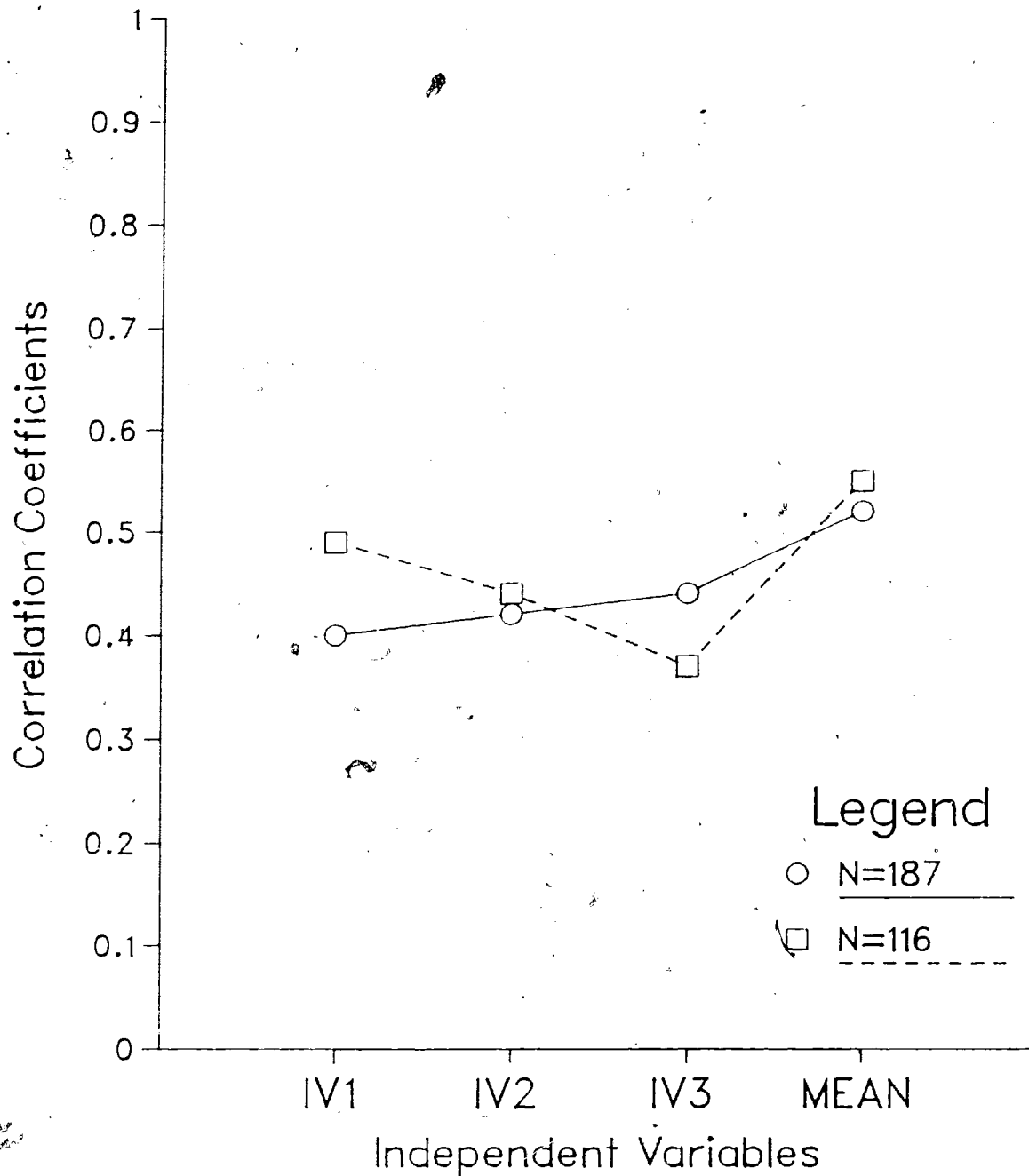
None of the comparisons involving the relationship between CIQIV3 and TIQIV3 or between CIQIV3 and PIQIV3 were statistically significant. The correlation coefficient between CIQIV3 and PIQIV3 is significantly less than that found between CIQIV3 and other PIQ variables. On the teacher and parent measures the relationship between TIQIV3 and PIQIV3 is significantly different from that between TIQIV3 and PIQMEAN ($t= 3.23$, $df=105$, $p < .002$), and PIQAVER ($t=-4.04$, $df=105$, $p < .0002$), although here the relationship between TIQIV3 and PIQMEAN is stronger than the relationship between the two component three variables on these measures (TIQIV3, PIQIV3).

Summary for Hypothesis #4

While positive and significant correlations are observed between components and mean scores across the measures, these relationships are not consistently or frequently higher than those between different component areas or mean scores across the measures. Component 1 does seem to have generally stronger relationships with other non-questionnaire measures of this component on the CIQ and mean scores are generally more highly related to each other than to other areas on the CIQ and TIQ measures, although almost all of these differences do not reach Bonferroni adjusted significance levels. These results will be addressed further in a subsequent section when factor analysis results are discussed.

Comparisons discussed above have included data from the Parent measure on the N of 116 who have complete and valid parent questionnaire data. For the purpose of comparison, differences in relationships across the CIQ and TIQ variables discussed between the N of 116 and the larger N of 187 are illustrated in Figure 3.

Figure 3. Correlations between CIQ and TIQ variables when N=187 and N=116.



5. Hypothesis #5:

THE GLOBAL RATING OF INDUSTRY MADE BY TEACHERS AND PARENTS SHOULD BE POSITIVELY CORRELATED WITH RATINGS OF INDUSTRY BASED ON SUMMARY SCORES FROM TEACHER AND PARENT QUESTIONNAIRES RESPECTIVELY.

The global rating (high, medium or low) made by parents and teachers while completing their questionnaires has been examined in earlier sections in terms of its correlation with other variables (See, for example, Tables 16, 17, 18, 19 and 20). This rating provides a check on the understanding teachers and parents have of the construct of industry and of how well the items themselves pick up on this understanding. Both have positive and significant relationships with mean scores although this relationship is clearly higher for teachers. The correlation coefficient obtained between TIQIV4 and TIQMEAN is $r = .83$ for $n = 187$. (When $N = 116$, $r = .78$). On the PIQ, the correlation between the equivalent variables is $.53$ ($N = 116$, $p = .000001$).

As noted in an earlier section the trained observers also made global ratings (OBSIV4) of industry based on their experiences in the classroom for $N = 24$ pupils. These ratings positively and significantly correlate with the observation measure ($r = .72$, $p = .000$, $N = 24$). This rating is also highly correlated (especially given the small number of pupils on which this correlation is based) with teacher's global rating for these pupils ($r = .49$ $p = .015$). No agreement with parents' global rating was obtained for the 10 pupils in the class whose parents had fully completed questionnaires.

Summary for Hypothesis #5.

The global rating is positively and significantly correlated with scores derived from responses to individual items themselves, suggesting a good correspondence between the items themselves and a more general understanding of the industry concept. This variable has correlation coefficients with other variables comparable to those obtained for other summary variables.

6. Hypothesis #6:

CHILDREN HIGHER ON THE INDEPENDENT VARIABLE OF INDUSTRY ARE EXPECTED TO DIFFER SIGNIFICANTLY FROM CHILDREN WITH LOWER INDUSTRY SCORES ON A NUMBER OF DEPENDENT VARIABLES:

- 1) PREFERENCE FOR MAKING THINGS AS OPPOSED TO "MAKING THINGS UP";
- 2) PROCESS/OUTCOME ORIENTATION;
- 3) OVERALL CONTENTMENT;
- 4) WORK SAMPLE AND
- 5) LEVEL OF REASONING FOR CONCEPTS OF EFFORT AND ABILITY.

Correlations between mean scores, item average scores and summary scores for the component area and each dependent variable were obtained and are reported in the paragraphs below. These variables, with the exception of one of the three film variables, are all continuous variables. For each of the continuous independent and dependent variables of interest here a categorical version of the variable was computed. This process involved standardizing each of the variables by the mean and standard deviation for each of the ten groups, and then placing the individual scores into one of four groups based on standard deviations from the mean. Following discussion of each of the dependent variables in turn, relationships among the dependent variables themselves are addressed.

a. *Dependent Variable #1 : Fantasy versus Reality*

The first dependent variable (CIQDV1, TIQDV1, PIQDV1 for the children, teacher and parent questionnaire measures respectively) has to do with the transition from the play age to the school age, during which a gradual preference for wanting to make and build things over the world of fantasy play is expected to occur. Items tapping this dependent variable on the three questionnaires are not all significantly correlated with the mean scores, item average scores and component summary scores of the industry construct. On the Children's Industry Questionnaire, a significant and positive correlation was obtained between this variable and components 2 ($r=.23$) and 3 ($r=.24$). The correlations between this dependent variable and the CIQMEAN and CIQIV1 variables were not significant.

As Table 27 shows, correlations obtained on TIQ variables between this dependent variable and all independent variables (TIOMEAN, $r=.39$; TIQIV1, $r=.28$; TIQIV2, $r=.41$; TIQIV3, $r=.40$; TIQAVER, $r=.41$) were significant, although, as will be discussed, to a lesser degree than are other dependent variables.

Table 28 reports results for PIQ variables. As the Table shows, the first dependent variable does not correlate significantly with component summary scores, mean score or item average score.

Figure 4 illustrates the relationship of this variable to the independent variables on the Children's and Teacher's Industry Questionnaires for $N=187$. For the purpose of comparison, PIQ variable correlations are also included for the smaller N of 116.

Table 26

Correlation Coefficients Obtained Between Independent and Dependent Variables on the CIQ (N=187)

	CIQV1	CIQV2	CIQV3	CIQMEAN	CIQAVR	CIQDV1	CIQDV2	CIQDV3	CIQDV4	FILMTTL	LEVEL	SCORE1
CIQV1	1											
CIQV2	.44	1										
CIQV3	.46	.71	1									
CIQMEAN	.88	.78	.79	1								
CIQAVR	.56	.93	.91	.89	1							
CIQDV1	-.01	.23	.24	.13	.24	1						
CIQDV2	.26	.46	.48	.44	.51	.12	1					
CIQDV3	.35	.42	.48	.48	.50	.17	.22	1				
CIQDV4	.21	.31	.28	.30	.32	.08	.20	.05	1			
FILMTTL	.16	.18	.22	.22	.22	.14	.12	.03	.20	1		
LEVEL	.18	.15	.18	.21	.19	.08	.12	.02	.26	.84	1	
SCORE1	.16	.21	.20	.22	.23	.14	.16	.09	.21	.88	.78	1

If r > .36 p < .00001 (two-tailed)

If r > .31 p < .00005 (two-tailed)

If r > .26 p < .0005 (two-tailed)

If r > .22 p < .005 (two-tailed)

Table 27

Correlation Coefficients Obtained Between Independent and Dependent Variables
on the TIQ (N=187)

	TIQV1	TIQV2	TIQV3	TIQMEAN	TIQAVR	TIQV4	TIQDV1	TIQDV2	TIQDV3	CIQDV4	FILMITL	LEVEL	SCORE1
TIQV1	1												
TIQV2	.73	1											
TIQV3	.67	.90	1										
TIQMEAN	.90	.94	.91	1									
TIQAVR	.75	.99	.96	.96	1								
TIQV4	.64	.84	.84	.83	.86	1							
TIQDV1	.28	.41	.40	.39	.41	.30	1						
TIQDV2	.71	.83	.87	.86	.87	.80	.40	1					
TIQDV3	.48	.67	.64	.63	.67	.55	.30	.56	1				
CIQDV4	.29	.38	.29	.35	.36	.29	.14	.25	.27	1			
FILMITL	.32	.26	.29	.32	.29	.25	-.02	.29	.30	.20	1		
LEVEL	.32	.26	.26	.31	.27	.25	.04	.28	.25	.26	.84	1	
SCORE1	.36	.30	.31	.36	.32	.28	.02	.31	.29	.21	.88	.78	1

If r > .36 p < .00001 (two-tailed)
 If r > .31 p < .00005 (two-tailed)
 If r > .26 p < .0005 (two-tailed)
 If r > .22 p < .005 (two-tailed)

Table 28

Correlation Coefficients Obtained Between Independent and Dependent Variables on the PIQ (N=116)

	PIQV2	PIQV3	PIOMEAN	PIQAVR	PIQV4	PIQDV1	PIQDV2	PIQDV3	CIQDV4	FILMTTL	SCORE1	LEVEL
PIQV2	1											
PIQV3	.61	1										
PIOMEAN	.94	.84	1									
PIQAVR	.92	.86	.99	1								
PIQV4	.49	.45	.53	.53	1							
PIQDV1	.11	.002	.08	.07	-.08	1						
PIQDV2	.38	.27	.37	.36	.23	-.002	1					
PIQDV3	.31	.42	.39	.40	.09	.06	-.04	1				
CIQDV4	.30	.27	.32	.32	.17	-.11	.07	.22	1			
FILMTTL	.23	.28	.28	.28	.20	.08	.04	.39	.22	1		
SCORE1	.23	.26	.27	.27	.53	.06	-.01	.31	.22	.89	1	
LEVEL	.13	.20	.17	.18	.17	.02	.23	.30	.26	.82	.79	1

If r > .47 p < .000001 (two-tailed)
 If r > .43 p < .000005 (two-tailed)
 If r > .39 p < .00005 (two-tailed)
 If r > .34 p < .0005 (two-tailed)
 If r > .28 p < .005 (two-tailed)

Table 29

Comparisons Between Correlations Among Independent and Dependent Variables on the CIQ and TIQ (n=187)

Correlation Between	Compared with Correlation Between	z or t Score	p*
		<u>z=</u>	
CIQIV1 and CIQDV1	TIQIV1 and TIQDV1	-2.72	< .007
CIQIV2 and CIQDV1	TIQIV2 and TIQDV1	-1.85	ns
CIQIV3 and CIQDV1	TIQIV3 and TIQDV1	1.64	ns
CIQMEAN and CIQDV1	TIQMEAN and TIQDV1	-2.55	ns
CIQAVÉR and CIQDV1	TIQAVÉR and TIQDV1	-1.76	ns
CIQIV1 and CIQDV2	TIQIV1 and TIQDV2	-5.80	< .0001
CIQIV2 and CIQDV2	TIQIV2 and TIQDV2	-6.46	< .0001
CIQIV3 and CIQDV2	TIQIV3 and TIQDV2	-7.56	< .0001
CIQMEAN and CIQDV2	TIQMEAN and TIQDV2	-7.68	< .0001
CIQAVÉR and CIQDV2	TIQAVÉR and TIQDV2	-7.19	< .0001
CIQIV1 and CIQDV3	TIQIV1 and TIQDV3	-1.49	ns
CIQIV2 and CIQDV3	TIQIV2 and TIQDV3	-3.40	< .001
CIQIV3 and CIQDV3	TIQIV3 and TIQDV3	-2.20	ns
CIQMEAN and CIQDV3	TIQMEAN and TIQDV3	-2.04	ns
CIQAVÉR and CIQDV3	TIQAVÉR and TIQDV3	-2.45	ns
		<u>t=</u>	
CIQIV1 and CIQDV4	TIQIV1 and CIQDV4	-.1	ns
CIQIV2 and CIQDV4	TIQIV2 and CIQDV4	-.93	ns
CIQIV3 and CIQDV4	TIQIV3 and CIQDV4	-.13	ns
CIQMEAN and CIQDV4	TIQMEAN and CIQDV4	-.72	ns
CIQAVÉR and CIQDV4	TIQAVÉR and CIQDV4	-.56	ns

* Two-tailed

Figure 4. Correlations between independent variables and dependent variable 1 on CIQ and TIQ n=187 and PIQ n=116

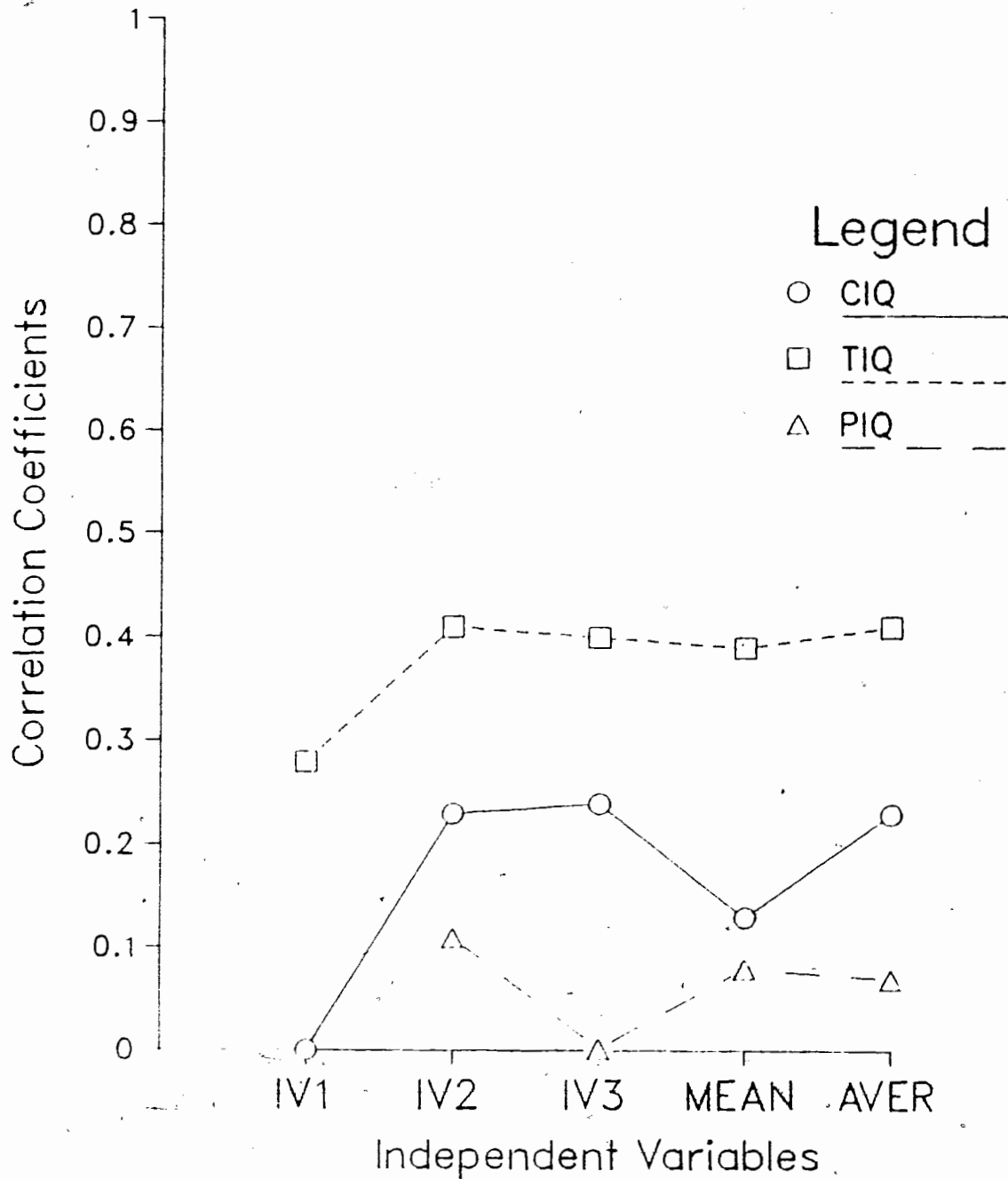


Table 29 reports Z-score results of comparisons between respective relationships between the independent variables and this dependent variable on the Children's and Teacher's Industry Questionnaires using the Pearson-Filon test. For this first dependent variable a significant difference was obtained between its relationship with component one on the CIQ and TIQ, with a closer relationship observed on the latter measure. ($Z=2.72$, $df=105$, $p < .007$).

Results of a Chi-square analysis for the "categorical" versions of this first dependent variable and the mean score, as well as the item average score, are reported in Table 30. As Table 30 shows, the Chi-Square values are not statistically significant for the categorical versions of the CIQ AVER or CIQ MEAN categorical variables with the categorical version of the first dependent variable.

b. Dependent Variable #2: Process versus Outcome Orientation.

The second dependent variable (CIQDV2, TIQDV2, PIQDV2 for the children, teacher and parent questionnaire measures respectively) is comprised of items tapping various aspects of what has been termed a process versus an outcome orientation. Is the child more concerned with the process of working on and completing tasks or with the grade received? Does he or she approach tasks in an ego-involved or a task-involved fashion? Here the expectation is that children higher in industry will be more process oriented than will children lower in industry. Moderately high, positive and significant correlation coefficients were obtained when this variable was correlated with independent variables on all three questionnaire measures. (See Table 26, 27 and 28 for correlation coefficients on the CIQ, TIQ and PIQ respectively).

Table 30

Chi-Square Analyses on Categorical Versions of CIQ Variables (N=187)

Categorical Variables	Chi-Square (χ^2)	df	p*
CIQMEAN X CIQDV1	7.90	9	ns
CIQAVR X CIQDV1	8.78	9	ns
CIQMEAN X CIQDV2	38.50	9	< .00001
CIQAVR X CIQDV2	45.69	9	< .00001
CIQMEAN X CIQDV3	35.06	9	< .0001
CIQAVR X CIQDV3	31.38	9	< .0003
CIQMEAN X CIQDV4	12.30	9	ns
CIQAVR X CIQDV4	18.09	9	< .03
CIQMEAN X SCORE1	16.85	9	ns
CIQAVR X SCORE1	10.04	9	ns
CIQMEAN X FILMTTL	19.88	9	< .02
CIQAVR X FILMTTL	13.26	9	ns

* two-tailed

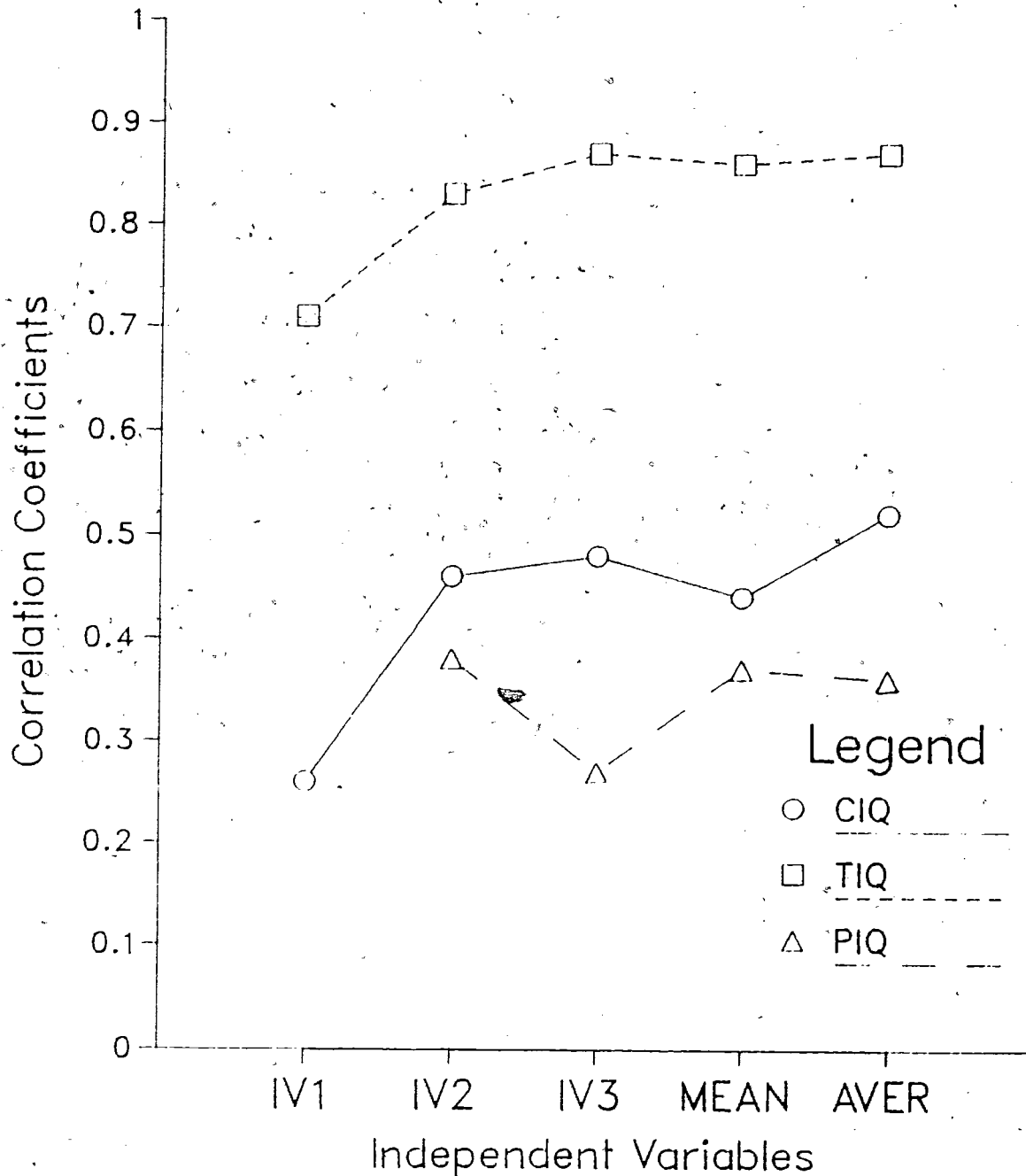
On the Children's Industry Questionnaire, correlation coefficients obtained between CIQDV2 and each of the independent variables are .26, .46, .48, .44, and .51 for CIQIV1, CIQIV2, CIQIV3, CIQMEAN and CIQAVER respectively. As with the first dependent variable these correlations are higher on the Teacher Industry Questionnaire. Correlation coefficients for the independent variables on the TIQ are as follows: TIQIV1, $r=.71$; TIQIV2, $r=.83$; TIQIV3, $r=.87$; TIQMEAN, $r=.86$; TIQAVER, $r=.87$; and TIQIV4, $r=.80$. On the Parent Industry Questionnaire, correlation coefficients were .38, .27, .37, .36, and .23 for PIQIV2, PIQIV3, PIQMEAN, PIQAVER and PIQIV4 respectively. Figure 5 illustrates patterns of these relationships for these two measures. As on Figure 4, PIQ values for the smaller N of 116 are also included. While the pattern of relationships appear comparable, their differences are statistically significant, as reported in Table 29, in each case showing a stronger relationship between TIQ independent and dependent variables than for these variables on the Childrens' measure.

Chi-Square analyses between the categorical version of this second dependent variable and the CIQMEAN and CIQAVER variables produced significant results. A Chi-Square of 38.50 ($df=9$, $p=.0000$) was obtained between CIQMEAN and CIQDV2: and with CIQAVER, a Chi-Square of 45.69 ($df=9$, $p=.0000$) was obtained. (These values are reported in Table 30).

c. Dependent Variable #3: Overall Contentment.

The third dependent variable (CIQDV3, TIQDV3, PIQDV3 for children, teacher and parent questionnaires respectively) deals with the expectation that greater self-esteem and contentment will accompany the successful resolution of each stage. Here, children higher in a sense of industry are expected to express

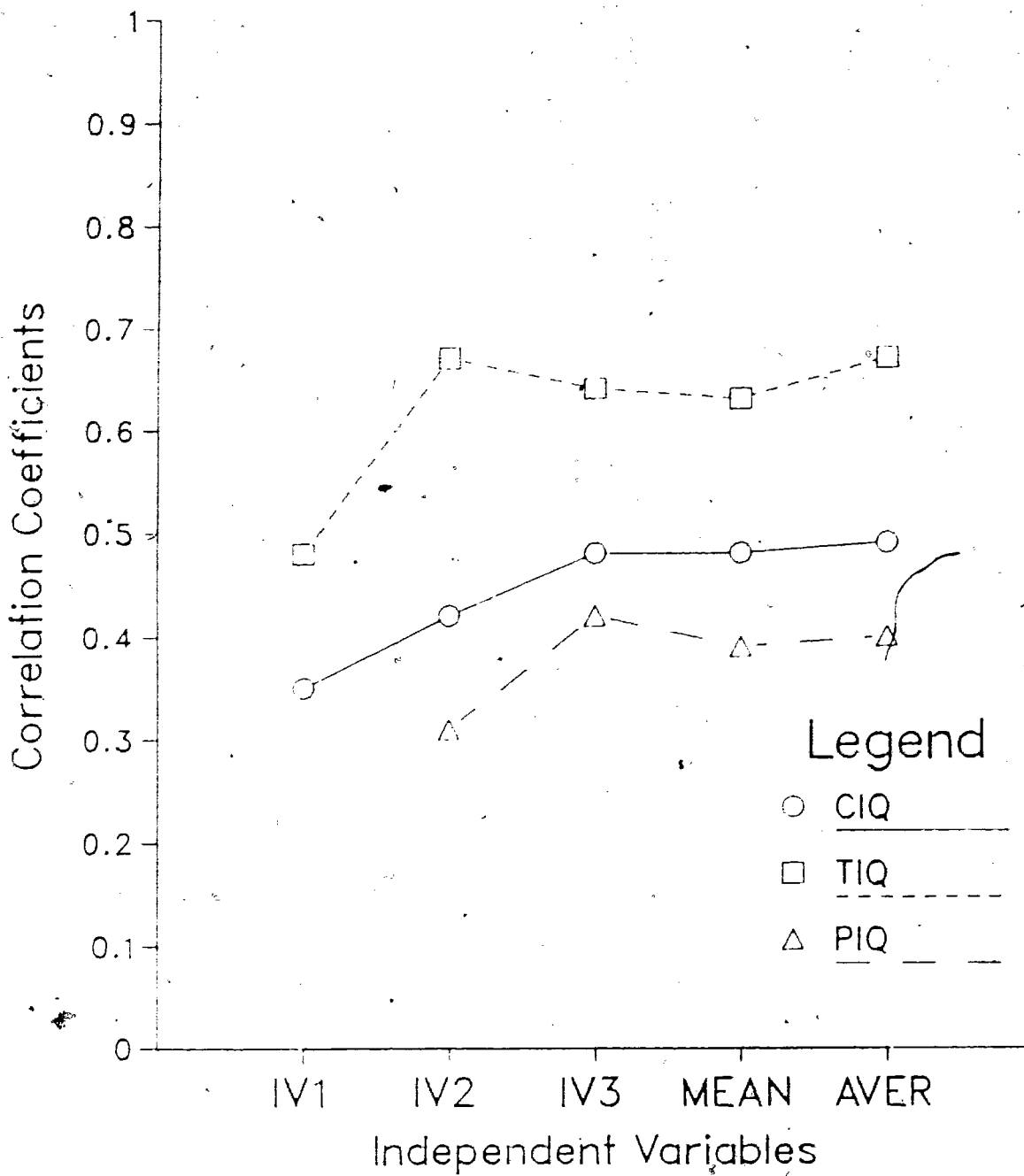
Figure 5. Correlations between independent variables and dependent variable 2 on CIQ and TIQ n=187 and PIQ n=116



greater contentment with themselves than are children lower in industry. Items representing this variable are significantly correlated with all independent variables on the three questionnaires. On the CIQ the correlation coefficients are comparable to those obtained with the second dependent variable, with coefficients of .35, .42 and .48 obtained for CIQIV1, CIQIV2, and CIQIV3 respectively. For CIQMEAN and CIQAVER the coefficients were .48 and .50 respectively. Higher correlations are observed on the teacher measure. For TIQIV1, TIQIV2, TIQIV3 correlation coefficients of .48, .67 and .64 respectively were obtained. For TIQMEAN, TIQAVER and TIQIV4 the coefficients obtained are .63, .67 and .55 respectively. Table 29 reports the Z scores results when relationships between CIQ and TIQ independent variables and their respective dependent variables are examined for statistical significance. As reported in the table, only one of the observed differences between these two measures is statistically significant at the .001 level. On the PIQ, correlation coefficients with this variable (PIQDV3) were significant for all but the global rating variable. Correlation coefficients for the component area scores (PIQIV2, $r=.31$; PIQIV3, $r=.42$), for the mean score (PIQMEAN, $r=.39$), item average score (PIQAVER, $r=.40$) are all significant. Figure 6 illustrates the relationship of this dependent variable to independent variables on the CIQ and TIQ measures, and for the PIQ measure for the smaller N of 116.

