

AN ABSTRACT OF THE THESIS OF

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Title: A Reliability and Validity Study of a Q Sort Rating of Preschool Competence

Abstract Approved:

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Social competence has emerged in research on social development as a construct unifying behavioral and motivational dimensions of social development in the preschool child. It draws from theories of social learning, cognitive development, and competence motivation. The theoretical relevance and empirical utility of the construct indicate the need for further research on methods of measuring social competence.

Recent investigators have noted the cultural relativity of social competence, as a construct which includes values about behavior. Although parents have been infrequently used as a population of experts for content validation, they could provide important information about the cultural values underlying a definition of competence.

The present study investigates several methodological questions as they relate to Baumrind's Preschool Behavior Q Sort (PBQS), a measure of social competence. The questions include reliability and validity after modifications in administration; the construct validity of the PBQS factor Independence, when compared with an alternative measure of independence; and the content validity of the PBQS seven-cluster, two-factor model of preschool competence based on parental responses to PBQS items.

Child data came from naturalistic observations of 36 preschool

The sample was restricted to children between 48 and 60 months old, of normal and above verbal intelligence, and from middle class families.

The PBQS was used to rate subjects after a 2.5 hour observation supplemented with anecdotal records collected by staff at the preschool.

Parent subjects had children in the preschool which provided the child sample. The parent sample was homogeneous with respect to socio-cultural background. Parents rated PBQS items presented as seven point Likert-type items. Questionnaires were completed by 97 parents.

Interrater reliability was computed for each subject across 72 items and 7 clusters, for each cluster across all subjects, and for each item across all subjects. Reliability was high for most subjects. Reliability was significant for all clusters and 63 items.

The matrix of interitem correlations for child data was analyzed on the basis of frequency of significant correlations and the mean correlation of each item with all others. Although some within-cluster correlations were in the expected pattern, between-cluster item correlations indicated a lack of independence between clusters.

A stepwise discriminant analysis was used to test the relationship of the PBQS Independence factor to another measure of independence. In a model which discriminated between children having three levels of independence on Beller's Scale of Independence, less than one-half the items were PBQS Independence factor items.

The matrix of interitem correlations for parent data was analyzed in the same way as the matrix for child data. The multi-cluster pattern of intercorrelations did not appear. Parents seemed to respond in terms of a univariate definition of social competence, with a strong consensus

on items describing cooperation and compliance. There was a pronounced absence of consensus on most items describing independence.

The modified administration procedure for the PBQS appeared to produce reliable ratings with questionable validity. Therefore, the results and conclusions of the study were applied to modify the cluster scoring procedure of the PBQS. The resulting three-cluster model appears to be more simplistic than Baumrind's seven clusters, but it is more valid in terms of the child ratings for the present study. The deviation of the three-cluster model from a parental definition of competence is easily delineated, since one of the three clusters strongly represents the parental definition for the sample of parents used in this study.

In view of the empirical method by which clusters were derived, limited clinical or theoretical significance can be attached to the clusters. The clusters represent functionally related behavior indices, but their structural relationship has not been demonstrated.

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a Measure of Preschool Competence

by

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A RELIABILITY AND VALIDITY STUDY OF  
A MEASURE OF PRESCHOOL COMPETENCE

I. INTRODUCTION

Justification

Several authors have suggested the importance of competence as a molar construct representing a set of valued behaviors with an underlying motivational dimension (O'Malley, 1975; White, 1959; White and Watts, 1973; and Baumrind, 1973). More specifically, the concept of social competence has been proposed as one index for studying young children's development. The applications of this concept have been in two broad areas. One is directed toward the design and evaluation of educational programs for young children (Anderson and Messick, 1974). Social competence is seen as one way to identify behaviors and experiences which are valuable in terms of optimal outcomes in the child's social and intellectual development (White and Watts, 1973). The second application has been directed toward greater understanding of the relationship between the child's social behavior and other variables. For example, Sisson (1973) and Block et al. (1974) have investigated the relationship of competence to sex role development. A series of investigations by Baumrind (1971, 1973 et al.) has focused on patterns of parental control and manifestations of social competence in the young child, and White and Watts' research has illuminated the teaching role of the parent in the development of intellectual competence.

The increased use of competence as an indicator variable for developmental outcomes introduces the risk of culturally inappropriate applications of measurement. The controversy over intelligence testing (Cohen, 1973) illustrates the problem inherent in generalizing findings from measurement instruments which are culturally bound. Baumrind's findings on Black parents (1972, 1975) indicated that parents are important informants on subcultural concepts of valued behavior in children. Bernal (1974) used Chicano parents to investigate definitions of giftedness for their subculture. Auger and Auger (1974) and Lash (1971) used parents as one set of subjects in measuring the underlying values and issues of standardized tests of social development, achievement, and intelligence testing. Competence seems to represent a set of culturally valued behaviors. Therefore, an investigation of parental responses to items of the Preschool Behavior Q Sort (Baumrind, 1968b)<sup>1</sup> should provide important information about its content validity.

As the concept of competence is used in diverse applications with greater frequency, the need for a standardized instrument for measurement of the concept also increases. Although the PBQS seems the most conceptually valid of those available, it is time consuming to use and complex to score. The infrequency with which it has been used suggests that it needs modifications to simplify administration. Inappropriate statistical interpretations by others (e.g., Bronson, 1974) suggest that a clarification of scoring procedures is also needed. Some limitations

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<sup>1</sup>Hereafter abbreviated as the PBQS.

in Baumrind's (1971a) original conclusions about the reliability and validity of the instrument support the need for further study of these testing criteria.

The justification for the following research, therefore, arises from three main issues. The first is the increasing importance of competence, specifically social competence, as a construct in investigations of social development and in program design and evaluation for young children. The second is the concern over the general content validity of measurement instruments used to study culturally valued behaviors. The third is the complex problem of testing reliability and validity for an instrument which assesses a complex construct including variables which are not easily operationalized. These three issues form the basis for studying the use of an adapted form of the PBQS.

#### Purpose

The central purpose of this research is to investigate the reliability and validity of the PBQS after modifications designed to reduce time requirements for administration and to increase efficiency of rater training. Although the child sample is roughly comparable to that used in prior applications of the Q Sort (Baumrind, 1967, 1971a), the introduction of a time lag and a different research context since the most recent reliability analyses necessitates a reassessment of its reliability. Methodological alterations also mandate reliability tests and an assessment of the stability of clusters from Baumrind's original analysis. The use of parents as a sample of experts is important, given the possible cultural relativity of the instrument.

Reliability for a Q sort, which has a large number of interdependent ratings, is complex. In addition, it is possible to test reliability for each subject, or for each item rating. For this reason, four tests of Interrater reliability will be used.

1. Interrater correlations will be computed for each child subject across all items.
2. Interrater correlations will be computed for each child subject across all cluster scores.
3. Interrater correlations will be computed for each item across all child subjects.
4. Interrater correlations will be computed for each cluster across all child subjects.

The stability of a cluster analysis from one application to the next may be seen as indication of instrument reliability. However, since the clusters also represent an underlying theoretical model (due to the rational process by which clusters are formed), a measure of cluster stability also reflects on the construct validity of the test. A correlation matrix of child ratings, with items ordered by cluster from Baumrind's original analysis (1971a), will be used to assess cluster stability over time and after changes in administration.

Construct validity will also be assessed by measuring the degree to which clusters with high loadings on the factor Independence discriminate between children rated as high, medium, or low on independence on another rating scale (Beller, 1957).

Some evidence of content validity of the PBQS will be cited by comparison with other instruments in the review of literature. However,

the principal test of content validity will be an analysis of parental ratings of Q sort items. A correlation matrix with items ordered according to Baumrind's (1971a) analysis will be used to investigate the interitem correlations. The extent to which patterns of interitem correlations agree with the earlier analysis will be taken as evidence of agreement between parental and professional definitions of competence.

The conclusions on reliability and validity will be used as the basis for recommendations for changes in scoring of the PBQS.

#### Definition of Terms

##### Preschool Competence

Preschool competence is the central construct for the present study. Although White (1959) conceptualized competence as a motivational construct, it is manifested in the organism's behavioral ability to "interact effectively with the environment." The development of competence, due in part to inherent capacities, is also learned, for

"it receives substantial contributions from activities which, though playful and exploratory in character, at the same time show direction, selectivity, and persistence in interacting with the environment" (White, 1959, 330).

Baumrind's conceptualization of preschool competence also includes both motivational and behavioral aspects:

"The belief in one's own power and the assumption of responsibility for one's own intellectual successes

and failures are important predictors of independent effort and intellectual achievement" (Baumrind, 1971a, 100).

The concepts of social responsibility and independence are components of Baumrind's conceptualization of competence.

#### Social Responsibility-Irresponsibility

Social responsibility was operationally defined by Baumrind (1971a) as one of the orthogonal factors in her cluster analysis. The following clusters had high loadings on the factor.

Cluster I, Friendly--Hostile  
Cluster II, Cooperative--Resistive  
Cluster VI, Achievement Oriented--Not Achievement Oriented

The item descriptors for these clusters are listed in Appendix A. High levels of social responsibility imply stability and responsibility, but not conformity, in friendly, cooperative, and achievement-oriented behavior in the preschool setting. Social responsibility also implies compliance with, but not necessarily dependence on, adult direction and guidance (Baumrind, 1973). Social irresponsibility was operationally defined to be the opposite of social responsibility.

#### Independence-Dependence

Independence was also operationally defined, as a factor orthogonal to the Social Responsibility-Irresponsibility factor on Baumrind's cluster analysis (1971a). The following clusters had high loadings on this factor:

Cluster III, Domineering--Tractable  
Cluster IV, Dominant--Submissive

Cluster V, Purposive--Aimless  
Cluster VII, Independent--Suggestible

The item descriptors for these clusters are listed in Appendix B. Independent behavior by this definition implies active nonconformity and purposeful behavior without extreme rebellion or irresponsibility.

#### Construct Validity

Construct validity measures the degree to which a test score represents some "postulated attribute of people, assumed to be reflected in test performance" (Cronbach and Meehl, 1955, p. 283). In other words, it measures a test's ability to represent some underlying trait which cannot be operationally defined. A test is said to have high construct validity when it discriminates between subjects in a pattern predicted from theory (Kerlinger, 1973).

#### Content Validity

Cronbach and Meehl (1955) have defined content validity as the degree to which a test samples the universe of content for which it is designed. It is the "...representativeness or sampling adequacy..." (Kerlinger, 1973, p. 458) of the test. Content validity is usually assessed by asking a group of judges believed to be competent in the relevant knowledge area to evaluate the items of the test.

#### Reliability

By Kerlinger's definition (1973), reliability represents the stability and accuracy of a testing instrument. Statistically, a

reliable instrument should introduce minimal systematic variance relative to the actual variance in the behavior studied. In interrater reliability, discrepancies between raters must not be so great as to obscure differences or changes within the set of behaviors being measured.

#### Assumptions

The definition of competence (White, 1959) seems to depend on values concerning desirable behavior as well as on some objective criteria concerning the efficacy of certain behaviors. Baumrind (1970) has limited her definition to middle and upper middle class children because of the definition's dependence on behaviors which seem to be derived from what parents of this subculture would like their children to become. Because of this middle class orientation, competence was defined in terms of optimal levels of assertion, independence, achievement orientation, and cooperation. It is assumed that this instrument is designed for use only with middle class and upper middle class children, and should not be generalized to other groups without modification.

Although parents have not previously been defined in the literature as experts in child development, parental expressions are taken in this research as valid reflections of subcultural values. It is assumed that parental expressed values are as valid as the judgements of professional experts, at least for a construct which has a component of cultural relativity.

It is assumed that there is some unanimity among parents within one subcultural group as defined by socioeconomic status and ethnic background, so that a common definition of competence can be assessed.

It is assumed that the teaching context does not systematically affect patterns of competence in preschool children, at least between classes at the Oregon State University Child Development Laboratories. Children from four different classes are therefore treated as one sample.

It is assumed that the PBQS, used in a modified observation method, does not discriminate for sex. In addition, patterns of competence as measured by this instrument do not show systematic variance due to age or intelligence within the limited range of the sample for this study.

It is assumed that Beller's Scale of Independence (1957) is a valid and reliable measure of independence when used by preschool teachers to rate children in their classes.

The relative value of different tests of reliability is not easily determined. It is assumed that for a Q sort observational rating scale, interrater correlations are the most appropriate reliability test. Other tests, such as internal consistency and test-retest, have not been used because they are less appropriate given the structure and format of the instrument.

Similarly, there are several approaches to validity assessment. It is assumed that content and construct validity provide the most appropriate information for the purposes of this study and allow for conclusions about the theoretical accuracy and cultural relevance of

the measurement. Other measures of validity, such as face and concurrent, seemed less appropriate for the purposes of this research.

### Hypotheses

#### Reliability

1. For the revised administration of the PBQS, ratings by two independent observers will yield acceptable positive correlations;
  - a. for each subject across all items.
  - b. for each subject across all cluster scores.
  - c. for each item across all subjects.
  - d. for each cluster across all subjects.

#### Validity

2. Interitem correlations of PBQS ratings of child subjects will be significant for cluster defining items within clusters and nonsignificant for cluster defining items between clusters.
3. In a stepwise discriminant analysis using item ratings for subjects classified according to Beller's Scale of Independence (1957), discriminating items will be those with high loadings on the PBQS factor Independence.
4. Interitem correlations of parent ratings of PBQS items will be significant for cluster defining items within clusters and nonsignificant for cluster defining items between clusters.

## II. REVIEW OF LITERATURE

This review of literature extends beyond the specific question of the measurement of preschool competence in order to provide a meaningful framework for a reliability and validity study of the PBQS. The review is organized into four main sections. The first discusses the development of the theoretical model which is the basis for the concept of competence as measured by the PBQS. The second reviews tests of social development as they relate to the theoretical model, and includes a description of the PBQS. The third section discusses problems in measurement of preschool competence as they have appeared in previous uses of the PBQS and other instruments. The final section reviews findings which suggest needed limitations in the application of the PBQS to research problems.

### Preschool Competence: Theoretical Development of the Concept

The theoretical problem of defining competence for the young child is two fold. White (1959) has defined competence as the organism's ability to "interact effectively with the environment." This definition clearly implies behaviors which are necessary for the child's survival and development in a biological sense. To a certain extent, then, a definition of competence should be universal for all young children. Competence, however, must include a social dimension as well. What is believed to be "effective" is dependent to a certain extent on cultural expectations for the young child. White's competence model gives the basis for a general understanding of

competence, but it needs to be augmented by some other theoretical positions. The contributions of social learning theory are necessary to understand fully the role of the cultural environment in the definition and development of competence. The cognitive-developmental model suggests the origins of competence in the interaction between the individual child and the environment.

