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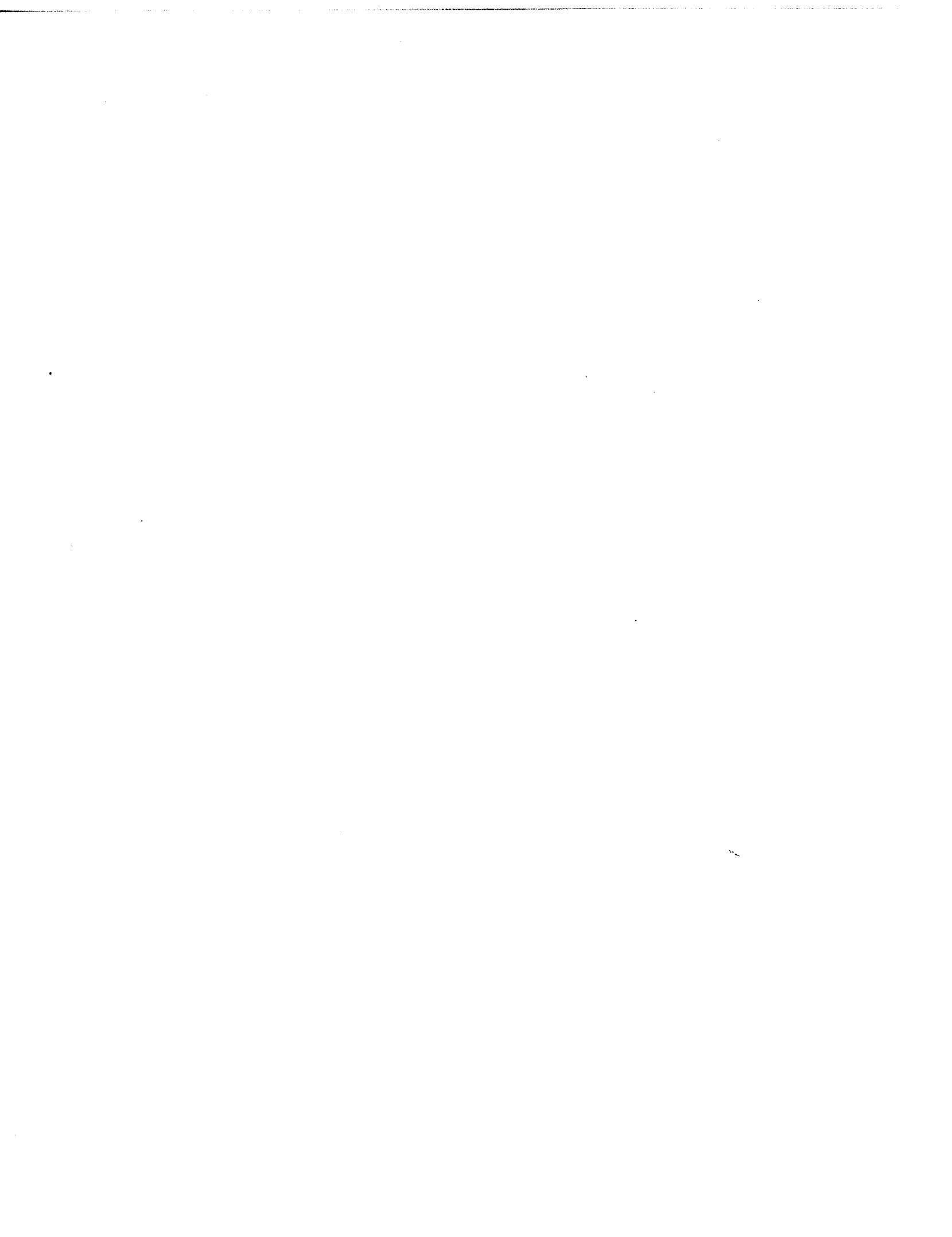
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Predicting social-skill proficiency in young children from adult ratings of children's instrumental competence

Garner, Barbara Polen, Ph.D.

The University of North Carolina at Greensboro, 1989

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PREDICTING SOCIAL-SKILL PROFICIENCY IN YOUNG CHILDREN
FROM ADULT RATINGS OF CHILDREN'S
INSTRUMENTAL COMPETENCE

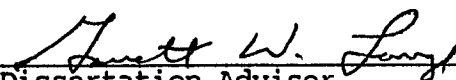
by

Barbara Polen Garner

A Dissertation Submitted to
the Faculty of the Graduate School at
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1989

Approved by


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APPROVAL PAGE

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GARNER, BARBARA POLEN. Ph.D. Predicting Social-Skill Proficiency in Young Children From Adult Ratings of Children's Instrumental Competence. (1989) Directed by Dr. Garrett Lange. 125 pp.

One purpose of the present investigation was to examine the measurement properties (i.e., factor structure and reliability) of the COMPSCALE instrument designed by Lange, MacKinnon, and Nida (in press). In view of Lange et al.'s attempt to design items that assess instrumentality, it was expected that the majority of COMPSCALE items would load on a single factor, and the Cronbach alpha coefficient would reveal strong correlations among COMPSCALE items.

A second purpose of the present study was to examine the predictive power of the COMPSCALE relative to traditional measures of competent functioning (i.e. the Kohn Social Competence Scale-Preschool and the Detroit Test of Learning Aptitude-Primary). These general indices of competent development were examined as predictors of four social outcome measures. A sociometric rating scale of children's popularity with peers (Asher, Singleton, Tinsley, & Hymel, 1979) was used to assess the effectiveness of children's social skills. Rubin's (1982a, 1982b) measure of social problem-solving (both categories and flexibility) was used to assess children's social knowledge. Gratch's (1964) "penny task" was used to assess children's perspective-taking ability.

The COMPSCALE factor structure revealed the majority of items loaded on one of two factors. Factor one, with 28 items, appeared to measure the deliberateness and initiative with which children approach the classroom environment. The instrument appeared to

measure a unitary construct termed instrumental competence. There was high internal consistency as evidenced by a Cronbach alpha level of .95.

The predictive powers of the COMPSCALE failed to meet the expectation of the investigation. The total instrument failed to reach significance for any of the social outcome tasks. An 8-item subscale that pertained to children's direct interactions with peers or adults entered the regression models first, but failed to remain significant when the Kohn Social Competence Scale-Preschool, Factors I and II entered the model. Possible explanations for this and directions for future research are presented.

DEDICATION

I wish to dedicate this investigation to the memory of my late father, Harold E. Polen, who instilled in me the wonder and joy of learning, the importance of setting goals and finishing a task begun, and whose deep and abiding faith and belief in my capabilities sustained me throughout this endeavor.

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Secondly, I want to thank Southeast Missouri State University for their help in funding this project. Without their support this would not have been possible.

I would also like to thank the teachers and children who participated in the investigation. The children's response always kept me aware of the real reason for such projects, learning more about how children see and understand their world.

I also wish to thank Jan Trotter, Christie Riekert, and Ann Marie Conley for their data collection. They carried on even when I was unable to be of assistance due to an unfortunate accident.

Special thanks go to Judy Penny for her assistance in data management and analysis. Without her I would have despaired many times. Judy, Jim, and Jennifer have opened their home to me on numerous occasions and have provided computer expertise, encouragement and support, and a pot of hot coffee to keep me going.

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Finally there are a number of personal thanks due. To my family, mother, sister, and brother for their love and faith, I offer a most heartfelt thank you. My children deserve a special thank you. Bart, who has loved and encouraged me despite many setbacks of his own, and Heather and husband Michael, who have had to "make do" with a mother who was very involved in her own pursuits when some help from "Grandmother" would have been most beneficial. Although granddaughter Meghan is too young to realize what this is all about, her love and a bond that is amazingly strong for one so young, has supported me across her lifetime, despite many months of separation and many many miles between us.

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CHAPTER I
INTRODUCTION

The past three decades have been times of unusually significant change in our perspectives toward the development and evaluation of young children. A marked increase in child development research during the 1960s and 1970s produced greater awareness of the importance of the years between birth and the beginning of public school, and served to generate numerous forms of environmental intervention programs designed to ensure optimal developmental outcomes for young children. Recent increases in single-parenthood and in mothers of young children in the work force have increased sharply the population of children in preschool programs. These changes have also brought about greater scrutiny of the effects of early educational programs on children's development and an increasing need for a consensus on the definition of successful development among preschoolers. The present investigation examines the comparability of alternative definitions and measures of competence in young children. Of primary interest are the predictive capabilities of alternative measures of competence development for cognitive and social outcomes in preschool children.

Historically, the development of "competence" indices of children's development can be traced to the rapid proliferation of intervention programs during the 1960s. Fiscal expenditures brought

these newly developed intervention programs under considerable pressure for accountability. A common source of inquiry concerned the measurement of developmental outcomes. IQ scores became the most frequently used tool for program assessment. There were several reasons for this. In addition to the ease of administering IQ tests, particularly short forms such as the Peabody Picture Vocabulary Test, IQ had been shown to correlate with school success. Moreover, almost any type of intervention produced gains in IQ (Zigler & Trickett, 1978).

By the early 1970s, the extensive use of IQ testing in public education had come under attack. McClelland (1973) pointed out that IQ accounted for only half of the variability of children's academic achievement in school and was a poor predictor of occupational and life success. With a general climate of wariness about IQ measures and "the realization that successful development in young children entails much more than can be measured with a single IQ test" (Lange, Ladd, & Davis, 1982), the Office of Child Development assembled a panel of experts to search for alternatives to the general use of IQ as a major yardstick of development (Anderson & Messick, 1974; Zigler & Trickett, 1978). The suggested alternative was that of "competence development" in children.

A recurrent problem in research designed to assess competent functioning in children has been the diversity of definitions offered by researchers. Part of this diversity is due to differences of opinion about the nature of competent behaviors.

These differences have been compounded by differences in the various research approaches used.

O'Malley (1977) identified three research perspectives on competence. The first was the ethological view that competence entails adaptive interactions within natural environments. Researchers such as Murphy and Moriarity (1976) and White and Watts (1973) used an ethological approach to assess how successful children functioned in preschool and home environments. These researchers defined competence in terms of coping skills and resourceful behaviors such as successfully getting adult attention, or using adults as resources.

The second perspective that O'Malley (1977) identified was founded in structural theories of personality. Investigations within this category assessed how personality descriptors clustered to form various dimensions of personal-social functioning. Researchers in this tradition (Becker & Krug, 1964; Digmon, 1963; Peterson, 1961; Schaefer, 1961) defined competence in terms of clusters of behaviors that are associated with extroversion, taking advantage of opportunities available in the classroom for learning and for peer interaction, and behaviors that are related to task-orientation.

The third perspective O'Malley identified was that of social interaction, a functional model of the skillfulness with which children interact with others. Research in this tradition examines how children's social behaviors, social knowledge, social cognition

(i.e., perspective taking), social problem-solving and communication skills relate to popularity with peers. Relationships between measures of IQ and popularity are also examined. Research in this area often falls under the auspices of social cognition with the implication that competence involves the adaptations of individually formulated goals appropriate to the setting involved. O'Malley (1977) noted that out of these three lines of research emerged the notion of competent children as purposive, adaptive, flexible, and analytical.