Chi-Square analyses were computed between the categorical versions of this dependent variable and CIQMEAN and CIQAVER. As reported in Table 30, the Chi-Square value obtained between CIQDV3 with CIQMEAN and CIQAVER were significant. The Chi-Square obtained between CIQDV3 and CIQMEAN is 35.06 ($df=9$, $p=.0001$) and between CIQDV3 and CIQAVER, Chi-Square = 31.38 ($df=9$, $p=.0003$).

Figure 6. Correlations between independent variables and dependent variable 3 on CIQ and TIQ n=187 and PIQ n=116.

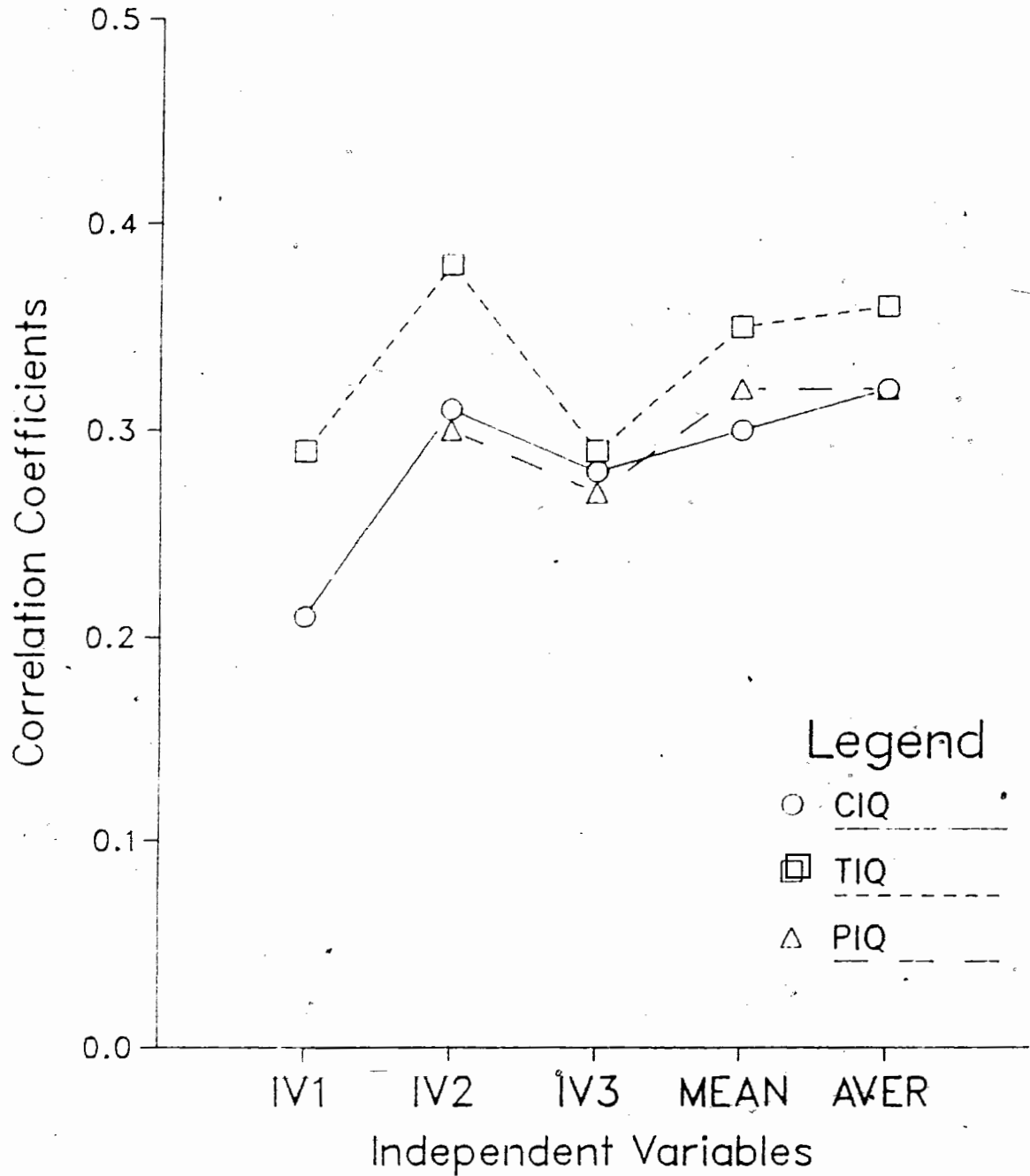


d. Dependent Variable 4: Work Sample

This variable (CIQDV4) is comprised of five open ended items on the CIQ which were scored on the criteria of content and completeness. This variable is positively and significantly correlated with component summary scores, item average scores and mean scores on all questionnaire measures. For independent variables on the CIQ correlation coefficients of .21, .31, .28, .30 and .32 were obtained for CIQIV1, CIQIV2, CIQIV3, CIQMEAN and CIQAVR, respectively. (Please see Tables 26, 27 and 28 for correlation coefficients between independent and dependent variables on the CIQ, TIQ and PIQ respectively). Correlation coefficients obtained for the work sample variable (CIQDV4) with independent variables on the TIQ are more comparable to those observed on the CIQ. For component scores, correlation coefficients obtained are as follows, TIQIV1 ($r=.29$), TIQIV2 ($r=.38$), TIQIV3 ($r=.29$). Coefficients of .35, .36 and .29 were obtained for TIQMEAN, TIQAVR, and TIQIV4, respectively. Differences in correlations between this variable and the independent variables on the CIQ and TIQ, as reported in Table 29) are not significant. Figure 7 illustrates the relationship of this dependent variable to the independent variables on the CIQ and TIQ measures (N=187) and, for the PIQ (n=116).

As reported in Table 30, the Chi-Square analysis between categorical versions of CIQDV4 and CIQMEAN did not produce significant results, while a Chi-Square value of 18.09 (df=9) obtained between CIQDV4 and CIQAVR is significant at the .03 level.

Figure 7. Correlations between independent variables and dependent variable 4 on CIQ and TIQ n=187 and PIQ n=116.



e. Dependent Variable #5: Level of Reasoning with regard to concepts of effort and ability.

Three variables were computed to summarize results on the film question set, which was developed to tap children's understanding of the differences between the concepts of effort and ability. SCORE1 is the mathematical sum of responses to the film question set, LEVEL is the assignment to one of four levels of reasoning where the pattern of responses and number of responses representing each category were taken into account in level assignment; and FILMTTL is the SCORE1 variable corrected for the number of valid responses given. These three variables are all highly correlated with each other. The correlation coefficient obtained between SCORE1 and FILMTTL is .88; between SCORE1 and LEVEL a correlation coefficient of .78 was obtained; and a coefficient of .84 was obtained when FILMTTL and LEVEL were correlated. The high correlation between FILMTTL and SCORE1 suggests that number of valid answers may not in itself be of importance. On both the CIQ and TIQ measures these three variables are quite similar in their relationship with other variables, as reported in Table 26. With adjustment to significance levels in recognition of the possibility of Type I error, significant results are seen for both the SCORE1 and FILMTTL variables with the two overall summary variables on the CIQ (CIQ AVER, CIQ MEAN). FILMTTL is also significantly correlated with CIQ IV3, the third component area summary score on the Children's Industry Questionnaire. These correlation coefficients are moderate relative to other correlation coefficients obtained for other dependent variables. This dependent variable has been described in the present study as "more different from" other dependent variables, in comparison to the industry construct. That correlation coefficients reach statistical significance and that they

are smaller than other coefficients obtained lends support to this description as well as to the significant, albeit moderate, predictive validity of industry to the understanding of other concepts, such as effort and ability. Correlation coefficients for the LEVEL variable with CIQ independent variables (CIQMEAN, CIQAVER, CIQIV1, CIQIV2, CIQIV3) are not statistically significant. On the TIQ all three film variables are significantly correlated with all TIQ independent variables. Correlation coefficients obtained, as shown in Table 27, are all significant at the .0005 level. All three variables are significantly correlated with RAVENRW and RAVENPR scores and to a greater extent than are other dependent variables.

Chi-Square analyses on categorical versions of SCORE1 and FILMTTL with CIQMEAN and CIQAVER were performed. Results were significant only for the FILMTTL variable with CIQAVER (Chi-Square = 19.88, df=9, p=.02) as reported in Table 30.

f. Relationship Among Dependent Variables

Tables 26, 27, and 28 include correlation coefficients for dependent variables on the CIQ, TIQ and PIQ measures (along with the three variables from the film), respectively. On the Children's Industry Questionnaire, while some of the correlation coefficients are significant (for example, between SCORE1 and CIQDV2, CIQDV4 and all three film variables, CIQDV4 and CIQDV2, CIQDV3 and CIQDV2), these relationships are generally lower than those obtained between these variables and the independent variables. This also holds on the TIQ measure, where relationships between dependent variables are lower than those obtained between these dependent variables and TIQ independent variables, although here the dependent variables are interrelated to a higher

extent than on the CIQ.

Summary for Hypothesis #6:

The dependent variables have positive and significant relationships with independent variables on the three questionnaires. In addition, when variables from the CIQ are compared in Chi-Square analyses, those relationships showing moderate correlation coefficients also reach statistical significance in their categorical form. Exceptions to this include CIQDV4, the work sample dependent variable from the CIQ, and the SCORE1 variable from the film question set. On the PIQ measure, only PIQDV3 is significantly correlated with other dependent variables (SCORE1, FILMTTL, LEVEL). Relationships between independent and dependent variables are significant for both overall summary scores and for individual component areas on all questionnaire measures. In terms of the performance of the summary variables to represent the component areas, it is of note that correlations between these variables and dependent variables are in general higher than or comparable to those obtained for individual component areas.

Given these generally significant relationships several other questions emerge. One issue is whether or not these relationships will change when "corrected for" the possible influence of social desirability or intelligence. This question is addressed by Hypotheses 7 and 8 which follow. Second, some of the observed correlations between independent and dependent variables are higher than correlations among the components themselves. Do some of these variables more properly belong on the independent variable side of the independent/dependent variable distinction? This question is addressed by the final hypothesis, Hypothesis 10.

7. Hypothesis #7:

INDUSTRY AND INTELLIGENCE (AS MEASURED BY THE RAVEN'S PROGRESSIVE MATRICES) ARE EXPECTED TO BE POSITIVELY AND SIGNIFICANTLY RELATED TO EACH OTHER BUT THERE SHOULD ALSO BE VARIANCE ACCOUNTED FOR BY INDUSTRY NOT ACCOUNTED FOR BY INTELLIGENCE AND ERROR VARIANCE ALONE.

The correlations between component scores, mean scores and item average scores on the CIQ with the Raven's percentile or grade equivalent scores are not significant, contrary to a priori expectations. Table 31 reports the correlations between the raw and percentile scores and the independent variables. Relationships with dependent variables are also included for the sake of comparison. Level of reasoning has the highest correlation coefficient with the IQ variable of all the dependent variables. The work sample, a performance variable, is related to intelligence in a high and significant fashion as well. Intelligence is also positively and significantly related to both achievement test scores and grade average variables. The correlation coefficients obtained for RAVENRW (raw scores) and RAVENPR (percentile scores) and grade average were .40 and .35 respectively. The correlation coefficients obtained for these two variables with grade equivalent achievement test scores were .55 and .49, and with achievement test percentile scores, .55 and .51.

It is of note that the pupil's own evaluation on the first component, as tapped by items on the questionnaire, is not significantly correlated with intelligence, although it is positively and significantly correlated with achievement test scores and grades, as discussed in an earlier section.

Table 31

Correlation Coefficients Between Raven's Progressive Matrices and
CIQ, TIQ and Film Variables (N=187)

Raven's Progressive Matrices

Variable	Correlation with Raw Score		Correlation with Percentile Score	
	r	p*	r	p*
CIQIV1	.11	ns	.11	ns
CIQIV2	.09	ns	.10	ns
CIQIV3	.14	ns	.15	ns
CIQMEAN	.14	ns	.14	ns
CIQAVR	.13	ns	.14	ns
CIQDV1	-.11	ns	-.11	ns
CIQDV2	.11	ns	.09	ns
CIQDV3	.11	ns	.12	ns
CIQDV4	.18	< .02	.18	< .02
FILMTTL	.31	< .00005	.26	< .005
SCORE1	.29	< .0001	.25	< .001
LEVEL	.28	< .0001	.26	< .0005
TIQIV1	.46	< .000001	.42	< .000001
TIQIV2	.41	< .000001	.40	< .000001
TIQIV3	.38	< .000001	.38	< .000001
TIQMEAN	.46	< .000001	.44	< .000001
TIQIV4	.36	< .000001	.34	< .000005
TIQAVR	.42	< .000001	.41	< .000001
TIQDV1	.17	< .05	.19	< .02
TIQDV2	.42	< .000001	.40	< .000001
TIQDV3	.29	< .0001	.30	< .0001

*Two-tailed

In contrast to CIQ variables, the TIQ variables are all highly correlated with both raw and percentile scores on the Raven's measure. TIQMEAN has correlation coefficients of .46 and .44 respectively with the raw and percentile scores on the Raven's Progressive Matrices measure (RAVENRW, RAVENPR). This suggests that teachers make less of a differentiation between industry and intelligence or ability issues, a finding consistent with the generally higher relationships observed among TIQ variables and other performance variables (e.g. GRDAVER, ATTOTLG, ATTOTLP) as discussed earlier.

Results for the PIQ measure are presented in Table 32. PIQMEAN has a significant correlation with both raw and percentile scores from the Raven's measure.

Table 33 reports results from t-test comparisons between CIQ and TIQ variables and the Raven raw and percentile scores. All TIQ variables are more closely related to intelligence scores than are CIQ variables, although this is marginal for the third component variable. There are no significant differences among the different TIQ variables themselves.

What of the relationship between independent and dependent variables when the effects of intelligence are removed? Tables 34 to 38 report correlation coefficients for CIQMEAN, CIQIV1, CIQIV2 and CIQIV3 with each of the dependent variables with the correlation between them and the raw and percentile Raven's scores partialled out. The zero-order correlations differ slightly from those reported earlier because the variables entered into the partial correlation analyses were standardized then divided by a group-specific standard deviation. Standardization provided by the SPSSx Discriminant Program, from which other correlation coefficients were obtained, subtracts the appropriate

Table 32

Correlation Coefficients Between Raven's Progressive Matrices and
PIQ Variables (N=116)

Variable	Raven's Progressive Matrices		Raven's Progressive Matrices	
	Correlation with Raw Score r	p*	Correlation with Percentile Score r	p*
PIQV2	.27	< .0005	.24	< .02
PIQV3	.09	ns	.08	ns
PIQMEAN	.22	< .02	.20	< .05
PIQV4	.03	ns	.03	ns
PIQAVR	.22	< .02	.20	< .05
PIQDV1	.10	ns	.07	ns
PIQDV2	.04	ns	.08	ns
PIQDV3	.08	ns	.06	ns

*Two-tailed

Table 33

Comparisons Between Correlations Among Independent & Dependent Variables on the CIQ & TIQ and Raven Scores (N=187)

Correlation Between	Compared with Correlation Between	t Score	p*
CIQIV1 and RAVENPER	TIQIV1 and RAVENPER	-4.09	< .0001
CIQIV1 and RAVENRAW	TIQIV1 and RAVENRAW	-4.72	< .00001
CIQIV2 and RAVENPER	TIQIV2 and RAVENPER	-3.99	< .0001
CIQIV2 and RAVENRAW	TIQIV2 and RAVENRAW	-4.29	< .00005
CIQIV3 and RAVENPER	TIQIV3 and RAVENPER	-3.08	< .005
CIQIV3 and RAVENRAW	TIQIV3 and RAVENRAW	-3.21	< .002
CIQMEAN and RAVENPER	TIQMEAN and RAVENPER	-4.50	< .00002
CIQMEAN and RAVENRAW	TIQMEAN and RAVENRAW	-4.86	< .00001
CIQAV ER and RAVENPER	TIQAV ER and RAVENPER	-4.35	< .00005
CIQAV ER and RAVENRAW	TIQAV ER and RAVENPER	-4.85	< .00001
TIQIV1 and RAVENRAW	TIQIV2 and RAVENRAW	1.01	ns
TIQIV3 and RAVENRAW	TIQIV1 and RAVENRAW	1.46	ns
TIQIV2 and RAVENRAW	TIQIV3 and RAVENRAW	.97	ns

* two-tailed

Table 34

Partial Correlation Coefficients Between CIQMEAN and Dependent Variables Controlling for Intelligence Scores (N=187)

CIQMEAN with*	Zero-Order Partial		Controlling for		
	r	df	p**	RAVENRAW	RAVENPER
	r	df	p**	r	df
CIQDV1	.15	176	< .05	.16	175
CIQDV2	.43	176	< .000001	.42	175
CIQDV3	.47	176	< .000001	.46	175
CIQDV4	.30	176	< .0001	.28	175
SCORE1	.24	176	< .005	.22	175
LEVEL	.24	176	< .005	.21	175
FILMITL	.24	176	< .005	.21	175
RAVENRAW	.16	176	< .05	.21	175
RAVENPER	.14	176	ns	.21	175

*These variables were standardized by hand for these analyses

**Two-tailed

Table 35

Partial Correlation Coefficients Between CIQIV1 and Dependent Variables Controlling for Intelligence Scores (N=187)

CIQIV1 with*	Zero-Order Partial			Controlling for					
	r	df	p**	RAVENRAW			RAVENPER		
				r	df	p**	r	df	p**
CIQDV1	-.02	176	ns	-.01	175	ns	.01	175	ns
CIQDV2	.28	176	<.0005	.27	175	<.0005	.27	175	<.0005
CIQDV3	.35	176	<.0001	.34	175	<.00001	.34	175	<.00001
CIQDV4	.21	176	<.05	.19	175	<.05	.19	175	<.05
SCORE1	.17	176	<.05	.14	175	ns	.15	175	<.05
LEVEL	.17	176	<.05	.14	175	ns	.15	175	<.05
FILMTTL	.20	176	<.05	.17	175	<.05	.18	175	<.05
RAVENRAW	.13	176	ns						
RAVENPER	.10	176	ns						

*These variables were standardized by hand for these analyses

**Two-tailed

Table 36

Partial Correlation Coefficients Between CIQIV2 and Dependent Variables Controlling for Intelligence Scores (N=187)

CIQIV2 with*	Zero-Order Partial			Controlling for		
	r	df	p**	r	df	p**
CIQDV1	.27	176	< .0005	.28	175	< .0001
CIQDV2	.44	176	< .000001	.43	175	< .000001
CIQDV3	.43	176	< .000001	.42	175	< .000001
CIQDV4	.30	176	< .0001	.29	175	< .0001
SCORE1	.19	176	< .02	.18	175	< .02
LEVEL	.22	176	< .005	.20	175	< .01
FILMITL	.17	176	< .05	.16	175	< .05
RAVENRAW	.09	176	ns			
RAVENPER	.08	176	ns			

*These variables were standardized by hand for these analyses

**Two-tailed

Table 37

Partial Correlation Coefficients Between CIQIV3 and Dependent Variables Controlling for Intelligence Scores (N=187)

CIQIV3 with*	Zero-Order Partial			Controlling for					
	r	df	p**	RAVENRAW			RAVENPER		
CIQDV1	.26	176	<.0005	.28	175	<.0001	.28	175	<.0001
CIQDV2	.46	176	<.000001	.45	175	<.000001	.45	175	<.000001
CIQDV3	.46	176	<.000001	.45	175	<.000001	.45	175	<.000001
CIQDV4	.28	176	<.0001	.26	175	<.0005	.26	175	<.0005
SCORE1	.23	176	<.005	.19	175	<.02	.20	175	<.01
LEVEL	.22	176	<.005	.19	175	<.02	.19	175	<.02
FILMTIL	.20	176	<.01	.16	175	<.05	.17	175	<.05
RAVENRAW	.17	176	<.02						
RAVENPER	.16	176	NS						

*These variables were standardized by hand for these analyses

**Two-tailed

Table 38

Partial Correlation Coefficients Between CIQAVR and Dependent Variables Controlling for Intelligence Scores (N=187)

CIQAVR with*	Zero-Order Partial			Controlling for					
	r	df	p**	RAVENRAW			RAVENPER		
CIQDV1	.28	176	<.0001	.29	175	<.0001	.29	175	<.0001
CIQDV2	.49	176	<.000001	.48	175	<.000001	.48	175	<.000001
CIQDV3	.49	176	<.000001	.48	175	<.000001	.48	175	<.000001
CIQDV4	.31	176	<.000005	.29	175	<.0001	.29	175	<.0001
SCORE1	.24	176	<.002	.21	175	<.01	.22	175	<.005
LEVEL	.22	176	<.005	.18	175	<.02	.19	175	<.02
FILMITL	.24	176	<.002	.20	175	<.01	.21	175	<.01
RAVENRAW	.14	176	<.05						
RAVENPER	.14	176	ns						

*These variables have all been standardized by hand for these analyses

**Two-tailed

mean from all scores, but does not divide by standard deviations. As the tables shows, there is little change after controlling for either Raven variable on the observed correlations between the mean and dependent variables on the CIQ because of the nonsignificant relationships observed initially.

On the TIQ, however, where positive and significant relationships between TIQ variables and Raven's scores were observed, relationships between independent and dependent variables remained high even after controlling for these intelligence scores, for both TIQMEAN and TIQAVAR. These are reported in Tables 39 and 40.

Summary for Hypothesis #7

It had been expected that industry and intelligence (as measured by Raven's Progressive Matrices) would be positively and significantly related but clearly distinguishable. Obtained results suggest only limited relatedness between them when children's self-report of a sense of industry is examined. A tendency for teachers to use external criteria in their scoring has been noted: This was seen for example in the high correlations between teacher ratings and grades and achievement test scores. Clearly teachers are not expected to report on what they feel is the child's subjective experience of a sense of industry but the positive and significant correlations observed between teacher and pupil ratings on the industry construct in view of this finding suggest that there is more to the industry construct than what can be observed from the outside. The smaller difference between the teacher and pupil measures in relationship between Raven scores and the third component, in contrast to differences found for components 1 and 2, is consistent with this view and may reflect its acknowledgement by teachers themselves. Relationships between independent and dependent variables

Table 39

Partial Correlation Coefficients Between TIQMEAN and Dependent Variables Controlling for Intelligence Scores (N=187)

TIQMEAN with*	Zero-Order Partial			Controlling for					
	r	df	p**	RAVENRAW			RAVENPER		
TIQDV1	.38	176	<.000001	.33	175	<.000001	.32	175	<.000002
TIQDV2	.84	176	<.000001	.82	175	<.000001	.82	175	<.000001
TIQDV3	.67	176	<.000001	.64	175	<.000001	.63	175	<.000001
SCORE1	.37	176	<.000001	.29	175	<.0001	.31	175	<.00005
LEVEL	.32	176	<.00002	.23	175	<.005	.25	175	<.001
FILMITL	.31	176	<.00005	.21	175	<.01	.23	175	<.005
CIODV4	.34	176	<.000005	.30	175	<.0001	.31	175	<.00005
RAVENRAW	.40	176	<.000001						
RAVENPER	.39	176	<.000001						

*These variables were standardized by hand for these analyses.

**Two-tailed

Table 40

Partial Correlation Coefficients Between TIQAVR and Dependent Variables Controlling for Intelligence Scores (N=187)

TIQAVR with*	Zero-Order Partial		Controlling for				
	r	df	p**	RAVENRAW		RAVENPER	
				r	df	r	df
TIQDV1	.39	176	<.000001	.35	175	.34	175
TIQDV2	.84	176	<.000001	.82	175	.82	175
TIQDV3	.71	176	<.000001	.68	175	.68	175
SCORE1	.33	176	<.000001	.25	175	.27	175
LEVEL	.28	176	<.0001	.19	175	.20	175
FILMTTL	.28	176	<.0001	.18	175	.20	175
CIODV4	.34	176	<.000005	.30	175	.31	175
RAVENRAW	.38	176	<.000001				
RAVENPER	.37	176	<.000001				

*These variables were standardized by hand for these analyses.

**Two-tailed

remain significant when controlling for the Raven scores.

8. Hypothesis #8:

- a. A RELATIONSHIP BETWEEN INDUSTRY AND SOCIAL DESIRABILITY IS EXPECTED BUT THERE SHOULD BE VARIANCE ACCOUNTED FOR BY THE INDUSTRY CONSTRUCT NOT ACCOUNTED FOR BY SOCIAL DESIRABILITY AND ERROR VARIANCE ALONE.
- b. IT IS ALSO EXPECTED THAT CHILDREN WITH HIGH SCORES ON INDUSTRY AND SOCIAL DESIRABILITY CAN BE DIFFERENTIATED FROM CHILDREN WITH A HIGH INDUSTRY SCORE AND LOW OR MODERATE SOCIAL DESIRABILITY SCORES, WITH THE FORMER GROUP CHARACTERIZED BY A MORE DRIVEN QUALITY THAN THE LATTER.

Significant correlations were found between the score on the Children's Social Desirability Scale (CSDSRAW) and two component variables on the CIQ (CIQIV2, $r=.49$; CIQIV3, $r=.35$) and the mean score (CIQMEAN, $r=.37$) as reported in Table 41. The second component has the highest correlation with the social desirability variable among all CIQ independent variables. Among the dependent variables, only the third dependent variable (CIQDV3), overall contentment, is significantly correlated with the social desirability measure after adjustment to acceptable significance levels given possibility of a Type I error. Given these relationships, it was of interest to examine what would happen were the effects of social desirability partialled out of correlations between independent and dependent variables. As reported in Table 42, correlation coefficients between independent and dependent variables become generally lower but remain significant. The exception to this is that the first dependent

Table 41

Correlation Coefficients Between CIQ Independent Variables, Dependent Variables and Social Desirability Score (N-187)

Variable	Correlation with Social Desirability (CSDSRAW)	
	r	p*
CIQMEAN	.37	< .000001
CIQIV1	.19	ns
CIQIV2	.49	< .000001
CIQIV3	.35	< .000002
CIQAVR	.46	< .000001
CIQDV1	.18	< .05
CIQDV2	.13	ns
CIQDV3	.25	< .0001
CIQDV4	.15	ns
FILMTTL	-.02	ns
SCORE1	-.05	ns
LEVEL	-.01	ns

*Two-tailed

Table 42

Zero-Order and Partial Correlation Coefficients Controlling for CSDSRW

Variable	Zero-Order Partial							Controlling for Social Desirability (CSDSRW)						
	CIOMEAN	CIQV1	CIQV2	CIQV3	CIQV4	CIQV5	CIQV6	CIOMEAN	CIQV1	CIQV2	CIQV3	CIQV4	CIQV5	CIQV6
CIQW1	.15	-.02	.27	.26	.28			.07	-.06	.18	.19	.20		
CIQW2	.43	.28	.44	.46	.49			.42	.26	.44	.45	.49		
CIQW3	.47	.35	.43	.46	.49			.42	.32	.36	.40	.43		
CIQW4	.30	.21	.30	.28	.31			.27	.19	.28	.25	.28		
SCORE1	.24	.17	.19	.23	.24			.27	.17	.22	.24	.29		
LEVEL	.24	.17	.22	.22	.22			.26	.18	.27	.25	.25		
FILMITL	.24	.20	.17	.20	.25			.25	.20	.21	.22	.26		
CSDSRW	.36	.19	.49	.35	.45									

If r > .36 p < .000001 (two-tailed)
 If r > .31 p < .00005 (two-tailed)
 If r > .26 p < .0005 (two-tailed)
 If r > .22 p < .005 (two-tailed)

variable (CIQDV1) has no significant relationships with independent variables, given appropriate adjustments to acceptable significance levels in light of the possibility of Type I error. Correlation coefficients obtained between independent variables and the second and third dependent variables (CIQDV2, CIQDV3) remain significant. The correlation between the fourth dependent variable (CIQDV4) and the first CIQ component (CIQV1) no longer reaches an acceptable level of significance. Correlations between the film variables and the independent variables on the CIQ become slightly higher, in general, when controlling for the CSDSRAW variable.

As with the dependent variables, a categorical version of the social desirability score was computed and a chi-square analysis was performed between this variable and CIQAVER and CIQMEAN. Significant values were obtained for both analyses: A Chi-square of 38.11 ($df=9$, $p=.0000$) was obtained between CIQMEAN and CSDSRAW. A Chi-Square value of 42.79 was obtained between CIQAVER and CSDSRAW ($df=9$, $p=.0000$). Of special interest were the social desirability scores of those pupils scoring high on the industry variables. In particular it was felt that children scoring high on industry and low or moderate on social desirability could be distinguished from those children scoring high on both industry and social desirability. To explore this possibility scores were grouped into three levels (high, medium and low) on the social desirability variable and then contrasted with regard to the third dependent variable, overall contentment. While results were not significant (chi-square obtained between these groups and the categorical version of CIQDV3 is 6.66, $df=6$, $p=.35$) it is of note that pupils high on industry are by no means all high on the social desirability variable. For example, 26% of all pupils had low to moderate social desirability scores and moderate to high industry scores. Of

those pupils moderate to high on industry (CIQMEAN) 48% were low to moderate on the social desirability variable. For pupils in the highest category on the CIQMEAN variable (n=30), almost 1/3 (n=9) are in the low or moderate category on the social desirability variable.

Summary for Hypothesis #8

Results show a positive and significant relationship between awareness of social desirability and components two and three of the industry construct, with the relationship highest between social desirability and the behavioral component. Among the dependent variables only the third, overall contentment, was significantly correlated with the social desirability variable. This dependent variable addressed overall contentment and satisfaction in relation to peers. In addition to the observed relationship between industry and social desirability, relationships between independent and dependent variables remain positive and significant. Finally, it was noted that while a generally positive relationship between scores on industry and social desirability exists, a good proportion of pupils scoring high on industry did not have high social desirability scores.