#### Competence Model

White (1959) presented a theory of motivation which challenged drive and instinctual theories and posited instead a motivation toward competence ("effectance") which causes humans to continue interaction in the absence of somatic needs. He said,

"we might say that the effectance urge represents what the neuromuscular system wants to do when it is otherwise unoccupied or is gently stimulated by the environment" (p. 328).

He related this specifically to the child's continual playful exploration of the environment which leads to changes in the environment. Competence in early childhood is an undifferentiated motivation, which becomes differentiated in later life into such motives as mastery, achievement, and cognizance. Competence sustains the continuous interaction with the environment which is necessary for the young child's social and intellectual development.

Three studies support the validity of White's (1959) model of competence motivation for understanding child development and the parent-child relationship. Harter (1974) attempted to directly assess

competence motivation in cognitive tasks by relating effective responses to task difficulty and success. The research suggested that elementary school children do associate pleasure with frequency and contingency of maternal responses to infants' responses to novel stimuli in a test situation. On the basis of a positive correlation between infants' response decrement and contingency to infant behavior of maternal response, the authors argued that reinforcement leads to further and more successful interaction with the environment. The contingent responses, coupled with skill acquisition, seemed to serve to further interaction with the environment and growth. Fields (1968) studied preadolescent and adolescent boys, relating the child's experiences of efficacy in family decision making and his ability to function competently in other contexts. Efficacy experiences with parents were positively correlated with a number of competent behaviors and attitudes. Fields explained these relationships on the basis of White's competence motivation.

The studies by Lewis and Goldberg (1969), Fields (1968) and Harter (1974) suggest a possible fruitful direction for inquiry concerning the motivational basis for cognitive and social development. Although the existence of competence motivation can be established only by inference, White's model and research stimulated by it does suggest the importance of competence as a construct.

#### Social Learning Model

Social learning theory as presented by Bandura and Walters (1963) is relevant to the topic of the present study, particularly to the

child's relationship to the social or cultural environment. This model may account for one aspect of the definition of competence for the young child. As White and Watts (1973) have noted, environment and experience merge to include "a set of human and nonhuman elements in the external world" (p. 157). They noted that people in the child's world, especially parents, may provide input in many modalities. Social learning theory focuses on the modeling and reinforcement of desired behavior by parents and other adults.

As a model, the parent may implicitly and explicitly define competent behaviors for the child. According to Bandura (1962), imitation of the powerful and rewarding adult occurs not because of status envy by the child, but because the model serves as a secondary reinforcer. Imitation of models or "observational learning" is dependent on incentive conditions impinging on the model, including the model's perceived competence, rewarding qualities, and social power. Imitated behaviors may be generalized to novel situations. Consistent reinforcement of imitative behavior may lead to a "generalized imitative response tendency" (Bandura, 1969, 234).

Social learning theory predicts high interindividual differences and suggests patterns of behavior which may be context-specific. As a modification of learning theory, it attempts to account for the production of non-random responses and for learning in the absence of reinforcement. The emphasis on models as sources of new patterns makes the theory particularly relevant to understanding a culturally dependent construct such as competence. Bandura (1969) argued that models provide examples of sets of complex interrelated responses.

Social system variables and other extra-familial influences may modify the effect of the parental model. Perceived age disparity and social difference may give the peers more influence as models. Television and other media may provide models. Most importantly, inherent individual differences (such as age, sex, and intellectual ability) may influence the level of expectations and nature of models and demands the child receives. Bandura and Walters (1963) give an example of the way in which social class and intelligence may interact to affect parental models:

"A child of below average intelligence is likely to receive fewer negative reinforcements if he grows up in a lower class home than if his parents have attained professional status" (p. 28).

These factors represent other aspects of the social environment which may not be accounted for in parental expectations for competence. They may, therefore, require some modification of a definition of competence for a given population.

Parents and other adults serve as the principal medium through which the child observes socio-cultural expectations for desired behaviors. These expectations may be transmitted implicitly through modeling and reinforcement or explicitly through verbalizations. Such expectations must be included in a definition of competence.

#### Cognitive-Developmental Theory

The theory of cognitive development originally set down by Piaget (1952) describes the child as an organism whose increasingly complex

interactions with the environment lead to qualitative changes in patterns of dealing with the environment. Although this theory is usually interpreted in terms of internal structures or schemes which undergo qualitative change, Baldwin (1969) has interpreted schemes as "cognitive representations." He suggested that these representations may function simply as constructs which are an economical way to describe changes in the child's behaviors and ability. With this interpretation, the cognitive-developmental approach is not contradictory to behaviorist conceptualizations and may account for cultural differences in learning and socialization. Baldwin, in fact, interpreted socialization in terms of its cognitive component. The child was seen as moving from narrow, perception-bound patterns of behavior, in which there is no differentiation between self and environment, to increasingly complex and symbolic patterns of social behavior.

If the cognitive-developmental framework is interpreted behaviorally to include social as well as other forms of behavior, it may serve as a fruitful way of explaining age changes in definitions of competence. The framework for studying competence has three major components:

1. The child is viewed as an organism with capabilities to initiate continued interactions with the environment. The outcome of successful interactions is the development of competence.
2. The changes in environmental inputs necessary for competence, and changes in the nature of competence, appear to be

qualitatively different for different ages. They may be organized into stages.

3. Competence emerges from continued interaction with the environment. That is, passive exposure to environmental stimuli is not sufficient for the development of competence.

Robert White's original definition of competence (1959) was developed to account for the individual's action on the environment in the absence of drives or apparent somatic need. Competence by definition is that motivation which results from successful interactions with the environment. In addition, Carew et al. (1975) and White and Watts (1974) have established empirically that at least during the second year of life, the child engages in interactions with the environment which are important for later intellectual development. Their findings include high positive correlations between certain child-initiated activities during the second year of life and subsequent measures of intellectual competence. It appears that the cognitive-developmental theory's focus on the child's initiation of interaction with the environment is meaningful and necessary for studying the development of competence.

The concept of organized, predictable age differences or stages is also important for understanding competence development, and appears to be supported by empirical evidence. Baumrind (1970), for instance, borrowed from Dubin and Dubin's (1964) framework of age-appropriate socialization practices to explain the apparent success of the authoritative pattern during the preschool period. Subsequently, Baumrind (1973) has related this socialization pattern to Piagetian (1952)

stages of moral development. In interpretation of findings on intellectual competence, White and Watts (1973) and Carew et al. (1975) have found age-related differences in correlates with early experience. Block et al. (1975) have reported age shifts in correlations between measured instrumental competence and certain personality variables. The stage concept allows for seemingly diverse findings on competence development for different ages.

The continued importance to competence of child-environment interaction, as opposed to purely maturational or learning effects, is the most difficult to substantiate. However, in none of the major writings on competence (Baumrind, 1975; Carew et al., 1975; White and Watts, 1973; Bronson, 1974; and Anderson and Messick, 1974) is the focus on either the child or the environment per se. In each, some optimal environmental conditions (e.g. parental behavior) and some child variables (e.g. age or sex) are delineated.

Social learning theory has served to account for cultural variations in competence, particularly as these are mediated by parental influences. The cognitive-developmental theory is crucial for understanding and integrating apparently diverse findings which suggest both continuity and change in the development of competence. In addition, the theory as interpreted by Baldwin (1969) integrates environmental (including social) variables with child variables. Both social learning theory and cognitive-developmental theory seem to accommodate the application of White's (1959) theory of competence motivation to the special case of the young child.

In the following section, the theoretical basis of this study will be summarized by a presentation of models of child competence which appear to be applications of the three theories discussed in the preceding sections.

#### The Development of a Conceptual Model

Three conceptual models have generated considerable research in the area of preschool competence (Schaefer, 1959, 1961; Becker *et al.*, 1959, 1962, 1964; and Baumrind, 1971a). Although the three seem to be nonequivalent in predictions and results, apparent differences may be semantic and methodological rather than theoretical. In fact, it may be that the different results of the models reflect complementary aspects of preschool competence.

Schaefer (1961) summarized circumplex analyses of data on children's social and emotional behavior and presented a hypothetical circumplex model of child behavior, with principal dimensions of hostility-love and extraversion-introversion. He noted that his two-dimensional model was similar to models proposed by Symonds (1939), Chance (1959), Roe (1957), and Slater (cited in Schaefer, 1961). Baumrind and Black (1967) felt the Schaefer model was in accord with their more complex model of child behavior.

Schaefer's (1959, 1961) integration of diverse findings on maternal and child behavior and his development of the circumplex model served as the basis for subsequent work by both Becker *et al.* (1959, 1962, 1964) and Baumrind (1971a). The work of Becker and Baumrind may be viewed as attempts to fill out the models Schaefer proposed and to

further operationalize and conceptually refine the models. An adaptation of Baumrind and Black's (1967) diagram, shown in Figure 1, supports the complementarity of Schaefer's child behavior model to the other two models.

The child model presented by Becker and Krug (1964) represents refinements of the circumplex model proposed by Schaefer (1961). However, Becker's child behavior model does not allow for prosocial manifestations of aggression or assertiveness. The model therefore seems to be an inadequate basis for consideration of the development of preschool competence, although it is in many ways comparable to those of Schaefer (1961) and Baumrind (1971a).

As with the other two researchers reviewed in this section, research by Baumrind and Black (1967), on the relationship of parental control to the development of the child led to the formulation of a child behavior model. The PBQS represents the culmination of development of a model of preschool behavior by Baumrind and Black and Baumrind (1971a). Ratings from both 95 and 72 item Q sorts were factor analyzed. The resulting models were very similar to those of Becker and Krug (1964) and Schaefer (1961). An attempt was made in the development of the Q Sort to define items so that diverse psychological constructs such as "dominance" and "independence" would not necessarily be in polar opposition in the rating of a particular child (Baumrind and Black, 1967, 293). This caution in item definition resulted in some conceptual differences with earlier models:

"most other studies appear to have items defining an extension of Resistive-Rebellious areas, but most

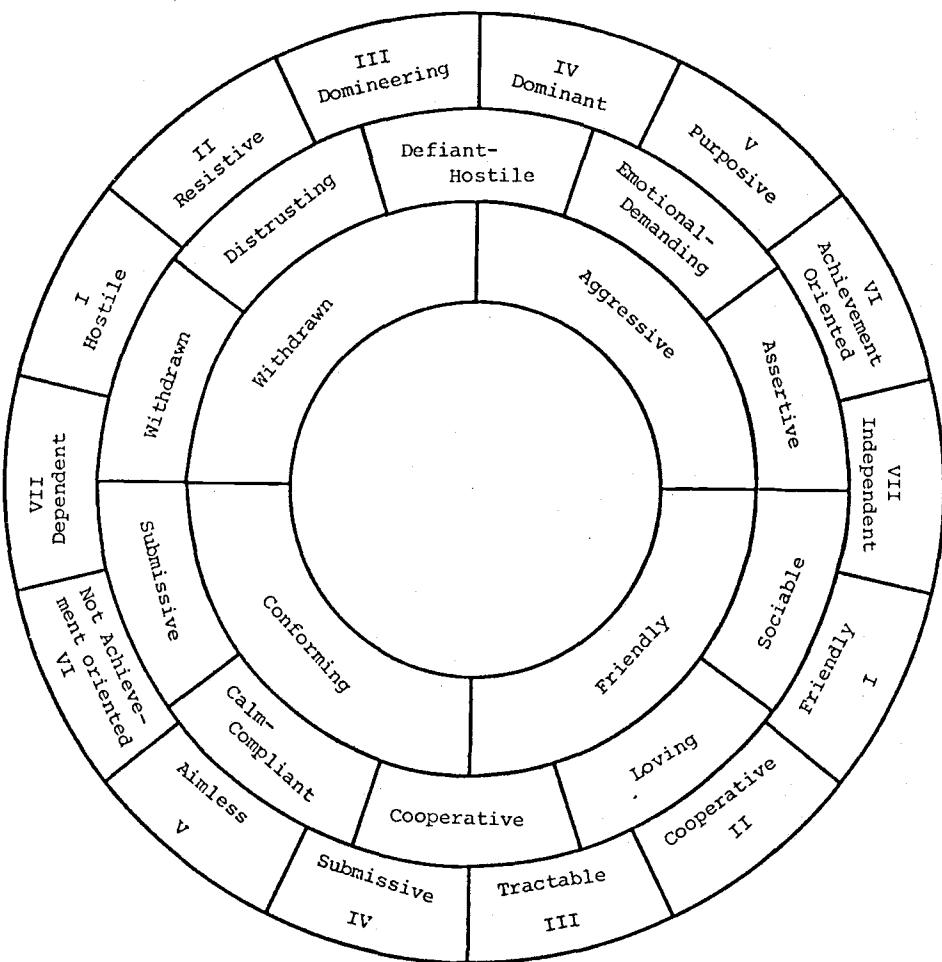


Figure 1. A comparison of two-factor child behavior models.

Outer ring = seven cluster solution from Baumrind (1971a)

Middle ring = Becker and Krug's model (1964)

Inner ring = Schaefer's model (1961)

(Adapted from Baumrind and Black, 1967, p. 300)

of these studies lack a constellation of items directed as the positive aspects of noncompliance involved in Autonomous-Independent behaviors... our model distinguishes between Rebellious and Autonomous behavior for both boys and girls" (Baumrind and Black, 1967, 299).

The three models of child behavior (Schaefer, 1961; Becker and Krug, 1964; Baumrind, 1971a) seem to differ mainly in the definition of some concepts and in their specificity. Baumrind's (1968b) measurement instrument seems to have validity because of its direct statistical tie with the model. The definition of items in this instrument, which allows for the model to include positive aspects of noncompliance and assertiveness, seems to make this model more appropriate for investigations of independence and responsibility in the preschool setting.

#### Preschool Competence: Measurement Instruments

Although the central purpose of this research is to study the reliability and validity of the PBQS, consideration was given to other instruments which might be more appropriate to the area of content defined by the theoretical frameworks and conceptual models. Baumrind's instrument focuses specifically on preschool competence. It is comparable with other instruments because competence was defined in terms of social behaviors which take place in a social milieu.

Anderson and Messick (1974) justify the use of culture-bound definitions and measurement instruments with the following caution:

"This does not mean that constructs that are context- or population-specific must be discarded, but rather that each statement about a socially competent attitude, skill, or coping style must be accompanied by an enumeration of the population subgroups and of

the classes or occasions for which it is an exemplar of competence" (p. 287).

All the instruments reviewed were ones which describe social and preschool competence in terms of behaviors which are believed to be desirable in the preschool setting for middle class children. The review omitted measurement instruments for social competence designed for retarded and other handicapped children, due to the expressed assumption in these instruments that social competence for handicapped children does not include independence (Cain and Levine, 1961). Measurement instruments designed to discriminate between disturbed and adjusted children were also excluded, since they are not designed to be sensitive to within-group variations for an adjusted group of children.