Lange et al. (1982) arrived at a similar definition of competence by examining the behavioral characteristics suggested by Anderson and Messick (1974), White (1972), and Zigler and Trickett (1978) to describe the competently functioning preschool child. Lange et al. (1982) found that the majority of behaviors described operative, goal-directed, and self-motivated children -- children who are active participants in the learning process. They became intrigued with the possibility that the dimension of "instrumentality" referred to by Baumrind (1971) could be an underlying construct that allowed children a "modus operandi" that translated into competent functioning in both the social and cognitive realms.

Based on this reasoning, Lange, MacKinnon, and Nida (in press) developed a rating scale to be used by teachers and parents to assess instrumental behaviors in preschool children (Instrumental Competence Scale for Young Children, COMPSCALE). Items were

devised to assess operative, self-motivated behaviors as suggested by Anderson & Messick (1974), White and Watts (1973), and Zigler and Trickett (1978). The items focused on persistence, competitiveness, assertiveness, attentiveness, curiosity, independence, self initiative, careful/exacting task performance, preferences for challenging tasks, as well as the use of problem-solving strategies, multi-step plans and expressive language. An initial investigation suggested that the COMPSCALE had promise as a reliable means of predicting selected cognitive-task behaviors among preschool children (Lange et al., in press). The initial 35-item instrument has been revised to include 40 items rated on a 7-point Likert Scale.

While high test-retest reliability of the COMPSCALE, and moderate correlations with children's memory and problem solving behavior are encouraging, these findings are restricted to a single study with a relatively small sample of parents, teachers and preschool children. As reasonable as Lange et al.'s approach appears to be, there are very few data bearing on the instrument's validity as an index of successful development in the preschool years. Moreover, although Lange et al. have argued that instrumentally competent children should excel socially as well as cognitively, there are no data bearing on the relationship between the COMPSCALE and children's social and social-cognitive development.

One purpose of the present investigation was to examine the measurement properties (i.e., factor structure and reliability) of the COMPSCALE instrument. In view of Lange et al.'s (in press) attempt to design items that assess instrumentality, it was expected that the majority of COMPSCALE items would load on a single factor, and that the Cronbach Alpha coefficient would reveal strong correlations among COMPSCALE items.

A second purpose of the present study was to examine the predictive power of the COMPSCALE relative to traditional measures of competent functioning (i.e., the Kohn Social Competence Scale--Preschool and the Detroit Test of Learning Aptitude--Primary -- DTLA-P). These general indices of competent development were examined as predictors of three social outcome measures. A sociometric-rating scale of children's popularity with peers (Asher, Singleton, Tinsley, & Hymel, 1979) was used to assess the effectiveness of children's social skills. Rubin's (1982a, 1982b) measure of social problem-solving was used to assess children's social knowledge. Gratch's (1964) "penny task" was used to assess children's role-taking ability.

If, in fact, Lange et al.'s (in press) suggestion that instrumentality in children will predict competent social functioning, the COMPSCALE should show strong positive relations to each of the social outcome measures; namely, social effectiveness (popularity), social knowledge (problem-solving), and cognitive skills (the penny task). Moreover, to the extent that each of the

predictive instruments measures the instrumentality with which young children interact with environmental demands, the instruments should share common variance.

In light of the large percentage of COMPSCALE items that reflect cognitive functioning, the COMPSCALE should more accurately predict children's problem-solving knowledge and role-taking ability than either the Kohn instrument or the DTLA-P instrument which lack scales to assess social knowledge and social judgement.

In contrast, the Kohn Social Competency Scale-Primary, which focuses more directly on effective social functioning, should predict the Asher sociometric measure of popularity better than the COMPSCALE.

Underlying the latter question is the more fundamental issue of whether a brief and generally defined measure of a young child's active, purposive and instrumental orientation to the environment predicts specific social behavioral outcomes as well as longer and less efficient measures designed specifically to assess these outcomes.

CHAPTER II
REVIEW OF RELATED RESEARCH

Research on the early development of social competence in children evolved from the body of literature related to personal-social development. The majority of this research was based in psychoanalytic theory; thus, a large portion stemmed from knowledge of adult neurotic and psychotic behaviors. When researchers began to investigate the development of social-personal behaviors in children, their interest was in the early detection of aberrant behavior. The purpose of much of this research was to plan early intervention strategies in the hope of alleviating adult problems. A large portion of the literature focused on clinical applications. Gradually the concept of studying healthy personal-social functioning in children evolved as researchers began to search for a standard from which to judge children's problems.

The following review attempts to summarize previous research and theory most significant in the development of each of three categories of social competence research outlined by O'Malley (1977). The first section focuses on the structure of personality approach. The second and third sections focus on ethological and social interaction-functional models, respectively.

The Structure of Personality Model of Research
Research on the Parsimony of a Two-Factor Model of Personal-Social
Functioning in Children

The analysis of broad personality constructs provided a context for discussing specific characteristics associated with competent functioning children. Peterson's (1960, 1961) research on the measurement of personal-social development influenced many researchers, both his contemporaries and those that followed. Peterson and Cattell (1959) investigated personality dimensions of four-year-old nursery school children. Peterson (1961) suggested that there were alternative ways of using factor analysis than those Cattell ascribed to. Cattell's major concern was to differentiate true from error factors. The solution Cattell suggested was to extract enough factors to account for a very high portion of variance (Peterson, 1960). In contrast Peterson suggested

. . . the descriptive efficiency of a factor can be sensibly and precisely defined in terms of the amount of variance which it comprehends but neither for practical nor theoretical purposes is it necessary to isolate all of the influences operating in a correlation matrix, or in a set of them.
(Peterson, 1960, p. 466)

Peterson's suggestion, therefore, was to isolate the most important, powerful, useful and economical ones, not to account for all of the variance.

Peterson (1961) identified the two most important goals of personal-social research as those pertaining to issues of predictive value and the ability to replicate research, neither of which had

shown much promise to this point. He suggested that a few dimensions with the highest loadings might best be able to be replicated across age levels. A comparison of factors isolated from previous work suggested two major dimensions that were stable across investigations. Personality questionnaires administered to older children had repeatedly yielded two clearly defined orthogonal dimensions: (a) good versus poor personal adjustment and extraversion versus introversion, when rating scales assessed personality functioning, and (b) conduct problems and personality problems when the scales assessed deviant behavior. Peterson (1961) concluded the generality of the two factors appeared to be enormous and stated

. . . considering all studies together, age has varied from early childhood to adolescence: problem status has varied from none to clinical attendance, to incarceration for delinquency: data sources have varied from case history records, to standard ratings, to questionnaire responses; methods of factor extraction have varied from cluster inspection to centroid analyses; rotational methods have varied from none, through visual shifts, to both orthogonal and oblique solutions, to analytic techniques. Through it all the factors have stayed the same, and their definition, at least seems adequate. (p. 206)

The hypothesis that these two main dimensions would be stable across age was supported by Peterson's (1961) study of children 4, 7, 9, and 11 years of age. Teacher ratings of 58 clinically frequent problems were obtained for 931 kindergarten and elementary school children. Factor analysis was conducted for each age level and the two factors emerged consistently across age levels. The

first factor was described as a tendency to express impulses against society and was called conduct problems. The second was marked by low self-esteem and social withdrawal, and was called personality problems. Peterson suggested the real test of the dimensions would be in their predictive power, a test that remained to be performed through future research.

Digmon (1963), also interested in the structural dimensions of children's personality, attempted to replicate an earlier study conducted by Cattell and Coan (1957). The sample was 102 first- and second-graders attending a University Laboratory School. Four teachers participated as judges and a forced-sort of Cattell and Coan's trait list was completed based on the child possessing the greatest or least degree of each trait. The traits were intercorrelated and the resulting correlation matrix was factored by the principal-axes method. Eleven factors emerged which in turn were subjected to second order analysis. Consistent with the work of Peterson (1960, 1961), the resulting factors were labeled: successful socialization versus unsuccessful socialization, and extroversion versus introversion. A third, relatively minor factor appeared to be a gender factor that accounted for the fact that boys were more hostile and less compliant than girls.

Influenced by the work of Peterson (1960, 1961) and Digmon (1963), Ross, Lacey, and Parton (1965) developed the Pittsburgh Adjustment Survey Scales, to evaluate the social behavior of elementary school age boys. The development of this behavior

inventory was guided by a desire to arrive at scales of aggressive, withdrawn and prosocial behaviors. Behavior inventories were completed by 214 elementary-school teachers each of whom rated one randomly selected boy. The students were equally distributed in grades one through grade six. Factor analysis of the data revealed the factors of aggressive behavior, withdrawn behavior, prosocial behavior, and passive-aggressive behavior.

Schaefer (1961) argued for a model that used a circumplex of behaviors formed by plotting variables along the dimensions previously isolated by Peterson (1960, 1961) and Digmon (1963); that is, the factors of extraversion versus introversion and adjustment versus maladjustment. Schaefer suggested this would bring about a convergence of the large number of models and conceptual schemes that had been used by previous investigators and could alleviate the problems encountered in attempted replications.

Schaefer (1965) tested his model with a study of school aged children in the Netherlands. Consistent with Peterson (1960, 1961) and Digmon's (1963) work, data from the Netherlands study showed a two-factor configuration with major dimensions being extroversion versus introversion and adjustment versus maladjustment. Schaefer found a number of items loaded at the center of the spherical configuration of his model and he extracted a third factor from the data that he labeled task orientation.

Schaefer and Aaronson (Schaefer, 1971) revised the rating scales for elementary-age children used in the Netherlands study and

adapted them for use with American and German kindergarten children. Factor analysis yielded almost identical factor loadings for the dimensions of the Netherlands study. Factor analysis for 2,500 first-grade and 1,486 second-grade children also replicated the factor loadings of the kindergarten work. Additionally, factor analysis of 287 German children confirmed the three dimensional behaviors for the Dutch and American children.

The items that showed substantial loadings on Factor I, task oriented behavior, were perseverance, conscientiousness, attentiveness, concentration, methodicalness, academic seriousness and achievement orientation. The opposite pole typically showed loadings of distractibility, hyperactivity and inappropriate talkativeness. Items that showed high loadings on Factor II, hostility, were cruelty, irritability, resentment, quarrelsomeness, hostile dominance, covert hostility, suspiciousness, and argumentativeness. The opposite pole, although difficult to define, showed loadings of considerateness, kindness, and expressive, outgoing behavior. Items that showed high loadings on Factor III, extraversion versus introversion, were verbal expressiveness, gregariousness, friendliness to teacher, and cheerfulness. The opposite pole showed loading for the items of depression, social withdrawal, submissiveness, emotional passivity, and self consciousness.

Schaefer (1971) reported that when the dimensions found by Ross et al. (1965) were plotted in a spherical configuration, their first

three principal components were very similar to the three-dimensional configurations of Schaefer's work (1971). Also, plotting the first three principal components of teachers' ratings found by Digmon (1963) revealed a similar configuration. Schaefer (1971) suggested that

similar three dimensional configurations can be found for comprehensive studies of classroom behavior despite differences in factors that are produced by different concepts and the rotation of different numbers of factors. (p. 152)

Becker and Krug (1964) identified five cluster variables in children's social functioning. The researchers were interested in the relationship between their five factors and Schaefer's (1961) two-dimensional circumplex model. When Becker and Krug plotted the five clusters on the circumplex model, they found that a number of variables intermeshed on the dimension of emotional instability. Therefore, the investigators created a third factor that was orthogonal to the circumplex which included rebellious, hostile-defiant behaviors. The researchers suggested the three-dimensional model had not lost any predictive power over their five cluster model, nor had it gained any.