9. Hypothesis #9:

GIVEN THE THREE GRADE LEVELS PARTICIPATING IN THE STUDY (GRADE FOUR, FIVE AND SIX) SOME DEVELOPMENTAL PROGRESSION IS EXPECTED TO BE OBSERVED. SPECIFICALLY:

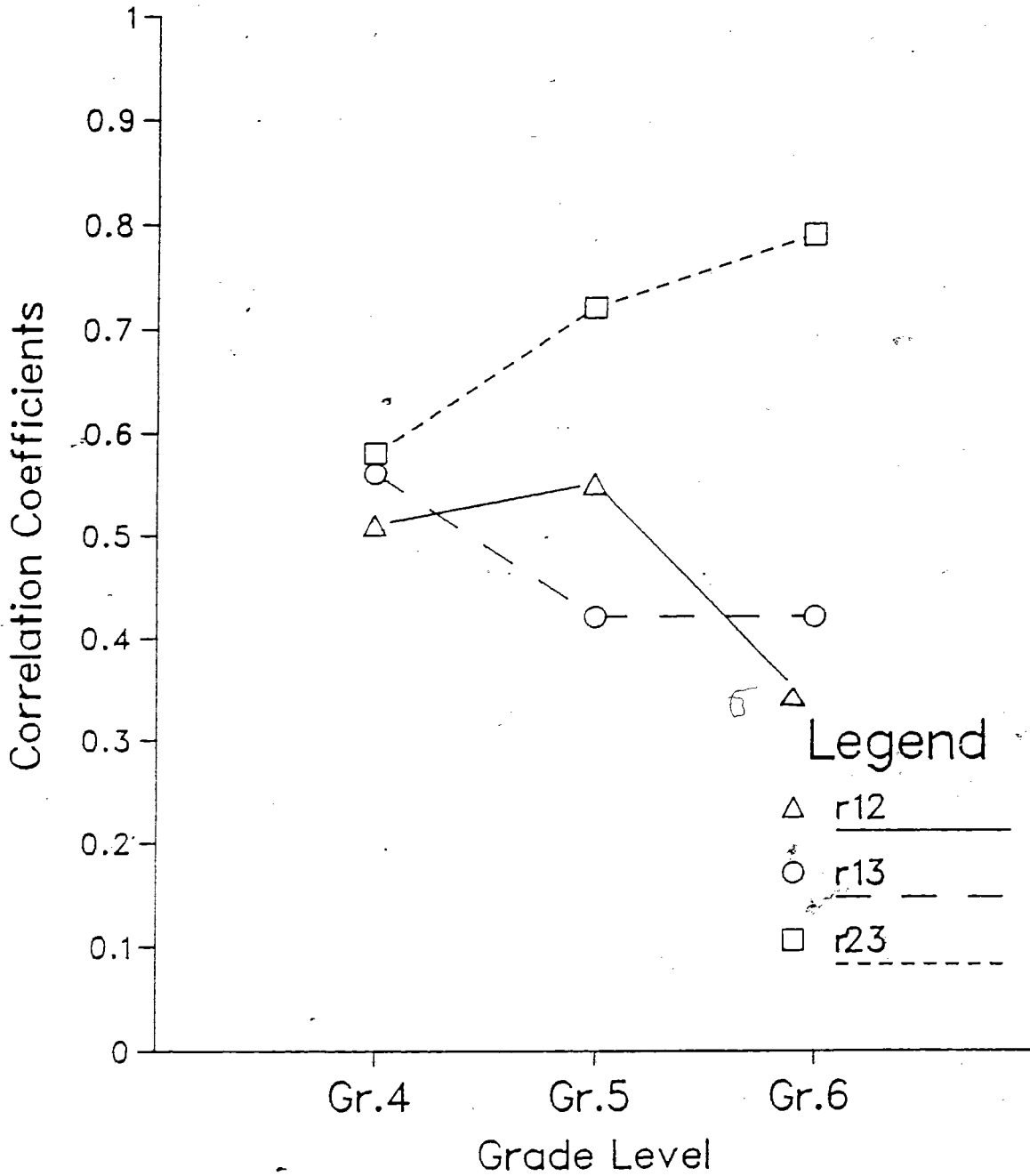
A) CHILDREN IN GRADE SIX SHOULD SHOW HIGHER CONSISTENCY ACROSS MEASURES OF INDUSTRY THAN WILL CHILDREN IN GRADE 4, INDICATING A HIGHER DEGREE OF RESOLUTION ACHIEVED BY THE OLDER CHILDREN.

B) THIS DEVELOPMENTAL PROGRESSION SHOULD ALSO BE APPARENT IN HIGHER INDUSTRY SCORES, ON THE AVERAGE, FOR THE OLDER CHILDREN.

The decision to standardize scores within groups to control for between group differences meant that age differences could only be explored within each group. Results of analyses are reported in the paragraphs below.

To look at differences in consistency across component areas of industry, a new variable (CONSIST) was created from the standardized z-scores for each of the three component areas for each pupil, consisting of the square root of the squared difference between the three component areas. This variable was then correlated with age for all pupils. A nonsignificant correlation coefficient was obtained. Another variable (CIQTIQ), which is the difference between the two mean scores on the Childrens' and Teachers' Industry Questionnaires, was computed to explore consistency of ratings across measures. No significant correlation coefficients were obtained. The correlations among the three component areas for the three grade levels were also examined. These correlations are reported in Appendix T and are illustrated in Figure 8. As

Figure 8. Correlations among component areas for the three grade levels. n=187



shown in the Figure, the grade 5 pupils show a higher correlation between the first two components, the grade 6 pupils show the highest correlation among the three grade levels for components 2 and 3, and the grade 4 pupils for components 1 and 3. Within each of the three grade levels the relationship between Components 2 and 3 is the highest of the three relationships. In addition this correlation increases with age. In terms of mean industry scores, highest scores on the CIQMEAN variable were obtained on average by grade 4 pupils, followed by grade 5 and then grade 6. For the unweighted summary variable (CIQAVER), the highest scores on average were obtained by grade 6 pupils, followed by grade 4 and then grade 5.

These analyses were repeated within School 1 without controlling for between group differences for exploratory purposes. Correlation coefficients obtained between age and CIQMEAN and CIQAVER were both nonsignificant ($r = -.13$ for both variables).

Correlation coefficients obtained for each grade level and the total correlation coefficient for CIQ independent and dependent variables, the three film variables (SCORE1, FILMTTL, LEVEL), the social desirability measure variable (CSDSRW) and CIQMEAN are illustrated in Figure 9. TIQ independent and dependent variables, achievement test scores, intelligence scores, and grade average are shown in Figure 10.

As shown in Figure 9, similar patterns are observed for relationships among CIQ independent variables. For dependent variables correlation coefficients between CIQMEAN and CIQDV1 are comparable across the grade levels. For the second dependent variable, the correlations are higher for grade 5 and 6 but all three coefficients are statistically significant. Correlation coefficients obtained for

Figure 9. Correlations with CIQMEAN for the three grade levels on CIQ, Film and Social Desirability Variables. n=187

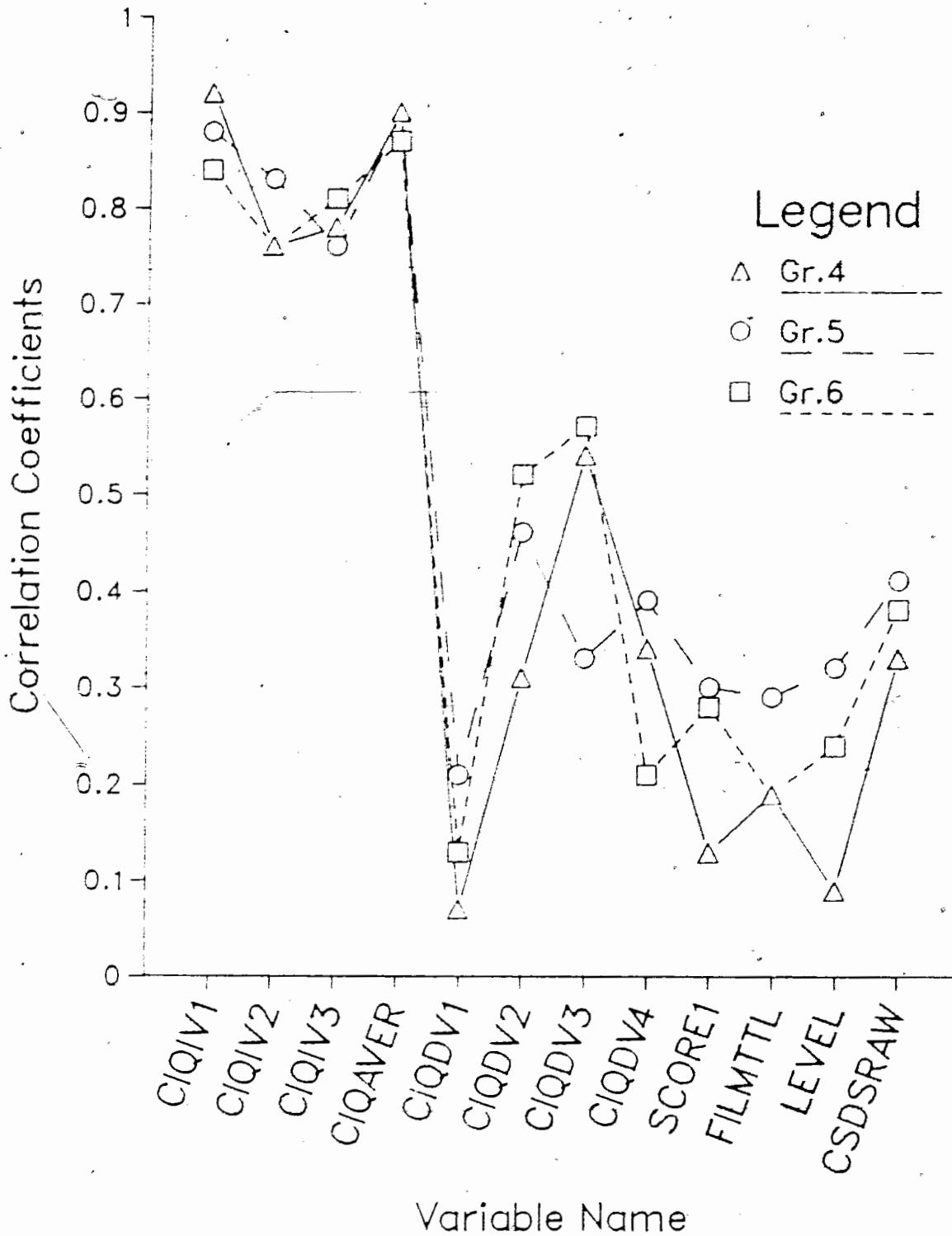
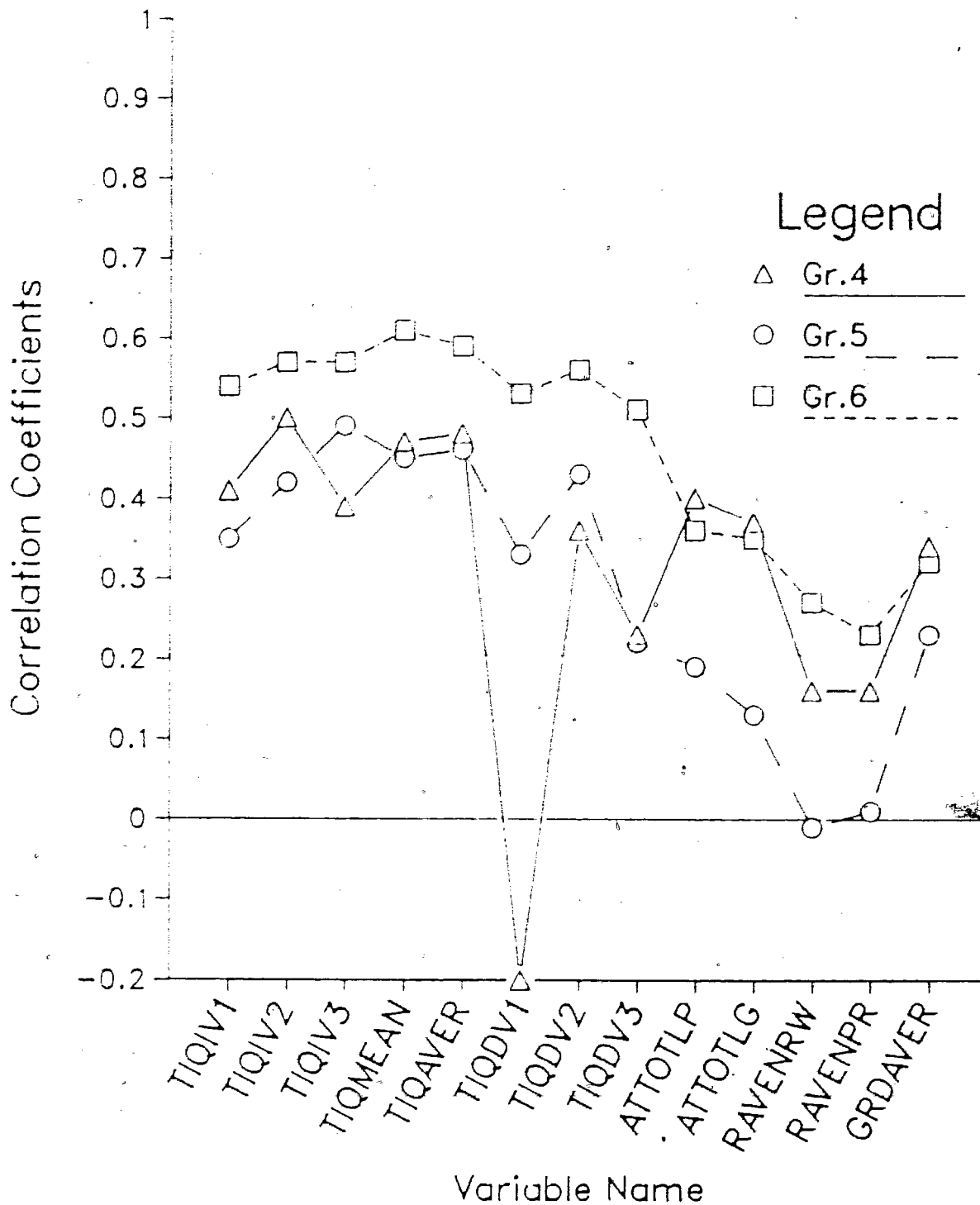


Figure 10. Correlations with CIQMEAN for the three grade levels on TIQ, Ach. Test, Raven and Grade Average Variables. n=187



the third dependent variable and the CIQMEAN variable show grade 5 pupils with the lowest correlation. For the three film variables, grade 4 pupils had the lowest correlation coefficients.

Looking at TIQ variables on Figure 10, grade 6 pupils have higher correlation coefficients on both independent and dependent TIQ variables. Teachers rate older students higher on both industry and related dependent variables. These ratings also correlate more highly with intelligence scores for the older pupils. Grade 5 pupils have a lower correlation on average with TIQDV3 and with RAVENRAW and GRDAVER. Here Grade 4 pupils show a difference from grade 5 and 6 pupils on the first dependent variable, being more into "pretend" or fantasy play than the older pupils, a trend seen for CIQDV1 on Figure 9 for both grade 4 and 6.

Summary for Hypothesis #9

No statistically significant grade or age differences were observed in terms of consistency across the three component areas of industry on the CIQ. In addition no grade or age differences were observed in mean scores. Given standardization of all scores within groups these findings are not surprising and conclusions about developmental progression in the sense of industry cannot be made with the present sample. Future studies controlling for between group differences will be better able to investigate age differences and industry. Some differences in patterns were observed, where grade 4 pupils show a generally higher correlation between cognitive and affective components, grade 5 pupils between the cognitive and behavioral components, and grade 6 pupils between the behavioral and affective components. No consistent differences observed between the grade levels in terms of dependent variables although some

differences in particular relationships were noted.

10. Hypothesis 10:

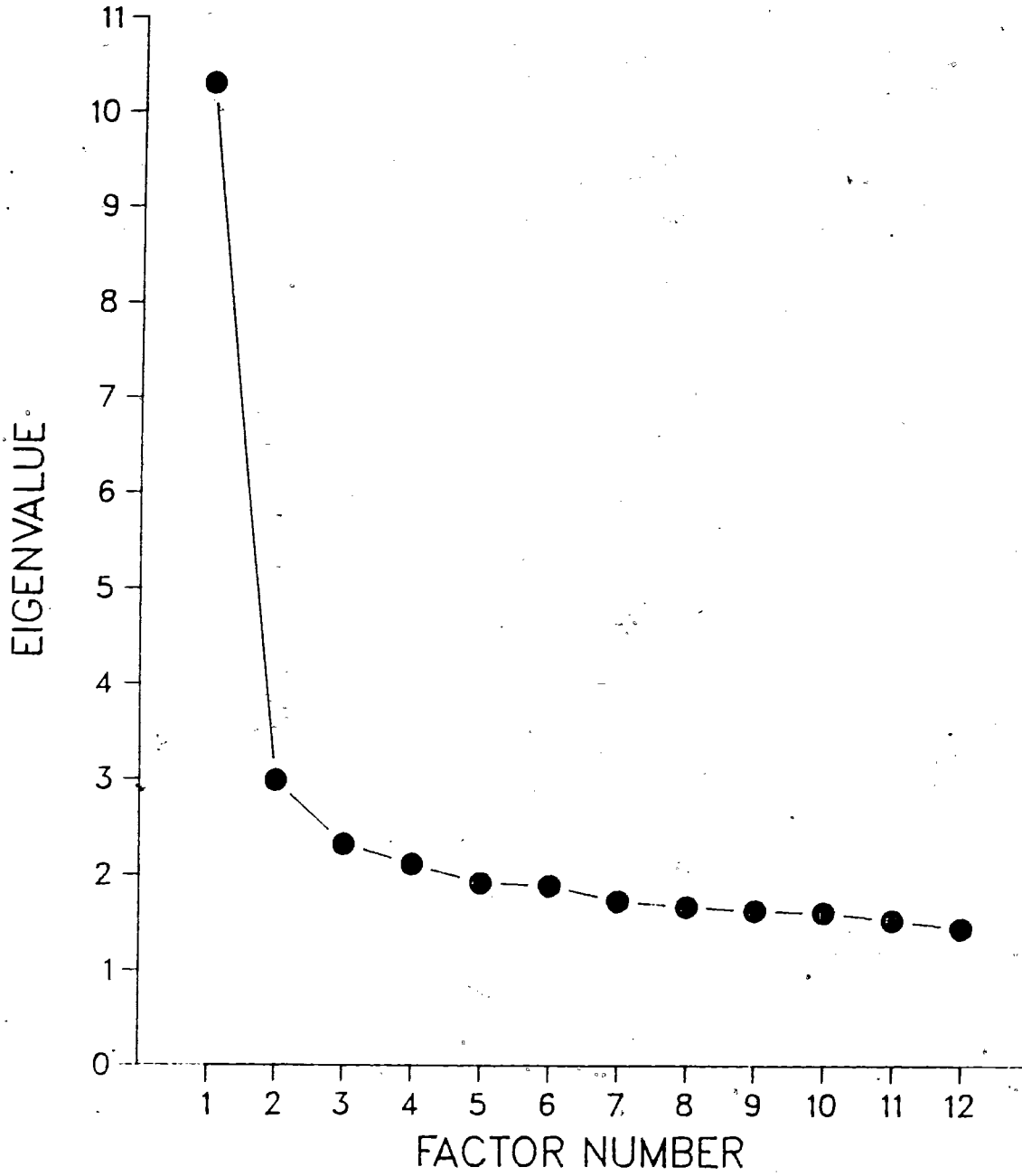
THERE SHOULD BE A POSITIVE CORRESPONDENCE AMONG ITEMS DESIGNATED AS REFLECTING THE INDUSTRY CONSTRUCT ON THE CHILDREN'S INDUSTRY QUESTIONNAIRE. ITEMS SHOULD BE HIGHLY CORRELATED WITHIN PARTICULAR CONTENT AREAS AS WELL AS BEING GENERALLY HIGHLY CORRELATED WITH EACH OTHER. THE FACTOR ANALYSIS PROCESS WILL BE USED TO INVESTIGATE THESE RELATIONSHIPS WITH A VIEW TO DEVELOPING A PARSIMONIOUS AND VALID MEASURE OF THE INDUSTRY CONSTRUCT.

The purpose of principal component analysis was both exploratory and confirmatory in nature. The sense of industry has been defined as being comprised of three interactive components and items were chosen to tap into each of the three domains these components represent. The number of interpretable factors resulting from the analyses will be of interest in this regard. Another important issue was that of the distinction made between independent and dependent variables in terms of the a priori sense of a blurred boundary between these two categories in this, as in other construct validity studies. While generally high correlations between independent and dependent variables and comparatively low intercorrelations among the dependent variables were observed, as discussed for Hypothesis #6, it was of interest to see how items would come together or differentiate themselves in the principal component analysis. A large number of items were used in the initial item pool and the factor analytic process was seen as potentially useful in terms of developing a parsimonious, portable and reliable measure of the industry construct.

All items on the Children's Industry Questionnaire were entered into the analysis. Data were entered in the form of a within-groups covariance matrix to maintain consistency with the approach to other data analysis procedures used in the present study. There were 22 factors with an eigenvalue greater than one. The first 12 of these factors are graphed by number on Figure 11. The scree test suggests breaks occur between 1, 2, 4 and 6 factors. Upon examination, beyond two factors, small groupings of only 2-3 items broke off from the large factor to form subsequent factors. Two and one-factor solutions were then examined in more detail. In general the picture that emerged was not that of simple structure, but of one large factor comprised of a number of smaller groupings of items clustering around the first factor. Rotations of the first two factors were performed using varimax (orthogonal) and dquart (oblique rotation with $\gamma=0$) rotations, neither of which served to clarify the structure of factor loadings. The second rotated factor had some distinctive items from the first rotated factor, almost all of which are included in the first unrotated factor. The finding of a non-simple structure, one-factor solution as best representing empirical results is also consistent with the conceptual understanding of the industry construct as defined in the present study. This factor has an eigenvalue of 10.30, and accounts for 16% of the common variance.

Dependent variables varied in their loading on this factor. Item CIQ11 was placed initially under the first dependent variable. In retrospect, this item appears closer to those in the independent variable category of enjoyment of working at tasks and may be an example of a misplaced item. The other two items on this variable had loadings of less than .25. This is consistent with the comparatively low correlations observed for this dependent variable as

Figure 11. CIQ scree test



discussed earlier. All three items of the third dependent variable, overall contentment, load to at least a moderate degree on this factor. These items are all similar in format to those representing independent variables. This variable questioned the pupil's satisfaction with the way he or she performs tasks. Here, as discussed in a previous section, this finding may be reflective of the importance of such evaluation to one's general approach to tasks. The second dependent variable made a distinction between a process and an outcome orientation to tasks. Five of the nine items representing this variable had loadings of $> .25$ on this factor. These five items, dealing with an issue of the importance of learning versus the grades one receives, also tap into an aspect of perseverance covered by the second component area of the industry construct. The fourth dependent variable, a work sample, also had a moderate loading on this factor. Unrotated factor loadings are presented in Table 43. These loadings are presented in order of item number. The items on this factor tap all of the content areas outlined as comprising the industry construct and the three component areas, in addition to the dependent variables discussed above. Table 43 shows item content area in reference to the outline provided in Table 4 in an earlier section.

In terms of data reduction, 46 of the 63 (73%) items entered into the principal components analysis had loadings of greater than .25 on the first factor. (31 items had loadings greater than .40). Addressing the issue of portability this analysis was done a second time with the items in paragraph form and the work sample (open-ended items) eliminated. Most of these items had comparatively small loadings on the first factor to begin with (see loadings for items CIQ 55, 56, 57, 58, 59, 60, 61 and 63). Obtained factor loadings are presented in brackets on Table 43, and as these loadings suggest, elimination of

these items does not change loadings to a significant extent. When only these 54 items are included, only 18 factors have eigenvalues greater than 1 and the first factor accounts for 18% of the common variance.

As shown in Table 43, Item CIQ4 has a moderate and negative loading on the first factor, a finding which is counter to expectations and scoring direction. This item deals with the tendency to continue working on a task, even when one doesn't feel any progress is being made. While interpretation is premature at this point, this finding suggests consideration of this aspect as either a "side effect" or component of the sense of industry.

Unfortunately items with small or zero loadings on this factor do not add clarity to factor definition. Item CIQ23 is an example of unclear wording as two other items tapping the same content have moderate loadings on the factor. Another item, CIQ55, was recoded because of its different format and it appears to have lost its usefulness in the process.

Appendix U shows factor loadings for all items in descending order along with item content. Factor loadings when only 54 items are used in the analysis are shown in brackets. Appendix V presents rotated and unrotated factor loadings for orthogonal (VARIMAX) and oblique (DQUART) rotations for the two factor solution.

Summary for Hypothesis #10

The principal components analysis suggest that one factor comprised of a number of different clusters coming together on a common dimension best represent empirical findings as well as being consistent with a priori conceptualization of the industry construct.

Table 43

Unrotated Factor Loadings for One-Factor Solution

Item	Loading*	Content Area (With Reference to Table 4)	Item	Loading*	Content Area (With Reference to Table 4)
CIQ1	.36 (.36)	II3	CIQ32	.62 (.62)	IC4
CIQ2	.42 (.42)	IB1	CIQ33	.14 (.14)	IC3
CIQ3	.51 (.51)	IB3	CIQ34	.33 (.33)	IC1
CIQ4	-.47 (-.47)	IB4	CIQ35	.39 (.40)	II3
CIQ5	.34 (.34)	IB6	CIQ36	.21 (.20)	II2
CIQ6	.41 (.41)	IC6	CIQ37	.24 (.25)	II1
CIQ7	.47 (.48)	IC4	CIQ38	.24 (.24)	IB3
CIQ8	.56 (.56)	IC2	CIQ39	.62 (.62)	IB2
CIQ9	.48 (.39)	IA	CIQ40	.37 (.37)	IC4
CIQ10	.27 (.27)	II2	CIQ41	.33 (.33)	IC5
CIQ11	.38 (.39)	II1	CIQ42	.30 (.31)	IC2
CIQ12	.54 (.55)	IC3	CIQ43	.50 (.51)	IC2
CIQ13	.50 (.50)	IC1	CIQ44	.56 (.57)	IB4
CIQ14	.56 (.56)	IB1	CIQ45	.57 (.56)	IB6
CIQ15	.45 (.45)	IB3	CIQ46	.44 (.44)	II2
CIQ16	.42 (.41)	IB2	CIQ47	.00 (.00)	IB2
CIQ17	.54 (.54)	IC6	CIQ48	.40 (.41)	IB4
CIQ18	.54 (.54)	II3	CIQ49	.38 (.38)	IB3
CIQ19	.57 (.57)	II2	CIQ50	.37 (.37)	IB6
CIQ20	-.14 (-.14)	II1	CIQ51	.30 (.31)	IB5
CIQ21	.02 (.01)	II2	CIQ52	.14 (.13)	IC2
CIQ22	.49 (.49)	IC2	CIQ53	.44 (.43)	IA
CIQ23	-.09 (-.08)	IC1	CIQ54	.58 (.57)	IB1
CIQ24	.54 (.55)	IB2	CIQ55	-.10	ICS
CIQ25	.48 (.48)	IC6	CIQ56	.15	IB2
CIQ26	-.02 (-.03)	II2	CIQ57	.16	IB4
CIQ27	.29 (.29)	IB5	CIQ58	.04	IB5
CIQ28	.48 (.49)	IC1	CIQ59	.21	ICS
CIQ29	.59 (.59)	IB1	CIQ60	.00	II2
CIQ30	.63 (.63)	IB2	CIQ61	-.10	II2
CIQ31	.41 (.41)	IC1	CIQ63	.33	II2
			CIQDV4	.33	II4

* Rounded to two decimal places.

** Bracketed figures are for 54 items only.

III. SEX DIFFERENCES

While no explicit hypotheses were made regarding sex differences and the industry construct, some exploratory results are of interest. There is a significant difference with regard to the degree of agreement between the child's self-report, as measured by the Children's Industry Questionnaire, and the report of the teacher on the Teacher's Industry measure. The correlation coefficient obtained between CIQMEAN and TIQMEAN for girls is .35 ($p < .002$), while for boys a coefficient of .61 ($p < .000005$) was obtained. These correlation coefficients are significantly different ($z = 2.31$, $p < .02$). Teachers and parents agreed to a similar extent for both boys and girls. The correlation coefficients obtained between TIQMEAN and PIQMEAN are .51 ($p < .0005$) for boys and .48 for girls ($p < .0002$). The correlation coefficient between industry (CIQMEAN) and the third dependent variable which tapped overall contentment (CIQDV3) for boys ($r = .59$, $p < .00005$) is almost double that obtained for girls ($r = .38$, $p < .0005$). Although this difference does not reach statistical significance, it may be related to the finding of greater agreement between self-report and teacher ratings for boys, with boys having a more externally defined sense of industry and activity-based self-esteem.

CHAPTER 6

DISCUSSION

Discussion of results follows the general order of their presentation in the previous chapter. Implications of results and avenues for future study are discussed within each section below, and in a more general and exploratory sense in the final section.

General Approach to Data Analysis

The decision to standardize variables within each of the ten groups was based on an appreciation of potential industry-relevant differences between groups such as the possible impact of different teachers, schools and locations. This approach to data analysis acknowledges that these differences could not be explored in the present study in a comprehensive way. One consequence is that any comparison of means and standard deviations across groups or grade level is speculative in nature. As an example, one group of grade six pupils received higher scores on component one than on the other two components, while others at this grade level had scores which were more comparable across the component areas. This group of grade 6 pupils was comprised of a number of pupils who had failed a grade. The industry construct might be helpful in exploring the role of motivational factors in the observed discrepancy between ability and its application. Investigation of group differences, including the possible impact of particular teachers or teaching style on industry, would properly be the explicit focus of later studies. Present results suggest that the industry construct might provide an interesting way to explore such differences, which in turn may help to further refine the construct itself.

The most significant portion of missing data is on the Parent Industry Questionnaire where 68% of questionnaires were returned, a portion of which were incomplete or invalid. The possible links between a child's sense of industry and the likelihood of parents returning the questionnaire limit interpretability of data from the parent's questionnaire in the present study. Future studies might explicitly explore connections between industry and parental interest or involvement, as well as trying to obtain a higher rate of questionnaire return.

Intra-Measure Relationships: The Three Components and Their Combination

The first two hypotheses had to do with relationships within each of the questionnaire measures. Strong and significant associations between possession of basic skills and factual information (component one), their application (component two) and affective/experiential concomitants (component three) were observed. These results were seen both within the pupil's self-report measure (the Children's Industry Questionnaire) and in observation by teachers (the Teacher's Industry Questionnaire) and parents (Parent Industry Questionnaire, for the second two components). This association is especially strong between affective and behavioral components for all three grade levels, suggesting that for the children under study, what you do and how you feel about it are more closely associated than is level of skills with either the affective or behavioral domains.

There were differences in patterns of interrelationships among the three component areas across the three grade levels. Grade 4 pupils had the lowest correlation coefficient of the three grades for the relationship between component one and component three. For the present sample, then, the younger pupils

experienced a stronger relationship between their subjective assessment of level of skills and basic knowledge relative to peers and affective correlates of the application of such skills and knowledge than did the older pupils. On the other hand, the older pupils (grade 6) had the lowest correlation coefficient of the three grade levels between component one and component two, suggesting that these pupils experienced the greatest discrepancy between their assessment of level of skills and basic knowledge and their ability to apply them.

The range of the correlation coefficients for each of the three component-area pairs across the grade levels is relevant here. The younger pupils had the smallest differences in coefficients obtained for relationships between the component areas while the grade 6 pupils had correlation coefficients showing the greatest discrepancy of all grade levels. While not statistically significant these differences run counter to the prediction of greater consistency with age, and offer preliminary evidence for increasing differentiation among the component areas with age.

For all three component areas, the two highest correlation coefficients were obtained with the two overall summary variables rather than between any two component-area pairs. What is shared among the component areas appears to be stronger than what any two component-area pairs have in common. In addition, correlation coefficients for these two summary variables with dependent variables were higher than or at least comparable to those obtained for individual component areas. This finding suggests that correlates of the industry construct are tapped, as well or better by overall scores than by individual component areas. These findings also fit in well with the one-factor solution obtained in principal component analyses.

A related issue is the similar performance of the two kinds of summary scores, one weighing the three component areas equally and the other representing the mean of all industry items. Given the comparable correlation coefficients obtained with component areas and dependent variables, it appears not to make a difference which variable is used.

This finding is consistent with information conveyed by the global industry rating provided by teachers. The correlation between global ratings and overall summary scores derived from responses to items themselves was positive and significant, providing a useful check on the ability of individual items to capture a broader conceptual understanding of industry.

The three component areas are defined as different aspects of the construct of industry which are seen to go together in meaningful ways. A division of the construct into cognitive, behavioral and affective domains also provides a useful conceptual and organizational clarity. This division does not, however, appear to add much information to that provided by a broader understanding of the construct, whether it be a single global rating or a weighted or unweighted mean score. These results support a definition of industry as an integrative construct involving more than the mathematical combination of discrete areas.