Evaluation of all instruments in this section is done with reference to the child behavior model described by Baumrind (1971a) and especially with reference to her definition of preschool competence. Baumrind defined preschool competence as a construct which represents a complex of behaviors and abilities derived from inherent capacities for growth and development and from learning. The concept was operationally defined by Baumrind in terms of ratings on the PBQS. This rating instrument deals primarily with interpersonal behavior and achievement-oriented behavior as manifested in the preschool setting. Competence includes high ratings on dimensions of social responsibility and of independent behavior. The following summarizes instruments reviewed and reasons why they were less appropriate than the PBQS.

Review of Instruments

The Vineland Social Maturity Scale (Cruikshank and Teagarden, 1953) was scaled for a standardized population for levels of social ability from birth to 25 years. The 117 items are administered in interview format to someone who knows the subject. Although the scale covers some areas of social ability, the broad range of items seem to be based on a concept of social acceptability rather than more specific concepts of social responsibility and independence. In addition, the scale seems to have questionable validity due to subjectivity in rating methods (Louttit and Rothney, 1949).

The Beller Scale of Independence or Autonomy among Children (Beller, 1957) is based on a conceptualization which allows for the co-existence of independence and dependence in the social behavior of young children. Researchers have reported high reliability (Beller, 1955, 1957) and validity (Emmerich, 1966) for the scale. Since it focuses only on independence, and not on responsibility, its conceptualization is more limited than that of the PBQS.

The Pittsburgh Adjustment Survey Scales (Ross, Lacey, and Parton, 1965), a behavior checklist of items taken from literature on social development, has also been found to be a reliable method for rating social behavior. Its scope is also more limited, however, for it focuses on social responsibility in terms which do not include independent or autonomous behavior.

A factor analysis of the Child Behavior Checklist (Stott, 1962) yielded fourteen factors which seem conceptually relevant to the model

of Baumrind (1971a). The use of a binary response for each item, however, gives the instrument less sensitivity than the more complex Q Sort technique. In addition, some checklist items and factors may be dated due to changing expectations for preschool children.

The Social Competence Observation List was developed by White and Watts (1971) with subsequent modifications by Ogilvie and Shapiro (1971) and Sisson (1973). It is an observational checklist, used either in a time sampling or event sampling procedure. It samples a broad range of social behaviors usually observed in the preschool setting, including independent play and interactions with adults and peers. Although excellent reliability has been demonstrated in previous uses, theoretical and methodological limitations exist. The selection of items in terms of the predictive validity may bias the instrument toward intellectually valuable behaviors, and make it less relevant to the wholistic circumplex model presented above. Additionally, the short observation period (10-15 minutes) would seem to reduce the validity of the sampling in terms of a child's overall social development.

The instruments considered as alternatives for the PBQS were evaluated for reliability, validity, and relevance to Baumrind's model of social competence (Baumrind, 1971a). Although research has demonstrated reliability and validity for these instruments, they tend to be based on a more narrow conceptualization of preschool social development than preschool competence and are therefore less appropriate than the PBQS.

Description of the Preschool Behavior Q Sort

Development. The current revision of the PBQS is a 72 item forced Q sort which requires a rectangular distribution of cards into nine sets of eight cards each. The manual for the PBQS includes descriptions of each item, with examples taken from preschool activities (Appendix K lists all items). It also includes instructions to aid in differentiation of seemingly similar items. Factor analysis of ratings of 134 middle class children in urban preschools resulted in the following seven clusters:

- I. Hostile-Friendly
- II. Resistive-Cooperative
- III. Domineering-Tractable
- IV. Dominant-Submissive
- V. Purposive-Aimless
- VI. Achievement Oriented-Not Achievement Oriented
- VII. Independent-Suggestible (Baumrind, 1971a, 7-8)

The items are listed by cluster in Appendices A and B.

The 72 item form represents a revision from a 95 item form developed by Baumrind and Black (1967). This Q sort was administered as a forced sort in a quasi-normal distribution to 100 middle class preschool children. Factor analysis of the data resulted in an eight cluster solution. According to Baumrind, the 72 item sort was developed from the 95 item sort to

"eliminate unreliable items, improve the wording of items found to be ambiguous, and fill out areas of the model concerned with independence and achievement" (Baumrind, 1971a, p. 5).

In particular, items which discriminated for the sex of the child were eliminated.

Reliability. Baumrind (1971a) reported correlations between raters and a checker, who observed approximately 25 percent of the subjects. Interrater correlations of item scores for each subject ranged from .48 for least reliable observer to .69 for the most reliable. The interrater correlations of children's scores on each item ranged from .00 for the least reliable items to .70 for the most reliable. On the basis of these correlations, unreliable items were deleted from the instrument. The mean interrater correlation for items in the adjusted form was .68. Using a subset of seven of the 72 items, Jennings (1975) achieved interrater reliability for items ranging from .75 to .98 for 38 subjects.

Validity. Content validity of a measurement instrument is reflected in the degree to which the score on the instrument samples the universe of content with which the investigator is concerned (Cronbach and Meehl, 1955). Content validation has not been reported for the PBQS, but the definition of its items in terms of desired preschool behavior seems to have high validity. Content validity is further supported by the correspondence of cluster labels with factors and items from other instruments. For example, there would seem to be high similarity between the Q Sort Clusters I, III, IV, and VII, and Stott's (1962) factors XI, VIII, X and III, respectively.

Crandall et al. (1958) used a Q sort on 59 three to eight-year olds to study social compliance. Factor analysis of this Q sort yielded items which seem quite similar to those of Baumrind's (1968b) Q Sort. A comparison of items from Crandall's and Baumrind's Q sorts are given in Appendix C.

Anderson and Messick (1974) developed a definition of social competence from a review of theoretical literature and consensus with twelve experts in the field of social development. Their statements from that definition also seem to support the content validity of the PBQS. A comparison of statements and Q Sort items is given in Appendix D.

The PBQS also has items which seem directly comparable to items from instruments developed by Kohn and Rosman (1972) and Dibble and Cohen (1974), although these instruments were developed to identify emotionally disturbed children.

Given the adequate definition of a universe of content, which is expressed in valid items, a correlation matrix or factorial analysis of a measurement instrument can support construct validity (Cronbach and Meehl, 1955). Baumrind reported item intercorrelations within clusters ranging from .61 to .91. In addition, lack of significant correlations between clusters suggested that they are independent (Baumrind, 1971a).

Concurrent validity of some Q sort items is supported by Jennings' (1975) finding that seven items of the PBQS were significantly correlated to measures of social cognition such as role taking ability, perception of another's emotions, and knowledge of sex role norms.

The administration of the Q Sort by a trained rater after an extended period of observation of the subject makes the PBQS analogous to a summary rating scale, with nine possible ratings for each item. Willems and Willems (1965) and Lytton (1974) have compared data yields from different measurement instruments. Willems and Willems found that, for a study of self perception in high school students, a coded interview provided the most valid data, but also required the greatest

investment of time. The card sort method was less valid but was also more economical. Willems and Willems concluded that there is a "strong negative relationship between the ease of getting the data and the validity of the data" (69). Lytton compared observational frequency counts, rating scales, and experimental playroom study methods, and found that ratings produced the most valid data, but required the second greatest expenditure of time and effort. Rating validity was greatest for ratings of compliance and emotional dependency. High interrater reliability with the ratings suggested that the idiosyncrasies of the rater contributed limited influence to the data. Lytton argued that the rating may be a more valid and less fragmented reflection of behavior than frequency counts and experimental data because it is an abstraction from direct observations of behavior. Thanaplam et al. (1970), in a study of competence of inner city Black children, found that ratings from two ten minute ratings correlated significantly with independent ratings based on an extended clinical interview. Block and Block (1971) have used the Q sort rating format for a measure of personality.

Validity and Reliability of Q Sorts. Several authors have considered the validity and reliability of Q Sorts (Gaito, 1962; Hess and Hink, 1959; Frank, 1956; Jones, 1956; and Livson and Nichols, 1956). Gaito criticized the forced sort because it violated the assumption of independent trials or observations necessary for analysis of variance. The forced sort may destroy the spontaneity of the task and may be detrimental to the subject's motivation and concentration. Hess and Hink, however, noted that the forced sort insures variance in response and prevents response sets. An idiosyncratic distribution might cause a

serious artifact, particularly when one rater administered repeated sorts to different subjects. Frank computed test-retest reliabilities of .93 to .97 for a 100 item personality Q sort administered to ten subjects. Jones compared forced and free sorts of the same instrument by normal, psychotic, and neurotic subjects of similar age and education. Even subjects who were first exposed to a quasi-normal forced sort tended to perform the free sort in a non-normal distribution. Although psychotics showed the greatest deviation from the normal distribution, all groups' distributions tended to be level across the middle categories and slightly elevated at the extremes. Data by Livson and Nichols also challenge the use of a quasi-normal distribution for a forced sort. Subjects were given a 76 item sort and were required to rate five political figures using this sort, first with a free sort and then with a forced normal sort. The authors stated,

"Although the individual unforced distributions are almost always symmetrical about the middle category and usually unimodal, there is a marked heterogeneity of shape" (Livson and Nichols, 1956, 161).

The individual sorts were significantly different from a normal distribution but not significantly different from a rectangular sort. Livson and Nichols also found that reliability increased as the number of inter-item discriminations required from the sorter; since the rectangular distribution requires the maximum number of discriminations for completion, it may have added reliability.

Preschool Competence: Problems in Measurement

Although the PBQS appears to have good validity and reliability according to the criteria presented above, further questions about validity and reliability may be raised. Questions about the validity of the PBQS derive primarily from untested assumptions about the cultural relevance of the theoretical model and about the meaning of item relationships based on a factor analysis. Questions about the reliability of the PBQS derive from the complexity of reliability assessment for an instrument with a large number of interdependent ratings, and from the lack of data for instrument performance after several years of nonuse.

Assumption of Cultural Relevance

Since the items of the PBQS were generated by a group of researchers with diverse intellectual and professional experience related to child development, the instrument probably has high validity for the universe of content as defined by developmental psychologists. The two-factor solutions of Baumrind and Black (1967) and Baumrind (1971a) also bear remarkable similarity to earlier models such as Becker and Krug's (1964).

It appears, however, that for a model based on culturally valued behaviors, the population of experts may be defined to include parents of the subculture in question. Baumrind's (1971a, 1974) discussions of her findings and the relationship of parental control to child's competence support the functional importance of her child behavior model in terms of cultural expectations for child development. However, the relationship of parental beliefs as cultural expectations to such a

model has not been assessed in any empirical fashion. In other words, if one takes parents as a part of the population of experts, the full universe of content for the PBQS has not been measured.

Although a few authors have compared the values of professionals to those of parents (e.g., Lash, 1971), Auger and Auger (1974) seem to make the only explicit statement about the value of parental input to the measurement process. They compared ratings of items from standardized test by parents, clinicians, and teachers of children in a residential treatment center. They were careful not to designate any one group (especially clinicians) as the criterion for comparison, since this would have

"constituted an act of administrative fiat for which there yet remains little empirical justification" (p. 94).

In overall rankings of items by the three groups, there was a high level of agreement. However, results of comparisons of individual item ratings agreed with earlier findings showing differences between professionals and parents. Clinicians and teachers tended to rate items on personality problems as being more predictive of maladjustment than behavior problems. Parents rated behavior problem items as being more predictive than personality problem items. Auger and Auger noted that parents' responses are in accord with research on the measured predictive validity of such tests, which favors behavioral items over personality items.

Other comparisons of parents and professionals have shown some overall agreement, but specific differences concerning uses of

measurement have appeared. Lash's (1971) research comparing teachers', school board members', and parents' attitudes on the use of achievement and intelligence tests indicated that there were significant between-group differences on 14 out of 15 statements. Parents' responses were more similar to board members' than to teachers' responses.

Differences between parents and professionals also seem to exist on specific expectations for children's social development. Walters et al. (1957) found that both mothers and child development faculty expected responsible behavior at a younger age for girls than for boys. Mothers seemed to expect socially responsible behavior (e.g. sitting through a church service) at an earlier age, and faculty expected some independence (e.g. playing alone) for younger children. However, the lack of numerous between-group differences prohibited any interpretation in terms of trends.

Cariappa (1974) found differences in parental and professional concepts of desirable social behavior for young children. Child development professionals were asked to rate 74 behavioral items concerning social development. When parents responded to subsets of the items rated "most important" or "least important" by the professionals, there appeared to be disagreements. Parents also indicated disagreement with the professionals in the priorities they assigned to behaviors they felt should be changed.

The failure to include parents in the population of experts may be due to an assumption that parents are in some ways biased. In fact, at least one study indicated bias in parental ratings of their own children. Lederman and Blair (1972) compared parental and teacher ratings on the

Preschool Attainment Record for 28 preschool children. The mean ratings by mothers were significantly higher and were more highly correlated with child's age than teacher ratings. In addition, teacher ratings (controlled for age) were more highly correlated with scores for the Metropolitan Readiness Test given one year later. The results suggested that teacher ratings have more predictive validity, at least for school related behaviors.

Although parents may be biased raters of their own children, there is reason to believe that they would show overall agreement with the values and expectations expressed by a measure of social development such as the PBQS. Areas of agreement seem to reflect three underlying sets of values. The first includes values about the general importance of social ability, expressed behaviorally rather than as introspective personality traits. The second includes emphasis on independence and individuality, including some tolerance for nonconformity and assertion. The third includes values about social responsibility or compliance to social norms.

General Importance of Social Ability. Middle class North American parents seem to express the general expectation that their children should be happy and well adjusted. The following traits were ranked as important, or significantly discriminated a United States middle sample from another group:

initiative, creativity, self actualization (Gecas and Nye, (1974)

ability to choose friends, participate in conversation (Wesley et al., 1968)

importance of reciprocity in mother-child relationship  
(Cohler et al., 1971)

happiness, popularity (Pearlin and Kohn, 1966)

sense of humor, sincerity, courtesy (Raina, 1975)

getting along, morality, freedom from anxiety (Stoltz, 1964)

Expectation for Independence. In the middle class subculture, parental values on independence seem to be expressed as tolerance for some aggression and noncompliance. The following traits received a high ranking or significantly discriminated a sample of the subculture from another group of parents:

relative absence of strict training for obedience; high tolerance of aggression directed to peers; moderate tolerance of aggression to adults; peer conflict channeled into competition; nonpunitive responses to noncompliance (Minturn and Lambert, 1964)

freedom, individuality, initiative (Gecas and Nye, 1974)

permissiveness toward aggressive feelings and behavior  
(Cohler et al., 1971)

independence (Stoltz, 1964; Pearlin and Kohn, 1966)

self confidence, determination, independence in thinking  
(Raina, 1975)

competition (Cole, 1966)

Expectation for Social Responsibility. For the middle class subculture, parental expectations for compliance with demands must be expressed in a set of values which do not contradict expectations of independence. The traits listed here were ranked as very important or significantly discriminated a sample of middle class parents from another group:

self control, consideration, dependability (Pearlin and Kohn, 1966)

consideration, courtesy, obedience (Raina, 1975)

obedience, manners, morality, responsibility, justice,  
family harmony (Stolz, 1964)

maturity (Cole, 1966)

The traits listed in this section came from research involving limited samples of the subculture. In addition, it is inappropriate to assume that a trait which is preferred by significantly more individuals in a given group is a characteristic value of all or even most individuals in a group (Johnson and Leslie, 1965). Ranking a limited set of items does not allow subjects to introduce other items which they may feel are more important. Given these limitations, the traits listed in this section are simply indications of the value orientation which may represent parents in the middle class.