Walker (1967) found that teachers judging children, children judging other children, and children judging themselves, followed similar patterns in the ways they conceptualized variables. Walker found the order of variables was similar to the circumplex ordering of Becker and Krug (1964), Schaefer (1961), Peterson (1960) and Digmon's (1963) second order factors. Walker suggested the factor

that was most often labeled extroversion-introversion had accumulated so many varying connotations over the years, a renaming was in order. The label chosen was that of activity, an approach-withdrawal dimension. The second axis seemed to have a common denominator which Walker referred to as self-control.

Kohn was the first structural/personality researcher to use the term "social competence." Prior to his research, scientists had claimed they were assessing children's social-personal behaviors. Kohn and Rosman (1972a, 1972b) were interested in identifying problem behaviors early in life. They decided it was important to understand competent functioning in young children as a standard for identifying potential problem areas for intervention. Kohn and Rosman (1972a) designed a Social Competence Scale to measure the young child's mastery of the preschool environment. Factor analysis of the data revealed two factors which were labeled (a) apathy-withdrawal versus interest-participation, (b) anger-defiance versus cooperation-compliance. The researchers indicated that these two factors

reflected the major adaptive demands which a pre-school setting makes on a child: (a) how to use the opportunities for learning, for pleasurable play activities, and for interaction with peers; and (b) how to live within the norms, rules, and limits, so that an orderly group process can develop and be maintained.
(Kohn & Rosman, 1972a, p. 443)

Kohn and Rosman (1972b) hypothesized that a child with a high score on one of the dimensions at one age, would score high on the same dimension at a later age level. Confirmation of this would

measure more or less enduring personality attributes or personality predispositions. Results of this study supported the hypothesis that there was longitudinal persistence of the factors. Factor II, i.e., anger-defiance versus cooperation-compliance was consistently found to be more stable over time than Factor I, i.e., interest-participation versus apathy-withdrawal. Kohn and Rosman believed Factor II behavior was somewhat easier to rate reliably. The child who acts out and was high on Factor II was more noticeable than the withdrawn child who was high on Factor I. Further investigations (Kohn, 1977; Kohn & Rosman, 1973a, 1973b) reinforced the researchers' beliefs in the stability of the two factors over time (i.e., from preschool to grades one and two) and settings (i.e., between test and classroom situations).

Emmerick (1977) studied the structure and development of personal-social behaviors in economically disadvantaged preschoolers. The subjects were 596 children enrolled in Head Start programs in 1969-70. Raters observed each child for a period of 25 - 30 minutes during an unstructured "free-play" period. Interrater reliability for the 21 bipolar scales as a set, the median of the medians across pairs, study sites, and periods was .63. For the 127 unipolar scales as a set, the overall median reliability was .74. Emmerick's results were consistent with the Becker and Krug (1964) circumplex model and with Schaefer's (1971) three-dimensional model.

Pinneau, Dellehay, and Sassenrath (1983) analyzed data from Conrad's California Behavior Inventory of Nursery School Children to perform a factor analysis on preschool children's personal-social adjustment. The analysis revealed 10 factors, with the first 3 factors accounting for 44% of the variability. These were: (a) emotional reactivity, (b) sociability, and (c) socialization. The remaining 7 factors accounted for an additional 35% of variability. Pinneau et al. found similar configurations of behavioral components for two samples of children assessed at two different times. Two patterns stood out as the most important across the analysis. The emotional-reactivity factor was either first or second for each group. Close in importance was that of sociability, a dimension of popularity the researchers termed extroversion. The data also showed stability of the dimensions across the two assessment times. Pinneau et al. suggested that although the purpose of the study was intended to sample the broad domains of children's behavior, a two-dimensional factor solution would fit the data.

Predictive Validity of Instruments Designed to Assess Personal-Social Development in the Structure of Personality Approach

Numerous researchers have devised instruments to assess the structure of children's personal-social behaviors. The instrument designed by Kohn and Rosman (1972a) has had rigorous testing, has been shown to relate well to other measures (Peterson's Problem Checklist, 1961; Schaefer's Classroom Behavior Inventory, 1965), and

has been reported frequently as the instrument used to assess children's social competence. Research on the predictive validity of the Social Competence Scale (Kohn & Rosman, 1972a) will be reviewed as an instrument exemplary of those in the structure of personality approach to competence.

Kohn and Rosman (1972b, 1973a) investigated the relationship between preschool children's personal-social functioning as measured by the Kohn Social Competence Scale (1972a), and their later elementary-school intellectual achievement. They hypothesized that children rated high on interest-participation versus apathy-withdrawal would also be high on intellectual functioning. Children rated high on the apathy-withdrawal end of the dimension were expected to have poor elementary school achievement. The investigators partialled out background variables (i.e., mother's educational level, SES, and race) and found the data supported their hypotheses. For girls, positive correlations were noted for interest-participation in preschool and the Metropolitan Reading Test (MRT) ($r = .29, p < .01$), on a word knowledge test ($r = .29, p < .01$), and on a reading test ($r = .27, p < .01$). The data for boys was similar: MRT ($r = .41, p < .01$), the word knowledge test ($r = .27, p < .01$), and the reading test ($r = .29, p < .01$).

Kohn and Rosman (1973b) investigated the relative predictive abilities of background variables (i.e., SES, age, welfare status, family size, and intactness of family) and children's social emotional functioning for a series of cognitive outcomes. The

combined set of background variables accounted for 20% of the variance in the cognitive outcome measures. Social-emotional functioning was assessed by the Kohn Social Competence Scale (1972a) and Schaefer's Classroom Behavior Inventory (Schaefer, 1971). Personal-social functioning accounted for a significant, though less substantial portion of the variance than the combined background variables. The interest-participation factor of the Kohn and Schaefer measures combined showed significant correlations with the Stanford Binet ($r = .27$), with the Caldwell Preschool Inventory ($r = .24$), and with a battery of cognitive tests: Set I ($r = .22$), Set II ($r = .24$), and Set III ($r = .25$).

Kohn and Rosman further noted that Schaefer's Factor III of the Classroom Behavior Inventory which assesses task orientation, added a significant contribution above and beyond that isolated by Factor I, i.e., interest-participation versus apathy-withdrawal, of the Kohn social-personal measures. Correlations were as follows: Factor III and the Stanford Binet: $r = .31$; and Factor III and the Caldwell Preschool Inventory: $r = .32$).

The researchers suggested that Factor III's contribution to cognitive variance may mean that, "a child's disposition to bring his abilities to bear on a task through concentration and absorption, brings about a further gain in cognitive functioning" (Kohn & Rosman, 1973b, p. 292).

Kohn (1977) reported on longitudinal data collected on 1,232 preschool children randomly selected from 92 public day care centers

under the jurisdiction of the New York City Department of Social Services. The children were from a restricted social class and ranged in age from 3 years to almost 6 years. The study dealt with three classes of variables: demographic, emotional impairment, and academic attainment. Since the concern focused on early identification of children at risk for social-emotional problems, one of the questions addressed by the study, was whether or not there was stability in social-emotional functioning from preschool age into elementary school age.

Kohn (1977) used data from a revised Social Competency Scale and the Symptom Checklist to assess social-emotional functioning during the preschool years. The same two-factor model used in Kohn's previous research proved parsimonious for the longitudinal data. At the elementary age he added a third dimension called task orientation similar to that used by Schaefer (1961).

One question Kohn addressed in the longitudinal study was: If children are in the most disturbed group of social-emotional functioning in preschool, what is the likelihood that they will remain in that group at subsequent ratings? Since his dimensions were bi-polar, the inverse question was asked as well. To facilitate these questions, the children were divided into the 25% rated the most disturbed, i.e., those with the highest scores on apathy-withdrawal and anger-defiance. Fifty percent were rated average and the remaining 25% were rated as healthiest, i.e., those with the highest scores on interest-participation and cooperative-

compliance. Kohn found there is a moderate likelihood that children ranked as the most disturbed or most healthy in the preschool years will remain disturbed or healthy at a later age (median rate at all time intervals was 55% on disturbed dimensions and varied from 51%-52% at the healthiest dimensions). Kohn was satisfied that the instruments could serve as screening tools for identification of children at risk for social-emotional problems.

An Ethological Approach to Children's Competence
Research on Operative, Self-Initiated, Instrumental Competence

The above summarized literature pertaining to social-personal behaviors and social competence of children grew out of the study of adult personality. The research basis of this literature was a clinical population of poorly functioning adults. The study of young children followed the lines of "symptom formation" as psychologists and clinicians looked for early precursors to adult problems, thus a body of "problem" literature (Murphy, 1962) became available with little research on the healthy functioning child.

When Murphy arrived at the Menninger Clinic in 1953, she was offered access to detailed records of the behavior of 128 infants collected between 1948 and 1951 (Murphy & Moriarity, 1976). She viewed this as a meaningful opportunity to focus on the positive aspects of children's personal-social development and on the study of coping skills of preschool children. The general aims of the study were ". . . to initiate the study of children's efforts to cope with their own problems and to explore the relation of these

efforts to aspects of temperament and resources for growth" (Murphy & Moriarty, 1976, xi). The study followed the children from the set of original data collected at 4 weeks to 32 weeks through puberty.

Data were collected on the preschoolers' coping strategies from in-depth observations of the children in a variety of situations: IQ testing sessions, psychological test situations, home visits, parties, hospital stays, funerals, etc. Each child was seen in many situations, differing in structure, pressure, and challenges. The different sexes and training orientations of the observers allowed the researchers to make inferences about the stability and varieties of coping behaviors used.

Murphy and Moriarity (1976) extracted items from the observations, from test situations, from pediatric examinations and medical records, from psychological tests, and from home observations and arrived at a detailed coping inventory containing 999 items. Two global variables were formulated: Coping I -- the capacity to cope with opportunities, challenges, frustrations and threats in the environment; and Coping II -- maintenance of internal integration, i.e., the capacity to manage one's relation to the environment so as to maintain integrated functioning. The list of coping items was correlated with the global variables and those items that correlated at $p < .05$ and $p < .01$ levels of confidence were sorted out for the study.

Some exemplary items that correlated significantly with Coping I were items that tapped I -- cognitive capacities, i.e.,

orientation, curiosity, reality testing, ability to synthesize thinking, affect and action and problem solving attitudes toward life; II -- motor capacities, i.e., use of motor skills to meet environmental demands, freedom to translate ideas into action, motor and visual motor control; III -- affect, i.e., range of areas of enjoyment, gratification, ability to accept and give warmth and support, reaction to discouragement, intensity of interest, enthusiasm, capacity for fun, zest, delight and pleasure; IV -- coping techniques and ego resources, i.e., autonomy, physically active orientation, solve problems directly, ability to ask for or get help when needed, flexibility to adapting means to goals; and V -- self feeling, i.e., healthy pleasure in being oneself, pride, ability to positively assert own needs and preferences, confidence in own abilities, independence, self-reliance, autonomy and courage.

Coping II was significantly related to cognitive items such as achieving clear structure, a range of fine muscle skills, competence, task involvement, low impulsiveness, freedom from doubt and ambivalence, high threshold for frustration, and tolerance for frustration. Several items overlapped Coping I and Coping II: positive self appraisal, likes self, separation of self and others, resilience following disappointment, resistance to discouragement, courage, constructive use of anxiety, constructive use of external control, adapting self to deal with frustration, and clarity of perception.