It is not suggested that distinctions among these component areas be eliminated. Specific areas of future work include an explicit investigation of increasing differentiation among components with age or other subject characteristics. It is suggested that such investigations not lose focus of the broader construct which is understood here to include, but extend beyond, its component parts.

Inter-Measure Relationships: Convergent Validity of the Industry Construct.

The third and fourth hypotheses had to do with relationships across the different measures of industry. These hypotheses address the question of convergent validity. Significant agreement was obtained between child self-report and report by teachers and parents. Thus the pupils' subjective rating on items tapping the industry construct were significantly associated with ratings on similar items made by at least two categories of external observers. Importantly, this agreement was found across all three component areas, and for both mean and item average scores.

The greatest opportunity to explore differences across measures was provided on the first component. Significant and positive relationships across different measures of "culturally-designated" basic skills and factual information were obtained. Children at all three grade levels made relatively accurate assessments of their relative standing. The degree to which pupils feel they possess the skills and information expected at their grade level, both in general and in specific subject areas, is significantly associated with objective measures. This finding is important both for what it implies about the reliability of self-report on this measure and, for future studies, the accuracy of self-assessment on this dimension relative to more objective but also more time-consuming measures.

The observational measure used in one classroom provided a non-questionnaire measure of industry. This measure was defined as an index of on-task versus off-task behavior, seen as part of the second component area. While significant agreement was obtained between the observational measure and the second component on the teacher questionnaire, agreement between this

measure and the second component variable on the Children's Industry Questionnaire was not significant. On the other hand, the global rating made by the two trained observers showed greater agreement with variables on both the teacher and child questionnaire measures.

These findings have several important implications. First, they suggest that global ratings and the broader understanding of the construct they represent have more to do with what is measured by the questionnaires than do time-limited, behaviorally-based observations. Use of the observational measure on a larger sample would be helpful in elaborating on this finding. Second, the agreement between teachers and observers on both the observational measure and the observer's global rating may reflect the observational context which teachers and observers shared. The tendency for teachers to relate industry to performance based criteria has been noted previously. In light of current findings these issues come together to highlight the importance of a multi-dimensional definition of the industry construct. Third, the global ratings were made by the trained observers who spent the equivalent of four or five days in the classroom. They had no knowledge of, or information about, these pupils other than what they observed in the classroom during this time. That such observations were significantly associated with child self-report and with report by teachers says something important about the validity of the industry construct itself, as well as about this particular measure of the construct. This one finding summarizes much of what is understood about the industry construct as defined and explored in the present study.

Findings obtained across the questionnaire measures themselves also point to the importance of a global understanding of industry. The high degree of agreement across the questionnaire measures for all component areas and overall

summary scores is important in the process of establishing convergent validity for industry. For the most part, however, the agreement observed is not component-area specific. Few contrasts between pairs of same component areas across different measures were significantly different from unmatched variable pairs. In some cases the correlation coefficients themselves are higher, but not significantly so. These results have implications in terms of specificity of the industry construct. They also join with other findings in suggesting that a global and integrative understanding of industry is central.

Were only one measure of industry to be used in a future study the Children's Industry Questionnaire would likely be the best choice. Children were able to report with reasonable accuracy on their level of skills and knowledge, and consistent and significant associations between children's self-report of industry and that provided by several categories of external observers using several different sets of criteria were obtained. The final form of this measure, including some specific changes and refinements to be discussed, will not differ significantly from its present version. Pupil response to the questionnaire was also generally positive. The relatively equal performance of the global teacher rating and the mean score derived from the Teacher Industry Questionnaire suggest that this measure might provide an efficient, additional measure representing an external perspective.

The Dependent Variables

It had been expected that children's level of industry would be related to the degree to which they preferred reality-based activities over fantasy/pretend games. The first dependent variable proved only marginally useful on the CIQ, where only the behavioral and affective components had significant, and

comparatively low, correlations with this variable. Teacher variables were more highly correlated with this variable although to a lesser extent than other dependent variables. One reason for these results might have to do with the misplacement of one item comprising this variable, suggested by principal component analysis. In turn, this may reflect a more general issue having to do with a conceptual understanding of what is being measured. Rather than a distinction between fantasy and reality based games the emphasis might more appropriately be placed on degree of differentiation between fantasy and reality. Along with the reality-based achievements of skills and their application comes an appreciation of the usefulness fantasy can play in helping to conceptualize and envision oneself in useful and productive roles, rather than a reduction in amount of fantasy play per se. Future studies could focus on the role of fantasy activities rather than, or in addition to, preference for reality-oriented involvements.

Results for the second dependent variable, termed a process-outcome distinction, were more consistently significant across all three industry questionnaires. Again, teacher variables showed generally higher correlations with this dependent variable than did comparable variables on the children's questionnaire. Principal component analysis did not reveal an identifiable or separate clustering of these items. Those items loading to a moderate or high degree on the first factor are those most similar in content to industry items, tapping different aspects of perseverance. Thus, these items could be considered on either side of the independent/dependent variable distinction. It may be asking too much of individual items to tap distinct aspects of something larger, when that larger portion also contains most of what the items have in common.

All three items tapping the third dependent variable, overall contentment, loaded to a moderate degree on the first factor. This variable had its highest correlation with the third component area (affective). Grade 5 pupils showed a relatively low correlation between this variable and the mean industry score, compared to the other two grade levels, although the relationship is significant for all grades.

The fourth dependent variable, which consisted of the open-ended items on the Children's Industry Questionnaire, was to serve as a "sample" of industry behavior and is similar to the observational measure in this regard. Here significant correlations were observed with both CIQ and TIQ variables, with the exception of the CIQMEAN variable in its categorical form. The obtained correlation coefficients were somewhat lower on the average than those obtained for other dependent variables. This may be due to the similarity of format shared by the first three dependent variables and industry items but it may also reflect this variable's limited intent; to be a one-time sample of industry behavior. The finding that grade 6 pupils showed the lowest correlation between this variable and mean industry scores based on self-report, suggests that external observation of industry may be least accurate for these older pupils. This is consistent with a finding discussed earlier where grade 6 pupils had the lowest correlation of the three grade levels between component one and component two. Together these results suggest that more information is lost for older pupils when only external indicators are examined as well as suggesting that these pupil may be experiencing interference between the sense of industry and its external expression to a greater extent than are younger pupils.

For the fifth dependent variable, an important finding is that the three variables derived from the film question set are themselves highly interrelated.

The film measure involved the adaptation of an interview into a written format. Agreement among these variables as well as their generally comparable correlations with other variables are important in suggesting the adequacy of this adaptation. This is especially so in terms of the agreement obtained between the variable which corrects for number of valid responses (FILMTTL) and the variable which simply adds the values for completed responses (SCORE1).

The degree of understanding of the concepts of effort and ability is significantly related to degree of industry. While correlation coefficients obtained for this variable were generally lower than those obtained for other dependent variables, they were significant nonetheless. This is important in that one reason for inclusion of this variable was the "conceptual distance" it provided from the industry construct. The significant results obtained in the present study provide preliminary evidence for the predictive utility of the industry construct.

In general, the correlation coefficients obtained among dependent variables were lower than those obtained between dependent and independent variables. This suggests that in general the distinctions made between independent and dependent variables have some validity. Principal component analyses highlighted some specific areas where this distinction is less clear.

The Sense of Industry and Intelligence

No significant correlations were obtained between scores on the Raven's measure and variables on the Children's Industry Questionnaire. This finding is of particular interest for the first component which was significantly correlated

with both grade average and achievement test scores, both of which were significantly correlated with scores on the Raven's measure. Teacher variables were significantly correlated with Raven scores, but relationships between independent and dependent variables remained significant when Raven scores were taken into account. A significant correlation was also obtained between the behavioral component on the Parent Industry Questionnaire and Raven scores. These results suggest that both teachers and parents make more of a connection between intelligence and industry than do pupils themselves. They also support the more general view that there is more to industry than can be externally observed.

Among the dependent variables the highest correlation with Raven's scores were found for the fourth (work sample) and fifth (film: level of reasoning) dependent variables, both of which share an emphasis on a performance dimension, as does the Raven's measure itself, which is noted for being less dependent on verbal skills and on education than other measures of intellectual ability.

In this regard it would be interesting to investigate these relationships using a more multidimensional test of intelligence such as the WISC-R. While it is premature to claim the independence of industry and intelligence, results for the self-report measure suggest at a minimum that there is a meaningful distinction which can be made between the constructs. Future studies could also usefully focus on parents' and teachers' understanding of the relationship between intelligence and hard work.

Industry and Social Desirability

The question format used in the three industry questionnaires was adapted from Harter's (1979) measure of competence. The main reason for using this format was to lessen a pull for social desirability in responding to items. In contrast to results obtained by Harter, significant correlations were obtained between this measure and social desirability. It is clear that a significant relationship between industry and social desirability exists, with the highest correlation found between social desirability and the second industry component.

The relationship between industry and social desirability may have theoretical significance given the tasks of this developmental period, where attainment of culturally-designated skills is important as is the ability to envision oneself as an acceptable and productive member of that culture. Among the dependent variables, the highest correlation with social desirability is obtained for the overall contentment variable. Along with the finding that items tapping this dependent variable load moderately on the first factor in the principal component analysis, these results suggest a strong linkage, in the present sample, between how one feels about oneself and one's abilities in comparison to peers and need for social approval.

For purposes of the present study it was important that correlations between independent and dependent variables remained significant when the relationship between industry and social desirability was taken into account. Of more interest perhaps is the finding that not all high industry pupils are high on social desirability. The present study made a preliminary attempt to examine differences among "types" of high industry pupils. Future research efforts might usefully include a wider number of dimensions on which possible differences are

sought and examined. Possible differences include the degree of compulsiveness or "driven" quality to approach to tasks. Examination of the effectiveness of effort in light of this quality would also be of interest. In addition such research efforts might attempt to explore the relationship between industry and need for social approval in a more explicit fashion.

Developmental Progression and the Sense of Industry

Two kinds of differences were expected across grade levels. First, it was expected that older pupils would have achieved higher degrees of resolution of the industry construct, as indexed by consistency across component areas and across measures. Second, older pupils were expected to have somewhat higher scores in general on industry measures. Neither hypothesis could be properly explored in the present study. On analyses that were conducted, no age or grade variables were significantly correlated with industry scores on the self-report or teacher measure. Some interesting differences in terms of patterns of interrelationships were discussed in an earlier section, including some suggestion of increasing differentiation with age. These differences, along with the restricted range of age differences available in the present study due to standardization, suggest that it would be premature to let the issue of developmental progression end here. The failure to obtain significant age or grade differences, even on the School 1 sample, may be due to the inclusion of only three grade levels in the present study. The industry period is longer than any of the preceding psychosocial developmental periods. Future studies would do well to include a broader range of grade levels in continuing to explore a developmental progression in the sense of industry.

Principal Components Analysis, Sex Differences, and Areas of Improvement

A non-simple structure one-factor solution appeared to best capture results of the factor analytic process as well as being consistent with the construct of industry as defined in the present study. Results highlight areas of overlap between some independent and dependent variable groupings. This was especially helpful where similarity in content had been previously noted. In terms of data

reduction, removing some of the longer items did not appear to make significant changes to factor loadings, while increasing the portability of the measure.

Other results of the principal components analysis are of theoretical interest. The moderate and negative loading of one single item highlights the importance of examining possible groupings of high industry pupils. This item (CIQ4) has to do with keeping on a task even when no progress is being made. In an earlier section, the comment was made that the sense of industry may also include a sense of when to stop work on a task. This has to do with a distinction between when continuing on a task is an indication of perseverance and when it might suggest a tendency to perseverate, and relates to the "driven" quality of approach to tasks mentioned earlier. It may be that for some children one consequence of high industry is a more driven, perseverative quality, resulting in a compromise of the ability to evaluate the effectiveness of effort or suggesting that this evaluation had become secondary to some other process. One way to explore this dimension would be to include some measure of explicitly perseverative behavior such as a nonsolvable and relatively simple task. Industry scores and other correlates of industry could then be compared with length of time spent on this task and self-statements regarding why they stopped, the purpose being the identification of characteristics which discriminate among "driven" and "non-driven" high industry individuals, as well as examination of the relationship between industry and perseveration with lower industry scores. Exploration of process variables in terms of what different individuals experience while engaged in a particular task would be another approach to the identification of such differences.

There were several items (CIQ27, CIQ51) which had to do with ability to get along with others in games, sports and on school projects. These items had

moderate loading on the first factor. In general, however, the current measure would likely be improved with more attention to social factors such as friendship. Given, for example, the finding of a different order of dealing with resolution of identity and intimacy issues for women than for men (Josselson, 1973) precursors of this difference should be observable here. More directly concerning the industry construct, the approach to and meaning of friendship for boys and girls might differ in industry-related ways. This speculation derives from several recent works noting, for example, that women's friendships are characterized by shared intimacies and shared emotions while men's are characterized by shared activities (e.g., Rubin, 1985). Given the greater agreement between ratings for boys' industry scores than for girls', it seems likely that precursors of such differences may be found in the industry stage, with a more internal orientation for girls already in evidence.

Some preliminary explorations of differences between boys and girls were made in the present study. First, the higher correlation for boys between industry and contentment suggests a stronger association for boys between sense of industry and self-esteem. It would be interesting to see whether or not this finding would be replicated were the aspect of friendship added to the industry construct. The finding of higher agreement between boys and teachers in terms of degree of industry would fit in with a more externally-defined or task-based sense of industry for boys than for girls. These differences would provide a useful direction for future studies of the industry construct.

The fourth dependent variable, the work sample, also had a moderate loading on the first factor. This variable, scored in terms of content and completeness, only captured in part the original content of the open ended items. For example, one of the items asked whom the child admires the most

and asked for a listing of reasons. While the relevance of the response is clearly captured in the scoring system used, and this scoring system achieved significant reliability, the content itself does not receive explicit focus. Future studies might consider restructuring these open-ended items with the aim of capturing the content more directly. In addition there are some improvements that could be made to item wording which would make their intent more precise.

Concluding Remarks and Future Directions

If Erikson had preceded Freud in the history and development of psychoanalytic theory, it is doubtful that the term "latency" would ever have been applied to this period of development. There is much that occurs during this stage for the school age child. Results of the present study suggest that a broadly conceptualized understanding of the industry construct would provide a valuable frame of reference for researchers, educators, clinicians and others interested in the developments of this stage.

It would be unlikely for any one construct to capture all that is of interest in a developmental period, and no such claim is intended here. But the industry construct is embedded within a well-elaborated and empirically-researchable psychosocial theory of development. Other constructs which have been studied independent of a developmental theory might be usefully examined in relation to industry. Such investigations of the possible *correlates* of industry form one category of future research efforts. Specific constructs to be examined include Harter's (1978) concept of perceived competence, for which a valid and reliable measure already exists. Efforts here would also serve to further examine and hopefully extend the discriminant

validity of industry. A number of other possible industry correlates have been discussed. These include a more direct examination of industry and need for social approval, sex differences in general and with particular regard to the meaning of friendship, between-group differences and the impact of teaching style. The development of perseverative behavior and exploration of its relationship with industry is a research direction with potential clinical utility. This relates to a more general issue having to do with approach to tasks and how differences in this regard may help in delineation of "types" of industry behavior.

Extension of the age range included in future investigations has also been suggested. This would allow continued exploration of developmental progression and a sense of industry. As with other developmental stages in Erikson's schema, the fourth stage is affected by events in preceding stages. Another line of investigation has to do with possible *antecedents* to industry. In addition to examination of links between parental interest and involvement and the child's sense of industry during the industry period itself, as suggested earlier, general patterns of, or approaches to, parenting are of interest in this regard. Kestenberg (1970), for example, has referred to this period as one of "part-time" parenthood, where children are expected to develop meaningful relationships with other adults. For their part, parents are expected to allow and facilitate this process. One way to explore this issue would be to measure the ease with which parents make this transition, as well as their assessment of the child's ability to "make it" outside the home (an assessment which might provide an alternative parental measure of industry). Specific differences in parental and parenting style would be usefully included in such research efforts. The impact of sexual abuse on the sense of industry is another area of interest here. While

the effects of sexual abuse are unlikely to be specific to any dimension or period of development, the sense of industry is the developmentally-relevant issue to an age-group well-represented in statistics of incidence of sexual abuse. For younger victims, this period may also be the first consistent opportunity for observation of their behavior and performance outside the home. As such, the industry construct would provide a meaningful and measureable index of consequences for the child, especially within the school context.

A third category of additional investigation addresses the likely *consequences* of the degree to which a degree of industry is achieved during this period. Bruch (1973), for example, has described the eating disorder of anorexia nervosa as a disturbance in the sense of "effectiveness". Given the prevalence of this disorder in early adolescence, questions about the relationship between this disorder and issues of the industry stage are compelling. Other aspects of the relationship between industry and subsequent stages include the relationship and degree of distinctiveness between identity and occupational choice itself. Intended here is the degree to which one's personal identity and occupational choice are seen as one and the same. This issue could be explored in different occupational categories as well as more generally in terms of the degree to which different individuals differentiate between "who they are" and "what they do". Sex differences here would also be of interest. The industry construct, extended and adapted to an older sample, would provide a window into and approach to understanding this relationship. Study of individuals successful by objective standards who struggle with fears of being "found out" would provide another area in which issues of the consequences of industry resolution might be explored, and where industry issues seem to call out for inclusion.

There is work to be done in the continuing process of establishing construct validity for industry, and there are specific ways in which the measure of industry used in the present study could be improved. Results suggest, however, that such efforts continue in the general directions explored and discussed in the present study. Refinements and elaborations will add to the clarity and utility of the construct. In its present form, significant agreement was obtained between different methods and several categories of external observers and the child's internal experience of the sense of industry. It has also served to highlight a number of compelling issues within the period as well as issues spanning correlative, antecedent and consequent relationships to industry. These issues are relevant to personality research, education and clinical work, and along with results of the present study, suggest that future efforts will be worthwhile.

APPENDIX A
THE CHILD INDUSTRY QUESTIONNAIRE

H O W I D O T H I N G S

NAME _____ . TODAY'S DATE _____ .
 (PLEASE PRINT)

BIRTHDAY _____ . SCHOOL _____ .

SAMPLE SENTENCES						
REALLY TRUE FOR ME	SORT OF TRUE FOR ME		BUT		SORT OF TRUE FOR ME	REALLY TRUE FOR ME
A. <input type="checkbox"/>	<input type="checkbox"/>	SOME KIDS LIKE TO PLAY OUTDOORS.	BUT	OTHER KIDS PREFER TO STAY HOME AND WATCH TV.	<input type="checkbox"/>	<input type="checkbox"/>
B. <input type="checkbox"/>	<input type="checkbox"/>	SOME KIDS LIKE VIDEO GAMES.	BUT	OTHER KIDS PREFER TO READ BOOKS.	<input type="checkbox"/>	<input type="checkbox"/>

REALLY TRUE FOR ME	SORT OF TRUE FOR ME		BUT		SORT OF TRUE FOR ME	REALLY TRUE FOR ME
1. <input type="checkbox"/>	<input type="checkbox"/>	SOME KIDS AREN'T VERY HAPPY ABOUT THE WAY THEY DO ALOT OF THINGS.	BUT	OTHER KIDS THINK THE WAY THEY DO THINGS IS FINE.	<input type="checkbox"/>	<input type="checkbox"/>
2. <input type="checkbox"/>	<input type="checkbox"/>	SOME KIDS DON'T GET VERY INVOLVED IN PROJECTS, HOBBIES OR SCHOOLWORK.	BUT	OTHER KIDS GET VERY INVOLVED IN PROJECTS, HOBBIES AND SCHOOLWORK AND LOSE TRACK OF TIME.	<input type="checkbox"/>	<input type="checkbox"/>
3. <input type="checkbox"/>	<input type="checkbox"/>	SOME KIDS START ALL KINDS OF PROJECTS AND THEN LEAVE THEM IN THE MIDDLE.	BUT	OTHER KIDS FINISH EVERYTHING THEY START TO DO.	<input type="checkbox"/>	<input type="checkbox"/>
4. <input type="checkbox"/>	<input type="checkbox"/>	SOME KIDS WILL STOP WORKING ON SOMETHING WHEN THEY FEEL THEY ARE NOT GETTING ANY CLOSER TO AN ANSWER.	BUT	OTHER KIDS WILL SPEND ALOT OF TIME ON SOMETHING EVEN WHEN THEY FEEL THEY ARE NOT GETTING ANY CLOSER TO AN ANSWER.	<input type="checkbox"/>	<input type="checkbox"/>
5. <input type="checkbox"/>	<input type="checkbox"/>	SOME KIDS HAVE MESSY NOTEBOOKS.	BUT	OTHER KIDS HAVE NOTEBOOKS THAT ARE NEAT.	<input type="checkbox"/>	<input type="checkbox"/>

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| 6. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS WAKE UP IN THE MORNING AND WISH IT WAS THE WEEKEND. | BUT | OTHER KIDS WAKE UP IN THE MORNING AND CAN'T WAIT TO GET TO SCHOOL. | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS DO THINGS JUST TO GET THEM OVER WITH AND FINISHED. | BUT | OTHER KIDS GET REALLY INTERESTED IN WHAT THEY LEARN AND FOLLOW UP ON THEIR OWN TIME. | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS ARE REALLY PROUD OF THEMSELVES BECAUSE OF THEIR SKILLS AND ACCOMPLISHMENTS. | BUT | OTHER KIDS DON'T FEEL THAT THEY HAVE DONE ALOT TO BE PROUD OF. | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS REALLY KNOW THE SKILLS AND FACTS THAT THEY SHOULD KNOW AT THEIR GRADE LEVEL. | BUT | OTHER KIDS DON'T KNOW THE SKILLS AND FACTS THAT THEY SHOULD KNOW AT THEIR GRADE LEVEL. | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS FEEL THAT IT'S ONLY WHEN THEY GET GOOD GRADES THAT THEIR WORK IS WORTHWHILE. | BUT | OTHER KIDS FEEL THAT IT DOESN'T MATTER HOW WELL YOU DO, OR WHAT GRADE YOU GET, AS LONG AS YOU LEARN SOMETHING. | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS PREFER TO DO THINGS JUST FOR FUN. | BUT | OTHER KIDS PREFER TO DO THINGS THAT SHOW RESULTS; LIKE MAKING OR BUILDING THINGS, PRACTICING, OR WORKING AT A HOBBY. | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS FEEL THAT WHAT THEY LEARN AT SCHOOL WILL BE HELPFUL WHEN THEY GROW UP. | BUT | OTHER KIDS FEEL THAT WHAT THEY LEARN AT SCHOOL IS UNNECESSARY. | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS FEEL THAT THEY MAKE A REAL CONTRIBUTION TO GROUP PROJECTS OR TO CLASS. | BUT | OTHER KIDS DON'T FEEL THAT THEY HAVE MUCH TO CONTRIBUTE TO GROUP PROJECTS OR TO THE CLASS. | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS CAN CONCENTRATE FOR A LONG TIME WHEN THEY ARE REALLY INTERESTED IN WHAT THEY ARE DOING. | BUT | OTHER KIDS CAN CONCENTRATE FOR ONLY SHORT PERIODS OF TIME, NO MATTER WHAT THEY ARE DOING. | <input type="checkbox"/> | <input type="checkbox"/> |

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| fb 15. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS SPEND A LOT OF OF TIME PRACTICING (A MUSICAL INSTRUMENT, A SPORT, MULTIPLICATION TABLES). | BUT | OTHER KIDS DON'T SPEND A LOT PRACTICING ANYTHING. | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS DON'T BOTHER DOING REALLY BORING SCHOOL ASSIGNMENTS. | BUT | OTHER KIDS KEEP WORKING ON A SCHOOL ASSIGNMENT, EVEN WHEN IT IS REALLY BORING. | <input type="checkbox"/> | <input type="checkbox"/> |
| 24 17. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS DON'T LIKE SCHOOL. | BUT | OTHER KIDS LIKE SCHOOL. | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS ARE PRETTY SURE OF THEMSELVES. | BUT | OTHER KIDS ARE NOT VERY SURE OF THEMSELVES. | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS TRY REALLY HARD AT EVERYTHING THEY DO. | BUT | OTHER KIDS TRY REALLY HARD ONLY AT THINGS THAT ARE MARKED. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 20. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS ENJOY THE SAME EXACT GAMES THAT THEY USED TO LIKE WHEN THEY WERE YOUNGER. | BUT | OTHER KIDS THINK THAT THE GAMES THEY USED TO LIKE WHEN THEY WERE YOUNGER ARE SILLY OR BORING. | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS FEEL THAT YOU CAN ALMOST ALWAYS LEARN FROM MAKING MISTAKES. | BUT | OTHER KIDS FEEL THAT YOU SHOULD AVOID MAKING MISTAKES. | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS DON'T ENJOY THEMSELVES WHEN THEY ARE WORKING HARD AT SOMETHING. | BUT | OTHER KIDS REALLY ENJOY THEMSELVES WHEN THEY ARE WORKING HARD AT SOMETHING. | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS FEEL THEY ARE AVERAGE IN ALL THE THINGS THEY DO. | BUT | OTHER KIDS CAN DO AT LEAST ONE KIND OF THING REALLY WELL. | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS ONLY WORK HARD AT SUBJECTS THEY REALLY LIKE. | BUT | OTHER KIDS WORK REALLY HARD EVEN WHEN THEY DON'T LIKE A SUBJECT. | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS REALLY LIKE MOST OF THEIR TEACHERS. | BUT | OTHER KIDS DON'T REALLY LIKE MOST OF THEIR TEACHERS. | <input type="checkbox"/> | <input type="checkbox"/> |

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| 26. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS FEEL THAT IF AN ASSIGNMENT IS DONE VERY NEATLY IT SHOULD GET A GOOD GRADE, EVEN IF IT'S NOT WRITTEN VERY WELL. | BUT | OTHER KIDS FEEL THAT IF AN ASSIGNMENT IS WRITTEN VERY WELL, IT SHOULD GET A GOOD GRADE, EVEN IF IT'S NOT VERY NEAT. | <input type="checkbox"/> | <input type="checkbox"/> |
| 11 27. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS WORK WELL WITH OTHERS ON SCHOOL PROJECTS. | BUT | OTHER KIDS DON'T WORK WELL WITH OTHERS ON SCHOOL PROJECTS. | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS FEEL THAT THERE ARE ALOT OF THINGS THAT THEY DO WELL. | BUT | OTHER KIDS ARE JEALOUS OF THEIR FRIENDS WHO CAN DO MUCH MORE THAN THEY CAN. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 29. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS SPEND ALOT OF TIME IN THE CLASSROOM FIDDLING WITH THINGS ON THEIR DESKS OR TALKING TO THEIR FRIENDS. | BUT | OTHER KIDS ALMOST ALWAYS PAY ATTENTION TO THE TEACHER OR SIT QUIETLY AT THEIR DESKS DOING THEIR WORK. | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 30. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS STICK WITH THINGS UNTIL THEY ARE COMPLETELY FINISHED. | BUT | OTHER KIDS GIVE UP ON THINGS HALF-WAY THROUGH. | <input type="checkbox"/> | <input type="checkbox"/> |
| 31. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS FEEL THAT THEIR FRIENDS ARE BETTER THAN THEY ARE IN MOST SUBJECTS OR ACTIVITIES. | BUT | OTHER KIDS FEEL THAT THEY ARE JUST AS GOOD AS THEIR FRIENDS IN MOST SUBJECTS OR ACTIVITIES. | <input type="checkbox"/> | <input type="checkbox"/> |
| 20 32. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS ARE INTERESTED AND CURIOUS ABOUT LEARNING NEW THINGS. | BUT | OTHER KIDS ARE NOT VERY INTERESTED OR CURIOUS ABOUT LEARNING NEW THINGS. | <input type="checkbox"/> | <input type="checkbox"/> |
| 19 33. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS PRETEND TO BE FIREMEN, TEACHERS, OR SOME OTHER JOB FOR FUN. | BUT | OTHER KIDS PRETEND TO BE FIREMEN, TEACHERS OR SOME OTHER JOB BECAUSE THAT'S WHAT THEY WANT TO BE WHEN THEY GROW UP. | <input type="checkbox"/> | <input type="checkbox"/> |
| 34. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS ARE NOT SURE IF THERE IS ONE THING THAT THEY CAN DO REALLY WELL. | BUT | OTHER KIDS KNOW THAT THERE IS AT LEAST ONE THING THAT THEY CAN DO REALLY WELL. | <input type="checkbox"/> | <input type="checkbox"/> |
| 35. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS ARE VERY HAPPY THE WAY THEY ARE. | BUT | OTHER KIDS WISH THEY WERE DIFFERENT. | <input type="checkbox"/> | <input type="checkbox"/> |

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| 36. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS THINK IT IS IMPORTANT TO HAND THINGS IN EARLY TO IMPRESS THE TEACHER. | BUT | OTHER KIDS THINK IT IS MORE IMPORTANT TO MAKE SURE THE ASSIGNMENT IS COMPLETE, EVEN IF IT IS NOT EARLY. | <input type="checkbox"/> | <input type="checkbox"/> |
| 37. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS WOULD RATHER SPEND THEIR TIME MAKING OR BUILDING THINGS. | BUT | OTHER KIDS WOULD RATHER SPEND THEIR TIME PLAYING MAKE-BELIEVE GAMES. | <input type="checkbox"/> | <input type="checkbox"/> |
| 38. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS HAVE MANY HOBBIES OR THINGS THEY DO IN THEIR FREE TIME. | BUT | OTHER KIDS DON'T HAVE ANY HOBBIES OR THINGS THEY DO IN THEIR FREE TIME. | <input type="checkbox"/> | <input type="checkbox"/> |
| 39. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS TAKE EXTRA CARE WITH THEIR SCHOOL WORK. | BUT | OTHER KIDS DO THINGS TO GET THEM DONE AS QUICKLY AS POSSIBLE. | <input type="checkbox"/> | <input type="checkbox"/> |
| 40. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS DON'T REALLY CARE ABOUT HOW THINGS ARE MADE OR HOW THEY WORK. | BUT | OTHER KIDS ARE REALLY INTERESTED IN HOW THINGS ARE MADE AND HOW THEY WORK. | <input type="checkbox"/> | <input type="checkbox"/> |
| 41. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS FEEL THAT THEY SHOULD BE AS GOOD AS THEIR FRIENDS IN EVERYTHING THEY DO. | BUT | OTHER KIDS FEEL THAT EVERYONE HAS DIFFERENT ABILITIES, DOING SOME THINGS AS WELL OR BETTER THAN OTHERS, AND SOME THINGS LESS WELL THAN OTHERS. | <input type="checkbox"/> | <input type="checkbox"/> |
| 42. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS BELIEVE THAT IF SOMETHING IS GOOD ENOUGH FOR THE TEACHER, THEN IT IS GOOD ENOUGH FOR THEM. | BUT | OTHER KIDS BELIEVE THAT YOU SHOULD NOT HAND THINGS IN UNTIL YOU ARE PERSONALLY SATISFIED WITH THEM. | <input type="checkbox"/> | <input type="checkbox"/> |
| 43. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS DON'T ENJOY MAKING OR BUILDING THINGS, OR CUTTING AND PASTING FOR A SCHOOL REPORT. | BUT | OTHER KIDS REALLY ENJOY MAKING OR BUILDING THINGS, OR CUTTING AND PASTING FOR A SCHOOL REPORT. | <input type="checkbox"/> | <input type="checkbox"/> |
| 44. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS SEEM TO GET ALOT DONE DURING STUDY TIME. | BUT | OTHER KIDS SEEM TO GET VERY LITTLE DONE COMPARED TO THE AMOUNT OF TIME THEY SPEND STUDYING. | <input type="checkbox"/> | <input type="checkbox"/> |
| 45. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS OFTEN HAND THINGS IN LATE. | BUT | OTHER KIDS ALWAYS HAND THINGS IN ON TIME. | <input type="checkbox"/> | <input type="checkbox"/> |

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| 46. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS FEEL THAT IF YOU TRY TO DO SOMETHING AND YOU FAIL OR CAN'T DO IT, YOU SHOULD LEAVE IT AND DO SOMETHING ELSE. | BUT | OTHER KIDS FEEL THAT IF YOU TRY TO DO SOMETHING AND YOU FAIL OR CAN'T DO IT, YOU SHOULD KEEP TRYING. | <input type="checkbox"/> | <input type="checkbox"/> |
| 47. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS CAN DO THINGS THEY NEVER THOUGHT THEY WOULD BE ABLE TO DO WHEN THEY REALLY APPLY THEMSELVES. | BUT | OTHER KIDS KNOW AHEAD OF TIME WHETHER OR NOT THEY WILL BE ABLE TO DO SOMETHING. | <input type="checkbox"/> | <input type="checkbox"/> |
| 17 48. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS SET GOALS FOR THEMSELVES AND WORK TO ACHIEVE THEM. | BUT | OTHER KIDS DO THINGS WITHOUT GOALS IN MIND. | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 49. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS LIKE TO SPEND THEIR TIME HANGING AROUND. | BUT | OTHER KIDS LIKE TO BE BUSY WITH SOMETHING ALL THE TIME. | <input type="checkbox"/> | <input type="checkbox"/> |
| 50. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS TRY TO DO THINGS IN THE WAY DESCRIBED BY TEACHER OR TEXTBOOK. | BUT | OTHER KIDS DO THINGS IN THEIR OWN WAY, NO MATTER WHAT THE TEACHER OR TEXTBOOK SAY. | <input type="checkbox"/> | <input type="checkbox"/> |
| 51. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS GET ALONG WITH OTHERS IN GAMES OR SPORTS. | BUT | OTHER KIDS DON'T GET ALONG WITH OTHER KIDS IN GAMES OR SPORTS. | <input type="checkbox"/> | <input type="checkbox"/> |
| 40 52. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS FEEL MOST PROUD OF THEMSELVES WHEN THEY ARE COMPLIMENTED ON THEIR APPEARANCE (HOW THEY LOOK) OF ON HOW THEY BEHAVE. | BUT | OTHER KIDS FEEL MOST PROUD OF THEMSELVES WHEN THEY ARE COMPLIMENTED ON HOW THEY HAVE DONE OR MADE SOMETHING. | <input type="checkbox"/> | <input type="checkbox"/> |
| 1 53. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS AT MY GRADE LEVEL REALLY KNOW THE BASICS OF SPELLING, ARITHMETIC, READING AND SCIENCE. | BUT | OTHER KIDS DON'T REALLY KNOW THE BASICS OF SPELLING, ARITHMETIC, READING AND SCIENCE. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 54. | <input type="checkbox"/> | <input type="checkbox"/> | SOME KIDS DON'T ALWAYS LISTEN IN CLASS AND HAVE TO ASK THE TEACHER OR OTHER KIDS WHAT TO DO. | BUT | OTHER KIDS LISTEN CAREFULLY AND ALWAYS FOLLOW INSTRUCTIONS. | <input type="checkbox"/> | <input type="checkbox"/> |

55. WHOSE OPINION IS MOST IMPORTANT TO YOU ABOUT HOW WELL YOU HAVE DONE YOUR SCHOOL WORK? WHOSE OPINION MATTERS MOST? (PLEASE RANK THE FOLLOWING CHOICES IN ORDER OF IMPORTANCE: 1=MOST IMPORTANT, 2=SECOND MOST IMPORTANT; 3=THIRD MOST IMPORTANT; AND 4=LEAST IMPORTANT).