Since parental values have not been compared directly with the items of the PBQS, and since data on parental values are limited, only general predictions are possible. It appears that parents would find the general issue of social competence interesting and important. Some of their values should group into the underlying factor dimensions of independence and social responsibility. Although items which express these factors should be acceptable to most parents, those which define traits behaviorally are likely to be more acceptable than those based on introspective personality traits. There is probably general agreement between parents and professionals on the definition of social competence; differences may appear for some items.

### Relationship of a Factor Analytic Model to Behavior

The general congruence between three different circumplex models of child behavior was demonstrated in the theoretical review section. The models should have some link to true underlying dimensions of behavior, because they were derived from an empirical analysis of behavior ratings. That is, the congruence of the models and their empirical basis suggest the construct validity of the two-factor model.

Benjamin (1974) reviewed research on behavior models and argued for a structural interpretation and representation of social behavior.

Numerous models have reduced data to two or three dimensions. The models seem to differ chiefly in the labeling of dimensions. For example, the following models may be compared on two dimensions:

positive/negative	active/passive	(Chance, 1959)
love/hate	introversion/ extraversion	(Schaefer, 1961)
responsibility	independence	(Baumrind, 1971a)
emotional stability/ instability	assertive/with- drawn	(Becker and Krug, 1964)
affiliation	interdependence	(Benjamin, 1974)
good functioning/poor functioning	introversion/ extraversion	(Kohn and Rosman, 1972)

Although a structural interpretation is highly plausible in view of the congruence of diverse models of behavior, Kohn and Rosman (1972) have offered an alternative interpretation. The behavioral data which are the bases for the models rely on verbal descriptions of behavior.

Therefore, it is possible that a factor analysis only reveals the relationship between the terminology of a rating scale. If this is so, the underlying dimensions supposedly assessed by construct validation would be the semantic relatedness of terms rather than some reality about behavior.

Since all ratings must rely on verbal descriptions of behavior, there is no fully adequate way to deal with the problem as described by Kohn and Rosman (1972). However, they have proposed as one solution the correlation of factor scores with some independently measured criterion. If factor A represents energy, for example, then subjects who have high scores on factor A should also be rated as highly energetic by another unrelated test.

Benjamin's (1974) review of social behavior models did not include a consideration of the semantic relatedness of rating items. Since semantic relatedness could result in an inflated estimate of construct validity, it needs consideration in validating an instrument such as the PBQS.

#### Problems in Reliability Assessment of a Q Sort

This discussion will review three problems of reliability assessment for Q Sorts and observational rating scales. The PBQS represents a combination of both measurement methods. Criticisms of both are therefore relevant.

Nonindependence. Baumrind (1971a) reported interrater correlations across items for each subject ranging from +.48 to +.69. Since these were correlations between an experienced rater and a less experienced

checker who observed only on randomly selected subjects, the correlations reported seem fairly high. In a pilot study prior to the present study, cross-item interrater correlations for 12 subjects ranged from +.86 to +.96. These correlations were for raters with equivalent training who observed simultaneously for the whole sample; therefore, somewhat higher values would be expected.

However, Corsini (1956) noted the problem of non-independence between Q sort ratings. Because in a forced sort the placement of a given item limits the possible placement of all other items, the theoretically possible range of correlations for item scores (-1.0 to +1.0) cannot occur. Scores will probably occur only in the range of 0 to +1.0. Corsini suggested as a precaution the method of statistical couples. With this method, correlations of all possible combinations of ratings are computed. The results give an estimate of the possible range of correlations for a given sample. When statistical couples were computed for the 12 subjects in the pilot study, the range of possible correlations was +.79 to +.96. In view of the overall high correlations for any possible pair of ratings, the high  $r$  values for paired observations may lead to inflated estimates of interrater reliability. Although Baumrind (1971a) did not report the use of the statistical couples method, the problem of nonindependence probably also led to inflated estimates of interrater reliability for her sample. Therefore, some other estimates of interrater agreement are needed. The problem of nonindependence applies primarily to correlations of item ratings. Correlations across subjects for each item and cluster, and across cluster scores for each subject, involve independently derived quantities.

Limitations on the Use of Checkers. Baumrind's (1971a) use of a checker at randomly appointed intervals seems to be an effective approach to checking reliability. However, Reid (1970) questioned the extent to which reliability figures could be generalized across observations. He compared observations in which the rater was aware of the reliability check with covert assessments of reliability of the same rater. Reliability dropped significantly at the end of the overt checking period for all seven observer subjects.

Reid's (1970) results suggest that the use of intermittent reliability checking, even for randomly assigned intervals, may lead to inflated estimates of reliability.

Effects of Time Lag and Changes in Administration on Reliability.

Confidence in use of a measurement instrument requires demonstration of high reliability across diverse research contexts. Although Baumrind (1971a) demonstrated acceptable reliability for the PBQS in observation of more than 100 subjects, the instrument has been used infrequently since that application. In addition, the present research proposes changes in administration which shorten observation time, and may therefore threaten the instrument's reliability.

Bronson's (1974) research seems to be the only reported use of the full PBQS as a rating scale. After adaptations to make the instrument more appropriate for toddlers, she achieved interrater reliability values for 34 subjects ranging from +.45 to +.85. However, item correlations across subjects included eight with  $r$  values of less than +.40. The eight unreliable items were not included in Bronson's final analysis. Bronson's research is an example of a statistically inappropriate use

of the PBQS, since her conclusions were based on a three factor solution of a cluster analysis of the 64 item sort for only 34 subjects.

Baumrind's (1971a) ratings were based on observations over several months including observation of a standardized testing session. The final rating was based on review of a written protocol of the child's behavior from the three to five month period. Although this lengthy process probably increased the reliability and validity of the PBQS, it seems impractical for most research purposes. Therefore, the present study proposes a reduced observation time period, supplemented by anecdotal records collected by diverse observers. Because the reliability of this administrative procedure is not known, reliability assessment is necessary.

### Summary

This section has cited research which suggests that further assessment of the reliability and validity of the PBQS is needed. In particular, questions exist concerning the content validity of items; parental values may be an important indicator of the cultural relevance of the measurement instrument. There is a need for reexamination of the theoretical meaning of a factor analytic model of behavior. Questions on reliability of the PBQS involve the nonindependence of item ratings, the need for continuous assessment of interrater reliability, and the need for reassessment of reliability after changes in administration methods.

### Preschool Competence: Related Variables

The following section reviews literature and research relevant to the measurement of preschool competence. The section is organized according to variables which have been suggested by research and by the conceptual models reviewed in the previous section as making a contribution to differences in preschool competence. Research findings are summarized in Figure 2. The findings are presented primarily as a justification for sampling limitations imposed on the present study and proposed for future uses of the PBQS.

### Socioeconomic Class and Cultural Differences

Environmental influences upon the development of competence in young children may occur through both culturally-influenced differences in parental behavior and economically-based differences in physical environment. In particular, parental models and expectations for children's behavior vary from culture to culture. The meaning or effect of a particular behavior must be considered within a sociocultural context. The competent middle class child in the United States, for example, might appear overly assertive in other cultures.

The apparent contribution of differences in culture and socioeconomic class of parents suggests that homogeneity of the sample with respect to these variables is a necessary precaution. Baumrind's (1970) caution about the specificity of her results would seem to be appropriate to the models of parent and child behavior as well. The validity in

	Socioeconomic Class Cultural Difference	Age of Child	Sex of Child	Ordinal Position	Intelligence
Streissguth and Bee (1962)	Class and cultural differences in parental discipline and teaching styles related to differences in social development of children.				
Minturn and Lambert (1964)					
Hoffman (1960)					
Gecas and Nye (1974)					
Bronfenbrenner (1961a,b)	Class differences in parental discipline styles related to differences in social development of children.		Differential response to socialization by sex. Risk of over-socialization for girls.		
Bandura and Walters (1963)	Differing cultural expectations influence development of self-control through imitation.		Sex differences in performance due to limiting effect of cultural expectations.		
Bandura (1969)					
Baumrind (1971a,b)	"Harmonious" parents of alternative life style emphasize conflict resolution over compliance to adult demands.			Differences in ordinal position for boys with nonconforming and authoritative parents compared with boys with authoritarian-rejecting-neglecting parents.	Intelligence positively correlated with achievement orientation and independent behavior for boys, with dominant and purposive behavior for girls.

Figure 2. Summary of related variables.

	Socioeconomic Class Cultural Difference	Age of Child	Sex of Child	Ordinal Position	Intelligence
Baumrind and Black (1967)			Boys showed higher energy level, more sense of humor, more content, less likely to seek overt assurance. Girls more over-mature behavior, enjoyment of aesthetic experiences, exploitation of dependent state. Sex differences in relationship of intelligence to other variables.		
Baumrind (1967)				More children ranked low on peer affiliation and mood than children ranked low on self reliance and self control were first or only born, from families with less than three children.	
Wall and Pringle (1966)	Definitions of normalcy depend on environmental expectation.				Inverse relationship between I.Q. and social maturity ratings for six to eight year olds, except emotionally disturbed.
Dubin and Dubin (1964) Schaefer (1961) Fields (1969)		Age differences in reactions to authority.			

Figure 2 (continued)

	Socioeconomic Class Cultural Difference	Age of Child	Sex of Child	Ordinal Position	Intelligence
Bayley (1965)		Age x sex interactions; more persistence of behavior patterns from infancy to school age for girls than for boys. Sex differences in relationship of intelligence to other activities.			
Moss and Kagan (1961)		Age differences due to age relatedness of intellectual tasks.	Earlier emergence of stable achievement striving in boys than in girls.		
Crandall <i>et al.</i> (1958)		Age differences due to changing expectations for compliance and non-compliance.			Social compliance not a function of intelligence for three to eight year olds.
Block <i>et al.</i> (1975)		Relationship of instrumental competence to personality variables stable from three to four years for boys but not for girls.			
Hutt (1972)			Sex differences in mother-child interaction, in timing and frequency of appearance of several social behaviors.		
Hanks (1972)				Significant differences between first and other-borns in maternal attentiveness, number of maternal games, infant's curiosity.	
Moore (1965)				Positive relationship between ordinal position and dependency.	

Figure 2 (continued)

	Socioeconomic Class Cultural Difference	Age of Child	Sex of Child	Ordinal Position	Intelligence
Borowitz et al. (1970)					Psychiatrists' competence ratings of Negro four year old boys were positively correlated with standardized intelligence tests.
Coie and Dorval (1973)			Second, third and fourth graders on a problem solving task: boys respond to it as test; girls as a social interaction.		
Wenar (1964)		Competence for one year olds is defined as motoric ability and visual regard--the ability to move from mother while keeping contact with her.			
Halvorson and Waldrop (1974)		Barrier behaviors at 2.5 years significantly correlated with coping in novel play setting (2.5 yrs.) and with personality measures (7.5 yrs.) for both sexes.			

Figure 2 (continued)

	Socioeconomic Class Cultural Difference	Age of Child	Sex of Child	Ordinal Position	Intelligence
Sisson (1973)			Children showing moderate levels of cross-sex typed play preference were rated highest on social competence.		
Ali (1973)		Significant age differences in levels of play exploration and intellectual competence for Black low income children.			

Figure 2 (continued)

other cultural and socioeconomic groups of concepts such as preschool competence and authority needs further investigation.

The findings summarized in this section suggest several demographic variables as having possible influence on preschool competence through influences on parental behavior and environmental factors. These variables are socioeconomic status and cultural group. In the present study, an attempt will be made to control the influence of these variables by selection of the sample from within a limited geographical area and sociocultural group.

#### Age of Child

The references cited in Figure 2 for age provide both theoretical and empirical support for the notion of age differences in competence.

Age differences in social and intellectual development have been attributed to inherent mechanisms for change as well as differing expectations for behavior based on age of child. Especially since changing expectations may enter into a definition of competence, any definition of preschool competence must be age-specific. In addition, the possibility of changes in relative ability and competence levels over time suggest that time lags in measurement of preschool competence may contribute to serious inaccuracies.

In the present study, the possible influence of age and developmental factors will be controlled by restricting the age range of subjects.

Sex of Child

The range of factors involved in sex role development represents the interaction of innate physiological difference with environmental factors, so that attempts to delineate causal sources of sex difference in the development of competence and intelligence have questionable validity. The occurrence of sex differences at different times and in different aspects of the development of the child suggests that they may be relevant in assessments of preschool competence.

In addition, care must be taken to see that the definition of competence is valid for girls as well as boys. In a review of her work, Baumrind (1970) outlined major preschool tasks for boys and girls based on the sex differences she had observed. The major task for boys was to develop social responsibility; for girls, it was maintaining positive, dominant and independent behavior. Self assertion and achievement for girls may require a more aggressive stance, in view of cultural expectations which seem to inhibit girls' assertive behavior.

According to the research cited in this section, the sex of the child may have important consequences for the measurement of his or her competence and intelligence. Sex of the child seems to make a contribution to the development of the child by influencing the salience of available models, and by influencing cultural expectations which are placed on the child. Sex differences are manifested in many different social and intellectual behaviors. Although competence is defined in approximately the same manner for both preschool boys and girls, Baumrind (1970) has suggested that the achievement of competence may be a

different task for boys than for girls. The relationship of competence to other variables, such as intelligence, may be influenced by the sex of the child.

Since Baumrind (1971a) modified the 1968 form of the PBQS to eliminate items which discriminated according to the sex of the child, data for both sexes will be pooled in the present analysis. However, investigations of the relationship of competence to other variables using the PBQS should use separate analyses for each sex.

#### Ordinal Position

Ordinal position may contribute to differences in the parent-child relationship in several ways. Certainly the increased child rearing experience of the parent of the later born child may be an important factor in parental behavior. The later born child may also benefit vicariously from socialization of older siblings.