Baumrind and Black (1967) developed a program of research with the objective of identifying practices associated with dimensions of competent preschool behaviors. The project, known as the Parental Authority Project, was conducted at the University of California at Berkeley. There were 95 families who participated in the study and were visited in the home. For a three-month period, four trained psychologists observed and recorded behaviors children exhibited when involved in all aspects of the nursery school programs. Each child was observed by two psychologists, and from these observations a 95-item scale was devised by which the psychologists could describe the child. A forced sort for each child divided the items into 9 piles going from most characteristic to least characteristic. One pole reflected mental health; the other, its absence. The final score used for further analysis was the composite of the two psychologists ratings.

A principal-components solution was used to provide the most stable two-factor solution possible. The 95-items were formed into clusters on the basis of (a) their position on a circular plot; (b) the pattern of intercorrelations of contiguous items; and (c) theoretical relevance. Eight factors emerged on the two-factor dimensions of active-passive and irresponsible-responsible. For theoretical value, a second order analysis was performed which yielded a four-cluster model identical for both boys and girls. These were named, withdrawn versus assertive, disaffiliative versus

affiliative, cooperative versus resistant, and independent versus dependent.

Baumrind and Black (1967) compared the model with those of Becker and Krug (1964) and Schaefer (1961). With the exception of the area identified in Baumrind and Black's cluster solution as independent versus dependent, the models were very similar. The independent area of most other studies appeared to have items defining resistant-rebellious. Baumrind and Black suggested part of the lack of agreement was due to previous studies directed at negative aspects of noncompliance. The current model distinguished between rebellious and autonomous behaviors, thus there was a cluster of items directed at the positive aspects of noncompliance.

Baumrind (1967) found competent children to be self-controlled and affiliative on the one hand, and on the other hand, self-reliant, explorative, and self-assertive. They were realistic and content. Baumrind (1971) used the term "instrumental competence" to describe the behaviors of successful preschool children.

The Harvard Preschool Project (White, 1975), began in September, 1965 with funding provided by the U.S. Office of Education. Unlike most research which had focused on one area of development (e.g., intellectual or language development), or on intervention strategies, White and Watts (1973) set out to study the development of overall competence in children. These investigators suggested the goals of the project were that of optimizing human development. They were "the business of prevention

rather than remediation" (p. 3). A stated objective was to find out as much as possible about the competent dimensions of the preschool child, and in particular, the attributes of a successful or educable child.

The original sample consisted of 400 3-, 4-, and 5-year-old children of mixed origin (Irish, Jewish, English, Portuguese, and Chinese) mixed SES and varied residence (rural, suburban, and urban). Fifteen staff members and teachers conducted extensive observations of the children and on the basis of the observations and tests such as the Wechsler, 51 children were isolated. Half of these children were judged to be high on overall competence and were able to cope with anything they met day in and day out, and half were judged to be low on competency, but were free from major pathological problems. These children were observed weekly for a period of 8 months and 1,100 protocols of behavior were collected. At the end of the observations, the 13 most talented and 13 least talented children were selected. Through discussion by a staff of 20 persons, a list of abilities was compiled that distinguished the two groups.

The abilities were divided into social and non social. The eight social abilities were: (a) to get and maintain adult attention in socially acceptable ways, (b) to use adults as resources, (c) to express both affection and hostility to adults, (d) to lead and follow peers, (e) to express affection and hostility to peers, (f) to compete with peers, (g) to show pride in one's

accomplishments, and (h) to involve oneself in adult role-playing. The nonsocial abilities were (a) linguistic competence, (b) intellectual competency, i.e., to sense dissonance, to note discrepancies, to anticipate consequences, to deal with abstractions, to take the perspective of another, to make interesting associations, (c) executive abilities, i.e., plan and carry out multi-step activities, use resources effectively, and (d) ability for dual focus.

Most of these competencies have to do with the things a child does on his own initiative rather than what the child is capable of doing. The competent child in White and Watts study was an operative, self-regulated, and self motivated preschooler.

In January, 1973, "a panel of experts met under the auspices of the Office of Child Development to define the meaning of social competence in young children" (Anderson & Messick, 1974, p. 282). The result of the meeting was 29 theory guided goals for early intervention programs. Several of these goals related to basic abilities such as language and perceptual skills, gross and fine motor skills, memory and categorization skills. A number related to knowledge and acquired attitudinal skills (i.e., understanding social relationships, role perception, self-concept, differentiation of feelings, positive attitudes toward learning and attentional control). There was a third kind of skill the panel delineated, which included a number of operative, self-initiated behaviors. Items included the ability to form positive relations, moral and

prosocial tendencies, curiosity and exploratory behaviors, flexibility in information processing strategies, competence motivation, good use of resources for help and information and the regulation of antisocial behaviors (Anderson & Messick, 1974).

In a subsequent attempt to define children's social competence, Zigler and Trickett (1978) proposed a list of similar characteristics to describe competent development. They proposed four areas for measurement: (a) basic health and well being, (b) formal cognitive abilities i.e., IQ, (c) measures of achievement, and (d) a measure of motivational and emotional variables. Variables within this fourth area included items such as: general achievement, positive response to social reinforcement, self-image and attitude toward school, peers, etc., and absence of learned helplessness. These dealt with acquired attitudinal skills children possessed. Items such as preference for challenging tasks, curiosity, variation seeking, mastery motivation, outer directedness, imitation in problem solving, wariness of adults and attention-seeking behavior suggested again, that the measurement of operative, self-initiated behaviors should be included in the assessment of children's social competence.

The Development of a Measure of Instrumental Competence

Lange et al. (1982) undertook a theoretical analysis of competence in children in which they attempted to compare the dimensions included in the definition of competence as offered by Anderson and Messick (1974), Baumrind (1967), White (1975), and

Zigler and Trickett (1978). The attributes fell into three categories: that of operative, self-initiated behaviors; knowledge, attitudes and acquired skills; and basic abilities. Lange et al. (1982) noted the large number of dimensions that went beyond specific skills and labels inherent in classic notions of IQ.

Lange et al. (in press) were intrigued by the number of behaviors the previous researchers had delineated that referred to the operative, self-initiated behaviors of young children. They queried the possibility that a dimension of instrumental competence might serve as a general disposition that would allow children to bring this operative kind of behaviors to bear on both the cognitive and social realms. Lange et al. (in press) developed a rating-scale measure, Instrumental Competence Scale for Young Children (COMPSCALE), using the specific behaviors offered by Anderson and Messick (1974), Baumrind (1967), White (1975), and Zigler and Trickett (1978).

An investigation was designed to begin testing for reliability and validity on the COMPSCALE. Mothers, fathers, and teachers of 87 preschool children completed the COMPSCALE, independently, on two occasions 6 weeks apart. The test-retest reliability established was teachers ($\underline{r} = .87$), mothers ($\underline{r} = .77$), and fathers ($\underline{r} = .64$).

To examine the concurrent validity of mother, father and teacher COMPSCALE ratings in predicting the deliberateness and proficiency of preschoolers' cognitive task performance a puzzle task and a study-recall task was utilized. Teacher ratings proved

to have higher correlations with the outcome measures than either fathers or mothers ($r = .51$ for the recall task and $r = .25$ for the puzzle completion task).

An examination of the relative contributions of COMPSCALE and the PPVT IQs, in predicting preschoolers' cognitive task performance, the COMPSCALE accounted for significantly more variability than did the PPVT. On the picture completion task, the PPVT correlation was .00 for number of pieces completed and .08 for attentiveness and deliberateness. The correlation for the COMPSCALE was .25 for the number of pieces completed and .25 for the attentiveness and deliberateness. On the free recall task, the PPVT correlated with number of objects recalled at .01 and attention to task .10. The COMPSCALE correlated at .53 for the number of objects recalled and .30 for the attention to task.

Peer Interaction as a Measure of Social Competence

A third line of research in social competence is a functional approach. How do children interact with each other and what kinds of behavior result in children that are accepted and sought out by their peers as opposed to those behaviors that result in children being rejected by their peers. Piaget (1926, 1932) suggested that peer interaction was crucial for children to develop skills in social rules for compromise and reciprocity. He likewise suggested that children's popularity with other children was in part related to the child's ability to take the others person's viewpoint. It

would seem logical to suggest a positive correlation exists between children's peer interactions and their social competence.

Hartup (1979, 1983) indicated that a consistent picture emerged of popular elementary school children as those who are friendly and socially adept at initiating and maintaining social interactions with other children. Much of the research that has examined the relationship between children's popularity and their peer interactions had used elementary school-aged children. There are relatively few, but a growing number of studies which have sought to assess this relationship among preschool children. One inherent problem with research in the preschool years, is that of measurement issues. Many researchers have used sociometric and interaction measurements that were designed primarily for elementary school-aged children.

A frequently used sociometric technique has been peer nominations of best liked and least liked classmates. These techniques have shown low reliability when used with preschool children (Hymel, 1983). Recently Asher et al. (1979) devised a rating-scale measure of children's peer relations. The rating measure allows children to sort pictures of classmates into boxes labeled with a happy face, a neutral face, and a sad face. The child is asked to sort the pictures into the boxes based on how much he or she likes to play with the child. The researchers reported high reliability of test-retest correlations.

Relationship Between Preschool Children's Sociometric Measures and Rate of Interaction

Research conducted on the relationship between sociometric status and observed sociability (rate of interaction) have been mixed. Deutsch (1974) found little relation between sociometric and observational measures of popularity. Jennings (1975) and Gottman (1977) likewise found no evidence that there was a relationship between sociometric measures and children's actual frequency of interactions with each other. These studies used total rate of interaction as an indication of children who were withdrawn from interaction with peers.

The use of a total rate of interaction as a measure of preschool social competence has come under criticism recently. Asher, Markel, and Hymel (1981) suggested that the use of a total rate of interaction is not empirically based since a number of studies have suggested that positive peer interaction is related to sociometric status as is aggressive interaction related to rejected status. These researchers suggested that the interactions must be qualitative rather than quantitative. Rubin (1982) found a positive relationship between constructive parallel play and sociometric ratings by children. Negative correlations were found between sociometric ratings and children's solitary functional and parallel functional play. Rubin and Daniels-Beirness (1983) examined the relationship between sociometric status and parallel constructive play in kindergartners and children in Grade 1. They found a

moderate correlation in kindergarten-aged children and parallel constructive play and a negative correlation with popularity in Grade 1. Rubin and Daniels-Beirness suggested a developmental trend with parallel constructive play showing maturity in preschool, normalcy in kindergarten, and immaturity in Grade 1. There appears to be a relationship between observed behaviors and sociometric status in preschool if the quality of interaction and expectations for developmentally appropriate behaviors are taken into consideration.

Relationship Between Social Competence Measures and Sociometric Measures in Preschool Children

Connolly and Doyle (1981) used the Kohn Social Competence Scale (Kohn & Rosman, 1972a) and behavioral observations as criterion measures to evaluate the effectiveness of teacher ratings of children's popularity and children's sociometric status. The researchers found that teacher rankings of children's popularity status were better predictors of social competence than were the children's sociometric status. It should be noted that the researchers used the picture nomination method as the measure of sociometric status. Although test-retest reliability on this measure is usually low to moderate, the researchers reported test-retest reliability of .71 for one classroom and .76 for the second room. The researchers used a stepwise regression and entered the teacher rankings first. There was little predictive value for the child sociometric measure in this analysis. However, when they

entered the children's sociometric measure before the teacher rankings, the researchers did find that the child sociometric measure was a predictor of the Kohn interest-participation score, verbal activity, and of successful assertion. It was reported that it did not predict the Kohn cooperation-compliance score which is not surprising since it measures conformity to classroom routines and rules.