- A. MY OWN OPINION.
- B. THE OPINION OF MY FRIENDS.
- C. MY PARENT'S OPINION.
- D. MY TEACHER'S OPINION.

56. TERRY HAD FINISHED THE BOOK REPORT WHICH WAS DUE THE FOLLOWING DAY AND WAS GETTING READY TO GO TO A BASEBALL GAME WITH SOME FRIENDS. THEN TERRY WAS LOOKING OVER THE REPORT AND FOUND SOME SPELLING MISTAKES. THE DOORBELL RANG AND TERRY'S FRIENDS WERE WAITING. WHAT SHOULD TERRY DO? (WRITE THE NUMBER OF YOUR ANSWER IN THE BOX).

- 1. GO TO THE GAME AND FORGET ABOUT THE BOOK REPORT.
- 2. GO TO THE GAME AND DO THE CORRECTIONS AFTER THE GAME.
- 3. STAY HOME AND DO THE CORRECTIONS, AND GO TO THE GAME LATER.
- 4. TELL THE TEACHER ABOUT THE MISTAKES THE NEXT DAY WHEN HANDING IN THE BOOK REPORT.

57. PAT WAS GIVEN A MATH ASSIGNMENT IN SCHOOL. IT WAS A HARD ASSIGNMENT. PAT TRIED TO DO IT LIKE THE TEACHER SAID BUT WASN'T GETTING THE RIGHT ANSWERS. WHAT SHOULD PAT DO? (WRITE THE NUMBER OF YOUR ANSWER IN THE BOX).

- 1. KEEP WORKING AT IT, USING THE SAME METHOD.
- 2. LEAVE IT AND WORK ON SOMETHING ELSE.
- 3. CALL UP A FRIEND AND ASK WHAT TO DO.
- 4. TRY ANOTHER METHOD.

58. THE CLASS WAS TOLD TO PICK A PARTNER TO WORK WITH ON AN ASSIGNMENT. CHRIS IS AN AVERAGE STUDENT. WHO SHOULD CHRIS PICK FOR A PARTNER?

- 1. PUPIL A - BECAUSE PUPIL A IS MUCH SMARTER THAN CHRIS AND CHRIS MIGHT GET A BETTER GRADE ON THE ASSIGNMENT BY WORKING WITH PUPIL A.
- 2. PUPIL B - BECAUSE CHRIS IS SMARTER THAN PUPIL B AND WORKING WITH PUPIL B MAKES CHRIS FEEL SMART.
- 3. PUPIL C - BECAUSE BOTH PUPIL C AND CHRIS ARE AVERAGE STUDENTS AND WILL DO EQUAL WORK ON THE ASSIGNMENT.
- 4. ANYONE AT ALL - BECAUSE CHRIS ALWAYS WORKS VERY HARD ON SCHOOL ASSIGNMENTS.

WRITE THE NUMBER OF YOUR ANSWER IN THE BOX.

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59. TOBY STUDIED VERY HARD AND GOT 10 OUT OF 35 ON A SCIENCE TEST. TOBY'S BEST FRIEND GOT A PERFECT SCORE ON THE SAME TEST (35 OUT OF 35) AND OFFERED TO HELP TOBY STUDY FOR THE NEXT TEST. THE TEACHER ALSO TOLD TOBY TO COME FOR SPECIAL HELP AFTER SCHOOL. HOW DOES TOBY FEEL? (WRITE THE NUMBER OF YOUR ANSWER IN THE BOX).

1. THAT THE BEST FRIEND AND THE TEACHER SHOULD MIND THEIR OWN BUSINESS.
2. THAT SCIENCE WAS NEVER TOBY'S BEST SUBJECT SO THE BAD SCORE DOESN'T REALLY MATTER.
3. THAT TOBY WILL JUST HAVE TO TRY HARDER NEXT TIME.
4. TOBY IS LOOKING FORWARD TO GETTING THEIR ADVICE AND TO FIND OUT HOW TO IMPROVE IN SCIENCE.

60. SANDY WORKED REALLY HARD ON A REPORT ON SOUTH AMERICA. SANDY WENT TO THE LIBRARY AND READ BOOKS ON SOUTH AMERICA AND CUT OUT PICTURES OF PEOPLE FROM MAGAZINES. SANDY ALSO DREW MAPS AND SPENT A LOT OF TIME PREPARING THE REPORT. SANDY RECEIVED A VERY BAD MARK ON THE REPORT. HOW DOES SANDY FEEL? (WRITE THE NUMBER OF YOUR ANSWER IN THE BOX).

1. SANDY WANTS TO FIND OUT WHY THE REPORT RECEIVED A BAD GRADE IN ORDER TO DO BETTER NEXT TIME.
2. SANDY FEELS THAT THE BAD MARK DOESN'T MATTER BECAUSE OF HOW MUCH WAS LEARNED FROM WRITING THE REPORT.
3. SANDY FEELS THAT IT WAS A WASTE OF TIME TO WORK SO HARD ON THE REPORT.
4. SANDY HOPES THAT FRIENDS DON'T FIND OUT ABOUT THE BAD GRADE.

61. WHAT IS MORE IMPORTANT? (WRITE THE NUMBER OF YOUR ANSWER IN THE BOX).

1. THAT SANDY RECEIVED A BAD MARK.
2. THAT SANDY LEARNED SOMETHING FROM WRITING THE REPORT.

62. READ THE DESCRIPTION OF THE TWO CHILDREN BELOW:

CHILD A

CHILD A GETS VERY HIGH MARKS BECAUSE CHILD A IS VERY CLEVER. CHILD A DOES NOT WORK VERY HARD BUT IS VERY CLEVER AND ALWAYS GETS GOOD GRADES.

CHILD B

CHILD B GETS VERY HIGH MARKS BECAUSE CHILD B WORKS VERY HARD. CHILD B IS NOT VERY CLEVER BUT WORKS VERY HARD AND ALWAYS GETS GOOD GRADES.

HOW MUCH WOULD YOU LIKE TO BE LIKE EACH OF THESE CHILDREN? (CHOOSE AN ANSWER FOR BOTH CHILD A AND CHILD B AND WRITE THE NUMBER OF YOUR ANSWER IN THE APPROPRIATE BOX).

1. EXACTLY LIKE.
2. A LOT LIKE.
3. A LITTLE LIKE.
4. NOT AT ALL.

CHILD A-
CHILD B-

63. READ THE DESCRIPTION OF THE TWO CHILDREN BELOW. BOTH CHILDREN HAVE BEEN GIVEN A VERY DIFFICULT PUZZLE TO COMPLETE. THEY BOTH KNOW THAT VERY FEW CHILDREN IN THEIR GRADE COULD DO THE PUZZLE.

CHILD X

CHILD X IS EXCITED BY THE PUZZLE. CHILD X THINKS THAT SOMETHING WILL BE LEARNED BY TRYING TO DO THE PUZZLE AND IS NOT TOO WORRIED ABOUT IT. CHILD X HAS SOME IDEAS ABOUT HOW TO SOLVE THE PUZZLE AND WONDERS WHICH APPROACH WOULD BE THE BEST. CHILD X CAN'T WAIT TO GET STARTED ON THE PUZZLE AND TO FIND OUT HOW THE PUZZLE WORKS.

CHILD Y

CHILD Y IS A LITTLE WORRIED ABOUT DOING THE PUZZLE. CHILD Y IS CONCERNED THAT IF CHILD Y CAN'T SOLVE THE PUZZLE, OTHER KIDS WILL THINK THAT CHILD Y IS NOT VERY SMART. CHILD Y DECIDED NOT TO TRY THE PUZZLE UNLESS THERE WAS SOME GUARANTEE THAT CHILD Y WILL BE ABLE TO SOLVE IT, OTHERWISE CHILD Y WON'T EVEN ATTEMPT IT. BUT IF CHILD Y THINKS THE PUZZLE CAN BE SOLVED, CHILD Y WILL MAKE THE ATTEMPT, BECAUSE THEN THE OTHER KIDS WILL THINK THAT CHILD Y IS REALLY SMART.

ARE YOU MORE LIKE CHILD X OR MORE LIKE CHILD Y?

(PUT THE NUMBER OF YOUR ANSWER IN THE BOX).

1. I'M A LOT LIKE CHILD X, AND NOT AT ALL LIKE CHILD Y.
2. I'M A LITTLE LIKE CHILD X, AND NOT MUCH LIKE CHILD Y.
3. I'M A LITTLE LIKE CHILD Y, AND NOT MUCH LIKE CHILD X.
4. I'M A LOT LIKE CHILD Y, AND NOT AT ALL LIKE CHILD X.

64. HOW WELL ARE YOU DOING IN THE FOLLOWING SUBJECTS? PLEASE PUT AN X IN THE COLUMN WHICH DESCRIBES HOW WELL YOU ARE DOING FOR EACH SUBJECT.

SUBJECT	BELOW AVERAGE	AVERAGE	ABOVE AVERAGE
ARITHMETIC			
SOCIAL STUDIES			
SCIENCE			
SPELLING			
READING			
LANGUAGE			
WRITING			
PHYSICAL EDUCATION			
ART AND MUSIC			

...over

65. THE ACTIVITY THAT I MOST ENJOY DOING IS _____
 WHY? _____

66. WHAT JOB DO YOU WANT TO HAVE WHEN YOU GROW UP? _____
 WHO DO YOU KNOW WHO HAS THAT JOB NOW? (YOU DON'T NEED TO NAME THE PERSON, JUST
 DESCRIBE THIS PERSON'S RELATIONSHIP TO YOU, LIKE TEACHER, MOTHER, BROTHER, ETC.) _____
 WHY DO YOU WANT THAT JOB? _____

67. THE ONE THING THAT I HAVE MADE OR DONE RECENTLY THAT I AM MOST PROUD OF IS _____
 WHY? _____

68. HAVE YOU EVER HAD A JOB YOU WERE PAID FOR? (YES OR NO) _____
 WHAT WAS THE JOB?(IF MORE THAN ONE, THAN PICK THE ONE YOU DID THE LONGEST) _____

 WHAT DID YOU LIKE BEST ABOUT IT? _____

 WHAT DID YOU LIKE LEAST ABOUT IT? _____

69. SOME ACTIVITIES REQUIRE PRACTICE. WHAT ARE THE ACTIVITIES YOU DO THAT NEED PRACTICE?
 (EXAMPLES- A MUSICAL INSTRUMENT, SPORTS.) PUT AN X IN THE APPROPRIATE COLUMN.

	COMPARED TO OTHER KIDS YOUR YOUR AGE, HOW MUCH TIME DO SPEND ON EACH?			COMPARED TO OTHER KIDS YOUR AGE, HOW WELL DO YOU DO EACH?		
	MORE THAN AVERAGE	AVERAGE	LESS THAN AVERAGE	MORE THAN AVERAGE	AVERAGE	LESS THAN AVERAGE
1. _____						
2. _____						
3. _____						
4. _____						
5. _____						

70. OF ALL THE PEOPLE THAT YOU KNOW PERSONALLY, OR HAVE READ ABOUT OR HEARD ABOUT,
WHO DO YOU ADMIRE THE MOST? _____
DESCRIBE WHO THIS PERSON IS (TEACHER, PARENT, ROCK STAR, PROFESSIONAL ATHLETE, ETC.)

WHAT DO YOU ADMIRE ABOUT THEM? (LIST ALL THE REASONS WHY YOU ADMIRE THEM).

PLEASE WRITE ANY COMMENTS YOU MAY HAVE ABOUT ANY OF THE QUESTIONS ON THIS QUESTIONNAIRE:

APPENDIX B
THE TEACHER INDUSTRY QUESTIONNAIRE

TEACHER QUESTIONNAIRE

REALTY SORT OF TRUE

This pupil does not possess a comfortable knowledge of basic skills and factual information.

This pupil has the ability to apply steady attention and to become absorbed in his/her work.

This pupil is able to sit quietly and apply sustained effort to his/her work.

This pupil asks a reasonable number of sensible questions and listens well to instructions.

This pupil isn't able to stick to tasks and see things through to completion; gives up half-way through.

This pupil tends to do things in order to get them done as quickly as possible.

This pupil tends to make up his/her mind ahead of time whether or not he/she will be able to do a new task.

This pupil likes to be busy with something all (most) of the time; makes good use of free time.

This pupil tends to have "control" over problems, even if can't solve them easily, works effectively.

This pupil often does things without goals in mind, without a sense of purpose or reason for doing them.

This pupil doesn't work well with others on projects, or in games or sports.

This pupil has difficulty working alongside others; can't maintain focus on own work, more concerned with how others are doing the work.

This pupil has good work habits, has an understanding or appreciation of approved techniques and standard methods.

This pupil is likely to have a sense of being able to do at least one kind of activity or skill really well, seems to feel generally "on par with" friends or classmates.

This pupil doesn't seem to derive pride or satisfaction from any activity in the school context, doesn't seem to feel sense of pride about skills and accomplishments.

This pupil seems to enjoy himself/herself when working hard at something.

This pupil does work to meet external standards, just wants to get things done.

This pupil is not likely to appreciate the cultural or future value of what is being taught.

This pupil doesn't seem to model self after any significant adult figures.

REALTY SORT OF TRUE

This pupil possesses a comfortable knowledge of basic skills and factual information.

This pupil does not have the ability to apply steady attention or to become absorbed in his/her work.

This pupil is easily distracted and has a hard time sitting quietly and applying sustained effort.

This pupil asks a lot of unnecessary questions and often needs to have instructions repeated.

This pupil is able to see a problem or task through to completion; perseveres.

This pupil is concerned with work completeness and thoroughness.

This pupil approaches new tasks with knowledge that if really tries, will be able to do it.

This pupil likes to spend free time hanging around; doesn't make good use of free time.

This pupil sometimes gets "lost" in the process of working at something, works ineffectively.

This pupil is goal-directed, setting goals and working to achieve them.

This pupil works well with others on projects, or in games or sports.

This pupil works well alongside others, can maintain focus on own work, rather than concern with how others are doing the work.

This pupil has poor work habits, has an understanding or appreciation of approved techniques and standard methods.

This pupil is not likely to have a sense of being able to do at least one kind of activity or skill really well, seems to feel generally "inferior to" friends or classmates.

This pupil seems to derive pride and satisfaction from at least one activity in the school context, and has sense of pride from skills and accomplishments.

This pupil doesn't seem to enjoy self when working hard at something.

This pupil does work to meet external standards, just wants to get things done.

This pupil is likely to see the cultural and future value of what is being taught.

This pupil seems to have one or more adult models who he/she copies or emulates in some way.

	REALLY TRUE	SORT OF TRUE				SORT OF TRUE	REALLY TRUE
32 20.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil is interested in learning about new things and is generally curious.	OR	This pupil is not interested in learning and is not generally curious.	<input type="checkbox"/>	<input type="checkbox"/>
21.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil doesn't get involved in the subject matter of what is being taught.	OR	This pupil gets involved in the subject matter of what is being taught and sometimes follows up on own time.	<input type="checkbox"/>	<input type="checkbox"/>
22.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil seems to have a realistic appraisal of his/her abilities and skills, relative to peers.	OR	This pupil doesn't seem to have a realistic appraisal of his/her abilities and skills, relative to peers.	<input type="checkbox"/>	<input type="checkbox"/>
23.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil responds to evaluative feedback in a nonconstructive manner, feels threatened by it or is unresponsive.	OR	This pupil is responsive to evaluative feedback, and uses it as a guide to improving self or performance.	<input type="checkbox"/>	<input type="checkbox"/>
17 24.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil seems to like school and has a positive attitude towards school and school activities.	OR	This pupil doesn't seem to like school, and has a negative attitude towards school and school activities.	<input type="checkbox"/>	<input type="checkbox"/>

25. In your opinion, whose evaluation of work quality seems to matter most to the child? Please rank the following from 1 - 4, with 1 being the most highly valued opinion and 4 being the least highly valued.

- A. His/her own opinion. _____
- B. The teacher's opinion. _____
- C. Parent's opinion. _____
- D. Friend's opinion. _____

26. The questions above survey a variety of areas including: the ability to concentrate and persevere, to apply steady effort to work, to pay attention, to work towards goals, to play with and alongside other children, work habits, sense of being able to do things well, pride and satisfaction from one's accomplishments and skills, identification with adults, appreciation of the value of what is being taught, interest in learning new things and curiosity, a sense of relative strengths and weaknesses in comparison with peers, response to feedback, and attitude towards school. If these items could be combined into one characteristic, "industriousness", how would you rate this pupil? Circle One.

HIGH MEDIUM LOW

	REALLY TRUE	SORT OF TRUE				SORT OF TRUE	REALLY TRUE
37 27.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil likely prefers involvement in reality-based activities such as working at a hobby, making or building something.	OR	This pupil likely prefers involvement in fantasy-based activities such as make-believe games or some video or computer games.	<input type="checkbox"/>	<input type="checkbox"/>
28.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil doesn't seem to be involved in extra-curricular activities and/or own interests seem limited.	OR	This pupil seems to be involved in a number of extra-curricular activities and/or has a number of own interests.	<input type="checkbox"/>	<input type="checkbox"/>
29.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil is concerned with learning subject matter and process of working on tasks/activities, in addition to realistic concern with grades.	OR	This pupil is more concerned with grades or outcome than with the actual process of working at activities and learning something from them.	<input type="checkbox"/>	<input type="checkbox"/>
30.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil is wary of making mistakes, hesitant in trying new things because of possible failure.	OR	This pupil is willing to try new things, is not overly concerned with making mistakes or possible failure.	<input type="checkbox"/>	<input type="checkbox"/>
31.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil would rather be able to do something because had worked really hard at it, than because it came easily to them.	OR	This pupil would rather be able to do something because it came easily to them, than because they had really worked hard at it.	<input type="checkbox"/>	<input type="checkbox"/>
32.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil approaches tasks in an ECO-INVOLVED fashion: sees learning as means to an end of appearing smart or avoiding looking dumb; attention is focussed on the self and on how task performance reflects on the self; concerned with questions like: "Will I look smart or dumb on this task?"	OR	This pupil approaches tasks in a TASK-INVOLVED fashion: sees learning as an end in itself, inherently valuable, satisfying or meaningful; approaches tasks with attention focussed on the task itself and on strategies for task solution; concerned with questions like "How do I learn this?" "How does this work?"	<input type="checkbox"/>	<input type="checkbox"/>
33.	<input type="checkbox"/>	<input type="checkbox"/>	This pupil seems like an unhappy kid, and would change things about himself/herself if he/she could.	OR	This pupil seems like a happy kid, seems content with himself/herself.	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX C
THE PARENT INDUSTRY QUESTIONNAIRE

PARENT'S QUESTIONNAIRE

* My Child's Name is _____

Grade _____

(please print)

School Name _____

(*Note: Names will be replaced by a confidential ID number).

Date _____

In answering the questions below, please bear in mind that there are no right or wrong answers. Two different kinds of children are described in each question. To answer the questions: First decide if your child is more like the children described on the left or on the right. Then decide the degree to which you child is similar to the children described, ("really true" or "sort of true"). Please base your answers on your child's behavior/attitudes over at least the past month. Also, think about those activities your child engages in about which you are most familiar when answering the questions. Place an X in the appropriate box for each question. MARK ONLY ONE BOX FOR EACH QUESTION.

- | | REALLY
TRUE | SORT OF
TRUE | | | | SORT OF
TRUE | REALLY
TRUE |
|----|--------------------------|--------------------------|--|-----|--|--------------------------|--------------------------|
| 1. | <input type="checkbox"/> | <input type="checkbox"/> | Some children don't have an easy time applying steady attention to activities, are easily distracted and lose interest fairly quickly in what they are doing. | BUT | Other children have the ability to apply steady attention to activities, are not easily distracted, and become very absorbed or involved in what they are doing. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> | Some children are able to see a problem or task through to completion, they persevere and are concerned with work completeness and thoroughness. | BUT | Other children aren't able to stick to tasks and see things through to completion; they give up half-way through and tend to do things in order to get them done as quickly as possible. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> | Some children like to spend their free time hanging around, and in general, do not make good use of free time. | BUT | Other children like to be busy with something all (most) of the time and in general, make good use of free time. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | <input type="checkbox"/> | <input type="checkbox"/> | Some children are goal-directed, they set goals for themselves and work to achieve them. | BUT | Other children do things without a sense of goals in mind, without a sense of purpose or reason for doing them. | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | <input type="checkbox"/> | <input type="checkbox"/> | Some children are able to work well with other children on school projects or in games or sports; when working alongside others, they are more concerned with their own efforts than with what others are doing. | BUT | Other children have difficulty working with other children on projects, or in games or sports; when working alongside others, they are more concerned with what others are doing, than with their own efforts. | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | <input type="checkbox"/> | <input type="checkbox"/> | Some children have poor work habits, doing things "any which way" and are messy and disorganized. | BUT | Other children have good work habits, are fairly neat and organized, take pride in how things look. | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | <input type="checkbox"/> | <input type="checkbox"/> | Some children do not have a sense of being able to do at least one kind of activity or skill really well, and in general, feel "inferior to" friends or classmates. | BUT | Other children have a sense of being able to do at least one kind of activity or skill really well, and in general, feel "on par with" friends or classmates. | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | <input type="checkbox"/> | <input type="checkbox"/> | Some children seem to derive pride and satisfaction from at least one kind of activity or skill at home or at school, and in general, feel a sense of pride from skills and accomplishments. | BUT | Other children do not seem to derive pride or satisfaction from any activity or skill at home or at school, and in general, do not seem to feel a sense of pride from skills and accomplishments. | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. | <input type="checkbox"/> | <input type="checkbox"/> | Some children have one or more adult models (parents, teachers, etc.) that they emulate or copy in some way. | BUT | Other children do not seem to model themselves after any significant adult figures. | <input type="checkbox"/> | <input type="checkbox"/> |

over →

- | | REALLY
TRUE | SORT OF
TRUE | | | | SORT OF
TRUE | REALLY
TRUE |
|-----|--------------------------|--------------------------|---|-----|---|--------------------------|--------------------------|
| 10. | <input type="checkbox"/> | <input type="checkbox"/> | Some children are interested in learning about new things and are generally curious. | BUT | Other children are not very interested in learning about new things and are not generally curious. | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. | <input type="checkbox"/> | <input type="checkbox"/> | Some children have an accurate sense of the things they do well, and the things they do less well, they have a sense of their own strengths and weaknesses, relative to friends/classmates. | BUT | Other children don't seem to have an accurate sense of their particular strengths and weaknesses, relative to friends/classmates. | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | <input type="checkbox"/> | <input type="checkbox"/> | Some children tend to get angry or resentful in response to constructive feedback or criticism. | BUT | Other children tend to use feedback or criticism as a guide to improving themselves or their performance. | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. | <input type="checkbox"/> | <input type="checkbox"/> | Some children seem to like school and have a positive attitude towards school and school activities. | BUT | Other children do not seem to like school and have a negative attitude towards school and school activities. | <input type="checkbox"/> | <input type="checkbox"/> |

14. The questions above survey a variety of areas including: the ability to concentrate and persevere, work towards goals, to play with and alongside other children, work habits, sense of being able to do things well and pride and satisfaction from one's accomplishments and skills, interest in learning and curiosity, a sense of relative strengths and limitations in comparison with peers, and attitude towards school. If these items could all be combined into one characteristic, "industriousness", how would you rate your child?
PLEASE CIRCLE EITHER HIGH, MEDIUM, OR LOW :

HIGH

MEDIUM

LOW

- | | REALLY
TRUE | SORT OF
TRUE | | | | SORT OF
TRUE | REALLY
TRUE |
|-----|--------------------------|--------------------------|---|-----|--|--------------------------|--------------------------|
| 15. | <input type="checkbox"/> | <input type="checkbox"/> | Some children enjoy the same exact games that they used to like when they were younger. | BUT | Other children feel that the games they used to like when they were younger are boring or silly. | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. | <input type="checkbox"/> | <input type="checkbox"/> | Some children are not involved in activities outside of schoolwork, (such as sports, hobbies, clubs) and/or their own interests seem limited. | BUT | Other children are involved in a number of activities outside of schoolwork, (such as sports, hobbies, clubs) and/or have a number of their own interests. | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. | <input type="checkbox"/> | <input type="checkbox"/> | Some children feel most proud when they are complimented on how they look or behave. | BUT | Other children feel most proud when they are complimented on how they have done or made something. | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. | <input type="checkbox"/> | <input type="checkbox"/> | Some children would prefer to achieve something because they had worked really hard at it, than because it came easily to them. | BUT | Other children would rather be able to achieve something because it came easily to them, than because they had really worked hard at doing it. | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. | <input type="checkbox"/> | <input type="checkbox"/> | Some children seem to be unhappy, and would change things about themselves if they could. | BUT | Other children seem to be happy, and seem content with themselves. | <input type="checkbox"/> | <input type="checkbox"/> |

APPENDIX D
LETTER TO TEACHERS

SIMON FRASER UNIVERSITY

DEPARTMENT OF PSYCHOLOGY



BURNABY, BRITISH COLUMBIA V5A 1S6
Telephone: (604) 291-3354

A LETTER TO TEACHERS

Your help is needed in a research study taking place in selected B.C. Elementary Schools. This study has the full approval of the Vancouver School Board, the S.F.U. Psychology Department and the S.F.U. Ethics Committee.

The study is interested in how children learn to apply themselves to school tasks and related activities such as hobbies. An understanding of how children learn to work, a process described by Erik Erikson as the development of a sense of industry, is integral to increasing our understanding of the psychological development of school-age children and of how best to meet their educational and developmental needs.

Pupils will be asked to complete several questionnaires and watch a short film during regular class time. Parents will be asked to fill out a brief questionnaire which is included in the consent form package to be sent home with pupils. We are asking the teachers of Grade 4, 5 and 6 pupils in participating schools to also complete a brief questionnaire on the pupils in their class; while their classes are being given other measures. The perspectives and experience of teachers provide a key source of information for the study. You will have more than ample time to complete these questionnaires while your class is completing questionnaires and watching the film.

Your participation and interest would be greatly appreciated. More detailed explanatory materials will be made available to all teachers expressing an interest in participating in the study. Expression of interest in no way commits you to participation. We will respond to any questions or concerns that you may have prior to asking you for a decision regarding participation. Please let your principal know at your earliest convenience if you are at all interested and a preliminary information session will be scheduled. You may also contact us directly at the numbers listed below.

All responses and answers on the questionnaires will be kept confidential and the anonymity of children, parents and teachers is assured.

The reactions and comments of teachers, parents and pupils who have already participated in the study has been very positive. We look forward to your participation in this important study.

Sincerely Yours,

James E. Marcia, Ph.D.

Andrea M. Rogow, M.A.
(home phone-876-6551, or
leave a message at 291-3354).

- Yes, I am willing to learn more about the study. Name _____.

Please Return This Form To Your Principal At Your Earliest Convenience.

APPENDIX E
LEVEL OF REASONING FILM QUESTION SET

MY NAME IS _____.
(please print)

DATE _____.

SCHOOL _____.

FILM #1

In the film you just saw both children got the SAME score on the math worksheet. Both children received 10 out of 10 which is a perfect score. Child #1 and Child #2 received a perfect score on the math worksheet. Think about what you saw in the film and answer the questions below.

INDICATE YOUR ANSWERS BY CIRCLING THE NUMBER BESIDE THE ANSWER YOU CHOOSE.

QUESTION ONE - WAS ONE CHILD WORKING HARDER OR WERE THEY THE SAME?

1. Child #1 was working harder. 2. Child #2 was working harder. 3. They were working the same.

QUESTION TWO - IS ONE CHILD SMARTER OR ARE THEY THE SAME?

1. Child #1 is smarter. 2. Child #2 is smarter. 3. They are equally smart.

NOW, STAY IN THE SAME COLUMN AS YOUR ANSWER TO QUESTION TWO AND ANSWER ONLY THE QUESTIONS (A AND B) IN THAT COLUMN.

A. HOW CAN YOU TELL THAT CHILD #1 IS SMARTER?

1. because she was working and the other girl was playing around.
2. because she worked harder than the other girl.
3. because she behaved better than the other girl.