The data presented here suggest that ordinal position contributes to differences in social competence of children by altering the context in which important social learning takes place for the child. The child may be directly affected by vicarious learning through siblings, and less directly affected by parents' prior experience with siblings. Although it is not possible to limit the sample to exclude possible effects of ordinal position, the sample's heterogeneity should preclude systematic error due to this variable. In research using the PBQS to assess the relationship of preschool competence to other variables, ordinal position should be considered as a possible intervening variable.

### Intelligence

Variability in definitions of competence and intelligence makes evaluation of the relationship between the two variables extremely difficult.

Although intelligence and social competence have been used as interchangeable variables in some studies of young children (Anderson and Messick, 1974), data summarized in Figure 2 suggest that the relationship between intelligence and social competence is not a direct one.

Due to the possible influence of intelligence on competence, the sample of the present study was restricted to children of normal and above normal intelligence as measured by the Peabody Picture Vocabulary Test (Dunn, 1965).

### Summary

This section has described research on variables which may relate to differences in the development of competence in young children. Socioeconomic group, age of the child, sex of the child, ordinal position, and intelligence should be accounted for in any study of preschool competence either through direct measurement or through limitation of the sample.

Failure to account for these variables may affect the measurement in several fundamental ways. The validity of the concept of competence may be reduced if the concept is not defined in terms of the cultural expectations appropriate to the age and sex of the child. The validity

of the concept may also be reduced if its meaning is confounded with that of intelligence. Measurement which does not explore or control for the effects of these variables on the relationship in question may lead to spurious and invalid results.

Summary of the Review of Literature

The four main sections of the review of literature represent four broad issues concerning the measurement of preschool competence. The first, summarizing the theoretical background for the development of the concept of competence, supported the underlying theoretical validity of preschool competence as a construct for studying children's social development. The second reviewed measurement instruments designed for research on social development, and compared them to the PBQS. The third reviewed problems in measurement of preschool competence which indicate the need for further study on the reliability and validity of the PBQS. The fourth section was a review of specific findings on social competence which suggest limits on the use and interpretation of the PBQS ratings in research.

### III. RESEARCH METHODS

In order to clarify the process of data collection and analysis, the chapter on research methods is organized into six sections. The first three sections describe data from child subjects, including modifications in administration and description of the PBQS, data collection for child subjects, and analysis of data from child subjects. The second three sections describe parent data. They are an adaptation of the PBQS to questionnaire format, collection of parental data, and analysis of parental data.

#### PBQS Description and Administration Procedure

Prior administrations of the PBQS (Baumrind, 1971a) have required familiarity with the items and lengthy observations of the child in the preschool setting. Since variations in method from earlier applications involve radical reductions in observation length, the revised procedure attempts to maximize observer training and use of available data in the preschool setting.

#### Observer Training

The raters' backgrounds varied from that of raters involved in Baumrind's (1971a) research by having less educational and professional experience. Raters were students in the Family Life Department at Oregon State University. In addition to similar educational background, raters had teaching experience in the Child Development Laboratory.

They were familiar with the laboratory's routine and with the anecdotal recording method used in the laboratory.

Training began with a careful reading and discussion of the PBQS Manual (Baumrind, 1968b). In order to increase their understanding of the general concept of competence, raters also read several background articles. These included sections of White and Watts (1974), Anderson and Messick (1974), and Baumrind (1970).

After studying the concept of competence and the PBQS, raters observed samples of behavior and informally discussed the relationship of particular PBQS items to behaviors observed. Behavior samples came either from direct observation or from video tape recordings.

The final phase of observer training involved discussions of item disagreements after trial observations. After one full observation (2.5 hours plus reading all anecdotal records for the child) each observer rated the child using the Q sort deck. Ratings were recorded and then compared. Particular attention was given to items in which the disagreement was more than two points. Practice sessions involved approximately six children, not included in the sample for the research.

#### Description of the PBQS

A Q sort deck was prepared for each rater. Each item, and a brief item description, was typed on a five-by-eight inch card, exactly as written in the PBQS Manual (Baumrind, 1968b). A sample item from the PBQS is provided in Appendix E.

Two trained observers simultaneously observed a child for a period of 2.5 hours. No constraints were placed on the routine of the

preschool, except that the child should not be removed from the observers' view for more than a five minute period. The observers sat within hearing distance of the child, but attempted to minimize awareness of their presence in the laboratory, and avoided interaction with the subject or other children. The 2.5 hour period allowed for observation of a variety of activities, including structured large group interactions, and self selected individual and group activities indoors and outdoors.

Immediately after the observation period, the observers read all anecdotal records available for the subject for the current academic year. Anecdotal descriptions of the child's behaviors and interactions with others in the laboratory were recorded by college students and staff working with the child during the session, according to a standard format. A sample anecdotal record and descriptive statistics on the anecdotal data are included in Appendix F.

After review of the anecdotal data, each observer sorted the Q Sort deck according to a forced distribution. The first sort of three stacks included one of items most descriptive of the child, one of items least descriptive of the child, and one for items about which the rater was unsure. A second sort of the three stacks yielded nine stacks, varying in degree of descriptive validity from most like the child to least like the child. The second sort resulted in nine stacks of eight cards each. The card placement was recorded as the item raw score.

In two cases the observers decided, after reviewing the anecdotal data, that the behavior sampled was largely atypical for the child. Ratings for these two child subjects were discarded.

Data Collection for Child Subjects

The pool for sample selection of child subjects came from four sessions of the Child Development Laboratory at Oregon State University during the 1974-1975 and 1975-1976 academic years. Children in the sessions were enrolled to create balanced ratios by sex, ordinal position, and age. After sampling to meet limits on age range and sociocultural background, a total of 36 subjects were selected. Only children who had been in the Child Development Laboratory more than two months were included in the sample.

The three sets of data collected for child subjects were demographic and standardized test data, paired ratings on the PBQS, and independent teacher ratings on Beller's Scale of Independence (1957).

Demographic and Standardized Test Data. Descriptive statistics on the child sample, summarized in Appendix G, indicate that the sample is quite homogeneous with respect to the variables listed.

Information on parental education, and child's age, ordinal position, and sex came from registration sheets completed by the parents. Socioeconomic position was computed using Hollingshead's (1958) Two Factor Index of Social Position. Subjects were chosen from families who ranked in the top three levels of the index. The sample was also limited to children whose parents were from the United States, because the Hollingshead index did not account for cultural background.

Intelligence scores were derived from the Peabody Picture Vocabulary Test (Dunn, 1967), administered to subjects by graduate students in the

Family Life Department. Intelligence testing of each child occurred within six months of the time of administration of the PBQS.

Subjects were chosen to fall in the age range of 48 to 60 months.

PBQS Ratings. The procedure for rating on the PBQS was described in the first section of this chapter. Ratings were recorded as two sets of 72 raw item scores. Raw scores for each subject were based on the position of the item card in the second sort. For example, if item 16 was sorted as most like the child, it would be placed in the ninth (end) stack, and would receive a raw score of nine. Therefore, the rating of each subject would result in a set of 72 scores, each ranging from one to nine.

Two sets of cluster scores were also computed for each subject. Since the cluster scores were not used for between-subject comparisons, the item standardization procedure suggested by Baumrind (1974) was not used. Cluster definers from Baumrind's analysis (1971a) were summed within clusters to give the cluster scores. In the case where the definer's mean correlation with other cluster definers was negative, its raw score was reflected before being added into the cluster total.

Example: Computation of cluster score for Cluster VII

Defining items, Cluster VII	Item mean r with other definers	Item Raw Score	Reflected if negative
11	-.78	7	3
36	-.64	6	4
64	+.85	3	3
66	-.71	9	<u>1</u>

Cluster score 11

In summary, the PBQS data included two sets of 72 item scores and two sets of seven cluster scores for each subject.

Beller Scale Ratings. A copy of Beller's Scale of Independence and Autonomy (1957) is included in Appendix H. The Beller Scale was administered by teachers to all children in three Child Development Laboratory sessions, approximately three months prior to administration of the PBQS. At that time, the teachers were not aware of the purposes of the study. The results of the Beller rating were not known to observers using the PBQS, so possibilities for contamination of data were minimal.

Although research by Emmerich (1964, 1966) and Beller (1955, 1957) indicates that the Beller Scale has acceptable reliability and validity, ratings by teachers in the Child Development Laboratory showed very dissimilar distributions. One teacher's ratings in particular showed a very strong positive skew.

To eliminate possible error due to these between-session differences, subjects were classified as high, medium, or low on the basis of their class rank and on the basis of their position in a cumulative frequency distribution of scores for all three sessions. Only two subjects out of 25 were classified in different groups by the two methods. Therefore, subjects were classified as high, medium, or low on the Beller Scale on the basis of their being in the upper, middle, or lower third of the cumulative frequency distribution for the pooled rating data from three sessions.

Analysis of Child Data

The topics of this section are statistical methods pertaining to the research purposes of reliability assessment (interrater correlations), and construct validation (matrix of interitem correlations and multivariate analysis of variance).

Interrater Correlations

Interrater reliability across all items for each subject was computed using the formula for correlation of Q sorts (Kerlinger, 1973, p. 586).

$$r = \frac{\sum xy}{\sqrt{x^2 y^2}}$$

This resulted in a set of 36 r values, one for each subject, with n = 72. In addition, the statistical couples method (Corsini, 1956) was used to estimate the range of possible correlations for the sample. For a subset of 12 subjects, correlations for all pairs of ratings (144) were computed with the Kerlinger formula.

Interrater reliability across cluster scores for each subject was computed using Pearson's formula. This resulted in a set of 36 r values, one for each subject, with n = 7.

Interrater reliability across subjects for each item was computed using Pearson's formula. This resulted in a set of 72 r values, one for each item, with n = 36.

Interrater reliability across subjects for each cluster was computed using Pearson's formula. This resulted in a set of 7 r values, one for each cluster, with n = 36.

#### Matrix of Interitem Correlations

The purpose of this procedure was to compare the pattern of interitem correlations from the present study with that from Baumrind's (1971a) analysis.

The seven cluster solution of Baumrind (1971a) came from a principal components analysis of ratings of 60 girls and 74 boys. Items were plotted separately for boys and girls in the two factor space defined by the first two solutions of the principal components analysis. The two item plots were then rotated to result in one seven cluster model for both boys and girls (Figure 3). This model is the basis for scoring the PBQS, since each cluster represents one score.

The procedure of cluster analysis was not used in the present study for two reasons. First, there appeared to be no adequate empirical method for comparing a new cluster solution with one derived from prior research. Second, a cluster solution, in order to have statistical validity, required a sample size which is large relative to the number of variables considered. Practical limitations did not allow for the necessary sample size (at least 150 children) in the present study.

A correlation matrix with items ordered by cluster from Baumrind's (1971a) solution establishes the original seven cluster model as a criterion for comparison. If the item correlations conform to the criterion, the model may be judged reliable and valid after modifications.

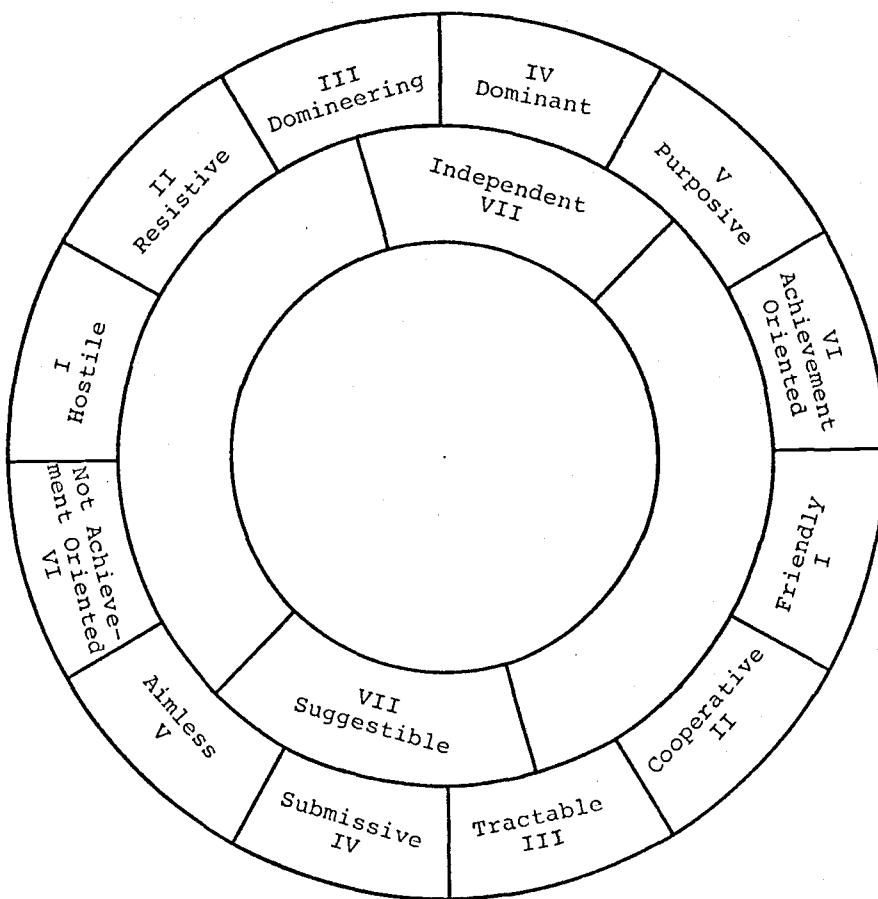


Figure 3. Seven Cluster Child Behavior Model (adapted from Baumrind, 1971a, p. 9).

The ratings of all 36 subjects by one rater were the basis of the analysis. Correlations between all pairs of items were computed using Pearson's formula. The resulting 5,184  $r$  values were then ordered by cluster, with  $r$  values for nondefining items appearing last. In the large matrix, submatrices for each cluster appeared on the diagonal. An example of submatrices for Clusters I and II is shown in Figure 4.

The whole matrix with 64 submatrices was the basis for two types of comparisons. Within-cluster item correlations were investigated in the diagonal submatrices. Between-cluster correlations were investigated in the nondiagonal submatrices. Referring to Figure 4, the within-cluster item correlations came from submatrix a for Cluster I and submatrix b for Cluster II. In comparing possible overlaps between Cluster I and Cluster II, submatrix c was used.

The procedure for setting the overall significance of item correlations was the same for both within-cluster and between-cluster comparisons.

1. The significance level was set at  $\alpha = .05$ . Since there was a risk of an inflated error rate due to the number of significance tests used (Klopfen, 1976), the significance level for each cluster comparison was reduced. The significance level  $\alpha = .05$  was divided by the number of items in the cluster. For example, for Cluster VII the significance was set at  $\alpha = .05 \div 4 = .0125$ .