Relationship Between Popularity and Social Cognitive Measures

Piaget (1926) suggested that children who were better able to take a listener's point of view into account during communication would be more popular than their more ego-centered age mates. Rubin (1972) and Deutsch (1974) investigated the relationship between preschool children's popularity and communicative egocentrism. Rubin found communicative egocentrism significantly related to popularity in kindergarten and second graders but not in fourth- and sixth-grade children. Deutsch (1974) found that in 3- to 5-year-old girls there was a significant relationship between observed popularity and communicative egocentrism but a nonsignificant relationship between communicative egocentrism and the sociometric test used. The relationship between sociometric and communicative egocentrism at preschool age remains in doubt (Hartup, 1983).

Jennings (1975) found that children's popularity was related to tasks she labeled social knowledge. These included knowledge of social convention and moral norms, role-taking ability tasks, interpersonal perception and moral judgement stories, as well as

sex-role knowledge. Children who performed well on these social tests were found to be more popular among their peers.

Rubin (1982) investigated the relationship between kindergarten and first-grade children's popularity and their social problem solving skills. Rubin's measure of problem solving used qualitative categories of children's solutions along with the number of alternative solutions children were able to give. He found that popular kindergarten children suggested more relevant and pro-social strategies and fewer agonistic strategies than their less popular peers. In grade one, the proportion of pro-social strategies were correlated significantly with peer status. Popular kindergartners were more likely to use pro-social solutions and less agonistic strategies when they were in the first grade. Rubin suggested a moderate connection between social problem solving skills and sociometric status.

CHAPTER III

METHODS

Subjects

One hundred sixty-eight 3-, 4-, and 5-year-old subjects were recruited from children enrolled in the Southeast Missouri State University's Center for Child Studies, the Trinity Lutheran Day Care and A Small World Day Care Center, similar in SES, curriculum and philosophy. Southeast Missouri State University is located in Cape Girardeau, Missouri, a small midwestern city that functions as the largest service delivery area between St. Louis, Missouri and Memphis, Tennessee.

The subjects were recruited through a letter of introduction and a brief summary of the study. Classroom teachers distributed the letters to parents. Permission for each child to participate in the study and demographic variables, i.e., age, sex, race, and parental occupation were returned to the classroom teachers (see Appendix A).

Data to assess the measurement properties of the COMPSCALE was collected on 83 males and 85 females. The subjects were from Southeast Missouri State University Center for Child Studies, Trinity Lutheran Day Care and A Small World Day Care. Both day care centers were located in the local community. The sample used to assess the predictive ability of the COMPSCALE was composed of 40

males and 43 females. The subjects for this analysis were from Southeast Missouri State University Center for Child Studies and the Trinity Lutheran Day Care.

Predictor Instruments

Kohn Social Competence Scale-Preschool (KSCS-P). The KSCS-P scale is a teacher-rating instrument designed to assess the child's mastery of a preschool setting (see Appendix B). It includes 64 items and measures two bipolar dimensions of children's social-emotional functioning: interest-participation versus apathy-withdrawal, and cooperation-compliance versus anger-defiance. Examples of items are given below. Each item is rated on a 5-point scale.

Interest-participation:

1. Child gets others interested in what he is doing.

Apathy-withdrawal:

1. Child has difficulty getting the attention of the group.
2. Child is at a loss without other children directing him or organizing activities for him.

Cooperation-compliance:

1. Child cooperates with rules and regulations.

Anger-defiance:

1. Child disrupts activities of others.
2. Child expresses open defiance against teacher's rules and regulations.

The interrater reliability (Spearman-Brown corrected) of the KSCS scale was found to be .77 for the interest-participation versus

apathy-withdrawal dimension and .80 for the cooperation-compliance versus anger-defiance dimension. The scale has been shown to measure relatively enduring personality predispositions; that is, children are stable across situations and over time (preschool to early elementary years).

Detroit Test of Learning Aptitude-Primary (DTLA-P). The DTLA-P is designed to measure intellectual abilities in children ages 3 through 9 (see Appendix C). The instrument is composed of 130 items which make up eight subscales, each of which measures a different aspect of a domain. The ninth score is the sum of all passed items and represents general, overall aptitude (Hammill & Bryant, 1986).

Reported reliability as computed by using a Cronbach alpha method is .90. Test-retest reliability with a 1-week interval was reported to be significant at the .001 level. The DTLA-P correlates with the WISC-R at .84 and with the PPVT-R at .63. The DTLA-P relationship to test of achievement was reported to be .74 (a median coefficient) which the investigator reported as "solid evidence of the DTLA-P's criterion-related validity" (Hammill & Bryant, 1986, p. 40).

Instrumental Competence Scale for Young Children (COMPSCALE). The COMPSCALE is composed of 40 items designed to assess instrumental competence in preschool children (see Appendix D). Teachers and parents rate individual children on a 7-point Likert scale. Test-retest reliability has been assessed at .87 for

teachers, .77 for mothers, and .64 for fathers (Lange et al., in press).

An initial investigation of the predictive validity found the COMPSCALE, when completed by teachers familiar with children's everyday classroom behavior, better able to predict children's performance outcomes on a recall memory task than the Peabody Picture Vocabulary Test (PPVT). The COMPSCALE correlated .51 with the number of objects 3- and 4-year-old subjects recalled, .24 with the number of puzzle pieces completed, and .25 with clinical ratings of the children's attentiveness and deliberativeness in completing the puzzle task.

Social Outcome Measures

Rating Scale Measure of Sociometric Status. The sociometric rating scale used in the present study was designed by Asher et al. (1979) to assess young children's popularity with peers in the classroom setting (see Appendix E). Children were shown three boxes that had been labeled with three different faces (a happy face, a neutral face, or a sad face). Each child was asked to identify the feelings expressed by each of the three faces. The child was then presented with a 35 mm photograph of each of his/her classmates and asked to sort them into the three boxes according to whether or not he/she liked to play with the child in the photograph a lot (the box with the happy face), sometimes (the box with the neutral face), or not at all (the box with the sad face). The children had no difficulty with the task and usually added comments as to why they

liked to play with the child a lot or not at all. Each child was scored according to the nominations received from all classmates. A positive nomination (happy face) received a score of 3, neutral face a score of 2 and a sad face a score of 1. Nominations were totaled and the average score computed for each child.

The average play rating-scale measure has shown better stability and test-retest reliability than either positive or negative nominations, since each child's score is the average rating received from classmates. Test-retest (4 week interval) reliability for the Asher et al. (1979) rating scale has been found to range from .74 to .81, for samples of 12 and 19 four-year-old subjects, respectively.

The Social Problem-Solving Task (SPST). This task was designed by Rubin (1982) to assess both quantitative and qualitative features of children's social problem solving (see Appendix F). Each child was presented with a series of five pictured problem situations in which one story character wants to play with a toy or use some material that another child has in h/er possession. The child was asked what the central character in the story could do or say so that s/he could gain access to the toy or material. The characters in the story vary with regard to either age (same versus different-age characters), sex (same versus cross-sex characters), or race (same versus different-race characters).

After presentation of each picture and the associated story, the child was asked to tell the experimenter everything that the

central character could do or say so that s/he could obtain the desired object. The E recorded the child's response and asked the child if s/he could suggest anything else the character could do or say to gain possession of the desired object. The responses were coded as to the number of categories each child generated and the flexibility with which the child could alternate strategies in the social problem-solving task.

Penny Task. The "penny hiding task" was designed by Gratch (1964). The game required the child to guess which of the experimenter's hands the penny is in and then to take a turn at penny-hiding from the experimenter. Both hiding and guessing are recorded over ten trials. It is a simple two-person game in which one player wins and the other loses. Both the hider and the guesser are seeking to win over the other person, and to do so, a "mature" player must base his actions on anticipation of his opponent's actions. Both the role of hider and guesser involves the taking of multiple perspectives for success.

Each child played the game alone with the investigator. The investigator first instructed the child in the game by demonstrating that the penny might be in either hand, by hiding the penny behind h/er back, and then showing it to be once in one hand, once in the other. The demonstration was made to half the children by showing the penny in the left-right sequence, the other half in the right-left sequence.

The competitive nature of the game was highlighted by the investigator explaining that she would hide the penny so well that the child might not find it. She showed great displeasure when the child found the penny. While the investigator presented the game to the child as one involving uncertainty, this was not actually the case. The investigator actually has a penny in both hands so the child was always given positive reinforcement.

At the end of the guessing trials, the investigator exclaimed disappointment that the child was always right and asked if the child would hide the penny to see how well the investigator could do. An assistant sat behind the child to record the child's choices, and signaled the investigator as to which hand the child had the penny in when involved in the hiding tasks. Thus, the investigator was able to give positive feedback to the child by guessing the wrong hand.

The game was scored by the number of passes the child made over the 10 guessing and hiding trials. A pass was measured as one change from left to right or right to left, after the first correct guess. The child was always correct on the first choice, so the score could range from 0 to 9 for the guessing trials, and 0 to 9 on the hiding trials. Pass scores for the two sets of trials were combined (see Appendix G).

Procedure

The DTLA-P was administered by a trained tester during the months of March and April. Late in April teachers rated students on

the Kohn Social Competency Scale and the Instrumental Competence Scale for Young Children. These instruments was administered 2 weeks apart and the order of administration was counterbalanced.

The Social Problem-Solving Task was administered during the spring semester by the investigator and a senior Child Development major in the testing room at the Center for Child Studies. During the summer, data from the day care center were collected by the investigator in an office area free from distractions.

The "penny hiding task" and the sociometric rating-scale were administered in one session. Pictures of each child in the classroom were available for subjects to sort into one of three boxes, one displaying a label of a happy face, one displaying a label of a neutral face, and one displaying a label of a sad face. Each subject rated every other child in his or her classroom.

The "penny task" was administered according to the procedures outlined by Gratch (1964) as described above. A research assistant sat behind each child when the penny task was administered and recorded the child's strategy changes and clued the investigator as to where the child had hidden the penny.

Analyses

A Cronbach's alpha was utilized to assess the internal reliability of the COMPSCALE. To determine the major factor structure of the COMPSCALE, a principal components method of factor analysis was conducted. Individual items were analyzed for discriminability.

Four multiple regression analyses were performed. The Detroit Test of Learning Aptitude-Primary, the Kohn Social Competence Scale (Factor I and II), and the Instrumental Competence Scale for Young Children were used to predict each of the four dependent measures of social knowledge (as assessed by the Social Problem-Solving Task: Categories and Flexibility), social effectiveness (as assessed by the sociometric rating scale), and role-taking abilities (as measured by the Gratch "penny hiding task").