B. IF #2 WORKED HARDER WOULD SHE BE SMARTER THAN #1.

1. yes
2. no

A. HOW CAN YOU TELL THAT CHILD #2 IS SMARTER?

1. because she can do the work faster than the other girl.
2. because she doesn't need to work as hard as the other girl.
3. because she guessed at the answers and still got the same score as #1.

B. IF #1 WORKED LESS HARD WOULD SHE BE AS SMART AS #2.

1. yes
2. no

A. HOW CAN YOU TELL THAT THEY ARE EQUALLY SMART?

1. because both received the same score on the math worksheet.
2. because they both guessed at the answers and got the same number right.
3. because they both did well on the worksheet.

B. IF THEY BOTH WORKED EQUALLY HARD WOULD THEY STILL BE EQUALLY SMART?

1. yes
2. no

QUESTION THREE - HOW COME THEY BOTH GOT THE SAME SCORE WHEN ONE WORKED HARD AND THE OTHER DIDN'T WORK HARD?

1. because one child is smarter than the other. 2. because #2 was told to hurry up and caught up at the end. 3. because #2 was a faster worker.

QUESTION FOUR - IF THEY BOTH WORKED EQUALLY HARD WOULD ONE GET MORE THAN THE OTHER OR NOT?

1. don't know. 2. they would still get the same score. 3. #2 would do even better because she got the same score without working as hard.

FILM #2

In the second film, both children got the SAME score on the math worksheet. This time, both children received 2 out of 10, which is a pretty low score. Child #1 and Child #2 both received a low score on the math worksheet. Think about what you saw in Film #2 and answer the questions below. Remember to indicate your answers by circling the number next to the answer you choose.

QUESTION ONE - WAS ONE CHILD WORKING HARDER OR WERE THEY THE SAME?

1. Child #1 was working harder. 2. Child #2 was working harder. 3. They were working the same.

QUESTION TWO- IS ONE CHILD SMARTER OR ARE THEY THE SAME?

1. Child #1 is smarter. 2. Child #2 is smarter. 3. They are equally smart.

NOW, STAY IN THE SAME COLUMN AS YOUR ANSWER TO QUESTION TWO AND ANSWER ONLY THE QUESTIONS (A AND B) IN THAT COLUMN.

A. HOW CAN YOU TELL THAT CHILD #1 IS SMARTER?

1. because she was working and the other girl was playing around.
2. because she worked harder than the other girl.
3. because she behaved better than the other girl.

B. IF #2 WORKED HARDER WOULD SHE BE SMARTER THAN #1?

1. yes
2. no

A. HOW CAN YOU TELL THAT CHILD #2 IS SMARTER?

1. because she can do work faster than the other girl.
2. because she didn't need to work as hard as the other girl.
3. because she guessed at the answers and still got the same score as #1.

B. IF #1 WORKED LESS HARD WOULD SHE BE AS SMART AS #2?

1. yes
2. no

A. HOW CAN YOU TELL THAT THEY ARE EQUALLY SMART?

1. because both received the same score on the math worksheet.
2. because they both guessed at the answers and got the same number right.
3. because they both did poorly on the worksheet.

B. IF THEY BOTH WORKED EQUALLY HARD WOULD THEY STILL BE EQUALLY SMART?

1. yes
2. no

QUESTION THREE - HOW COME THEY BOTH GOT THE SAME SCORE WHEN ONE WORKED HARD AND THE OTHER DIDN'T WORK HARD?

1. because one child is smarter than the other. 2. because #2 was told to hurry up and caught up at the end. 3. because #2 was a faster worker.

QUESTION FOUR - IF THEY BOTH WORKED EQUALLY HARD WOULD ONE GET MORE THAN THE OTHER OR NOT?

1. don't know. 2. they would still get the same score. 3. #2 would do even better because she got the same score without working as hard.

FILM #3

In the film you just saw, Child #1 received 2 out of 10 on another math worksheet, which is a pretty low score. Child #2 received 8 out of 10 on the worksheet, which is a pretty high score. Child #1 did poorly and Child #2 did pretty well. Think about what you saw in the film and answer the questions below. Remember to indicate your answers by circling the number next to the answer you choose.

QUESTION ONE- WAS ONE CHILD WORKING HARDER OR WERE THEY THE SAME?

1. Child #1 was working harder. 2. Child #2 was working harder. 3. They were working the same.

QUESTION TWO - IS ONE CHILD SMARTER OR ARE THEY THE SAME?

1. Child #1 is smarter. 2. Child #2 is smarter. 3. They are equally smart.

NOW, STAY IN THE SAME COLUMN AS YOUR ANSWER TO QUESTION TWO AND ANSWER ONLY THE QUESTIONS (A AND B) IN THAT COLUMN.

A. HOW CAN YOU TELL THAT CHILD #1 IS SMARTER?

1. because she was working and the other girl was playing around.
2. because she worked harder than the other girl.
3. because she behaved better than the other girl.

B. IF #2 WORKED HARDER WOULD SHE BE SMARTER THAN #1?

1. yes
2. no

A. HOW CAN YOU TELL THAT CHILD #2 IS SMARTER?

1. because she can do the work faster than the other girl.
2. because she didn't work as hard as the other girl but still got a better score.
3. because she guessed at the answers and still got a better score than the other girl.

B. IF #1 WORKED LESS HARD WOULD SHE BE AS SMART AS #2?

1. yes
2. no

A. HOW CAN YOU TELL THAT THEY ARE EQUALLY SMART?

1. because both guessed at the answers, but only one of them guessed correctly.
2. because one is better in spelling and the other girl is better in math.
3. because Child #1 also knew the answers but decided not to write them down.

B. IF THEY BOTH WORKED EQUALLY HARD WOULD THEY STILL BE EQUALLY SMART?

1. yes
2. no

QUESTION THREE- HOW COME THE ONE WHO DIDN'T WORK HARD GOT A HIGHER SCORE?

1. because Child #2 is faster at writing down the answers. 2. because Child #2 didn't have to work as hard as Child #1 but still got a higher score. 3. because Child #1 wasn't really trying.

QUESTION FOUR - IF THEY BOTH WORKED EQUALLY HARD WOULD ONE GET MORE THAN THE OTHER OR NOT?

1. don't know. 2. they would get the same score if they both worked equally hard. 3. #2 would do even better if they both worked equally hard because she got a better score without working as hard.

QUESTION FIVE- WHICH CHILD IS GOING TO ACCOMPLISH MORE IN THE FUTURE?

1. Child #1 2. Child #2

APPENDIX F
CONSENT FORMS

SIMON FRASER UNIVERSITY

DEPARTMENT OF PSYCHOLOGY



BURNABY, BRITISH COLUMBIA V3A 1S6
Telephone: (604) 291-3354

Dear Pupil,

We are asking for your help in a research study. The study is about how children go about doing their school work and hobbies. We hope that you will help us by completing some questionnaires and watching a film. Children in Grades 4, 5 and 6 from your school and from one other school will be asked to participate. We will also be asking the school to provide us with some of your scores. No one will know which answers you give on the questionnaires. Your teachers and your parents will not be told your answers. We hope that you will agree to participate but you do not have to, and if you agree to participate you can stop at any time. The study will take place during regular classroom time. Your parents or guardian will also be asked to give their permission for your participation and to answer a short questionnaire. When the study is finished you will receive information about the results of the study.

Please print and sign your name below if you are willing to help. Do not sign if you do not want to participate.

Your Name(please print) _____
Signature _____
School _____ Grade _____

Thank you.

Andrea M Rogow

Andrea M. Rogow, M.A.

SIMON FRASER UNIVERSITY

DEPARTMENT OF PSYCHOLOGY



BURNABY, BRITISH COLUMBIA V5A 1S6
Telephone: (604) 291-3354

January 7, 1986

PARENT'S CONSENT FORM AND QUESTIONNAIRE

Dear Parent or Guardian,

We are writing to ask permission for your child to participate in a study along with his/her classmates, and for your participation in the study by completing the attached Parent's Questionnaire. The study is concerned with how children learn to apply themselves to school work and other tasks. An understanding of how children learn to apply themselves and how different children go about their school work is important in optimizing what children learn in school and take with them from the school experience to other life tasks.

The parents of pupils in participating classes are being asked to complete the Parent's Questionnaire. Completed questionnaires should be returned along with the consent form by January 13, 1986.

The Pupil Questionnaire to be completed by pupils in participating classes will be scored by the researcher and the anonymity of your child will be preserved. The Pupil Questionnaire is designed to tap children's experience of applying themselves to school tasks. The subject matter of this questionnaire and of the study as a whole is very similar to the day-to-day issues normally arising in the classroom. We will also be asking the school to provide your child's scores on a recent standardized ability test given by the school and recent grades. Children will watch a film depicting other children at work on a math worksheet and will be asked to complete a question set about how hard they think the children in the film are working. A test of the ability to form comparisons and to reason by analogy will also be given. Teachers will be asked to provide information on how different children approach school tasks (on a questionnaire similar to the attached Parent's Questionnaire) and finally, children will be observed for short time periods while doing independent work. Identification of your child will be only to match his or her scores on the different measures. Your child will not be identifiable in any research reports.

We hope that you will allow your child to participate in this study along with his or her classmates. Pupils will complete the questionnaires and watch the film during regular class time, as a class. Children not participating in the study will be asked to do other work while their classmates are completing the questionnaires. Participation in this study is voluntary and will be explained to your child if you give your permission. Your child may discontinue participation in the study at any time.

This study has the approval of the Vancouver School Board and of your child's school principal. Teachers, the school, parents and pupils will be provided with the overall results of the study upon its completion. This summary will contain information about the study as a whole, not about individual children. Complete confidentiality is assured.

We also hope that you will complete the attached Parent's Questionnaire. As parents, you can provide information which will help us to reach a broader understanding of how children go about applying themselves to both given and chosen endeavors. The attached questionnaire asks several questions about how your child goes about doing school work or chores in the home. All responses will be kept confidential.

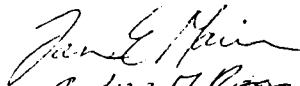
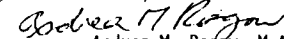
.....continued

Please return the consent form and questionnaire in the envelope provided at your earliest convenience. If the consent form and questionnaire are not returned by JANUARY 13, 1986 we will assume that you are not opposed to your child's participation and your child will be allowed to participate in the study if he or she wishes to do so.

If you have any questions, please contact us at Simon Fraser University by leaving a message (291-3354 or 291-4367) for us to phone you.

Your consenting to your child's participation and your own time in completing the Parent's Questionnaire are greatly appreciated.

Yours Sincerely,



Andrea M. Rogow, M.A.
James E. Marcia, Ph.D.

1. I _____ give my permission and have / have not completed
(signature)
the Parent's Questionnaire.

My Child's name is _____
(please print clearly)

2. I _____ do not want my child to participate.
(signature)

My child's name is _____
(please print clearly)

PLEASE RETURN THE CONSENT FORM AND COMPLETED QUESTIONNAIRES BY JANUARY 13, 1986
IN THE ENVELOPE PROVIDED. (HAVE YOUR CHILD BRING THESE FORMS TO HIS OR HER
HOMEROOM TEACHER). THANK YOU.

APPENDIX G
TEACHER INFORMATION SHEET

INFORMATION SHEET FOR TEACHERS: THE CONCEPT OF INDUSTRY

The Study

Erik Erikson's theory of personality development suggests that the human life cycle is comprised of eight "psychosocial stages" spanning human development from birth to death. There is a stage-specific issue which marks each of the eight stages Erikson has proposed. The psychosocial stage which corresponds to the school-age is the fourth stage; the task or issue facing the school-age child is the development of a sense of industry. According to Erikson, this is a period of "apprenticeship", a time for the child to master basic skills and factual knowledge necessary for participation in the culture's work ethos and technology. School itself is emphasized within Erikson's theory as a social institution within which a sense of industry is facilitated and most readily observed. Moreover, the teacher is seen as the crucial link between the developing child and the social milieu.

The main issue presented by this period of development and by the concept of industry is how children learn how to work. It is at this age that the ability to apply oneself to both given and chosen endeavors meets its critical period. In addition to whatever it is that children "work at" and later, as adults, whatever the work roles they may choose, this is the crucial period for the child to develop a relationship to "work", to the process of applying oneself in productive directions.

The skill represented by the achievement of a sense of industry is one which will stand the child in good stead for a wide variety of endeavors. The perspectives and observations offered by Erikson in general, and with particular regard to the fourth stage, are directly relevant to many of the issues faced by teachers as they attempt to educate and meet the needs of children with varying abilities, competencies and interests. How is it that some children develop a sense of industry and others do not?

It is of note that this period of development has been somewhat neglected by researchers in the fields of child and personality development. While many specific concepts have been examined in children of this age group, these studies have not been done with reference to any broad developmental perspective. It is hoped that the present study will begin to address this neglect and lead to an increased understanding of the issues facing the school-age child as well as those who are engaged in the attempt to meet the educational and developmental needs of school-age children.

Teacher Participation

The teacher's experience of the pupil within the classroom or other school setting provides an essential source of information. Each teacher is asked to complete a questionnaire for those children whose parents have consented to his/her participation in the study. Completion of each questionnaire will take about 5 minutes. You will have more than enough time to complete the questionnaires while the class is completing other measures. A short manual which explains the concept of industry as it pertains to particular items on the questionnaire is provided for your reference.

Pupil Participation

The study will involve about 4½ hours of pupil time (e.g. three 1½ hour sessions) during regular class time. Children as a class will be asked to complete several questionnaires, watch a film and answer a question set based on the film. Children will also be observed during library period or in the classroom while doing independent work. Existing scores on a standardized ability test and latest grades will also be obtained for those children whose parents have given consent.

Parent Participation

Parents will be asked to complete a brief questionnaire which is included along with the consent form. These forms will be sent home with pupils and a self-addressed and stamped envelope will be provided to facilitate their return.

APPENDIX H
TEACHER INSTRUCTION SHEET AND SCORING GUIDE

TEACHER QUESTIONNAIRE - INSTRUCTIONS

This questionnaire is designed to tap your perspective on the child's sense of industry. Please respond to the questions based on your knowledge of each individual pupil, and with regard to the subjects or activities with which you have the most familiarity.

Several questions ask you to offer your impressions of the child's subjective feelings. While you may or may not always have first-hand knowledge of the child's subjective emotional state, you are asked to offer a personal judgement based on your knowledge of the child. When answering the questions, please base your answers on the child's behavior/attitudes over at least the past month.

The questions ask you to choose among various response options. Almost all of these questions are of the following format:

REALLY TRUE	SORT OF TRUE		OR		SORT OF TRUE	REALLY TRUE
<input type="checkbox"/>	<input type="checkbox"/>	This pupil works hard in all subjects.		This pupil works hard only in subjects he/she really likes.	<input type="checkbox"/>	<input type="checkbox"/>

To answer the questions, you are first asked to decide whether the pupil is most like the child described on the left or the right. Then, you are asked to indicate the degree to which you believe the child to be similar to the pupil described ("sort of true" or "really true"). Place an X in the appropriate box for each item.

The format of this questionnaire is very similar to the questionnaires to be completed by parents and pupils. There are no right or wrong answers. The purpose of the questions is to allow a match between the pupil's actual behavior and that of the pupils described in each item.

The confidentiality of your responses, as well as those of the children and parents, is assured. Names are required only to facilitate the matching of the child's scores on the various measures and will be replaced by an identity number.

Once you are familiar with the questions and have read through the scoring guide, it is estimated that completion of each questionnaire will take about 5 minutes.

TEACHER QUESTIONNAIRE - SCORING GUIDE

This scoring guide has been prepared for your reference. It describes each of the items on the questionnaire, and their particular relevance to the industry concept.

ITEM

- 1 This item reflects the importance of skills and knowledge which are designated as "basic" and "fundamental" by the culture. These are presumed to be those skills and content areas stressed and taught in school. This question asks you whether or not this pupil's level of skills and factual knowledge is appropriate for his or her grade level. Answer this question from the perspective of the subject(s) that you teach the child.
- 2 Another aspect of the sense of industry is how the child applies the skills and
3 knowledge he/she has acquired. These three items ask you to indicate the child's
4 ability to concentrate, to apply sustained effort and to pay attention/follow instructions.
- 5 Perseverance is another important aspect of a sense of industry, reflecting the
6 child's ability to stick to tasks and see things through to completion. Item
7 5 asks about the child's ability to stick to tasks; Item 6 inquires about the completeness of the child's work, and Item 7 asks about the child's sense of being able to achieve things through the application of effort.
- 8 This item asks about the child's level of involvement with activities: Does this child like to be doing something most of the time or does he/she prefer to "hang around", and does the child make constructive use of free time?
- 9 Items 9 and 10 refer to the child's effectiveness in solving problems or completing
10 school work, and whether or not the child has an idea of the purpose or goal of his/her efforts.
- 11 Items 11 and 12 ask about the child's ability to work with and beside others.
12 Item 11 inquires about the child's ability to cooperate with other children in joint activities or tasks. Item 12 asks about the child's capacity to do his or her work alongside other children; to maintain a focus on one's own work without undue concern for what other children are doing and/or how they are doing the work.
- 13 In addition to neatness and organization, (does the child take pride in how things look or does he/she do things "any which way"), work habits are used here to refer to the child's understanding of the "proper way to do things", an appreciation of approved techniques and standard methods.
- 14 This item has to do with the child's sense of being able to do one activity or skill really well, and the child's sense of general competence relative to peers.
- 15 These three items refer to the "return" provided to the child from the application
16 of effort. Does the child experience a sense of pride and satisfaction from
17 his/her abilities or performance? Does the child enjoy the process of really working hard at something? Does the child do things with a personal sense of accomplishment in mind, or to meet the standards set by others?
- 18 Given an emphasis on this period of development as one of apprenticeship, this item is concerned with the degree to which the child does or does not feel a sense of being prepared for greater participation in the culture; specifically- as indexed by an understanding of the importance and relevance of what they are learning in school.

ITEM #

- 19 The process of increasing involvement/participation in the culture is often experienced at this age through an identification with significant adult figures. Does this child seem to emulate or model himself/herself after a significant adult figure? (Note: Teachers are seen in Erikson's theory as ideal objects for such identification).
- 20 Does this child possess an interest in learning about how things work and how they are made and/or is this child generally curious about learning new things?
- 21 Does this child allow himself/herself to develop a genuine interest in the subject matter and to follow through on this interest?
- 22 Some children over or underestimate their own level of ability relative to peers. Does this child have a realistic sense of his/her strengths and weaknesses in various subjects and activities, reflecting an understanding that everyone tends to have things they do well and things they do less well than others?
- 23 Related to an appreciation of relative strengths and weaknesses is how children respond to evaluations of their performance. Does this child respond constructively to positive or negative feedback?
- 24 Item 24 also asks about the child's sense of his/her own abilities and skills, here, with reference to the importance the child places on his/her own opinion and the opinion of others in terms of the quality of school work.
- 25 Some kids really like school and others are more neutral or negative. What is this child's attitude toward school and school activities?
- 26 The first 25 questions survey a variety of areas including: the ability to concentrate and persevere, work towards goals, to work and play with and alongside others, work habits, sense of being able to do things well, pride and satisfaction from one's achievements, interest in learning and curiosity, a sense of relative strengths and weaknesses relative to peers, response to feedback, and the degree of reliance on one's own evaluation of work quality. If these aspects could be combined into one characteristic ("industriousness"), would you say this child is high, medium or low on this characteristic?
- 27 Do you think this child prefers to make or build things, work on a hobby or other "reality-based" activity, or would he/she prefer to play make-believe games or other "fantasy-based" activity during free time? This question asks your opinion on whether the child prefers to make things as opposed to making things up.
- 28 How busy is this child in optional activities during and after school?
- 29 Some children get very involved in the process of working on projects or activities. They enjoy themselves while cutting and pasting, going to the library for references, designing the title page, etc. They enjoy the process of working. Other children maintain a focus on the outcome of their efforts, doing things with reference to achieving a certain grade. Does this child focus more on the process of working on activities or on the outcome of that process?
- 30 Most kids would prefer not to make mistakes and not to fail. Children deal with this possibility in different ways. Some kids are willing to try new things, aware that they may or may not be able to do them, but willing to 'give it a try'. Other kids prefer not to try at all than to deal with the possibility of failure. How does this child deal with this issue?

ITEM =

- 31 What is this child's attitude towards effort for its own sake? Would you say this child would prefer to be able to do something because he/she had really worked hard at it, or because it came easily to them?
- 32 The distinction has been made between a task-oriented and an ego-involved approach to tasks. In TASK-INVOLVEMENT, the characteristics of the task itself are emphasized. Children in these situations are concerned with questions like "how does this work?", "how can I solve this?", "how should I approach this task?". In EGO-INVOLVEMENT, performance on the task is stressed. Children in ego-involved situations are more likely to be concerned with whether or not they will appear smart on the task.
- Children themselves may have a general tendency to approach tasks from one or the other perspective. In TASK-INVOLVEMENT, learning is seen as inherently valuable, satisfying or meaningful and attention is focussed on the task and on how to solve it. This is in contrast to EGO-INVOLVEMENT where learning is seen as a means to an end of appearing smart or the avoidance of appearing silly or dumb. Here attention is focussed on the self and on performance on the task.
- Does this child generally approach tasks from an EGO-INVOLVED or TASK-INVOLVED perspective?
- 33 The final question asks about your observations of the child's general feeling about himself/herself. Does this child seem like a fairly happy or unhappy child, relative to other children?

APPENDIX I
ORDER OF MEASURE PRESENTATION

Appendix I

Order of Measure Presentation By School, Classroom, Group & Grade

School		1					2	3			N=	
Classroom		1	2		3	4	5	6	7			8
Group		1	2	3	4	5	6	7	8	9		10
Grade		4	4	5	5	6	6	4	5	6		6
O	1 QSFR	X				X						59
R	2 FQSR		X	X								21
D	3 SFQR				X							28
E	4 FSQR						X				X	41
R	5 QFSR							X				27
	6 SQFR								X	X		29
N=		29	10	11	28	30	13	27	21	8	28	N=205

Q= Children's Industry Questionnaire
 S= Children's Social Desirability Scale
 F= Film and Film Question Set
 R= Raven's Progressive Matrices

APPENDIX J
ANALYSES OF VARIANCE FOR EFFECTS OF ORDER

Appendix J

Analyses of Variance Between Group 1 and Group 2 (Grade 4, School 1, Order 1 by Order 2)

Measure	Variable	Group 1		Group 2		Anova		
		\bar{X}	n	\bar{X}	n	f	p*	n
Children's Social Desirability Scale	CSDSRAW	17.73	22	20.00	9	.34	.56	31
Film and Film Question Set	Score1	12.45	22	9.44	9	2.21	.15	31
Children's Industry Questionnaire	CIQMEAN ($\bar{X}(\bar{X}_1, \bar{X}_2, \bar{X}_3)$)	3.06	22	3.09	9	.03	.87	31
	CIQAVER (\bar{X} (all industry items))	3.00	22	3.08	9	.43	.52	31
	CIQALL (\bar{X} (all items))	2.95	25	3.00	11	.21	.65	36
Raven's Progressive Matrices	Percentile Score	70.82	.22	67.22	9	.13	.72	31
	Raw Score	32.05	.22	28.89	9	.35	.56	31

*two-tailed

Appendix J (cont'd)

Analyses of Variance Between Group 3 and Group 4
(Grade 5, School 1, Order 2 by Order 3)

Measure	Variable	Group 3		Group 4		Anova		
		\bar{X}	n	\bar{X}	n	f	p*	n
Children's Social Desirability Scale	CSDSRAW	23.67	9	19.68	28	1.64	.21	37
Film and Film Question Set	Score1	12.78	9	12.82	28	.001	.97	37
Children's Industry Questionnaire	CIQMEAN ($\bar{X}(\bar{X}_1, \bar{X}_2, \bar{X}_3)$)	3.21	9	3.10	28	.48	.49	37
	CIQAVR (\bar{X} (all industry items))	3.23	9	3.08	28	1.33	.26	37
	CIQALL (\bar{X} (all items))	3.14	10	3.02	28	1.20	.28	38
Raven's Progressive Matrices	Percentile Score	63.50	8	75.39	28	2.90	.098	36
	Raw Score	33.13	8	36.71	28	1.84	.184	36

*two-tailed

Appendix J (cont'd)

Analyses of Variance Between Group 5 and Group 6
(Grade 6, School 1, Order 1 by Order 4)

Measure	Variable	Group 5		Group 6		Anova		
		\bar{X}	n	\bar{X}	n	f	p'	n
Children's Social Desirability Scale	CSDSRAW*	16.57	30	13.77	13	1.51	.23	43
	CSDSRAW**	16.79	29	14.55	11	.83	.37	40
Film and Film Question Set	Score1	13.41	27	14.23	13	.32	.57	40
Children's Industry Questionnaire	CIQMEAN* ($\bar{X}(\bar{X}_1, \bar{X}_2, \bar{X}_3)$)	2.99	30	2.86	13	.60	.44	43
	CIQMEAN**	3.03	29	2.94	11	.31	.58	40
	CIQAVÉR* (\bar{X} (all industry items))	3.01	30	2.71	13	5.16	.03	43
	CIQAVÉR**	3.04	29	2.79	11	4.06	.051	40
	CIQALL* (\bar{X} (all items))	2.99	30	2.72	13	4.63	.04	43
	CIQALL**	3.06	29	2.81	11	3.59	.07	40
Raven's Progressive Matrices	Percentile Score	67.70	27	74.92	13	1.59	.21	40
	Raw Score	38.30	27	40.54	13	1.80	.19	40

* When analysis performed on all pupils with scores on measure involved in comparison.

** When outliers are removed (one from group 4, two from group 5)

'two-tailed

Appendix J (cont'd)

Analyses of Variance Between Group 9 and Group 10
(Grade 6, School 2, Order 6 by Order 4)

Measure	Variable	Group 9		Group 10		Anova		
		\bar{X}	n	\bar{X}	n	f	p'	n
Children's Social Desirability Scale	CSDSRAW*	24.38	8	17.44	27	6.37	.02	35
	CSDSRAW**	24.38	8	17.88	26	5.89	.02	34
Film and Film Question Set	Score1	17.25	8	14.30	27	4.08	.051	35
Children's Industry Questionnaire	CIQMEAN* ($\bar{X}(\bar{X}_1, \bar{X}_2, \bar{X}_3)$)	3.10	8	3.00	27	.44	.51	35
	CIQMEAN**	3.10	8	3.04	26	.27	.65	34
	CIQAVÉR* (\bar{X} (all industry items))	3.22	8	2.95	27	3.26	.08	35
	CIQAVÉR**	3.22	8	2.99	26	3.26	.08	34
	CIQALL* (\bar{X} (all items))	3.21	8	2.90	27	6.08	.02	35
	CIQALL**	3.21	8	2.93	26	6.02	.02	34
Raven's Progressive Matrices	Percentile Score	78.33	6	78.85	27	.005	.94	33
	Raw Score	42.00	6	42.63	27	.061	.87	33

* When analysis performed on all pupils with scores on measure involved in comparison.

** When outliers are removed (one from group 10).

'two-tailed

APPENDIX K
PROFILE OF MISSING DATA

Appendix K

Missing Data on Measures for Individual Subjects by Group

Group	ID. no.	Film	Raven's	Grades	Achievement Test	Social Desirability	CIO	TIO	Decision
ONE									
n1=29 n2=23	001					-	-		out (absent)
	002					-	-		out (absent)
	004	-	-						out (absent)
	009					-	-		out (absent)
	010					-	-		out (absent)
	015				-	-			group mean
	022	(bad)						some items	out
026				-	-			group mean	
TWO									
n1=11	030	-							out (absent)
n2=10	040				-				group mean
THREE									
n1=10	041	-	-					1/2	out(absent/teacher error) on TIQ
n2=9	049		-						group mean
FOUR									
n1=28	062			-	-		some items		out
n2=27	068			-	-				group mean
FIVE									
n1=30 n2=27	081	-							out (absent)
	092	-							out (absent)
	099				-				group mean
	103	-							out (absent)
	104				-				group mean
SIX									
n1=n2=13	111			-					group mean
SEVEN									
n1=27 n2=25	135		-			-	-		out (absent)
	136				-				group mean
	139				-				group mean
	147				-				group mean
	151				-				group mean
	152							-	out (teacher error on TIO)
EIGHT									
n1=21 n2=20	170				-		1/2 items bad		out
NINE									
n1=n2=8	174		-						group mean
	175			-	-				group mean
	180		-						group mean

Appendix K(cont'd)

Group	ID. no.	Film	Raven's	Grades	Achievement Test	Social Desirability	CIO	TIO	Decision
TEN	201						1/2 items invalid		out
n1=28	203				-	-	1/2 items invalid		out
n2=25	205	-					1/2 items invalid		out
	208			-					group mean
	209				-				group mean
n (Missing)		n=8	n=6	n=7	n=14	n=6	n=11	n=2	

n1=n before subjects with missing data removed
n2=n after subjects with missing data eliminated

APPENDIX L
RETURN RATE OF THE PARENT INDUSTRY QUESTIONNAIRE BY
GROUP

Appendix L

Return of Parent Industry Questionnaire By Group

Group	Returned Complete		Incomplete/Invalid		Consent Form Only		Passive Consent		N
	N	%	N	%	N	%	N	%	
1	15	65%	2	9%	0	0%	6	26%	23
2	8	80%	0	0%	0	0%	2	20%	10
3	6	67%	0	0%	0	0%	3	33%	9
4	18	67%	2	7%	4	15%	3	11%	27
5	15	55%	4	15%	0	0%	8	30%	27
6	6	46%	1	8%	0	0%	6	46%	13
7	11	44%	3	12%	0	0%	11	44%	25
8	17	85%	1	5%	0	0%	2	10%	20
9	7	87.5%	0	0%	0	0%	1	12.5%	8
10	13	52%	2	8%	2	8%	8	32%	25
TOTAL	116	62%	15	8%	6	3%	50	27%	N=187

APPENDIX M

ITEM CONTENT AND VARIABLE COMPOSITION ON THE CIQ

Appendix M

Variable Composition and Item Content Area for the Children's Industry Questionnaire

Variable Name	Content Area	Variable Composition
CIQIV1	Component 1: Skills and Knowledge (Cognitive Component)	Mean (CIQ 9, 53)
CIQIV2	Component 2: Application of Skills and Knowledge (Behavioral Component)	Mean (CIQ 2 to 5, 14 to 16, 24,27,29,30,38,39,44,45,47 to 51,54,56 to 58.)
CIQIV3	Component 3: Attitudes/Experience (Affective Component)	Mean (CIQ 6 to 8, 12,13,17, 22,23,25,28, 31 to 34,40 to 43, 52,55a, 59).
CIQMEAN	Mean of summary scores above	Mean (CIQIV1,CIQIV2,CIQIV3)
CIQM23	Mean of summary scores for components 2 and 3	Mean (CIQIV2, CIQIV3)
CIQAVR	Mean of all items above.	Mean (CIQ 2 to 9, 12 to 17, 22 to 25, 27 to 34, 38 to 45, 47 to 55a, 56 to 59).
CIQDV1	Dependent Variable 1: Fantasy vs. Reality	Mean (CIQ 11,20,37).
CIQDV2	Dependent Variable 2: Process vs. Outcome Orientation	Mean (CIQ 10,19,21,26,36,46, 60,61,63).
CIQDV3	Dependent Variable 3: Overall Contentment	Mean (CIQ 1,18,35).
CIQDV4	Dependent Variable 4: Work Sample	Mean (CIQ 65,66,67,69,70).