2. The significant value of correlations for each submatrix was computed according to the formula (Harris, 1975, p. 17)

$$t = \frac{r}{\sqrt{\frac{1-r^2}{N-2}}}$$

		Cluster I							Cluster II						
		7	35	54	55	63	70	72	27	32	33	44	52	68	69
Cluster I	55	7	35	54	55	63	70	72							
	63														
	70														
	72														
Cluster II	44	27	32	33	44	52	68	69							
	52				44										
	68														
	69														
Cluster III															
Cluster IV															

Figure 4. Portion of correlation matrix.

where  $t$  is the value from the Student's  $t$  distribution for the specified level. The  $t$  value used was for a one-tailed test for within-cluster comparisons and a two tailed test for between-cluster comparisons.

3. The number of significant correlations for each submatrix was counted.

4. If 95% or more of the correlations in a submatrix were significant, the items of the submatrix were judged as being significantly intercorrelated.

#### Stepwise Discriminant Analysis

Twenty-six subjects were grouped according to ratings on Beller's Scale (1957), resulting in three groups. A stepwise discriminant analysis of PBQS item scores for the three groups was then computed using the Biomedical program BMD 07M (Dixon, 1967).

Stepwise discriminant analysis attempts to find a linear combination of variables which maximizes between-group differences. The model is tested by univariate  $F$  tests for each variable, and a multivariate statistic for the whole model (Harris, 1975). In the BMD 07M program, variables are entered sequentially (stepwise) into the model on the basis of their contribution to significance. The order in which variables are entered should indicate their relative importance in discriminating between groups on the basis of a predetermined characteristic.

The multivariate test statistics for discriminant analysis are the Greatest Characteristic Root and the Likelihood Ratio, also called Wilke's Lambda (Harris, 1975). The BMD 07M program reports the Likelihood Ratio. Although tables of the distribution for this statistic are

not readily available, a derivation of the statistic approximates the F distribution. The BMD 07M program also reports this derived F value for each step. The formulae for the derivation and corresponding degrees of freedom are reported in Dixon (1967, p. 214).

For the present analysis, it was predicted that items with high loadings on the Independence factor would enter first into the model, since subjects were grouped on the basis of another rating of independence. Therefore, the major concern in the stepwise analysis was the order of entry of items into the computations of a significant model.

Only the first 13 terms in the discriminant model were considered to be statistically valid, since the number of variables in the model should be small relative to the number of subjects. The 13 terms would also have to contribute significantly to models in which the multivariate F value (from the Likelihood Ratio) was significant.

#### Adaptation of the PBQS to Questionnaire Format

Although administration of the PBQS as a Q sort to parents would have contributed to the validity of the results, practical limitations necessitated use of another format. Therefore, items were adapted to a questionnaire format before presentation to parent subjects.

#### Pilot Form

Following the recommendations of Guilford (1954), Q sort items were presented as questionnaire items. Items were grouped by cluster with all positive item definitions at the left side of the page. Since each Q sort item has both a positive and a negative definition, the items

easily converted to semantic differential items, with a five point response space.

The questionnaire was presented in pilot form to approximately 35 students in a child development course. Analysis of students' responses to the pilot form revealed some problems:

1. A few terms used in the items were unfamiliar or ambiguous to the students.
2. There was a positive skew to responses, suggesting a response set or "halo effect."
3. Responses tended to be extreme. Responses in the midrange for items were rare.

#### Final Form

Given the problems observed in the pilot form, some modifications were made prior to administration of the questionnaire to parents. See Appendix I for the final form of the questionnaire.

Items on the final form were presented in the order of the manual (Baumrind, 1968b) rather than by clusters. The intent of the modification was to reduce the possibility of a response set.

The items were randomized in terms of presentation of the positive and negative definitions, in order to reduce response sets and positive skew.

The response space was increased from five to seven spaces to make the instrument more sensitive, in view of subjects' tendency to rate items toward the extreme.

Approximately ten items were reworded to reduce ambiguity and/or introduce more familiar terms. Substitute terminology came from the item descriptions in the PBQS Manual (Baumrind, 1968b), so that modifications conserved the semantics of the original items.

#### Data Collection for Parent Subjects

All parents in the 1975-1976 sessions of the Child Development Laboratory at Oregon State University constituted the sample for this portion of the study. Although this sample is less homogeneous with respect to cultural background than the child sample, the table of descriptive statistics (Appendix J) indicates that the subjects are primarily North Americans who rank in the upper three categories of Hollingshead's (1958) index. All had had at least one child in a pre-school program for two months or more at the time of the questionnaire.

Two copies of the questionnaire (one for the mother and one for the father) were sent home by way of the Child Development Laboratory's teachers. Written instructions on the questionnaire were supplemented by a cover letter which instructed the parents to complete the questionnaire without consulting their spouse. The researcher's telephone numbers were given so that subjects could seek additional information (see Appendix I).

Questionnaire responses were strictly anonymous, but a record was kept of questionnaires not returned. Subjects who did not complete the questionnaire were contacted by telephone. Eighty-five percent of the subjects returned completed questionnaires.

### Analysis of Parent Data

The method for analysis of parent data was exactly the same as that used for analysis of child data, a matrix of interitem correlations.

The rationale for use of the method was similar to that for the child data. Significant correlations within clusters were interpreted as a congruence between parental values and aspects of Baumrind's (1971a) model. Other significant interitem correlations were interpreted as parental values which are not represented by Baumrind's model.

### Summary

This chapter has described the research methodology used to collect and analyze data on the PBQS for child and parent subjects.

Child data, based on modified PBQS ratings of 36 children by two observers, were analyzed for interrater reliability and construct validity. Interrater correlations, interitem correlations, and a stepwise discriminant analysis were the bases of the data analysis.

Parent data were drawn from a questionnaire form of the PBQS for 97 subjects, or approximately 85 percent of the sample. A matrix of interitem correlations was the basis of the data analysis for this sample.

#### IV. RESULTS

This section reports the results of the study. It is organized in sections according to research purposes. The first section describes statistical analyses and results for interrater reliability. The second section is concerned with construct validity and includes the findings from the correlation matrix of child ratings and the discriminant analysis. The third section reports the findings of the correlation matrix of parental responses as they related to the purpose of content validation.

##### Reliability

Hypothesis 1: For the revised administration of the PBQS, ratings by two independent observers will yield acceptable positive correlations;

- a. for each subject across all items.
- b. for each subject across all cluster scores.
- c. for each item across all subjects.
- d. for each cluster across all subjects.

The values for interrater correlations are reported in Tables 1 through 3. In general, the r values are significant and suggest that the PBQS in modified administration is reliable for item ratings and cluster scores.

Item and cluster reliabilities for each subject can be evaluated and compared in Table 1. As expected, the r values for 72 items for each subject tended to be high. All were in the range of +.87 to +.96.

Table 1. Interrater Reliability for 36 Subjects using Modified Observation Procedure.

Subject	For 72 items	For 7 clusters
1	.96	.96
2	.93	.96
3	.89	.64
4	.88	.98
5	.96	.99
6	.93	.98
7	.90	.87
8	.88	.90
9	.95	.91
10	.94	.82
11	.93	.81
12	.95	.96
13	.96	.99
14	.96	.93
15	.94	.97
16	.87	.63
17	.93	.93
18	.94	.98
19	.95	.99
20	.90	.78
21	.90	.77
22	.92	.68
23	.95	.98
24	.93	.95
25	.96	.93
26	.95	.85
27	.90	.84
28	.89	.67
29	.93	.94
30	.93	.44
31	.95	.96
32	.94	.91
33	.87	-.17
34	.88	.54
35	.88	.80
36	.89	.90
Mean	.92	.83

Table 2. Interrater Reliability for 72 BPQS Items for 36 Observations.

Item	r	Item	r	Item	r
1	.41*	25	.54	49	.65
2	.50	26	.01 <sup>n</sup>	50	.66
3	.70	27	.68	51	.60
4	.04 <sup>n</sup>	28	.54	52	.68
5	.54	29	.53	53	.56
6	.51	30	.54	54	.61
7	.36*	31	.59	55	.59
8	.28 <sup>n</sup>	32	.57	56	.21 <sup>n</sup>
9	.50	33	.69	57	.36*
10	.66	34	.67	58	.68
11	.58	35	.31 <sup>n</sup>	59	.67
12	.30 <sup>n</sup>	36	.68	60	.53
13	.64	37	.44	61	.47
14	.58	38	.63	62	.44
15	.41*	39	.73	63	.46
16	.54	40	.45	64	.41*
17	.46	41	.50	65	.01 <sup>n</sup>
18	.30 <sup>n</sup>	42	.42*	66	.35*
19	.59	43	.53	67	.77
20	.29 <sup>n</sup>	44	.56	68	.62
21	.75	45	.56	69	.40*
22	.39*	46	.55	70	.57
23	.45	47	.55	71	.65
24	.60	48	.53	72	.52

\* p &lt; .05

n: not significant

Unmarked items significant at p &lt; .01.

Table 3. Interrater Reliability\* for Seven Cluster Scores for 36 Observations.

Cluster	r
I	.57
II	.75
III	.79
IV	.75
V	.89
VI	.78
VII	.72

\*p < .01, all clusters

However, the pilot study results for the statistical couples procedure suggested a limited range of correlations, from +.77 to +.96. Therefore, the high interrater correlations may be due in part to the nonindependence of items in the Q sort.

Since cluster scores were derived by reflecting some item scores and then totaling subsets of items, they are probably independent for each subject. Therefore, their correlation values should be a more accurate indication of reliability for each subject. The broader range of r values for clusters, from -.17 to +.99, supports the notion of independence of cluster scores. In spite of the broad range of r values, 75% were equal to or greater than +.80, and the mean r values was +.83 for all subjects. Only one of the 36 values clearly approximated a zero correlation. The r values for 36 subjects across seven clusters suggest high reliability for most subjects.

In addition to the two measures of interrater reliability for 36 subjects, reliability was assessed across subjects for each of 72 items (Table 2) and each of seven cluster scores (Table 3). In general, these correlations also indicate acceptable reliability for a modified administration of the PBQS.

Tests of significance were applied to the r values in Tables 2 and 3, since the values are the basis of judgements about item and cluster validity. For 72 item correlations, nine correlations were clearly non-significant ( $p < .05$ ). Conversely, 75% of the correlations were significant at  $p < .01$ .

The values in Table 3 indicate that interrater correlations for cluster scores, although generally lower than those for items, were all significant at  $p < .01$ .

In summary, all four evaluations of reliability suggest acceptable reliability for all clusters and most items.

#### Construct Validity

Two separate analyses were used to validate the PBQS with modified administration procedures. The first tested the stability of the behavioral model (Baumrind, 1971a) by investigating item intercorrelations by clusters from the model. The second used an alternate measure of independence as a criterion to test the validity of cluster definers presumed to have high loadings on the Independence factor.

#### Correlation Matrix of Child Ratings

Hypothesis 2: Interitem correlations of PBQS ratings of child subjects will be significant for cluster defining items within clusters and nonsignificant for cluster defining items between clusters.

After computing critical  $r$  values based on elevated  $t$  values to control the error rate, the number of significant correlations in each submatrix was counted. Table 4 reports the number of significant correlations as a percent of all correlations in the submatrix. Since the diagonals of the diagonal submatrices were all 1.0, these were not entered into the percentage computations.

As indicated in Table 4, only two of the seven clusters (II and III) approached significance on the basis of frequency of significant

Table 4. Summary of Correlation Matrices, Child Data.

Cluster	Percent Significant	Unreliable Items by Item Number
I/I	47.6	35
I/II	53.1	
I/III	45.2	
I/IV	2.8	
I/V	0.0	
I/VI	6.1	
I/VII	14.3	
I/N	3.8	
II/II	100.0	
II/I	53.1	
II/III	78.5	
II/IV	2.8	
II/V	1.6	
II/VI	12.2	
II/VII	28.6	
II/N	15.8	
III/III	93.3	
III/I	45.2	
III/II	78.5	
III/IV	33.3	
III/V	35.2	
III/VI	4.8	
III/VII	16.7	
III/N	15.6	
IV/IV	60.0	
IV/I	2.8	
IV/II	2.8	
IV/III	33.3	
IV/V	37.8	
IV/VI	8.6	
IV/VII	25.0	
IV/N	8.6	
V/V	66.7	18
V/I	0.0	
V/II	1.6	
V/III	35.2	
V/IV	37.8	
V/VI	17.5	
V/VII	22.2	
V/N	15.9	

Table 4 (continued)

Cluster	Percent Significant	Unreliable Items by Item Number
VI/VI	14.2	8, 12, 20, 26
VI/I	6.1	
VI/II	12.2	
VI/III	4.8	
VI/IV	8.6	
VI/V	17.5	
VI/VII	0.0	
VI/N	3.8	
VII/VII	68.8	
VII/I	14.3	
VII/II	28.6	
VII/III	16.7	
VII/IV	25.0	
VII/V	22.2	
VII/VI	0.0	
VII/N	4.2	
N/N (Nondefiners)	10.2	4, 56, 65
N/I	3.8	
N/II	15.8	
N/III	15.6	
N/IV	8.6	
N/V	15.9	
N/VI	3.8	
N/VII	4.2	

correlations within clusters. Therefore, additional information on interitem correlations was sought using the mean correlations of cluster definers with other items. The item analysis is summarized in Table 5.

In order to clarify the question of validity, findings in this section are reported by cluster. The N cluster includes all nondefining items from Baumrind's (1971a) analysis.

Cluster I, Hostile-Friendly. Only 47.6% of the correlations within this submatrix were significant at  $p < .05$ . In addition, items from Cluster I were highly correlated with items from Cluster II (53.1%) and Cluster III (45.2%).

Table 5 indicates that items 7 and 55 were not highly correlated with other definers. Defining items 54, 63, and 70 had significant mean correlations with items from Clusters II and III.

Although evaluation of validity is limited by the presence of one unreliable item (35), it appears that defining items for Cluster I were not highly intercorrelated. In addition, definers from Cluster I were strongly correlated with items from Clusters II and III.

Cluster II, Resistive-Cooperative. All of the correlations within the Cluster II submatrix were significant. However, Cluster II items were also frequently correlated with items from Clusters I (47.6%) and III (78.5%). Items in Cluster II appear to be strongly clustered, but the cluster as a whole is not entirely independent of other clusters.

The item analysis supports the lack of independence from other clusters. Nine definers from other clusters (54, 63, 70, 72, 13, 36, 41, 67, 71, 58) had significant mean correlations with Cluster II

Table 5. Item Analysis, Child Data.