CHAPTER IV

RESULTS

The present study was conducted to examine the measurement properties and the predictive ability of Lange et al.'s (in press) newly-revised Instrumental Competence Scale for Young Children (COMPSCALE). Measurement analyses focused on the scale's item characteristics, factor structure, and reliability. Analyses of predictive ability focused on the relative predictive power of the COMPSCALE, the Kohn Social Competence Scale-Preschool (KSCS-P; Kohn & Rosman, 1972a) and the Detroit Test of Learning Abilities-Primary, (DTLA-P, 1986), in accounting for variation in four social-outcome measures; namely, the Asher et al. (1979) sociometric measure of peer popularity, Rubin's (1982) category and flexibility measures of social problem-solving knowledge (SPST-R), and Gratch's (1964) penny-task measure of perspective taking. Data for the measurement properties of the COMPSCALE were based on 168 subjects. The comparison of predictive ability was based on 83 subjects. A descriptive summary of results for all predictor and criterial measures precedes the sections on measurement and predictive characteristics of the COMPSCALE.

Descriptive Summary of Results for Predictor Measures

Data plots of each of the three predictor measures established that the data were normally distributed, and that the distributions

were not skewed. Means for all instruments are shown in Table 1 and Table 2. Generally, the means are similar to norms established in previous investigations. The COMPSCALE mean of 4.63, although slightly higher than the Likert scale average of 4.00, was closer to the average scale score than that of 5.0 reported by Lange et al. (in press) when using the original version of the COMPSCALE Instrument. The mean for the DTLA-P of 107 was only slightly higher than the norm mean of 100 and was within one standard deviation (SD = 15) established on the DTLA-P measure. The sample mean of 43.73 for Factor I of the Kohn Social Competence Scale for Preschoolers (KSCS-P) was only slightly below the norm established (mean of 47.14) for their preschool sample. Unexpectedly our sample scored considerably lower than the Kohn & Rosman (1972b) sample on Factor II. Factor II deals with classroom behaviors and compliance, whereby a low score denotes higher functioning.

Descriptive Summary of Results for Criterial Measures

As with the predictor instruments, each of the social criterial measures appeared to be normally distributed on the normal probability plots. The Asher et al. (1981) sociometric measure was derived by having children rate pictures of their classmates as to whether or not they liked to play with each child. Likes to play with child a lot was assigned a score of 3, some of the time 2, or not at all 1. The mean of these scores would be expected to be 2. The sample mean was 2.137.

Table 1
Means and Standard Deviations for Sample
(N = 83)

Instrument	Mean	S.D.	Range
COMPSCALE	4.63	.75	2.8 - 6.8
KSCS-P I	43.73	15.69	6.0 - 80.0
KSCS-P II	-32.34	17.77	-84.0 - -1.0
DTLA-P	107.50	13.90	69.0 - 140.0
SPST-R (categories)	10.30	3.70	0.0 - 18.0
SPST-R (flexibility)	9.19	4.30	0.0 - 15.0
Penny Task	13.75	3.80	2.0 - 19.0
Sociometric	2.13	.36	1.2 - 3.0

Table 2
Means and Standard Deviations for Girls and Boys

Instrument	Girls		Boys	
	Mean	SD	Mean	SD
COMPSCALE	4.8	.8	4.5	.6
KSCS-P I	46.7	16.6	40.5	14.1
KSCS-P II	-27.0	16.3	-38.0	17.7
DTLA-P	109.0	13.9	105.0	13.8
SPST-R (categories)	11.2	3.9	9.3	3.3
SPST-R (flexibility)	10.1	4.4	8.2	3.9
Penny Task	13.4	4.0	14.1	3.6
Sociometric	2.2	.3	4.5	.6

Rubin's (1982) Social Problem-Solving Test-Revised (SPST-R) measure can be coded on several dimensions. In the present study the total number of problem solution categories and total flexibility scores were used. Five problem-solving stories were used in which the central character in each story wants to play with an object or material that another child possesses. The E follows each story presentation with a probe, i.e., "What could Joe say or do to have a turn on the trike?" Category scores tapped children's thoughtfulness about the number of ways to solve social problems. Flexibility scores tap the extent to which children can alternate among different types of strategies in an attempt to solve social problems. The latter score was computed by assigning a score of 0 if the child failed to offer a response to the experimenter's probe following the first answer; a 1 was assigned if the second response involved only the same category/categories as the first response; and a 2 was scored if the second response was a novel solution or a modification of the first solution offered. Both the number of strategies the child produced and the flexibility with which the child approached the problem solutions would seem to reflect the instrumental qualities that were of interest in this study. The mean number of categories (summed over the five stories) for the sample was 10.3, or 2.1 per story. A comparison of flexibility score means between the present study and Rubin's (1982) study of age and gender differences is possible. Rubin (1982) reported a mean of 2.40 for females and 2.14 for males. The present sample

produced similar results for males and females, with a mean of 2.03 for females and 1.64 for males.

The Gratch (1964) penny task is a measure of perspective-taking ability. Subjects were asked to guess which hand the experimenter had hidden a penny in and alternately to "fool" the experimenter by hiding the penny and having the experimenter guess in which hand the child had hidden the penny. A score of 1 was recorded each time the child alternated either his/her guessing or hiding strategies, yielding a possible total score of 18. The present sample averaged 13.75 alternations. Gratch (1964) assessed the developmental aspects of perspective taking in subjects from 2 to 8 years of age. Data are not available for the age group used in the present study.

Correlations among all predictor and criterial measures are shown in Table 3.

Measurement Properties of the COMPSCALE Instrument.

To assess the measurement properties of the COMPSCALE, a number of factors were investigated: the internal consistency, test-retest reliability, the factor structure, discrimination properties of individual items on the instrument, and the degree of correlation between individual items and the total instrument.

Test-retest reliability of the COMPSCALE was established on 46 subjects with an 8-week interval between tests. Pearson's correlation revealed a reliability of .87. Lange et al. (in press) reported a test-retest reliability of .86 for teachers' ratings on

Table 3
Correlation Matrix of Predictor and Criterion Variables

	KI	KII	DT	PC	PF	PT	Play	Comp	Soc
KI	1.00	.49	.27	.28	.25	.19	.25	.70	.53
KII		1.00	.09	-.13	-.13	.05	.37	.31	.13
DT			1.00	.03	-.07	.04	-.07	.50	.39
PC				1.00	.81	.13	.02	.08	.32
PF					1.00	.11	.02	.09	.28
PT						1.00	.01	.08	.03
Play							1.00	.12	.07
Comp								1.00	.70
Soc									1.00

Note: KI = Kohn Social Competence Scale-Preschool/Factor I
 KII = Kohn Social Competence Scale-Preschool/Factor II
 DT = Detroit Test of Learning Aptitude-Primary
 PC = Social Problem Solving Task-Revised/Categories
 PF = Social Problem Solving Task-Revised/Flexibility
 PT = Penny Task
 Play = Sociometric Rating
 Comp = COMPSCALE
 Soc = Social Subscale of the COMPSCALE

the original version of the COMPSCALE instrument. All of the analyses described below are based on time one data.

Internal Consistency. A Cronbach's alpha was utilized to assess the internal consistency of the COMPSCALE instrument. The alpha coefficient for the instrument was .95. Table 4 shows the correlations of individual items with total instrument scores. As can be seen, most items (80%) correlate at .50 or above, and 11 items correlate at .70 or above.

Factor Structure. To determine the major item dimensions of the COMPSCALE a factor analysis was conducted. Based on Lange et al.'s (in press) belief that the instrument assesses instrumentality, it was hypothesized the majority of items would load on one factor. A "Principal components" method of factor analysis extracted 7 centroid factors which accounted for 28.11% of the variance. Twenty-nine of the instrument items loaded on Factor I at .50 or above and accounted for 16% of the total variance. Eight items loaded on Factor II at .50 or above, and accounted for an additional 5% of the total variance. The remaining five factors added 7.11% to the total variance. (See Table 5.)

Of the 40 COMPSCALE items, 34 items showed a higher loading on either Factor I or Factor II than on any other factor. To illustrate what is measured by the factors, the 5 items which showed the highest loadings on Factors I and II are shown in Table 6. The items suggest that Factor I reflects dimensions of instrumentality such as planfulness and initiative. Inspection of

Table 4
Item Correlates to Total Instrument

Item	R
1	.7199
2	.7478
3	.6305
4	.7313
5	.1329
6	.3124
7	.7751
8	.7667
9	.7925
10	.2135
11	.6233
12	.5080
13	.5642
14	.4397
15	.6836
16	.8527
17	.6883
18	.6563
19	.4683
20	.6756
21	.5302
22	.3051
23	.4297
24	.4346
25	.4921
26	.7287
27	.5381
28	.7804
29	.6599
30	.3387
31	.7164
32	.1652
33	.5815
34	.1867
35	.5752
36	.6665
37	.6638
38	.7741
39	.7694
40	.5517

Table 5
Items Loading at .50 and Above

Item	Factor 1	Factor 2	Factor 3	Factor 4
1	.768			
2	.772			
3	.711			
4	.774			
5		.697		
6		.560		
7	.819			
8	.805			
9	.840			
10				
11	.703			
12	.598	.599		
13	.616			
14				.539
15	.694			
16	.872			
17	.690			
18	.675			
19		.550		
20	.740			
21	.502			
22				
23				
24	.510	.532		
25		.635		
26	.725			
27	.586			
28	.818			
29	.728			
30		.724		
31	.748			
32			.503	
33	.581			
34		.720		
35	.612			
36	.685			
37	.692			
38	.795			
39	.797			
40	.519			
Total				
Variance	15.869	5.090	2.057	1.095

Table 6
Items With Highest Loadings on Factor I and Factor II

Item	Factor	
	I	II
Is she self motivated?	.87227	.05708
Does she set goals for herself that expand her abilities?	.84029	.09309
Does she plan out strategies to use to help herself remember things or solve problems?	.81914	.09075
Does she plan and carry out activities that have many different steps?	.81829	.11380
Does she take initiative in doing tasks and carrying out activities?	.80576	.10769
Is she likely to fade into the background when with other children?	.28673	.72425
Does she go after what she wants forcefully?	.15555	.71995
Is she passive around others?	.07741	.69651
Does she try to compete with others in work and play activities?	.28232	.56012
Does she actively explore things around her on her own?	.44904	.55001

Factor II items suggest a more general dimension of activity-passivity. Only 6 items did not load on either Factor I or II, suggesting the instrument has basically a two-factor distribution (see Table 5).

Discriminability of Items. Ratings for the top and bottom quartiles of the sample were used to examine the discriminability of items. A subject in the top quartile would be expected to receive high ratings (i.e., 5, 6, 7) on each item. Children in the bottom quartile would be expected to score 1, 2, 3, or 4 on all items. Items that discriminate well should have approximately 80% of the top and bottom quartile subjects rated in the desired direction (e.g., 80% rated at or above 5 for the top quartile subjects and 80% rated at or below 4 for the bottom quartile subjects). The percentage of subjects in the top and bottom quartile who received high (5, 6, 7) or low (1, 2, 3, 4) ratings on each item are presented in Table 7. Twenty-five items discriminated well between the top and bottom quartile since the 80% criterion was met by both the top and bottom quartile.