APPENDIX N

ITEM CONTENT AND VARIABLE COMPOSITION ON THE TIQ

Appendix N

Variable Composition and Item Content Area for the Teacher's Industry Questionnaire

Variable Name	Content Area	Variable Composition
TIQIV1	Component 1: Skills and Knowledge (Cognitive Component)	Mean(TIQ 1)
TIQIV2	Component 2: Application of Skills and Knowledge (Behavioral Component)	Mean (TIQ 2,3,8,9,10,11,12,13,14, 28).
TIQV3	Component 3: Attitudinal and Experiential Component (Affective Component)	Mean (TIQ 15,16,17,18,19,20,21, 22,23,24,25a).
TIQMEAN	Mean of summary scores above	Mean (TIQIV1, TIQIV2, TIQIV3)
TIQMN23	Mean of summary scores from components 2 and 3	Mean (TIQIV2, TIQIV3)
TIQAVR	Mean of all items in components 1,2,3.	Mean (TIQ 1 to 25a,28).
TIQIV4	Global rating of industry	TIQ 26.
TIQDV1	Dependent Variable 1: Fantasy vs Reality	TIQ 27.
TIQDV2	Dependent Variable 2: Process vs. Outcome Orientation	Mean (TIQ 29,30,31,32).
TIQDV3	Dependent Variable 3: Overall Contentment	TIQ 33

APPENDIX O

ITEM CONTENT AND VARIABLE COMPOSITION ON THE PIQ

Appendix O

Variable Composition and Item Content Area for the Parent's Industry Questionnaire

Variable Name	Content Area	Variable Composition
PIQIV2	Component 2: Application of Skills and Knowledge (Behavioral Component)	Mean (PIQ 1,2,3,4,5,6,16).
PIQV3	Component 3: Attitudinal/Experiential Component (Affective Component)	Mean (PIQ 7,8,9,10,11,12,13,17).
PIQMEAN	Mean of components 2 and 3.	Mean (PIQIV2, PIQIV3).
PIQAVER	Mean of all items in components 2 and 3	Mean (PIQ 1 to 13,16,17).
PIQIV4	Global rating of industry	PIQ 14
PIQDV1	Dependent Variable 1: Fantasy vs. Reality	PIQ 15
PIQDV2	Dependent Variable 2: Process vs. Outcome Orientation	PIQ 18
PIQDV3	Dependent Variable 3: Overall Contentment	PIQ 19

APPENDIX P
MEANS AND STANDARD DEVIATIONS OF CIQ VARIABLES

Appendix P

Means and Standard Deviations for All CIO Variables

Group No.1 Grade	n=23		n=10		n=9		n=27		n=27		n=25		n=20		n=8		n=25			
	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.		
CIQ1	3.30	.93	3.40	.70	2.56	1.13	2.89	.89	2.78	.80	2.69	1.11	2.68	.80	2.40	.99	3.25	.46	3.00	1.00
CIQ2	3.09	.90	2.90	.99	2.89	.93	3.30	.82	2.63	.88	2.92	.95	3.04	.93	3.05	.89	3.25	.46	2.80	.91
CIQ3	2.65	.93	2.70	1.34	3.11	1.05	2.96	.81	2.59	.97	2.85	1.14	3.36	.70	3.10	.85	3.00	.76	2.88	.78
CIQ4	1.87	.81	1.90	1.10	2.44	.88	2.26	.90	2.04	1.02	2.08	1.26	1.68	.63	1.85	.93	2.12	.83	2.24	.97
CIQ5	3.09	.79	3.30	1.06	2.89	.93	2.81	.96	2.96	1.02	3.00	1.00	3.00	.87	2.95	1.05	3.37	1.06	2.56	.96
CIQ6	1.56	.90	2.10	1.10	1.78	1.09	2.37	1.01	2.04	1.16	1.61	1.04	2.48	1.12	2.85	1.14	3.00	.53	1.64	.95
CIQ7	2.91	.79	2.50	.85	3.11	.93	2.78	.85	2.67	.78	2.38	.87	2.92	1.04	2.90	.72	3.23	.46	2.64	.95
CIQ8	2.87	1.06	3.00	.82	3.00	.71	3.07	1.07	2.74	.94	3.08	1.04	2.88	1.05	3.20	1.00	3.12	.83	2.84	.69
CIQ9	3.30	.76	3.30	.82	3.11	.60	3.30	.87	3.18	1.00	3.00	1.08	2.96	.84	3.40	.60	2.87	.64	3.20	.82
CIQ10	2.78	1.04	2.40	1.17	2.56	1.33	2.78	1.19	3.30	.91	2.85	.99	3.40	.58	2.95	.94	3.12	.64	2.36	1.07
CIQ11	3.09	1.00	3.10	1.10	3.44	.73	2.93	1.11	3.15	.91	2.54	1.20	3.28	.89	3.20	.83	3.37	1.06	2.56	1.08
CIQ12	3.56	.73	4.00	.00	3.89	.33	3.41	.89	3.67	.55	1.92	1.26	3.64	.57	3.55	.83	3.75	.46	3.68	.56
CIQ13	2.65	.93	3.10	.74	3.33	.71	3.18	.79	2.81	.74	2.38	.96	3.12	.73	3.15	.81	3.00	.00	2.91	.64
CIQ14	3.48	.95	3.20	1.32	3.56	.53	3.04	1.02	3.59	.50	2.77	1.23	3.48	.87	3.30	.86	3.62	.52	3.20	.91
CIQ15	3.30	.76	3.30	.95	3.56	.53	3.00	.78	3.22	.97	3.08	1.04	3.60	.64	3.25	.79	3.50	.53	3.20	.71
CIQ16	2.91	1.16	3.00	1.05	3.56	.53	2.81	.92	3.00	.83	2.54	1.27	3.20	1.00	3.55	.60	3.25	.46	3.00	.82
CIQ17	2.56	1.08	3.30	.67	3.00	1.12	3.15	1.06	3.04	1.02	2.31	1.32	3.16	.85	3.35	.87	3.50	.53	2.64	1.04
CIQ18	3.09	.85	3.20	.42	2.89	.93	2.93	.92	3.07	.87	2.38	1.12	3.04	.68	2.90	.85	2.87	.64	3.08	.81
CIQ19	3.26	.81	3.70	.48	3.44	.53	3.44	.70	3.26	.94	3.15	.80	3.28	.61	3.20	.62	3.75	.46	3.24	.72
CIQ20	1.19	.95	2.30	1.25	2.00	.87	2.18	.92	2.70	1.17	2.85	.99	2.12	.97	2.40	1.14	2.50	.53	3.04	.98
CIQ21	2.65	1.03	2.90	1.20	2.56	1.24	2.89	.97	3.07	.87	3.38	.96	2.56	1.00	2.80	.95	2.62	1.06	2.92	.95
CIQ22	3.04	1.11	3.80	.42	3.44	.53	3.37	.84	3.18	.79	2.92	.95	3.04	.89	3.10	.97	2.87	.35	2.72	.89
CIQ23	2.91	1.16	2.70	1.16	2.89	1.17	2.96	1.25	2.56	1.19	2.92	1.19	2.44	1.12	3.05	1.10	2.25	.71	2.76	1.13
CIQ24	3.00	.95	3.00	1.25	3.56	.53	2.74	1.06	2.67	1.07	2.15	1.14	3.24	.93	3.15	.93	3.12	.64	2.60	.91
CIQ25	3.39	.89	3.50	.71	3.78	.44	3.56	.64	3.07	.92	1.92	1.04	3.60	.82	3.55	.83	3.87	.35	2.4	1.05
CIQ26	2.26	1.14	2.60	.97	2.22	.97	2.22	.97	2.89	.80	2.15	.99	2.36	.95	2.85	.99	2.87	.99	2.68	.75

Appendix P (cont'd)

Group No.1 Grade	n=23		n=10		n=9		n=27		n=27		n=13		n=25		n=20		n=8		n=25	
	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.
CIQ27	2.83	1.03	3.30	1.25	3.33	1.00	3.00	.88	3.04	1.16	2.92	.95	3.28	.74	3.05	.94	3.25	.89	3.20	.64
CIQ28	3.39	.72	3.40	.70	3.22	.67	3.15	.91	3.37	.74	2.85	1.14	3.56	.51	3.10	.91	3.12	.83	3.12	.83
CIQ29	3.00	.90	3.20	.79	3.11	.78	2.85	.77	2.81	.88	2.15	1.21	3.00	.91	3.60	.50	3.00	1.07	2.64	.86
CIQ30	2.83	.78	3.60	.52	3.33	.71	3.41	.75	3.00	.73	2.77	1.23	3.36	.81	3.35	.67	3.21	.64	2.88	.78
CIQ31	3.43	.79	3.30	.67	3.44	.53	3.04	.85	3.15	.99	2.46	1.13	3.48	.65	3.30	1.03	3.25	.71	3.08	.81
CIQ32	3.56	.51	3.70	.48	3.56	.53	3.22	.85	3.26	.81	2.77	1.23	3.68	.63	3.70	.47	3.75	.46	3.04	.79
CIQ33	2.52	.95	2.80	.79	2.67	1.22	2.93	1.00	2.48	1.16	2.69	1.11	2.88	1.23	2.60	.99	2.62	.52	2.76	.83
CIQ34	3.22	1.04	2.40	1.17	3.11	1.05	3.44	.97	3.59	.97	2.69	1.25	3.28	.84	3.35	1.04	3.00	.93	2.64	1.04
CIQ35	2.61	1.08	2.80	1.23	3.44	.53	3.11	1.12	2.96	1.13	2.61	1.32	3.64	.64	3.20	.83	3.75	.46	3.16	.99
CIQ36	3.30	.76	2.80	1.13	3.44	.53	3.22	1.05	3.48	.75	2.92	1.04	3.52	.77	3.65	.59	3.75	.46	3.20	.91
CIQ37	3.43	.73	2.80	1.23	3.22	.97	3.15	.95	3.37	.69	2.85	1.07	3.12	.93	2.85	.87	2.75	.89	3.16	.90
CIQ38	3.09	1.12	3.90	.32	3.67	.50	3.52	.70	3.52	.89	3.46	.97	3.64	.86	3.55	.76	3.12	.83	3.20	.76
CIQ39	2.91	.85	2.70	1.16	3.44	.53	2.70	1.10	2.85	.82	2.31	1.03	2.88	.97	3.15	.93	3.25	.71	2.88	.78
CIQ40	3.26	.81	3.70	.48	3.67	.50	3.41	.69	3.37	.69	2.92	1.19	3.68	.48	3.15	.81	3.50	.53	3.16	.80
CIQ41	3.45	.93	3.50	.71	3.67	.71	3.15	.77	3.74	.53	3.46	.77	3.24	.88	3.60	.60	3.75	.46	3.12	.83
CIQ42	3.04	.88	3.20	1.03	3.22	.83	3.22	.85	3.41	.80	3.23	1.17	3.48	.77	3.45	.76	3.37	.74	3.28	.79
CIQ43	3.30	.82	3.50	.53	3.67	.50	3.33	.92	3.22	.75	2.61	1.26	3.56	.58	3.20	1.15	3.62	.52	3.16	.90
CIQ44	2.96	.93	3.30	.82	3.22	.67	3.22	.80	2.78	.85	2.46	1.20	3.32	.85	3.15	.74	3.12	1.25	3.08	.76
CIQ45	2.83	.94	2.80	1.03	3.33	.50	2.85	.86	2.89	.85	2.46	1.27	3.20	.71	3.15	.87	3.37	.74	3.12	.88
CIQ46	3.43	.79	3.60	.70	3.22	.97	3.04	.90	3.48	.51	3.15	1.07	3.44	.87	3.30	.86	3.37	.52	3.04	.61
CIQ47	2.35	1.03	2.70	1.25	3.11	1.05	3.22	.80	2.89	1.01	3.15	1.21	3.36	.64	3.15	.74	3.12	.99	2.96	.79
CIQ48	3.04	.98	2.90	.99	3.11	.78	2.85	.95	3.00	.88	2.46	1.13	2.72	1.06	2.30	1.03	3.37	1.06	3.00	.87
CIQ49	3.00	1.09	3.20	.79	3.11	1.05	2.96	1.02	3.04	.98	1.61	.87	3.12	.88	3.25	.72	3.12	.64	2.68	.90
CIQ50	3.17	.94	3.40	.70	3.44	.73	3.41	.64	3.41	.70	2.54	.88	2.13	.88	3.50	.76	3.12	1.13	2.80	.71
CIQ51	3.30	.82	3.40	.97	3.67	.50	3.48	.80	3.22	.80	3.08	.95	3.24	.78	3.25	.91	3.62	.74	3.12	.83
CIQ52	2.52	1.08	2.90	1.10	2.33	.71	2.93	1.03	2.89	1.15	2.31	1.25	2.92	1.11	3.00	1.21	3.37	.74	2.44	1.16
CIQ53	3.09	1.00	2.90	.88	3.22	.83	3.00	.92	2.96	1.02	3.46	.78	3.00	.91	3.20	.95	2.75	.71	3.04	.93
CIQ54	2.78	.95	2.90	1.10	3.56	.53	2.74	.90	2.96	.94	2.23	1.01	3.36	.81	3.25	.79	3.12	.99	2.92	.76

Appendix P (cont'd)

Group No.1	n=23	2	n=10	3	n=9	4	n=27	5	n=27	6	n=13	7	n=25	8	n=20	9	n=8	10	n=25	
Grade	4	4	4	5	5	5	6	6	6	6	4	4	5	5	6	6	6	6	6	
Variable	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.
CIQ55	3.04	1.06	3.00	1.05	2.44	1.33	3.37	1.04	3.22	.97	3.31	.95	2.60	1.04	2.85	1.04	3.00	.93	3.16	1.03
CIQ56	3.48	.66	3.60	.70	4.00	.00	3.74	.53	3.81	.40	3.08	1.04	3.88	.33	3.70	.47	3.62	.52	3.48	.65
CIQ57	3.35	.98	2.40	1.50	2.67	1.58	2.67	1.24	3.30	.82	3.23	1.09	3.08	1.19	3.00	1.26	3.00	.93	2.96	.98
CIQ58	3.17	.72	3.30	.82	2.89	.78	3.11	.51	3.04	.65	2.46	1.13	3.44	.65	3.55	.51	3.50	.53	3.04	.61
CIQ59	2.96	1.15	2.40	1.26	3.67	.50	3.41	1.01	3.67	.78	2.92	1.38	3.52	.71	3.50	.95	3.62	.52	3.36	.95
CIQ60	3.22	1.08	2.80	1.32	3.44	.73	3.26	.76	3.15	1.03	3.08	1.32	3.28	.94	3.35	.99	3.87	.35	3.68	.69
CIQ61*	2.74	.69	3.00	.00	3.00	.00	3.00	.00	2.93	.38	2.85	.55	2.92	.40	3.00	.00	3.00	.00	2.84	.55
CIQ62**	2.61	.70	2.33	1.00	2.37	.74	2.48	.85	2.45	1.01	3.00	.89	3.09	.67	3.31	.79	3.40	.55	2.43	.68
CIQ63***	2.70	.82	3.00	.94	2.56	.73	2.69	1.01	2.89	.85	2.85	.99	3.04	.98	3.45	.60	3.25	.71	2.52	.85
CONSIST	1.25	.70	1.41	.72	1.41	.53	1.35	.77	1.41	.76	1.32	.82	1.60	.71	1.43	.86	1.24	1.21	1.44	.97
CIQIV1	3.20	.82	3.10	.57	3.17	.66	3.15	.74	3.07	.91	3.23	.60	2.98	.80	3.30	.59	2.81	.65	3.12	.62
CIQIV2	2.98	.30	3.08	.39	3.27	.20	3.03	.37	3.01	.26	2.66	.56	3.19	.37	3.17	.30	3.21	.36	2.93	.37
CIQV3	3.00	.36	3.13	.23	3.18	.23	3.16	.42	3.10	.34	2.70	.50	3.20	.32	3.21	.30	3.27	.21	2.89	.39
CIQMEAN	3.06	.44	3.10	.33	3.21	.31	3.11	.43	3.06	.43	2.86	.47	3.12	.41	3.23	.33	3.10	.32	2.98	.36
CIQDV1	2.81	.49	2.73	.80	2.89	.47	2.75	.56	3.07	.42	2.74	.67	2.84	.64	2.82	.56	2.87	.50	2.92	.46
CIQDV2	2.93	.29	2.98	.33	2.94	.21	2.95	.38	3.16	.31	2.93	.56	3.09	.36	3.17	.32	3.29	.23	2.95	.35
CIQDV3	3.00	.74	3.13	.45	2.96	.45	2.97	.77	2.94	.69	2.56	.82	3.12	.46	2.83	.71	3.29	.28	3.09	.70
CIQDV4	1.82	.57	1.84	.40	2.04	.55	1.97	.60	2.06	.61	2.06	.50	1.86	.44	2.07	.37	2.45	.37	1.66	.50
CIQAVR	2.93	.29	3.10	.31	3.18	.22	3.08	.39	3.08	.31	2.84	.67	3.14	.37	3.25	.21	3.27	.25	2.90	.37
CIQMN23	2.99	.29	3.11	.29	3.23	.20	3.10	.37	3.06	.27	2.68	.51	3.19	.31	3.19	.27	3.24	.27	2.91	.37

* Scored as 1 or 3 only. All other items are on a 4 point scale.

** Eliminated from data analysis because of amount of missing data (n=156).

*** 3 Individuals are missing on this item (n=184).

APPENDIX Q
MEANS AND STANDARD DEVIATIONS OF TIQ VARIABLES

Appendix Q

Means and Standard Deviations of All TIQ Variables

Group Grade Variable	n=23		n=10		n=9		n=27		n=27		n=13		n=25		n=20		n=8		n=25	
	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.
TIQ1	3.22	.90	2.20	.79	2.33	.71	2.93	1.11	2.93	1.24	3.31	.63	2.76	1.23	3.40	.60	3.62	.52	3.12	.73
TIQ2	3.04	.88	2.60	.84	2.78	.67	3.15	1.06	3.07	1.11	2.85	1.14	3.20	1.00	3.15	.81	3.37	.52	3.16	.90
TIQ3	3.13	.87	2.60	.97	2.89	.78	2.96	1.22	3.04	1.19	2.85	.99	3.04	1.02	3.40	1.09	3.75	.46	3.00	1.00
TIQ4	3.09	.85	2.70	.48	2.67	.50	3.26	.94	2.96	1.05	2.77	.72	2.84	.80	3.50	.83	3.62	.52	3.04	.73
TIQ5	3.00	.67	2.70	.95	2.78	.67	3.00	1.11	3.15	.86	2.85	.99	3.16	.94	3.30	.80	3.50	.53	3.24	.72
TIQ6	3.09	.73	2.60	.97	2.89	.78	2.85	1.26	2.96	1.05	2.77	1.01	2.72	.94	3.20	1.10	3.50	.76	2.96	.93
TIQ7	3.09	.73	3.10	.57	3.11	.60	2.96	1.13	3.11	.89	2.92	.86	3.00	1.08	3.25	1.02	3.50	.53	3.12	.78
TIQ8	2.89	.87	2.60	.84	2.11	.60	2.96	1.02	3.00	1.07	2.38	.77	3.00	1.04	3.35	.81	3.50	.53	2.76	.97
TIQ9	3.00	.74	2.50	.53	2.67	.71	2.96	.94	2.70	.95	2.54	.97	2.96	1.10	3.25	.91	3.75	.46	2.88	.93
TIQ10	2.83	.83	2.70	.48	2.56	.73	3.00	.96	2.78	1.01	2.69	.95	2.72	1.17	2.90	1.07	3.00	.00	3.00	.91
TIQ11	3.09	.67	2.90	.57	3.11	.60	3.33	.96	3.37	.97	3.31	.75	3.20	.91	3.30	.98	3.75	.46	3.04	.89
TIQ12	2.96	.77	3.00	.94	3.11	.78	3.04	1.25	2.81	1.11	2.92	.76	2.92	1.15	3.20	1.10	3.50	.76	3.08	.95
TIQ13	3.09	.73	2.90	.57	2.89	.60	3.18	.92	2.96	1.13	3.08	1.04	2.84	1.07	3.30	.98	3.87	.35	3.04	.79
TIQ14	3.00	.74	3.00	.00	3.11	.60	3.15	.95	3.18	1.14	2.92	.86	3.08	.91	3.45	.94	3.87	.35	2.92	1.08
TIQ15	3.13	.55	3.00	.47	3.11	.60	3.37	.63	3.33	.92	3.31	.75	3.28	.98	3.20	1.15	3.37	.52	3.04	.93
TIQ16	3.13	.62	2.90	.32	2.89	.78	3.56	.58	3.11	.89	2.85	.90	3.32	.80	3.25	1.07	3.37	1.06	3.00	.87
TIQ17	3.09	.67	2.70	.48	2.78	.83	3.11	1.05	2.85	1.10	3.00	1.00	3.00	.82	3.20	1.15	2.87	.83	3.00	.87
TIQ18	2.83	.65	2.80	.42	2.44	.53	3.11	.85	2.67	1.00	2.92	.86	3.16	.80	2.70	1.03	3.00	.00	2.80	.82
TIQ19	3.30	.93	3.00	.00	3.00	.00	3.22	.85	3.00	.88	3.31	.75	3.24	1.01	2.65	.99	2.50	.53	2.92	.86
TIQ20	3.22	.67	2.90	.57	2.78	.67	3.44	.51	3.07	.73	3.31	.63	3.36	.70	3.35	.59	3.37	.52	3.04	.79
TIQ21	3.17	.78	2.70	.48	3.00	.50	3.30	.72	2.85	.99	3.08	.49	3.08	.86	3.25	.72	3.25	.46	2.92	.91
TIQ22	3.13	.46	2.50	.53	2.78	.44	3.18	.83	3.44	.64	3.00	.71	3.44	.58	3.35	.93	3.37	.52	2.84	.80
TIQ23	3.00	.52	2.70	.48	2.78	.67	3.37	.74	3.00	.88	3.23	.60	3.04	.73	3.10	1.02	2.62	.74	2.64	.86
TIQ24	3.30	.47	3.40	.52	3.56	.53	3.26	.71	3.56	.70	3.31	.75	3.32	.75	3.50	.83	3.50	.53	2.80	.64
TIQ25	2.83	.89	2.50	.71	2.44	1.13	2.15	.90	2.26	.65	3.61	.97	2.76	.97	2.85	.87	2.12	.99	2.52	1.16

Appendix Q (cont'd)

Group No.1 Grade	n=23	2 n=10		3 n=9		4 n=27		5 n=27		6 n=13		7 n=25		8 n=20		9 n=8		10 n=25		
		X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	
TIQ27	2.22	.85	2.90	.32	2.78	.67	3.04	.90	3.00	1.00	2.77	.83	2.76	1.23	2.65	.74	3.00	.76	2.64	.70
TIQ28	3.17	.65	2.90	.32	2.89	.78	3.30	.61	3.11	.94	2.85	.80	2.80	1.00	3.35	.67	3.62	.52	2.96	.79
TIQ29	2.83	.65	2.70	.48	2.89	.60	2.89	.85	2.89	.89	2.92	.76	2.96	.98	2.90	.79	3.00	.76	2.72	.84
TIQ30	2.91	.67	2.40	.52	2.78	.67	3.07	.67	2.96	.85	3.00	.41	3.04	.98	3.20	1.10	3.62	1.06	2.84	.85
TIQ31	2.74	.62	2.00	.00	2.00	.50	2.59	.97	2.52	1.09	2.85	.99	2.76	.97	3.15	1.04	3.12	.64	2.68	.90
TIQ32	2.87	.62	2.70	.48	2.78	.44	3.04	.90	2.70	.95	2.69	.85	2.80	.96	2.90	.79	3.00	.53	2.56	.87
TIQ33	2.61	1.27	3.50	.53	3.67	.50	3.52	.64	3.30	.95	2.92	.64	3.32	.90	3.15	.93	3.37	.74	2.80	.71
TIQMN23	3.07	.53	2.80	.32	2.85	.42	3.13	.72	3.01	.73	3.00	.69	3.07	.75	3.20	.71	3.31	.28	2.96	.73
TIQV1	3.22	.90	2.20	.79	2.33	.71	2.93	1.11	2.93	1.24	3.31	.63	2.76	1.23	3.40	.60	3.62	.52	3.12	.73
TIQV2	3.03	.90	2.77	.47	2.82	.41	3.08	.89	3.02	.86	2.83	.79	2.96	.87	3.28	.76	3.58	.28	3.01	.76
TIQV3	3.10	.44	2.83	.25	2.87	.44	3.19	.58	3.01	.62	3.17	.58	3.18	.65	3.13	.68	3.03	.30	2.86	.73
TIQV4*	1.96	.64	2.00	.67	2.22	.44	2.04	.76	2.07	.78	2.31	.75	2.20	.76	2.40	.75	2.75	.46	2.16	.69
TIQMEAN	3.12	.60	2.50	.45	2.68	.46	3.06	.82	2.98	.84	3.11	.64	2.97	.87	3.27	.59	3.41	.32	3.00	.68
TIQAVR	3.07	.55	2.77	.35	2.82	.42	3.12	.75	3.01	.75	3.00	.69	3.05	.77	3.22	.70	3.35	.28	2.95	.72
TIQDV1	2.22	.85	2.90	.32	2.78	.67	3.04	.90	3.00	1.00	2.77	.83	2.76	1.23	2.65	.74	3.00	.76	2.64	.70
TIQDV2	2.84	.50	2.45	.28	2.61	.43	2.90	.76	2.77	.87	2.86	.63	2.89	.84	3.04	.81	3.19	.62	2.70	.81
TIQDV3	2.61	1.27	3.50	.53	3.67	.50	3.52	.64	3.30	.95	2.92	.64	3.32	.90	3.15	.93	3.37	.74	2.80	.71

* (TIQ26) Scored on a 3 point scale. All other items scored on a 4 point scale.

APPENDIX R

MEANS AND STANDARD DEVIATIONS OF PIQ VARIABLES

Appendix R

Means and Standard Deviations for All PIQ Variables

Group No.1 Grade	n=23		n=10		n=9		n=27		n=27		n=13		n=25		n=20		n=8		n=25	
	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.
PIQ1	3.33	.82	2.87	.83	2.83	1.04	2.73	1.28	3.17	1.17	2.09	1.04	2.88	1.17	2.43	.79	2.85	.99		
PIQ2	2.73	.96	2.75	.71	2.72	1.18	2.73	1.22	3.33	1.21	2.45	.93	3.06	1.09	3.43	.98	3.08	1.11		
PIQ3	3.00	.76	2.87	1.13	2.94	1.00	2.73	1.16	3.50	.84	2.64	1.29	3.06	1.09	2.71	.76	2.77	1.01		
PIQ4	2.60	.74	2.25	.71	2.83	1.04	2.80	.68	3.00	1.09	3.27	.79	2.76	.97	3.00	.82	2.92	.95		
PIQ5	3.20	.68	3.12	.83	3.22	.94	3.40	.63	3.17	1.17	3.09	.70	3.47	.62	2.71	1.11	3.15	.90		
PIQ6	3.13	.83	3.37	.92	3.17	1.10	3.00	1.00	3.33	1.21	2.91	.83	3.00	1.00	3.29	1.11	3.00	.82		
PIQ7	3.40	.63	3.25	.71	3.78	.55	3.53	.64	3.67	.52	3.36	.67	3.76	.44	3.14	.69	3.31	.63		
PIQ8	3.67	.49	3.62	.52	3.67	.77	3.67	.49	3.67	.82	3.73	.47	3.82	.39	3.57	.79	3.61	.65		
PIQ9	2.87	.64	3.25	.71	3.44	.78	2.93	.80	3.00	1.26	3.27	.79	3.35	.70	2.86	1.07	2.92	.86		
PIQ10	3.80	.41	3.87	.35	3.61	.50	3.27	.80	3.50	.55	3.54	.93	3.65	.61	3.57	.53	3.46	.97		
PIQ11	3.33	.82	3.12	1.13	3.22	.73	3.40	.51	3.50	.55	3.27	.65	3.41	.71	3.00	.82	3.61	.87		
PIQ12	2.80	.68	2.00	.53	1.83	.79	2.07	.70	2.83	.98	2.27	1.01	2.47	.87	2.43	.79	2.15	.99		
PIQ13	3.73	.46	3.87	.35	3.44	.78	3.47	.64	3.33	.82	3.82	.40	3.76	.44	3.29	.76	3.38	.87		
PIQ15	2.20	.94	2.12	.83	2.50	1.04	2.60	.91	2.33	1.03	2.91	1.14	2.59	1.00	2.71	.76	2.85	.69		
PIQ16	3.27	.70	3.62	.74	3.50	.71	3.40	.83	3.33	.82	3.18	1.08	3.53	.62	3.29	.76	3.31	.85		
PIQ17	2.87	1.06	3.37	1.19	3.00	1.19	2.67	1.23	3.83	.41	2.64	1.21	3.53	.80	3.14	1.07	3.38	.77		
PIQ18	2.67	.82	2.87	.83	2.22	.81	2.67	.62	2.83	1.17	3.27	.65	2.65	1.17	2.43	.12	2.85	1.07		
PIQ19	3.33	.72	3.00	.76	3.17	.86	2.93	.80	2.67	1.37	2.64	1.03	3.12	.93	2.43	.79	3.31	.75		
PIQIV2	3.04	.47	2.98	.47	3.03	.70	2.97	.63	3.26	1.01	2.80	.48	3.11	.73	2.98	.46	3.01	.72		
PIQIV3	3.31	.28	3.30	.38	3.25	.38	3.12	.38	3.42	.49	3.24	.29	3.47	.39	3.12	.47	3.23	.62		
PIQIV4*	2.67	.46	2.00	.00	2.33	.48	2.47	.52	2.33	.82	2.36	.50	2.59	.62	2.00	.58	2.38	.65		
PIQMEAN	3.17	.32	3.14	.29	3.14	.50	3.05	.45	3.34	.74	3.02	.30	3.29	.50	3.05	.45	3.12	.64		
PIQAVER	3.18	.32	3.12	.28	3.12	.53	3.03	.45	3.34	.73	3.03	.33	3.29	.50	3.04	.45	3.11	.65		
PIQDV1	2.20	.94	2.12	.83	2.50	1.04	2.60	.91	2.33	1.03	2.91	1.14	2.59	1.00	2.71	.76	2.85	.69		
PIQDV2	2.67	.82	2.87	.83	2.22	.81	2.67	.62	2.83	1.17	3.27	.65	2.65	1.17	2.43	1.27	2.85	1.07		
PIQDV3	3.33	.72	3.00	.76	3.17	.86	2.93	.80	2.67	1.37	2.64	1.03	3.12	.93	2.43	.79	3.31	.75		

* (PIQ14) Scored on a 3 point scale. All other items scored on a 4 point scale. N=116.