Cluster	Uncorrelated Definers	Mean r	Correlated Items Not in Cluster	Mean r**	Correlated Items Not in Cluster	Mean r**
I	7 55	.29 .27	none			
II	none		54 (I) 63 (I) 70 (I) 72 (I) 13 (III) 36 (III) 41 (III) 67 (III) 71 (III)	.75 .58 .77 .70 .50 .60 .62 .73 .88	58 (VI) 22 (N) 39 (N) 65 (N)*	.59 .59 .74 .63
III	none		54 (I) 63 (I) 70 (I)	.67 .85 .66	36 (VII) 34 (N)	.63 .56
IV	64	.21	13 (III) 71 (III)	.46 .53	10 (V) 49 (V)	.49 .47
V	16	.24	13 (III) 71 (III) 12 (VI)*	.51 .60 .51	34 (N) 57 (N) 60 (N)	.60 .52 .57
VI	6 8* 20* 26* 58	.30 .35 .18 .22 .20	none			

Table 5 (continued)

Cluster	Uncorrelated Definers	Mean r	Correlated Items Not in Cluster	Mean r**	Correlated Items Not in Cluster	Mean r**
VII	none		none			
N			none			

\* Unreliable items.

\*\* All significant,  $p < .05$ .

definers. Three items which were nondefiners in Baumrind's analysis (1971a) had significant mean correlations with Cluster II definers.

No definers in Cluster II were found to be unreliable.

Cluster III, Domineering-Tractable. The definers of Cluster III also appeared to be highly intercorrelated; 93.3% of the correlations in the submatrix were significant. However, as noted in the preceding cluster summaries, Cluster III definers frequently had significant correlations with items from other definers. The frequencies were 45.2% for Cluster I and 78.5% for Cluster III.

The item analyses confirmed the relationship between Clusters I and III. Three Cluster I definers (54, 63, and 70) had significant mean correlations with Cluster III definers. One item, 36, is a definer for both Cluster III and Cluster VII. One nondefining item was found to have a significant mean correlation with Cluster III definers.

No definers for Cluster III were unreliable.

Cluster IV, Dominant-Submissive. Sixty percent of the interitem correlations in the Cluster IV submatrix were significant, indicating a weak clustering of defining items. In addition, this cluster showed some relationship to Cluster III and V, although the frequencies of significant correlations were moderately low.

The item analysis indicated that the mean correlation of item 64 with other definers was nonsignificant. Since Cluster IV has a relatively small number of items, the lack of relationship of item 64 to other definers greatly contributed to the low frequency of significant correlations.

Correlations of Cluster IV definers with other cluster defining items were moderate but significant. Two items each from Cluster III (13, 71) and Cluster V (10, 49) were significantly correlated with Cluster IV definers.

No Cluster IV definers were unreliable.

Cluster V, Purposive-Aimless. In the Cluster V submatrix, 66.7% of the correlations were significant. As for Cluster IV, there appeared to be a weak clustering of defining items, with some relationship to Clusters III and IV. The interrelationships of these clusters were not high--35.2% for Cluster III and 37.8% for Cluster IV.

One defining item from Cluster V (16) had nonsignificant mean correlations with other definers. Cluster V definers were moderately but significantly correlated with one unreliable definer from Cluster VI (12) and two definers from Cluster III (13, 71). Three nondefining items had significant mean correlations with Cluster V definers.

One defining item was unreliable.

Cluster VI, Achievement Oriented-Not Achievement Oriented. All submatrices recording both within and between-cluster relationships for Cluster VI had low frequencies of significant correlations.

Although no cluster defining items were significantly correlated with items from other clusters, five of the seven cluster definers had nonsignificant mean correlations with items within Cluster VI.

An important finding related to the lack of within and between-cluster relationships is the item reliability of cluster definers. Four of the Cluster VI items (8, 12, 20, 26) were unreliable.

In view of the high incidence of unreliable items in this cluster, it is not possible to make inferences about validity from item inter-correlations.

Cluster VII, Independent-Suggestible. The frequency of significant correlations in the Cluster VII submatrix was 68.8%. Although this did not equal the criterion level of 95%, there appeared to be some clustering of items. In spite of the fact that three of the four definers for this cluster are also definers for other clusters, there did not appear to be a strong relationship between Cluster VII and other clusters.

The item analysis also suggested the absence of between-cluster relationships. No Cluster VII definers were strongly correlated with items from other clusters. No Cluster VII definers had a nonsignificant mean correlation with Cluster VII definers.

No Cluster VII items were unreliable.

Cluster N, Nondefining Items. Items which were not included in Baumrind's (1971a) cluster analysis were grouped and analyzed as an eighth cluster. In order to investigate the emergence of new clusters or new cluster definers for existing clusters, the N submatrices were subjected to the same analyses as the seven clusters.

The frequencies of significant correlations were low, both within the N cluster and between the N cluster and other clusters. However, seven nondefinners were significantly correlated with cluster definers.

Three of the 30 nondefining items were unreliable.

Summary. On the basis of frequency of significant correlations, and individual item analyses, six of the seven clusters appeared to have

some within-cluster relationship. There appeared to be some between-cluster relationships, especially for Clusters I, II, and III.

Definers for Cluster VI were unrelated. However, conclusions based on this finding are limited due to the large number of unreliable definers for this cluster.

Seven of the nondefining items had significant relationships to cluster definers. However, no new clusters appeared to emerge from the matrix of nondefining items.

#### Stepwise Discriminant Analysis

Hypothesis 3: In a stepwise discriminant analysis of item ratings for subjects classified according to Beller's Scale of Independence (1957), discriminating items will be those with high loadings on the PBQS factor Independence.

Table 6 summarizes the first 13 steps of the discriminant analysis. The F values reported are derived from Likelihood Ratio, the multivariate test statistic for this analysis.

If Clusters III, IV, V, and VII are included as having high loadings on the Independence factor, there are 21 items which would be expected to enter into the early steps of the analysis. That is, the 21 items with high loadings should be the item pool for a model which maximally discriminates between children rated high, medium and low on independence by another criterion.

Six of the first 13 items were ones with high loadings on the Independence factor. Only one item was from Cluster VII, Independent-Suggestible. In all, less than one third of the items expected to be

Table 6. Summary of Stepwise Discriminant Analysis.

Variable Entered	Cluster	Approximate F, from Likelihood Ratio <sup>1</sup>	d.f.
42	VI	6.5629	2, 21
40	N <sup>2</sup>	6.1077	4, 40
17	N <sup>2</sup>	5.5438	6, 38
16	V <sup>3,5</sup>	4.8912	8, 36
2	III <sup>3</sup>	5.0601	10, 34
19	V <sup>3</sup>	4.8395	12, 32
34	N <sup>2,4</sup>	5.8171	14, 30
47	IV <sup>3</sup>	6.3397	16, 28
59	V <sup>3</sup>	6.6581	18, 26
54	I <sup>4</sup>	7.2396	20, 24
33	II	7.8780	22, 22
4	N	8.9980	24, 20
66	VII <sup>3</sup>	11.4137	26, 18

<sup>1</sup> p < .01, all steps<sup>2</sup> Nondefining item, Baumrind's Model (1971a)<sup>3</sup> Independence Clusters<sup>4</sup> Item had significant mean correlation with Cluster III items.<sup>5</sup> Item uncorrelated with Cluster V definers in present study.

included in a discriminating model were included. Four of the non-Independence items included in the model were cluster definers. The remaining three items were ones with high loadings on the orthogonal factor Social Responsibility.

If results from the item analysis (correlation matrix of child data) are taken into account, the results of the discriminant analysis change somewhat. Two items which were not Independence definers in the Baumrind (1971a) analysis were significantly correlated with Independence item definers in the present study. However, one Independence definer in the model (item 16) was found to have a low mean correlation with other Cluster V definers.

Even if changes in the cluster structure found in the present study are taken into account, it does not appear the PBQS item representing the Independence factor discriminated more effectively than other items. This finding applies only to the PBQS with the modified administration procedure, with children classified according to Beller's (1957) Scale of Independence.

#### Content Validity

Hypothesis 4: Interitem correlations of parent ratings of PBQS items will be significant for cluster defining items within clusters and nonsignificant for cluster defining items between clusters.

Analysis of content validity relied on the correlation matrix of parental responses ordered by cluster, so that analytic methods were exactly the same as those used for the matrix of correlations for the child data. The frequencies of significant correlations by cluster are

reported in Table 7. The item analyses are reported in Table 8. As for the child data, nondefining items were grouped in a separate set of matrices, labeled N.

Cluster I, Hostile-Friendly. The frequency of significant correlations within this cluster was 81.6%. However, since this was also the frequency for the matrix correlating Cluster I with Cluster II definers, there appeared to be a strong relationship between the two clusters. Frequencies of significant correlations were also high between Cluster I and Clusters III, V, and VI.

The item analysis also indicated high internal consistency for Cluster I, since none of the definers had nonsignificant mean correlations with other definers. However, 31 items, including 12 nondefining items, had significant mean correlations with Cluster I definers. Cluster defining items with significant mean correlations were from Cluster II, III, V, and VI.

Cluster II, Resistive-Cooperative. The frequency of significant item correlations was 81.6% both for the within-cluster submatrix and for the submatrix comparing Cluster I and Cluster II definers. In addition, Cluster II definers were frequently correlated with items from Clusters III, V, and VI.

The item analysis also indicated the strong relationship between Cluster II and Clusters I (six items), III (two items), V (six items) and VI (five items). In addition, eight nondefining items were correlated with Cluster II items with significant mean correlations.

All Cluster II definers had significant mean correlations with other Cluster II definers.

Table 7. Summary of Correlation Matrices, Parent Data.

Cluster	Percent Significant	Cluster	Percent Significant
I/I	81.6	V/V	39.5
I/II	81.6	V/I	50.8
I/III	42.8	V/II	50.8
I/IV	2.9	V/III	22.2
I/V	50.8	V/IV	13.3
I/VI	67.3	V/VI	66.7
I/VII	21.4	V/VII	13.9
I/N	43.3	V/N	35.2
II/II	81.6	VI/VI	61.9
II/I	81.6	VI/I	67.3
II/III	42.8	VI/II	61.2
II/IV	5.7	VI/III	1.0
II/V	50.8	VI/IV	2.9
II/VI	61.2	VI/V	66.7
II/VII	7.1	VI/VII	14.3
II/N	35.2	VI/N	40.0
III/III	0.0	VII/VII	33.3
III/I	42.8	VII/I	17.8
III/II	42.8	VII/II	7.1
III/IV	1.0	VII/III	20.8
III/V	22.2	VII/IV	20.0
III/VI	30.9	VII/V	13.9
III/VII	20.8	VII/VI	21.4
III/N	16.7	VII/N	10.8
IV/IV	20.0	N/N	28.3
IV/I	2.9	N/I	43.3
IV/II	5.7	N/II	35.2
IV/III	1.0	N/III	16.7
IV/V	13.3	N/IV	8.0
IV/VI	2.9	N/V	35.2
IV/VII	20.0	N/VI	40.0
IV/N	8.0	N/VII	10.8

Table 8. Item Analysis, Parent Data.

Cluster	Uncorrelated Definers	Mean r	Correlated Items Not in Cluster	Mean r*	Correlated Items Not in Cluster	Mean r*
I	none		27 (II) 32 (II) 33 (II) 44 (II) 52 (II) 69 (II) 67 (III) 71 (III) 15 (V) 16 (V) 18 (V) 19 (V) 49 (V) 59 (V) 6 (VI) 12 (VI) 26 (VI) 42 (VI) 58 (VI)	.55 .54 .54 .46 .53 .44 .46 .55 .42 .38 .33 .43 .38 .33 .40 .42 .49 .47 .36	9 (N) 17 (N) 22 (N) 23 (N) 30 (N) 38 (N) 46 (N) 53 (N) 56 (N) 61 (N) 62 (N) 65 (N)	.51 .39 .54 .35 .36 .42 .47 .49 .45 .47 .52 .46
II	none		7 (I) 35 (I) 54 (I) 55 (I) 63 (I) 70 (I) 67 (III) 71 (III) 15 (V) 16 (V) 18 (V)	.33 .51 .46 .49 .52 .54 .48 .54 .36 .37 .38	6 (VI) 12 (VI) 26 (VI) 42 (VI) 58 (VI) 9 (N) 22 (N) 38 (N) 53 (N) 56 (N) 61 (N)	.29 .39 .47 .41 .34 .44 .56 .36 .44 .40 .41

Table 8 (continued)

Cluster	Uncorrelated Definers	Mean r	Correlated Items Not in Cluster	Mean r*	Correlated Items Not in Cluster	Mean r*
			19 (V) 49 (V) 59 (V)	.43 .39 .37	62 (N) 65 (N)	.48 .44
III	2	.16	54 (I)	.33	32 (II)	.32
	13	.15	70 (I)	.32	44 (II)	.28
	36	.14			52 (II)	.30
	41	.14			69 (II)	.29
IV	11	.17	none			
	21	.18				
	47	.17				
	48	.14				
	64	.15				
V	10	.17	27 (II)	.31	9 (N)	.41
	14	.18	33 (II)	.34	22 (N)	.31
	16	.24	44 (II) 71 (III) 12 (VI) 26 (VI) 42 (VI) 58 (VI)	.34 .36 .36 .33 .33	23 (N) 46 (N) 53 (N) 56 (N) 62 (N)	.36 .43 .39 .40 .41
VI	8	.23	27 (II)	.33	9 (N)	.43
	20	.11	32 (II) 33 (II) 44 (II) 52 (II) 69 (II)	.34 .28 .36 .41 .32	17 (N) 22 (N) 38 (N) 46 (N) 53 (N)	.31 .39 .38 .41 .42

Table 8 (continued)

Cluster	Uncorrelated Definers	Mean r	Correlated Items Not in Cluster	Mean r*	Correlated Items Not in Cluster	Mean r*
			67 (III) 71 (III)	.36 .45	56 (N) 61 (N)	.39 .37
VII	11	.08	none			
	36	.20				
	64	.19				
N			7 (I) 35 (I) 63 (I)	.31 .35 .35	19 (V) 49 (V) 42 (V)	.35 .35 .35

\* All significant,  $p < .05$ .

Cluster III, Domineering-Tractable. On the basis of the frequency of significant correlations, parental responses to Cluster III items did not cluster. Items from Cluster III were significantly correlated to several items in both Cluster I (42.8%) and Cluster II (42.8%).

In the item analysis, four of the six definers had nonsignificant and very low mean correlations with other definers. However, six items from other clusters did have significant mean correlations with Cluster III definers. These items were from Clusters I and II.

Cluster IV, Dominant-Submissive. Frequent significant correlations were absent both for within-cluster and between-cluster comparisons involving Cluster IV. Only 20% of the correlations in the within-cluster submatrix were significant. All five of the Cluster IV definers failed to attain significant mean correlations with other Cluster IV definers. No items from other clusters were significantly correlated with Cluster IV definers.