An exemplary item of good discriminative powers was item number one. Ninety-two percent of the children in the top quartile were rated at five or above on this item and 95% of the children in the bottom quartile were rated at 4 or below. For item 5, on the other hand, only 57% of the top quartile were rated at five or above, and 67% of the bottom quartile were rated 4 or below. Top quartile

Table 7
Item Discrimination for Top and Bottom
Quartile Subjects

Item	Top Quartile		Bottom Quartile	
	≤4	≥5	≤4	≥5
1	7%	92%	95%	5%
2	5%	95%	88%	12%
3	12%	88%	86%	14%
4	5%	95%	84%	16%
5	43%	57%	67%	33%
6	38%	62%	84%	16%
7	19%	81%	100%	0%
8	5%	95%	98%	2%
9	21%	79%	98%	2%
10	19%	81%	67%	33%
11	12%	88%	86%	6%
12	26%	74%	81%	19%
13	2%	98%	49%	51%
14	36%	64%	88%	12%
15	0%	100%	91%	9%
16	0%	100%	98%	2%
17	2%	98%	84%	16%
18	14%	86%	95%	5%
19	0%	100%	65%	35%
20	10%	90%	84%	16%
21	17%	83%	84%	16%
22	36%	64%	65%	35%
23	21%	79%	77%	23%
24	50%	50%	86%	14%
25	10%	90%	81%	18%
26	0%	100%	81%	19%
27	10%	90%	70%	30%
28	19%	81%	98%	2%
29	7%	93%	88%	11%
30	29%	71%	77%	23%
31	14%	86%	91%	9%
32	31%	69%	54%	46%
33	7%	93%	77%	23%
34	46%	54%	73%	27%
35	2%	98%	63%	37%
36	7%	93%	94%	6%
37	5%	95%	77%	23%
38	0%	100%	94%	6%
39	10%	90%	94%	6%
40	14%	86%	80%	20%

ratings were more consistent with the expected direction than were the bottom quartile.

Predicting the Criterial Measures with Regression Analysis

The relative predictive ability of the four predictor measures (i.e., the KSCS-P Factor I, The KSCS-P Factor II, the DTLA-P and the COMPSCALE) was examined with a forward stepwise regression procedure performed on the four outcome measures, that is, the sociometric playrate measure (Asher et al., 1981), the social problem-solving category and flexibility measures (Rubin, 1982), and the penny-hiding, perspective-taking task (Gratch, 1964).

For the criterial sociometric playrate measure, Factor II was the only significant predictor to enter the model. Sixteen percent of the variability was accounted for by the model.

For the numbers of categories subjects generated in the Rubin social problem-solving task, the KSCS-P Factor I entered first and the KSCS-P Factor II entered second. Both of the variables were significant predictors and accounted for 17% of the variance.

For subjects flexibility in generating alternate types of solutions on Rubin's SPST-P, the KSCS-P Factor I entered first, the KSCS-P Factor II entered second, and were both significant predictors. The R^2 increased from .06 at the first step to .17 with the two variables entered into the model.

The KSCS-P Factor I was the only variable to enter the regression equation for children's perspective-taking in the penny-

hiding task. The model accounted for 3% of the variance (see Table 8).

Since proficiency in social problem-solving and perspective-taking would appear to vary with age and possibly gender, a second set of regression equations was performed with age and gender forced to enter the equation first. The results of these equations were essentially the same as those of the original analyses, although in each case the predictors accounted for added variance of the criterial measures (see Table 9).

Although the COMPSCALE has been successful in predicting children's cognitive-task performance (Lange et al., in press), this is the first investigation in which the instrument has been used to predict tasks that are social in nature. A subset of 8 items that pertain directly to children's interactions with adults or children was extrapolated and a forward stepwise regression was performed using these items as a COMPSCALE/SOC subscale. The items used and their factor loadings are shown in Table 10. As can be seen, the results are essentially the same. Analysis of the playrate measure again identified the KSCS-P Factor II as the only significant predictor for the model. For the SPST-R Categories, the COMPSCALE/SOC entered the model first. However, when all other variables entered only the KSCS-P Factor I and Factor II were significant predictors. For SPST-R Flexibility, the COMPSCALE/SOC entered first, but again the KSCS-P Factor I and II were the only significant predictors when all variable were entered into the

Table 8
Forward Stepwise Regression

Criterion	Predictor	Beta	F	p
Play Rating	KSCS-P II	.006	1.58	.008
	DTLA-P	-.003	7.30	.212
	KSCS-P I	.003	1.04	.311
Problem Categories	KSCS-P I	.148	16.51	.0001
	KSCS-P II	-.075	9.59	.0027
	COMPSCALE	-1.213	2.95	.0895
Problem Flexibility	KSCS-P I	.126	14.26	.0003
	KSCS-P II	.081	8.51	.0055
	DTLA-P	.050	2.32	.1318
Penny Task	KSCS-P I	.047	3.15	.0796

Note. KSCS-P = Kohn Social Competence Scale-Preschool
 COMPSCALE = Instrumental Competence Scale for Young Children
 DTLA-P = Detroit Test of Learning Aptitude-Primary

TABLE 9
Stepwise Regression With Age and Gender

Criterion	Predictor	Beta	F	p
Play Rating	Age	-.0024	.00	.9705
	Gender	-.0650	.67	.4162
	KSCS-P II	.0028	.57	.0208
	DTLA-P	.0038	1.74	.1908
	KSCS-P I	.0059	.90	.3450
Problem Categ.	Age	1.4095	5.58	.0206
	Gender	-2.6071	12.68	.0006
	KSCS-P II	-.0897	14.92	.0612
	KSCS-P I	.1276	13.10	.0005
	COMPSCALE	-1.2495	3.61	.0612
Problem Flex.	Age	1.0175	1.95	.1665
	Gender	-2.6986	9.25	.0032
	KSCS-P II	.0983	12.19	.0008
	KSCS-P I	.1087	10.57	.0017
	DTLA-P	.0529	2.73	.1024
Penny Task	Age	1.6063	5.48	.0218
	Gender	.7122	.75	.3905
	KSCS-P I	.0357	1.72	.1937

Note. KSCS-P = Kohn Social Competence Scale-Preschool
 COMPSCALE = Instrumental Competence Scale for Young Children
 DTLA-P = Detroit Test of Learning Aptitude-Primary

Table 10
 Items Selected for Social Subscale of COMPSCALE
 and Factor Loadings

Item	Factor	Loading
5 Is she passive around others?	Factor 2	.6965
6 Does she try to compete with others in play and work activities?	Factor 2	.5601
14 Does she tend to follow what others do in play and work activities?	Factor 4	.5387
21 Does she ask questions to get information about people, things, etc.?	Factor 1	.5025
23 Does she tend to express her needs and wants by talking about them?	Did not load on any factor	
30 Is she likely to fade into the background when she is with other children?	Factor 2	.7243
32 Does she actively use adults and other children to get help or information about something?	Factor 3	.5810
40 Is she aware of how adults or other children will react to her when she says or does something?	Factor 1	.5915

model. As in the original analysis of the perspective-taking penny-hiding task, the KSCS-P Factor I was the significant predictor (see Table 11).

When age and gender were force-entered into the model, none of the predictors were significant for the sociometric measure. Age, gender, and Factor I and II of the KSCS-P were significant predictors of the number of categories children were able to generate as measured by the SPST-R. Gender, Factor I and II of the KSCS-P were significant predictors for children's ability to alternate among different types of strategies to solve social problems. Age became the only significant predictor of the perspective-taking measure (see Table 12). There was an increase in the total amount of variance accounted for by the model with age and gender added.

Table 11
Stepwise Regression With Social Subscale
of the COMPSCALE

Criterion	Predictor	Beta	F	p
Play Rating	KSCS-P II	.0065	7.30	.0084
	DTLA-P	-.0035	1.58	.2120
	KSCS-P I	-.0029	1.04	.3108
Problem categ.	COMPSCALE/SOC	.5074	.57	.4512
	KSCS-P I	.0925	5.82	.0182
	KSCS-P II	-.0621	4.50	.0370
	DTLA-P	-.0233	.60	.4424
Problem Flex.	COMPSCALE/SOC	.6661	.75	.3902
	DTLA-P	-.0597	2.95	.0899
	KSCS-P I	.1009	5.24	.0248
	KSCS-P II	-.0658	3.83	.0540
Penny Task	KSCS-P I	.0873	4.41	.0388
	COMPSCALE/SOC	-.8113	1.39	.2417
	KSCS-P II	-.0319	1.03	.3136

Note. KSCS-P = Kohn Social Competence Scale-Preschool
 COMPSCALE/SOC = Instrumental Competence Scale for Young
 Children/Social Items Subscale
 DTLA-P = Detroit Test of Learning Aptitude-Primary

Table 12
 Stepwise Regression With Age, Gender, and Social
 Subscale of the COMPSCALE

Criterion	Predictor	Beta	F	p
Play Rating	Age	.0020	.00	.975
	Gender	-.0786	.93	.338
	KSCS-P II	.0045	2.18	.144
	DTLA-P	.0029	.97	.329
	KSCS-P I	.0049	1.59	.211
	COMPSCALE/SOC	-.0575	.70	.407
Problem Categ.	Age	1.5560	6.70	.0115
	Gender	-2.4764	11.17	.0013
	KSCS-P II	.0858	13.31	.0005
	KSCS-P I	.0832	9.61	.0027
Problem Flex.	Age	1.0175	1.95	.1665
	Gender	-2.6986	9.25	.0032
	KSCS-P II	-.0983	12.19	.0008
	KSCS-P I	.1087	10.57	.0017
	DTLA-P	-.0529	2.73	.1024
Penny Task	Age	1.6063	5.48	.0218
	Gender	.7122	.75	.3905
	KSCS-P I	.0357	1.72	.1937

Note. KSCS-P = Kohn Social Competence Scale--Preschool
 COMPSCALE/SOC = Instrumental Competence Scale for Young
 Children/Social Items Subscale
 DTLA-P = Detroit Test of Learning Aptitude-Primary

CHAPTER V
DISCUSSION

Measurement Properties of the Instrumental Competence Scale for
Young Children (COMPSCALE)

Previous investigations of instruments designed to assess competent functioning in young children suggested that two or three factors emerge which account for the largest amount of variability. These factors reflect dimensions of emotional reactivity, sociability, and socialization (Kohn & Rosman, 1972a, Emmerick, 1977; Pinneau et al., 1983).

The COMPSCALE was designed to assess a unitary dimension of competence termed instrumentality, i.e., the planfulness and initiative with which children approach their daily activities and play. Thus it was expected that most of the items would load on a single factor. The factor analysis supported this notion with 29 of the 40 items loading on a factor that reflected aspects of planfulness and initiative. Eight items loaded on a second factor which reflected aspects of activity or passivity. These two factors accounted for the major portion of the variability.

The majority of the instrument items correlated at .50 or above with the total instrument and discriminated between competent and less competent children. Several items, however, failed to

discriminate well, loaded on more than one factor, or correlated at .25 or below with the total instrument.

An examination of top and bottom quartile subjects revealed that items discriminated less well for subjects found in the bottom quartile than for those in the top quartile. This may be in part related to a reluctance of teachers to rate children low. Subjects in this particular sample were from middle-class homes and although competence is believed to be a normally distributed variable, this sample may reflect a group of children whom raters believed to be competently functioning young children.

Several items loaded on more than one factor suggesting the possibility of rater interpretation problems. For instance, item number 23, "Does she tend to express her needs and wants by talking about them?", could be interpreted by raters as being either a positive or negative attribute. If a rater interprets this as something desirable, such as the child asking rather than crying, hitting or grabbing, the child would receive a rating at the upper end of the scale (i.e., 5, 6, or 7). However if the rater interprets this as a child continually interrupting and lacking initiative to try things out, the child could receive a rating in the lower range (i.e., 1, 2, or 3). This item is also an example of one item that did not correlate well with the total instrument. A correlation of .1297 would again suggest that raters' interpretation and subsequent ratings lowered the correlation and the item needs to be either reworded or dropped from the instrument. Overall the

measurement properties of the instrument are encouraging in that there was high internal consistency, high test-retest reliability, and the majority of the items discriminated between competent and less competent subjects.