APPENDIX S
MEANS AND STANDARD DEVIATIONS OF FILM, RAVEN AND SOCIAL
DESIRABILITY VARIABLES

APPENDIX T

CORRELATION COEFFICIENTS FOR THE THREE GRADE LEVELS

Appendix T

Correlation Coefficients Among Important Variables for Grades 4, 5, 6 and Total (N=187)

Variable Name	CIQIV1			CIQIV2			CIQIV3			CIQMEAN			
	4	5	6	4	5	6	4	5	6	4	5	6	Total
Grade Level													
CIQV1	.51	.55	.33	.58	.72	.79	.71	.78	.81	.79	.90	.87	.86
CIQV2	.56	.42	.42	.76	.83	.76	.78	.86	.92	.91	.07	.13	.13
CIQV3	.92	.88	.84	.90	.93	.95	.93	.08	.41	.24	.31	.52	.44
CIQMEAN	.66	.59	.46	.15	.30	.25	.23	.33	.53	.55	.54	.57	.48
CIQAVR	.01	-.01	-.04	.30	.56	.50	.46	.44	.50	.50	.34	.39	.30
CIQDV1	.21	.23	.32	.45	.23	.54	.42	.34	.30	.22	.41	.35	.45
CIQDV2	.46	.19	.40	.38	.39	.22	.31	.49	.39	.36	.41	.42	.50
CIQDV3	.23	.31	.11	.29	.29	.25	.27	.45	.39	.48	.50	.57	.50
CIQDV4	.32	.24	.59	.48	.38	.40	.42	.36	.43	.49	.39	.49	.49
TIQV1	.39	.32	.48	.35	.42	.47	.42	.44	.44	.45	.46	.57	.49
TIQV2	.31	.40	.45	.40	.34	.41	.39	.49	.44	.47	.47	.61	.52
TIQV3	.36	.33	.49	.39	.39	.39	.39	.44	.44	.49	.48	.59	.52
TIQV4	.37	.34	.56	.44	.40	.43	.43	.44	.42	.49	.48	.59	.52
TIQMEAN	.37	.36	.49	.44	.40	.43	.43	.44	.42	.49	.48	.59	.52
TIQAVR	.37	.36	.49	.44	.40	.43	.43	.44	.42	.49	.48	.59	.52
TIQDV1	-.27	.32	.55	-.02	.18	.29	.16	-.10	.28	.36	-.20	.53	.22
TIQDV2	.32	.36	.50	.30	.31	.38	.34	.28	.41	.44	.36	.43	.46
TIQDV3	.15	.11	.46	.27	.27	.33	.29	.23	.25	.40	.23	.22	.33
ATTOTLP	.29	.18	.50	.36	.11	.06	.18	.43	.17	.10	.40	.19	.32
ATTOTLG	.31	.16	.47	.30	.002	.07	.14	.34	.12	.13	.37	.13	.30
RAVENRAW	.07	.04	.26	.20	-.13	.14	.09	.20	.02	.21	.16	-.01	.14
RAVENPER	.06	.03	.23	.20	-.07	.11	.10	.22	.05	.17	.16	.01	.14
CSDSRW	.24	.21	.11	.43	.51	.57	.49	.21	.45	.43	.33	.41	.37
SCORE1	.04	.25	.25	.22	.30	.15	.21	.18	.20	.24	.13	.30	.22
FILMTTL	.09	.25	.18	.24	.23	.09	.18	.25	.26	.17	.19	.29	.22
LEVEL	.05	.28	.23	.15	.24	.10	.15	.07	.25	.22	.09	.32	.21
CIQMN23	.60	.52	.40	.90	.92	.95	.92	.88	.93	.95	.86	.86	.84
TIQMN23	.37	.36	.48	.44	.40	.44	.43	.43	.42	.49	.47	.46	.51
GRDAVER	.26	.15	.37	.32	.21	.12	.20	.33	.26	.18	.34	.23	.30

Appendix T (cont'd)

Correlation Coefficients Among Important Variables for Grades 4, 5, 6 and Total (N=187)

Variable Name	CIQAVR			Total	CIQDV1			Total	CIQDV2			Total	CIQDV3			Total
	4	5	6		4	5	6		4	5	6		4	5	6	
CIQV1																
CIQV2																
CIQV3																
CIQMEAN																
CIQAVR																
CIQDV1	.13	.36	.24	.24	.13	.14	.11	.12	.19	.10	.32	.22	.21	-.11	.07	.05
CIQDV2	.35	.58	.56	.51	.20	.22	.11	.17	.07	.25	.26	.20	.20	.06	.26	.18
CIQDV3	.52	.39	.57	.50	-.004	-.15	-.08	-.08	.25	.30	.33	.29	.34	.07	.39	.27
CIQDV4	.40	.38	.23	.32	-.08	.01	-.04	-.04	.34	.33	.40	.36	.24	.08	.44	.28
TIQV1	.43	.37	.35	.38	-.20	-.11	-.07	-.13	.39	.32	.38	.36	.24	.08	.44	.28
TIQV2	.53	.43	.49	.48	-.08	-.10	-.01	-.06	.29	.23	.31	.28	.24	.08	.32	.22
TIQV3	.41	.47	.53	.48	-.10	-.003	-.07	-.06	.33	.34	.40	.36	.28	.08	.38	.26
TIQV4	.48	.43	.48	.46	-.13	-.06	-.05	-.08	.37	.33	.40	.37	.31	.08	.41	.28
TIQMEAN	.49	.46	.49	.48	-.16	-.10	-.05	-.10	.25	.15	.29	.24	-.31	.16	.36	.09
TIQAVR	.50	.45	.51	.49	-.06	-.10	-.04	-.06	.36	.20	.39	.33	.18	.18	.43	.29
TIQDV1	-.08	.26	.37	.19	.01	-.09	-.02	-.03	.36	.12	.24	.14	.13	.23	.32	.23
TIQDV2	.34	.40	.46	.41	-.16	-.06	.0005	-.08	.05	.12	.24	.14	.20	-.04	.20	.12
TIQDV3	.28	.28	.41	.33	-.10	-.14	-.12	-.03	.30	.07	.20	.20	.20	-.05	.17	.09
ATTOTLP	.44	.16	.12	.24	.10	-.15	-.09	-.04	.34	.01	.21	.20	.15	-.05	.17	.09
ATTOTLG	.37	.08	.15	.20	.06	-.18	-.12	-.11	.22	-.03	.11	.11	.06	.02	.30	.11
RAVENRAW	.22	-.05	.20	.13	-.20	-.17	.09	-.11	.19	-.02	.08	.09	.11	-.03	.28	.12
RAVENPER	.22	-.01	.16	.14	-.21	-.17	.09	-.11	.19	-.02	.08	.09	.11	-.03	.28	.12
CSDSRW	.37	.51	.52	.46	-.02	.25	.33	.18	-.06	.24	.24	.13	.20	.32	.25	.25
SCORE1	.21	.28	.22	.23	.26	-.02	.10	.14	.11	.13	.23	.16	.13	-.08	.18	.09
FILMITL	.27	.27	.15	.72	.22	-.11	.20	.14	.15	.12	.08	.12	.07	-.07	.09	.03
LEVEL	.12	.28	.18	.19	.28	-.28	.16	.08	.07	.09	.18	.12	.06	.12	.09	.02
CIQMN23	.996	.996	.997	.996	.13	.39	.26	.25	.35	.59	.56	.51	.50	.40	.55	.49
TIQMN23	.49	.45	.52	.49	-.16	-.10	-.04	-.10	.37	.33	.40	.37	.31	.08	.42	.28
GRDAVER	.37	.25	.18	.25	.19	.02	-.08	.03	.35	.10	.29	.25	.19	-.02	.20	.13

Appendix T (cont'd)

Correlation Coefficients Among Important Variables for Grades 4, 5, 6 and Total (N=187)

Variable Name	CIQDV4			TIQIV1			TIQIV2			TIQIV3		
	4	5	Total	4	5	Total	4	5	Total	4	5	Total
CIQV1												
CIQV2												
CIQV3												
CIQMEAN												
CIQAVR												
CIQDV1												
CIQDV2												
CIQDV3												
CIQDV4												
TIQIV1	.30	.35	.24	.75	.72	.73	.87	.92	.92	.87	.87	.90
TIQIV2	.35	.46	.38	.75	.62	.67	.87	.81	.85	.91	.90	.89
TIQIV3	.19	.40	.29	.80	.62	.64	.93	.95	.95	.94	.97	.94
TIQIV4	.32	.29	.29	.93	.88	.90	.98	.99	.99	.94	.97	.96
TIQMEAN	.31	.44	.35	.80	.72	.75	.98	.99	.99	.94	.97	.96
TIQAVR	.30	.45	.36	.80	.72	.75	.98	.99	.99	.94	.97	.96
TIQDV1	-.21	.51	.14	-.20	.48	.28	-.06	.66	.64	-.05	.59	.40
TIQDV2	.17	.26	.25	.24	.71	.71	.76	.84	.87	.96	.87	.87
TIQDV3	.26	.33	.27	.44	.33	.48	.60	.74	.71	.52	.68	.64
ATTOTLP	.56	.36	.40	.74	.72	.71	.74	.67	.52	.67	.59	.56
ATTOTLG	.46	.29	.34	.70	.70	.66	.71	.60	.50	.67	.54	.54
RAVENRAW	.23	.13	.18	.54	.44	.41	.58	.29	.34	.57	.22	.38
RAVENPER	.24	.12	.10	.49	.35	.42	.55	.34	.32	.52	.29	.34
CSDSRAW	.23	.17	.15	-.18	.08	-.06	.01	.15	-.08	-.16	.08	-.02
SCORE1	.12	.39	.21	.36	.41	.36	.21	.43	.31	.36	.37	.31
FILMTIL	.05	.37	.20	.39	.38	.32	.22	.37	.24	.38	.32	.29
LEVEL	.11	.45	.26	.23	.45	.32	.10	.42	.26	.27	.35	.26
CIQMN23	.40	.37	.32	.44	.37	.37	.52	.42	.47	.40	.45	.46
TIQMN23	.29	.46	.35	.77	.69	.72	.98	.99	.98	.95	.97	.97
GRDAVER	.40	.35	.40	.66	.68	.61	.70	.70	.55	.62	.61	.64

Appendix T (cont'd)

Correlation Coefficients Among Important Variables for Grades 4, 5, 6 and Total (N=187)

Variable Name	TIQIV4			TIQMEAN			TIQAVER			TIQDV1			
	4	5	6	4	5	6	4	5	6	4	5	6	
Grade Level	4	5	6	4	5	6	4	5	6	4	5	6	Total
CIQV1													
CIQV2													
CIQV3													
CIQMEAN													
CIQAVER													
CIQDV1													
CIQDV2													
CIQDV3													
CIQDV4													
TIQV1													
TIQV2													
TIQV3													
TIQV4													
TIQMEAN	.91	.83	.77	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96
TIQAVER	.91	.85	.84	-.13	.63	.69	.83	.88	.89	.87	.87	.87	.87
TIQDV1	-.17	.41	.60	.84	.87	.88	.59	.72	.74	.67	.67	.67	.67
TIQDV2	.78	.85	.77	.55	.62	.75	.75	.66	.52	.63	.63	.63	.63
TIQDV3	.56	.53	.56	.78	.73	.61	.73	.60	.52	.60	.60	.60	.60
ATTOTLP	.70	.60	.38	.75	.68	.59	.60	.28	.38	.42	.42	.42	.42
ATTOTLG	.66	.56	.39	.60	.37	.41	.56	.33	.24	.41	.41	.41	.41
RAVENPER	.49	.27	.30	.56	.36	.39	.60	.28	.38	.42	.42	.42	.42
RAVENRAW	.44	.33	.27	.56	.36	.39	.56	.33	.24	.41	.41	.41	.41
CSDSRAW	.02	.07	.01	-.12	.11	-.03	-.06	.13	-.04	.005	.005	.005	.005
SCORE1	.41	.28	.16	.34	.44	.34	.28	.42	.30	.32	.32	.32	.32
FILMITL	.42	.24	.12	.36	.40	.24	.30	.36	.23	.29	.29	.29	.29
LEVEL	.30	.30	.17	.21	.45	.29	.17	.41	.25	.27	.27	.27	.27
CIQMN23	.47	.42	.46	.49	.45	.46	.50	.44	.49	.48	.48	.48	.48
TIQMN23	.90	.85	.84	.95	.95	.95	.999	.999	.999	.998	.998	.998	.998
GRDAVER	.68	.63	.49	.72	.74	.58	.70	.69	.55	.63	.63	.63	.63
Total	.83	.86	.86	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96
Total	-.30	.80	.80	-.13	.63	.69	.83	.88	.89	.87	.87	.87	.87
Total	.55	.55	.55	.55	.62	.75	.55	.62	.74	.67	.67	.67	.67
Total	.56	.56	.56	.78	.73	.61	.75	.66	.52	.63	.63	.63	.63
Total	.53	.53	.53	.75	.68	.59	.73	.60	.52	.60	.60	.60	.60
Total	.36	.36	.36	.60	.37	.41	.60	.28	.38	.42	.42	.42	.42
Total	.34	.34	.34	.56	.36	.39	.56	.33	.24	.41	.41	.41	.41
Total	.03	.03	.03	-.12	.11	-.03	-.06	.13	-.04	.005	.005	.005	.005
Total	.28	.28	.28	.34	.44	.34	.28	.42	.30	.32	.32	.32	.32
Total	.26	.26	.26	.36	.40	.24	.30	.36	.23	.29	.29	.29	.29
Total	.25	.25	.25	.21	.45	.29	.17	.41	.25	.27	.27	.27	.27
Total	.45	.45	.45	.49	.45	.46	.50	.44	.49	.48	.48	.48	.48
Total	.86	.86	.86	.95	.95	.95	.999	.999	.999	.998	.998	.998	.998
Total	.58	.58	.58	.72	.74	.58	.70	.69	.55	.63	.63	.63	.63
Total	.40	.40	.40	.62	.68	.52	.62	.55	.40	.40	.40	.40	.40
Total	.30	.30	.30	.53	.61	.47	.53	.49	.30	.30	.30	.30	.30
Total	.19	.19	.19	.42	.52	.32	.42	.32	.20	.20	.20	.20	.20
Total	-.02	-.02	-.02	-.11	.05	.02	-.11	.05	.02	.02	.02	.02	.02
Total	.02	.02	.02	-.27	.20	.24	-.27	.20	.16	.14	.14	.14	.14
Total	.04	.04	.04	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29
Total	.19	.19	.19	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48
Total	.42	.42	.42	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65
Total	.28	.28	.28	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05	-.05

Appendix T (cont'd)

Correlation Coefficients Among Important Variables for Grades 4, 5, 6 and Total (N=187)

Variable Name Grade Level	RAVENRAW			RAVENPER			CSDSRRAW			SCORE1		
	4	5	6 Total	4	5	6 Total	4	5	6 Total	4	5	6 Total
CIQIV1												
CIQIV2												
CIQIV3												
CIQMEAN												
CIQAVER												
CIQDV1												
CIQDV2												
CIQDV3												
CIQDV4												
TIQIV1												
TIQIV2												
TIQIV3												
TIQIV4												
TIQMEAN												
TIQAVER												
TIQDV1												
TIQDV2												
TIQDV3												
ATTOTLP												
ATTOTLG												
RAVENRAW	.97	.91	.95									
RAVENPER	-.10	-.04	-.01	-.07	-.03	-.11	-.07					
CSDSRRAW	.33	.21	.29	.26	.20	.29	.25	-.12	-.02	.03	-.05	
SCORE1	.34	.26	.31	.27	.25	.27	.26	-.09	.01	.05	-.02	.88
FILMITL	.22	.36	.33	.18	.33	.32	.26	.01	.001	-.05	-.01	.77
LEVEL	.22	-.05	.13	.23	-.01	.15	.14	.36	.52	.53	.46	.21
CIQMN23	.60	.27	.41	.56	.33	.34	.40	-.06	.12	-.03	.01	.29
TIQMN23	.54	.43	.40	.48	.41	.24	.35	-.05	-.02	-.12	-.06	.48
GRDAVER												.38

Appendix T (cont'd)

Correlation Coefficients Among Important Variables for Grades 4, 5, 6 and Total (N=187)

Variable Name	FILMTTL			LEVEL			CIQMN23			TIQMN23		
	4	5	6	Total	4	5	6	Total	4	5	6	Total
CIQIV1												
CIQIV2												
CIQIV3												
CIQMEAN												
CIQAVR												
CIQDV1												
CIQDV2												
CIQDV3												
CIQDV4												
TIQIV1												
TIQIV2												
TIQIV3												
TIQIV4												
TIQMEAN												
TIQAVR												
TIQDV1												
TIQDV2												
TIQDV3												
ATTOTLP												
ATTOTLG												
RAVENRAW												
RAVENPER												
CSDSRW												
SCORE1												
FILMTL												
LEVEL												
CIQMN23	.83	.84	.86	.84	.12	.27	.17	.18	.49	.44	.49	.48
TIQMN23	.28	.27	.14	.21	.18	.40	.24	.26	.36	.26	.16	.24
GRDAVER	.29	.35	.23	.28	.36	.52	.35	.40	.69	.68	.53	.62

APPENDIX U
UNROTATED FACTOR LOADINGS AND ITEM CONTENT

APPENDIX U

Unrotated Factor Loadings for Factor 1 in Descending Order

<u>Item No.</u>	<u>Item Content</u>	<u>Loading*</u>
CIQ30	Some kids stick with things until they are completely finished but other kids give up on things half-way through.	.63 (.63)
CIQ39	Some kids take extra care with their school work but other kids do things to get them done as quickly as possible.	.62 (.62)
CIQ32	Some kids are interested and curious about learning new things but other kids are not very interested or curious about learning new things.	.62 (.62)
CIQ29	Some kids spend alot of time in the classroom fiddling with things on their desks or talking to their friends but other kids almost always pay attention to the teacher or sit quietly at their desks doing their work.	.59 (.59)
CIQ54	Some kids don't always listen in class and have to ask the teacher or other kids what to do but other kids listen carefully and always follow instructions.	.58 (.57)
CIQ19	Some kids try really hard at everything they do but other kids try really hard only at things that are marked.	.57 (.57)
CIQ45	Some kids often hand things in late but other kids always hand things in on time.	.57 (.56)
CIQ44	Some kids seem to get alot done during study time but other kids seem to get very little done compared to the amount of time they spend studying.	.56 (.57)
CIQ8	Some kids are really proud of themselves because of their skills and accomplishments but other kids don't feel that they have done alot to be proud of.	.56 (.56)
CIQ14	Some kids can concentrate for a long time when they are really interested in what they are doing but other kids can concentrate for only short periods of time no matter what they are doing.	.56 (.56)

*Bracketed values are the unrotated factor loadings for 54 items.

APPENDIX U CON'T

<u>Item No.</u>	<u>Item Content</u>	<u>Loadings</u>
CIQ24	Some kids only work hard at subjects they really like but other kids work really hard even when they don't like a subject.	.54 (.55)
CIQ17	Some kids don't like school but other kids like school.	.54 (.54)
CIQ18	Some kids are pretty sure of themselves but other kids are not very sure of themselves.	.54 (.54)
CIQ12	Some kids feel that what they learn at school will be helpful when they grow up but other kids feel that what they learn at school is unnecessary.	.54 (.55)
CIQ3	Some kids start all kinds of projects and then leave them in the middle but other kids finish everything they start to do.	.51 (.51)
CIQ13	Some kids feel that they make a real contribution to group projects or to class but toher kids don't feel that they have much to contribute to group projects or to the class.	.50 (.50)
CIQ43	Some kids don't enjoy making or building things, or cutting and pasting for a school report but other kids really enjoy making or building things or cutting and pasting for a school report.	.50 (.51)
CIQ22	Some kids don't enjoy themselves when they are working hard at something but other kids really enjoy themselves when they are working hard at something.	.49 (.49)
CIQ25	Some kids really like most of their teachers but other kids don't really like most of their teachers.	.48 (.48)
CIQ28	Some kids feel that there are alot of things that they do well but other kids are jealous of their friends who can do much more than they can.	.48 (.49)
CIQ9	Some kids really know the skills and facts that they should know at their grade level but other kids don't know the skills and facts that they should know at their grade level.	.48 (.47)
CIQ7	Some kids do things just to get them over with and finished but other kids get really interested in what they learn and follow up on their own time.	.47 (.48)

APPENDIX U CON'T

<u>Item No.</u>	<u>Item Content</u>	<u>Loadings</u>
CIQ4	Some kids will stop working on something when they feel they are not getting any closer to an answer but other kids will spend alot of time on something even when they feel they are not getting any closer to an answer.	-.47 (-.47)
CIQ15	Some kids spend alot of time practicing (a musical instrument, a sport, multiplication tables) but other kids don't spend alot of time practicing anything.	.44 (.45)
CIQ46	Some kids feel that if you try to do something and you fail or can't do it you should leave it and do something else but other kids feel that if you try to do something and you fail or can't do it you should keep trying.	.44 (.44)
CIQ53	Some kids at my grade level really know the basics of spelling, arithmetic, reading and science but other kids don't really know the basics of spelling, arithmetic, reading and science.	.44 (.43)
CIQ16	Some kids don't bother doing really boring school assignments but other kids keep working on a school assignment, even when it is really boring.	.42 (.41)
CIQ2	Some kids don't get very involved in projects, hobbies or schoolwork but other kids get very involved in projects, hobbies, and schoolwork and lose track of time.	.42 (.42)
CIQ31	Some kids feel that their friends are better than they are in most subjects or activities but other kids feel that they are just as good as their friends are in most subjects or activities.	.41 (.41)
CIQ6	Some kids wake up in the morning and wish it was the weekend but other kids wake up in the morning and can't wait to get to school.	.41 (.41)
CIQ48	Some kids set goals for themselves and work to achieve them but other kids do things without goals in mind.	.40 (.41)
CIQ35	Some kids are very happy the way they are but other kids wish they were different.	.39 (.40)
CIQ49	Some kids like to spend their time hanging around but other kids like to be busy with something all the time.	.38 (.38)

APPENDIX U CON'T

<u>Item No.</u>	<u>Item Content</u>	<u>Loadings</u>
CIQ11	Some kids prefer to do things just for fun but other kids prefer to do things that show results like making or building things, practicing or working at a hobby.	.38 (.39)
CIQ40	Some kids don't really care about how things are made or how they work but other kids are really interested in how things are made or how they work.	.37 (.37)
CIQ50	Some kids try to do things in the way described by the teacher or textbook but other kids do things in their own way, no matter what the teacher or textbook say.	.37 (.37)
CIQ1	Some kids aren't very happy about the way they do alot of things but other kids think the way they do things is fine.	.36 (.36)
CIQ5	Some kids have messy notebooks but other kids have notebooks that are neat.	.34 (.34)
CIQ34	Some kids are not sure if there is one thing that they can do really well but other kids know that there is at least one thing that they can do really well.	.33 (.33)
CIQ41	Some kids feel that they should be as good as their friends in everything they do but other kids feel that everyone has different abilities, doing some things as well or better than others and some things less well than others.	.33 (.33)
CIQDV4	Work Sample (Responses to open-ended items scored for content and completeness).	.33
CIQ63	Item asking pupils to choose between descriptions of two types of children who differ in their approach to completing a task (task-oriented versus ego-oriented).	.33
CIQ42	Some kids believe that if something is good enough for the teacher then it is good enough for them but other kids believe that you should not hand things in until you are personally satisfied with them.	.30 (.31)
CIQ51	Some kids get along with others in games or sports but other kids don't get along with other kids in games or sports.	.30 (.31)

APPENDIX U CON'T

<u>Item No.</u>	<u>Item Content</u>	<u>Loadings</u>
CIQ27	Some kids work well with others on school projects but other kids don't work well with others on school projects.	.29 (.29)
CIQ10	Some kids feel that it's only when they get good grades that their work is worthwhile but other kids feel that it doesn't matter how well you do or what grad you get as long as you learn something.	.27 (.27)
CIQ38	Some kids have many hobbies or things they do in their free time but other kids don't have any hobbies or things they do in their free time.	.24 (.24)
CIQ37	Some kids would rather spend their time making or building things but other kids would rather spend their time playing make-believe games.	.24 (.25)
CIQ36	Some kids think it is important to hand things in early to impress the teacher but other kids think it is more important to make sure the assignment is complete, even if it is not early.	.21 (.20)
CIQ59	Toby studied very hard and got 10/35 on a science test. Toby's best friend got a perfect score on the same test and offered to help Toby study for the next test. The teacher also told Toby to come for special help after school. How does Toby feel? 1) That the best friend and the teacher should mind their own business. 2) That science was never Toby's best subject so the bad score doesn't really matter. 3) That Toby will just have to try harder next time. 4) Toby is looking forward to getting their advice and to find out how to improve in science.	.21
CIQ57	Pat was given a math assignment in school. It was a hard assignment. Pat tried to do it like the teacher said but wasn't getting the right answers. What should Pat do? 1) Keep working at it using the same method. 2) Leave it and work on something else. 3) Call up a friend and ask what to do. 4) Try another method.	.16
CIQ56	Terry had finished the book report which was due the following day and was getting ready to go to a baseball game with some friends. Then Terry was looking over the report and found some spelling mistakes. The doorbell rang and Terry's friends were waiting. What should Terry do? 1) Go to the game and forget about the book report. 2) Go to the game and do the corrections after the game. 3) Stay home and do the corrections and go to the game later. 4) Tell the teacher about the mistakes the next day when handing in the report.	.15

APPENDIX U CON'T

<u>Item No.</u>	<u>Item Content</u>	<u>Loadings</u>
CIQ52	Some kids feel most proud of themselves when they are complimented on their appearance (how they look) or on how they behave but other kids feel most proud of themselves when they are complimented on how they have done or made something.	.14 (.13)
CIQ20	Some kids enjoy the same exact games that they used to like when they were younger but other kids think that the games they used to like when they were younger are silly or boring.	-.14 (-.14)
CIQ33	Some kids pretend to be firemen, teachers or some other job for fun but other kids pretend to be firemen, teachers or some other job because that's what they want to be when they grow up.	.14 (.14)
CIQ55	Whose opinion is most important to you about how well you have done your schoolwork? Whose opinion matters most? (Rank in order of importance). A) My own opinion. B) The opinion of my friends. C) My parent's opinion. D) My teacher's opinion.	-.10
CIQ61	What is more important? (See Item CIQ60) 1. That Sandy received a bad mark. 2. That Sandy learned something from writing the report.	-.10
CIQ23	Some kids feel that they are average in all the things they do but other kids can do at least one kind of thing really well.	-.09 (-.09)
CIQ58	The class was told to pick a partner to work with on an assignment. Chris is an average student. Who should Chris pick for a partner? 1) Pupil A who is much smarter than Chris. 2) Pupil B because Chris is smarter than Pupil B. 3) Pupil C because both Pupil C and Chris are average students or 4) Anyone at all because Chris always works very hard on school assignments.	.04
CIQ26	Some kids feel that if an assignment is done neatly it should get a good grade even if it's not written very well but other kids feel that if any assignment is written very well it should get a good grade even if it's not very neat.	-.02 (-.03)
CIQ21	Some kids feel that you can almost always learn from making mistakes but other kids feel that you should avoid making mistakes.	.02 (.01)
CIQ47	Some kids can do things they never thought they'd be able to do when they really apply themselves but other kids know ahead of time whether or not they will be able to do something.	.00 (.00)
CIQ60	Sandy worked really hard on a report on South America. Sandy went to the library and read books on South America and cut out pictures of people from magazines. Sandy also drew maps and spent a lot of time preparing the report. Sandy received a very bad mark on the report. How does Sandy feel? 1) Sandy wants to find out why the report received a bad grade in order to do better. 2) Sandy feels that the mark doesn't matter because of how much was learned from writing the report. 3) Sandy feels that it was a waste of time to work so hard on the report. 4. Sandy hopes that friends don't find out about the bad grade.	.00

APPENDIX V
UNROTATED AND ROTATED FACTOR LOADINGS FOR TWO FACTOR
SOLUTION

APPENDIX V

Rotated and Unrotated Factor Loadings for Two-Factor Solution

ITEM	Unrotated Loadings*		Rotated Loadings*(VARIMAX)		Rotated Loadings*(DQUART)	
	FACTOR 1	FACTOR 2	FACTOR 1	FACTOR 2	FACTOR 1	FACTOR 2
CIQ1	.36	.19	.17	.37	.17	.33
CIQ2	.42	-.09	.39	.18	.39	.10
CIQ3	.51	.05	.38	.35	.39	.27
CIQ4	-.47	.00	-.38	-.29	-.38	-.21
CIQ5	.34	-.02	.29	.19	.29	.13
CIQ6	.41	-.02	.44	.09	.45	.00
CIQ7	.47	-.23	.51	.11	.52	.00
CIQ8	.56	.17	.34	.48	.35	.41
CIQ9	.48	.39	.14	.60	.14	.57
CIQ10	.27	-.20	.34	.00	.34	-.07
CIQ11	.38	-.38	.54	-.07	.55	-.18
CIQ12	.54	-.23	.57	.14	.58	.03
CIQ13	.50	.26	.24	.51	.24	.46
CIQ14	.56	.15	.36	.46	.36	.39
CIQ15	.45	-.14	.44	.16	.45	.08
CIQ16	.42	-.23	.47	.07	.48	-.02
CIQ17	.54	-.21	.56	.16	.57	.05
CIQ18	.54	.25	.28	.52	.28	.47
CIQ19	.57	-.10	.51	.27	.52	.16
CIQ20	-.14	.35	-.33	.19	-.33	.26

*Rounded to two decimal places.

APPENDIX V CONTINUED

<u>ITEM</u>	<u>Unrotated Loadings*</u>		<u>Rotated Loadings*(VARIMAX)</u>		<u>Rotated Loadings*(DQUART)</u>	
	<u>FACTOR 1</u>	<u>FACTOR 2</u>	<u>FACTOR 1</u>	<u>FACTOR 2</u>	<u>FACTOR 1</u>	<u>FACTOR 2</u>
CIQ21	.02	.16	.11	-.12	.11	-.14
CIQ22	.49	.02	.38	.31	.38	.23
CIQ23	-.09	-.22	.06	-.22	.07	-.24
CIQ24	.54	-.06	.47	.28	.48	.19
CIQ25	.48	-.08	.43	.23	.44	.14
CIQ26	-.02	.20	-.14	.14	-.14	.17
CIQ27	.29	.31	.04	.42	.04	.41
CIQ28	.48	.27	.22	.51	.22	.46
CIQ29	.59	-.15	.56	.23	.57	.12
CIQ30	.63	-.15	.59	.26	.60	.14
CIQ31	.41	.44	.06	.60	.06	.59
CIQ32	.62	-.24	.63	.19	.65	.06
CIQ33	.14	-.21	.24	-.08	.24	-.13
CIQ34	.33	.45	-.01	.56	-.01	.56
CIQ35	.39	.15	.22	.36	.22	.32
CIQ36	.21	.17	.06	.26	.06	.25
CIQ37	.24	-.27	.35	-.07	.36	-.14
CIQ38	.24	-.03	.21	.12	.21	.08
CIQ39	.62	-.11	.56	.23	.57	.18
CIQ40	.37	-.25	.44	.03	.45	-.06
CIQ41	.33	.00	.26	.20	.27	.15

*Rounded to two decimal points.

APPENDIX V CONTINUED

ITEM	Unrotated Loadings*		Rotated Loadings* (VARIMAX)		Rotated Loadings*(DQUART)	
	FACTOR 1	FACTOR 2	FACTOR 1	FACTOR 2	FACTOR 1	FACTOR 2
CIQ42	.30	-.04	.27	.15	.27	.10
CIQ43	.50	-.35	.61	.03	.62	-.09
CIQ44	.56	.10	.39	.42	.39	.35
CIQ45	.57	.29	.28	.57	.28	.52
CIQ46	.44	-.19	.47	.11	.48	.02
CIQ47	.00	-.09	.06	-.07	.06	-.08
CIQ48	.40	-.12	.39	.15	.40	.07
CIQ49	.38	-.37	.53	-.06	.54	-.17
CIQ50	.37	-.08	.34	.16	.35	.09
CIQ51	.30	.26	.08	.39	.08	.38
CIQ52	.14	.08	.07	.15	.07	.14
CIQ53	.44	.23	.21	.45	.21	.40
CIQ54	.58	.22	.33	.53	.33	.47
CIQ55	-.10	.41	-.33	.26	-.33	.33
CIQ56	.15	.20	-.002	.25	-.003	.25
CIQ57	.16	.25	-.02	.29	-.03	.30
CIQ58	.04	.02	.02	.04	.02	.04
CIQ59	.21	.06	.13	.18	.13	.15
CIQ60	.00	.06	-.04	.05	-.04	.06
CIQ61	-.10	-.13	-.001	-.16	-.001	-.16
CIQ63	.33	.32	.07	.45	.07	.44
CIQDV4	.33	.02	.25	.21	.25	.16

*Rounded to two decimal places.

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