Predictive Ability of the Instrumental Competence Scale for Young Children

Despite the good measurement properties of the COMPSCALE, little evidence for predictive ability was found. The prediction that the Kohn Social Competence Scale (KSCS-P) would be the best predictor for the sociometric outcomes was upheld. Factor II of the KSCS-P, which deals with classroom compliance, was a significant predictor of the sociometric measure. For this sample, children chose to play with children who were compliant in the classroom, followed classroom rules and were not aggressive either with the teacher or with other children. This finding differs from previous studies (Hartup, 1983; Jennings, 1975) which found that children's interest and participation as measured by Factor I of the KSCS-P related to children's sociometric status. It is difficult to rationalize the differences in this investigation and previous ones. It should be remembered that this particular sample mean was lower on compliance (as identified by Factor II of the KSCS-P), than Kohn's (Kohn, 1977) New York sample. Since this is a teacher-rated instrument, it could be that teachers and parents in the Midwest demand more compliance in children than do the teachers in New York City and thus rate children lower on this factor. Children

themselves may subsequently view compliance as being good and prefer to play with the more compliant children.

The prediction that the COMPSCALE would be the best predictor for the Social Problem Solving Task (SPST-R) was rejected. Factors I and II of the KSCS-P were significant predictors for the number of categories generated and the flexibility to try alternate strategies as measured by the SPST-R. With age and gender added to the model, both of these variables and subjects interest and participation as measured by Factor I of the KSCS-P, predicted the number of categories children generated on the SPST-R. KSCS-P Factors I and II and gender were significant predictors of the flexibility with which children could change strategies in the SPST-R.

Children in this sample were able to generate solutions to social problems if they were female, had a high level of interest in classroom activities, participated actively and were skillful in interactions with their peers. Gender and compliance to rules were related to the flexibility with which children were able to attempt various strategies for solving social problems. Males in the sample had a lower mean for compliance as measured by Factor II of the KSCS-P indicating they were less compliant than the females. This is consistent with numerous research efforts that have identified gender differences.

Factor I of the KSPS-P measures the interest and participation level of children. The items that make up Factor I appear to reflect instrumental qualities similar to those that make up the

COMPSCALE. Many items on Factor I of the KSCS-P relate to how the child functions in direct interaction with other children. There were eight similar items on the COMPSCALE, which were extracted and used as a social sub-scale (COMPSCALE/SOC). When used in the regression equation this subscale entered the regression equation first, both for the number of categories generated in social problem solving and the flexibility with which the child could alter strategies in the SPST-R. Due to the shared variability between the COMPSCALE and Factor I and II of the KSCS-P, when Factor I and II of the KSCS-P entered the model the COMPSCALE did not remain significant. With age and gender added to the model, the COMPSCALE/SOC did not enter the model. For this sample age and gender predicted better than the social subscale of the COMPSCALE.

The hypothesis that the COMPSCALE would be the best predictor for the penny-hiding task was also rejected. The best predictor of the perspective-taking task was age. Although Gratch (1964) found this a developmental ability, the prediction was that the instrumentally competent child would arrive at perspective taking earlier. It is interesting that children's interest and participation as measured by Factor I of the KSCS-P is a significant predictor when age is not included in the model. The Centers used in this study, (in particular the Center for Child Studies) focuses a great deal of attention on helping young children become aware of how their actions impact on other children. The self-selected centers are designed to support children's active

participation and this along with teachers reinforcement of how children's actions effect others, may enhance the perspective-taking abilities of children who are interested and participate at a high level. Age as a significant predictor would be expected since previous studies have suggested perspective-taking is a developmental construct. Although this investigation revealed a correlation between perspective-taking and competence in social interaction, the direction of the effect of this relationship is unclear. The possibility exists that children who are more successful in social interactions learn to take the others' perspectives better than the less socially competent child. On the other hand, it could be that the child able to take another's perspective is more successful in social interactions and situations with others. Piaget (1926) suggested that children who were able to take a listener's point of view during communication would be more popular than their more ego-centered age mates.

Conclusions

Sociability may relate more to compliance then it does to instrumentality. Children in this study who were popular with their peers were those who were high on compliance. Instrumentality refers to children who are deliberate and purposeful. That is, children high in instrumental competence have been observed to be assertive and tend to go after what they want forcefully. This could be viewed by classmates as non-compliance and aggressiveness.

It may be that instrumentality relates more to non-compliance than it does to compliance to rule and regulations.

Instrumental competence may not relate to social problem solving in that one need not be instrumental or assertive to have a high degree of social knowledge. Children high in instrumental competence may have the desire to become involved with peers and force their way into interactions but may not have the social knowledge necessary to do so. Perspective taking is typically a cognitive task and for this investigation related more to compliance than to instrumentality. It may be that instrumental competence does not manifest itself in the area of social skills. The outcome measures selected for the investigation did not reflect those skills that require instrumentality, but rather related more to compliance.

Although the data of this investigation supported the KSCS-P as the best predictor for the social outcome measures used in this investigation (e.g., a sociometric measure, social problem solving skills, and perspective taking abilities), it is important to remember that the total amount of variability accounted for by the model with all of the predictor variables plus age and gender accounted for a relatively small amount of variance (i.e., from 20% to 34%).

Limitations of the Investigation

This investigation was limited by being a sample of convenience from a small geographic area and findings may only be generalized to this geographic region. The findings are also limited by the

validity of the measures used. Two of the instruments were teacher-rated instruments and results could be affected by the accuracy and perception of the individuals rating the subjects. Again we are faced with the problem of testing young children with paper and pencil measures.

Recommendations for Future Research

It may be that paper and pencil measures alone are not a viable option for use with young children. There are numerous other variables that need to be considered when assessing children's instrumental competence. In future investigations into instrumental competence, it would be important to assess how parenting styles, and parent-child interaction patterns relate to instrumental competence. The amount of interactions the child has with peers or siblings h/she encounters daily could influence how children develop instrumental competence. Individual temperament characteristics of the child may also be of interest in assessing instrumentality.

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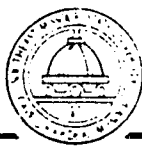
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APPENDIX A

LETTER OF INTRODUCTION AND CONSENT FORM



SOUTHEAST MISSOURI STATE UNIVERSITY

Cape Girardeau, Missouri 63701-4799

(314) 651-2000

November 30, 1987

Study: Competence in the Preschool Child
Principal Investigator: Barbara P. Garner
Instructor: Home Economics
Southeast Missouri State University

Dear Parents

Researchers in Child Development, as well as individuals working with young children on a daily basis, have come to the realization that successful development entails much more than can be measured in a single IQ score. I would like your child to participate in a study I am conducting that will help me know the value of an assessment instrument called Instrumental Competence Scale for Preschool Children, (ICSPC). The scale is believed to assess the processes children use to function competently in their everyday environments.

It is my belief that the ICSPC will be able to predict children's social competence better than existing measures. To ascertain this, each child will be administered the Detroit Tests of Learning Aptitude, a test of general mental abilities; the Kohn Preschool Behavior Scale, a frequently used measure of children's social competence; and the measure under investigation, the ICSPC. It is my hope that the ICSPC will be better able to predict how children will perform on several social tasks. These tasks are short game like measures that will require about 15 minutes each and will be conducted during regularly scheduled class time. One will assess the effectiveness of the social behaviors your child uses in the classroom. The second will assess how your child goes about solving problems that may be encountered with playmates. The third measure is a game that will enable me to assess how well your child is able to take the perspective of another person.

Participation is entirely voluntary with no penalty for non-participation. You or your child may drop out of the study at any time. Each child will be given a code number which will be unavailable to anyone except the principal investigator and the graduate assistant administering the tests. Scoring will be done by the principle investigator and no one else will have access to test results. The master list, test and test results will be kept in a locked file cabinet in my office. When the study has been completed the principle investigator will schedule appointments to discuss the results of the Detroit Tests of Learning Aptitude upon request. A summary of the results will also be available upon request.

If your child is currently participating in the KID'S study being conducted by Dr. Sue Haugland and Dr. Lisa Godwin, the Detroit Test of Learning Aptitude will not be readministered. Your signature on the permission form will allow the Detroit test score to be used in this study.

Thank you for your time and cooperation. I am looking forward to working with your child and will need to have you sign the attached permission form and fill in the demographic variables needed. You may return these forms to the classroom teacher.

Sincerely,

Barbara P. Garner

Barbara P. Garner
Instructor: Home Economics

Permission Form _____

I am interested in my child participating in a study on Competence in Children being conducted by Barbara P. Garner, Instructor in Home Economics at Southeast Missouri State University. I understand that all material will be handled in a confidential manner, that participation is voluntary and that my child or I may withdraw from the study with no penalty to either of us.

Signed _____

Date _____

Child's date of birth Month _____ Day _____ Year _____

Child's sex Male _____ Female _____

Child's race Caucasian _____ Negroid _____ Other _____

Mother's occupation _____

Father's occupation _____

APPENDIX B

KOHN SOCIAL COMPETENCE SCALE-PRESCHOOL (KSCS-P)

PLEASE NOTE:

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

These consist of pages:

- 82-86, Kohn Preschool Behavior Scale
- 88-105, Detroit Test of Learning Aptitude-Primary
 (DTLA-P)
- 107-112, Instrumental Competence Scale for Young
 Children (Compscale)

U·M·I

APPENDIX C

DETROIT TEST OF LEARNING APTITUDE-PRIMARY (DTLA-P)

APPENDIX D
INSTRUMENTAL COMPETENCE SCALE FOR YOUNG
CHILDREN (COMPSCALE)

APPENDIX E




RATING SCALE MEASURE OF SOCIOMETRIC STATUS

Socio-Metric Data




ID# _____

Class _____

Date _____

Procedure: Each individual child will be shown pictures of each of his/her classmates. Be sure that the child is able to identify all of the children's pictures. Have the child place each photo into the box that corresponds to  (1) does not like to play with,  (2) likes to play with sometimes,  (3) likes to play with a lot.

Record the ID#'s from the back of each photo in the appropriate column.

# 1 	# 2 	# 3 

APPENDIX F

SOCIAL PROBLEM SOLVING TASK-REVISED (SPST-R)

PLEASE NOTE:

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These consist of pages:

116-123, Social Problem Solving Task-Revised (SPST-R)

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APPENDIX G
FORM FOR SCORING OF THE PENNY TASK

	GUESS		HIDE	
	R.	L.	R.	L.
1.	—	—	—	—
2.	—	—	—	—
3.	—	—	—	—
4.	—	—	—	—
5.	—	—	—	—
6.	—	—	—	—
7.	—	—	—	—
8.	—	—	—	—
9.	—	—	—	—
10.	—	—	—	—

	GUESS		HIDE	
	R.	L.	R.	L.
1.	—	—	—	—
2.	—	—	—	—
3.	—	—	—	—
4.	—	—	—	—
5.	—	—	—	—
6.	—	—	—	—
7.	—	—	—	—
8.	—	—	—	—
9.	—	—	—	—
10.	—	—	—	—