Cluster V, Purposive-Aimless. The frequency of significant correlations within the Cluster V submatrix (39%) was lower than for submatrices comparing Cluster V with Clusters I (50.8%), II (50.8%), and VI (66.7%).

The relatively strong relationship of Cluster V definers to other definers also appeared in the item analysis. Definers from Clusters II, III, and VI, plus seven nondefining items, had significant mean correlations with Cluster V definers.

Three of the nine Cluster V definers had nonsignificant mean correlations with other Cluster V definers.

Cluster VI, Achievement Oriented-Not Achievement Oriented. Although there appeared to be some clustering of Cluster VI definers by parents,

the definers of this cluster were also frequently correlated with items from Clusters I (67.3% significant), II (16.2% significant), and V (66.7% significant).

Two definers for Cluster VI were not significantly correlated to other Cluster VI definers.

Definers from Cluster II (six items) and III (two items) were correlated with Cluster VI definers. In addition, eight nondefinners were significantly correlated with defining items from the cluster.

Cluster VII, Independent-Suggestible. The frequency of significant interitem correlations was low both within Cluster VII and between this cluster and other clusters.

Three of the four definers from Cluster VII had nonsignificant mean correlations with other Cluster VII definers. No items outside Cluster VII were significantly correlated with its definers.

Cluster N, Nondefining Items. The 30 nondefining items from Baumrind's (1971a) analysis were treated as an eighth cluster, in order to investigate the possibility of new clusters and the relationship of nondefinners to existing clusters.

As noted in the summaries of Clusters I-VII for parent data, a number of nondefining items correlated significantly with cluster definers, especially for Clusters I and II.

Six cluster definers had significant mean correlations with nondefinners taken as a group. Three were from Cluster I, two were from Cluster V, and one was from Cluster VI.

An examination of the whole N matrix for patterned item correlations revealed no new clusters of nondefining items.

Summary. None of the clusters had significant item intercorrelations, based on the frequency of significant correlations within clusters. However, item analyses for definers revealed fairly high internal consistency for Clusters I, II, and VI.

Both the frequency count and item analyses indicated a strong relationship between clusters. Clusters I, II, and III definers were frequently intercorrelated, and were also correlated to a number of nondefining items. Definers from Clusters V were related to Cluster VI and to Clusters I and II.

Clustering was low or absent for definers in Clusters II, IV, V, and VII.

#### Summary

Reliability. Results from four types of Interrater correlations indicated that the PBQS was reliable after modifications in administration method. Interrater correlations were high for most subjects, most items, and all clusters.

Construct Validity. Although most definers were intercorrelated within clusters, the frequency of significant correlations was not as high as expected based on Baumrind's model and analysis (1971a). In addition, relationships between clusters indicated that clusters may not be independent.

Results from a stepwise discriminant analysis were reported. Less than half the items in a model which discriminated between children

classified according to a measure of independence were ones representing the Independence factor in Baumrind's model (1971a).

Content Validity. Intercorrelations of parental responses in an ordered matrix indicated considerable deviation from Baumrind's (1971a) seven-cluster solution. Although some clusters had frequent significant correlations, there were also strong relationships between clusters. In addition, a number of nondefining items were significantly correlated with cluster definers.

## V. DISCUSSION AND CONCLUSIONS

Analysis and interpretation of the results of the tests of the hypotheses will be the focus of this chapter. Problems related to reliability, construct validity, and content validity will be discussed first. As a summary, conclusions will be applied to a general evaluation of the PBQS in its present form with modified administration procedure.

### Reliability

The Instrument. Modifications in administration procedures maintained the high reliability of the instrument. This is an important finding, since there was little attempt to structure the observation setting, and actual observation time was cut radically. The factors which may have contributed to high reliability are the sorting procedure, the use of anecdotal records, and the rater training procedure.

As noted previously, the sorting procedure is equivalent to a rating scale with 72 nonindependent items. In addition, most items were worded to have clearly positive and negative connotations, and some items seemed to represent behavioral extremes (e.g. Item 52, Can be trusted/Sneaky, cannot be trusted). The forced choice rectangular sort also limited the possible distribution of the ratings.

The nonindependence of items increased the likelihood that both raters would sort items in similar patterns. The presence of a few extreme items which would rarely be used to describe children may have

reduced the number of items on which raters had to make discriminations. Extreme items almost always received a one or nine rating; this left less than 72 items on which raters would have to agree in their judgments.

The use of anecdotal records as a data pool to supplement direct observation may have also increased reliability. Although each rater could make her own inferences from the records, the set of records was a constant source of information which both raters used. This was not true of direct observations, where one rater could sometimes see or hear something which the other rater could not. The anecdotal records may also have served as a check on observations, giving the raters information about which observed behaviors were atypical for the child in question.

The training sessions prior to data collection may also have increased reliability. The purpose of the training was to increase reliability by increasing familiarity with the PBQS items. Training may also have increased each rater's familiarity with the other rater's values and attitudes about behavior. This may have influenced raters to apply the ratings as they expected the other rater to respond. That is, training increased the rater's familiarity with the other rater as well as with the PBQS items.

The Clusters. The problem of nonindependence did not seem to be present for reliability assessment of clusters, but cluster reliabilities still tended to be quite high. To the extent that clusters represent meaningful groupings of items, reliability would be expected to be

high. If items are reliable, and clusters are sets of reliable items, clusters should also be reliable.

The cluster scoring procedure itself may also have increased reliability. In some cases, the raters may have agreed on the underlying trait represented by a cluster (e.g. hostility), but disagreed on the ratings for specific items. Disagreements on items could be cancelled out because the cluster scoring procedure required adding up item scores. This would be one explanation for Cluster VI having high reliability, although it included several unreliable items.

The Items. The format for presentation of the items, and wording of items themselves, seemed designed to reduce ambiguity for raters. During the training period, the "Pertinent Situation" and "Differentiations" sections of the item descriptions were frequently used to clarify item meanings. The item phrases were descriptive and well supported by behavioral examples.

Unreliable items indicated two limitations in the measurement instrument. The first was the need to infer intent, motivation, or feeling on the basis of scant behavioral data. The second was the inclusion of items for which little or no behavioral data was available in the research setting.

For example, items 4, 12, 18, 35, 36, 56 and 65 all seemed to require some judgement about the child's intent for or attitude about a certain behavioral episode. In item four, playing alone might be due to willingness to play alone, fear of entering the group, rejection by peers, et cetera. A child with generally high energy level would rate

high on item 12, although there was no evidence that s/he was putting her/his "best" into the activity. A general low energy level might be confused with the need for encouragement in item 18, or a child might be rated low simply because there were no activities which s/he choose to do.

Items 8, 20, and 26 required less inference by the raters, but the structure of the Child Development Laboratory sessions, and perhaps the teaching philosophy there, limited data available for the raters. On several occasions raters expressed difficulty in judging a child's response to frustration, since frustrating situations were infrequent. The apparently low incidence of hostile or conflictful adult-child and child-child interactions also reduced the amount of data which were pertinent to these items.

Item 20 in particular suffered from lack of data. Since most structured tasks required voluntary selection by the child, it was not easy to judge if a child who rarely chose a structured activity enjoyed participation in them. In addition, practical limitations on observation time and setting meant that no child could be observed during administration of a standardized test.

Summary. In several ways, the content and administration of the PBQS seemed to contribute to acceptable levels of interrater agreement. Some of this agreement should reflect reliability of the instrument. The estimate of reliability is probably inflated somewhat, due to nonindependence of the sorting procedure and training techniques which introduced some contamination of judgements between raters.

Construct Validity: Correlation Matrix

Willem's and Willem's (1965) have stated that the validity of a method seems to be inversely proportional to the ease of data collection. The concern of the present study was whether modifications to increase ease of administration would adversely affect validity.

The setting and sample to be studied seemed comparable to that used by Baumrind (1971a) and were not expected to adversely influence validity. However, observation time was cut, and anecdotal records took the place of observers' written protocols. Reliability was not impaired by the changes. The item interrelationships, assumed to represent underlying dimensions of preschool competence, were expected to remain as well.

In the analysis using a correlation matrix of child data, the criterion of 95% significant correlations was achieved for only one cluster. Another cluster had 93.3% significant correlations. The use of the 95% criterion seemed to obscure relationships that did exist. Therefore, an item analysis was also used.

The results of both the percent significant and item analyses indicated that some clusters seemed to be maintained. It was clear, however, that the independence between clusters, achieved in Baumrind's (1971a) analysis, was not true for the present study's data.

Items within clusters II, III, IV, V, and VII were frequently significantly correlated in the expected patterns, but the frequency of significant correlations within Clusters I and VI was low. The absence of clustering in Cluster VI could not be interpreted as lack of

validity, due to the number of unreliable items in this cluster. However, the low frequency of significant correlations in Cluster I indicated that some other cluster might be a more meaningful grouping of Cluster I's items.

An equally important finding was the relationship between clusters. These relationships were particularly strong between Clusters I, II, and III, and between Clusters IV and V. In the item analysis, there also seemed to be some relationship between Clusters II, IV and V. Cluster VII seemed to be independent of other clusters, both in the percent significant and item analyses.

In general, the relative frequencies of significant correlations suggested that a circumplex model is a valid representation of item interrelationships. Frequencies tended to be largest for adjacent clusters (e.g. between I, II, and III, and between IV and V). The item analyses also suggested this relationship, although there were also discrepancies. Two Cluster III definers had significant mean correlations with Cluster V items.

The significant correlations of some nondefiners with cluster definers indicated the possibility of new clusters emerging from the analysis. This possibility was also indicated by strong relationships between clusters and between cluster definers.

It appears that, for the modified administration procedure of the PBQS, items do not cluster in a manner representing seven theoretically meaningful aspects of preschool competence. Although clusters may be a parsimonious and reliable way of reducing observational data, care

should be taken in making interpretations based on cluster scores.

Rather than being seven distinct behavioral constructs, clusters should be interpreted as groupings of items which have a demonstrated but limited empirical relationship to each other.

#### Construct Validity: Stepwise Discriminant Analysis

The production of a discriminating model by stepwise discriminant analysis was a test of the clustering of items believed to represent independence. The test was directed toward four clusters which had high loadings on the factor Independence in Baumrind's (1971a) cluster analysis: III, IV, V, and VII. Independence, as one of two orthogonal factors, was the basis for the seven cluster model. Therefore, results from the analysis were also the basis for limited inferences about the relevance of the underlying theoretical model to a modified administration of the PBQS.

The results reported for this analysis indicated that less than half the 13 items entered in the multivariate model were ones predicted to enter on the basis of their loading on Independence. The remainder were either Social Responsibility items or nondefiners. The results were not greatly altered when item relationships from the present study's analysis were included. Independence items do not discriminate more effectively than other items between children classified according to their measured independence.

An assumption of the study is that Beller's Scale (1957), the basis for the classification, is a valid index of children's independence

in the preschool setting. It is therefore inappropriate to make interpretations based on other possible meanings of the Beller Scale.

The conclusion drawn from the stepwise analysis is that non-Independence items are as likely to indicate independence as Independence items. It may be that, in item development, a certain minimal level of independence was assumed and was consequently implicit in many PBQS items. If this was the case, Independence items would be expected to reflect optimal levels of independent behavior, but even some non-Independence items would be sensitive to absent or low levels of independent behavior.

An examination of the content of some non-Independence items in the discriminating model supports this argument:

4. Willing to pursue tasks alone/Needs support of other children
17. Lacking in curiosity/Curious
40. Likes to compete with other children in the performance of activities/Avoids competitive situations
42. Sets goals which expand his abilities/Likes to do only what is easiest for him

Each of these items seems to express independence in terms of nonconformity, the absence of dependence on peers, self-assertion, or the absence of dependence on adults for direction.

The influence of semantic relatedness in item clustering was discussed in the review of literature as one problem of measurement. The discriminant analysis related the items to a separate measure of independence and suggested that nonindependence items may have some meaning in terms of the trait. Although it is difficult to identify the semantic factor, it may have contributed to the clustering of items which

described independence in Baumrind's model (1971a), while excluding items which implicitly reflected independence.

Independence items did not discriminate more effectively than other items between children evidencing different levels of independence. It is possible that many PBQS items have a minimal level of independence implicit in them. This does not mean that items designed to measure optimal levels of independence are unnecessary in the PBQS. It may mean that the PBQS has an implicit bias toward a minimal level of independence in components not specifically designed to measure the trait. The clustering of more explicitly descriptive items involving independence may be due in part to the semantic similarities of the items.

#### Content Validity: Parental Response

The expectation of this study was that parental responses could be grouped in some manner to reflect underlying values concerning social competence in young children. Another possibility was that all items would correlate significantly with each other, due to their positive/negative wording. That is, the massed items, significantly intercorrelated, would reflect only a judgement of good versus bad behavior. The third possibility was that there would be no relationship between items, indicating a lack of value consensus within the parent sample.

The first expectation was partially confirmed, and the two alternatives seemed to be unfounded. Parental responses to items did correlate in a pattern approximating meaningful subsets of items. Some of these subsets had similarities to clusters in Baumrind's model (1971a).

Other clusters predicted by the model were absent from the correlation matrix. Most of the subsets of items were strongly interrelated.

The major finding, however, was that most of the items were very strongly related to Cluster II, Cooperative-Resistive. This cluster's high level of internal consistency was only slightly higher than its frequency of correlations with other clusters, especially Cluster III. Its definers had significant mean correlations with definers of Clusters I, V, and VI.

At the same time, the within-cluster correlations for Clusters III, IV, V and VII were low. It did not seem that independence as represented by the clusters were defined as a separate dimension. Some definers from these clusters were significantly correlated with the definers of Clusters I and II. No definers from other clusters were related to Cluster III and VII definers, however. The pattern of correlations suggested that independence as defined by some Cluster III, IV, V, and VII items was not a part of the parental definition of preschool competence.

A conservative interpretation of the patterns of results is that the parents responded to the task of defining social competence as a univariate problem. They may have interpreted the term "competence" as compliance, conformity, cooperation, et cetera. This is one possible explanation for the low relationship of independence items to other items. Independence items which were included were simply added into a univariate definition, rather than being defined as a separate dimension.

Another interpretation is that parents were sensitive to an implicit bias of items toward a minimal level of independence. The discussion of the items included in the multivariate discriminating model mentioned the possibility of such a bias in the PBQS items. The parents may have seen the implicit expressions of independence as sufficient for their definitions of competence, and therefore excluded some of the more explicit items.

Both interpretations are tenable. The parents did tend to relate explicit and implicit descriptions of independence to clusters supposed to represent the orthogonal factor, Social Responsibility. For example, the following items had significant mean correlations with definers of both Cluster I and Cluster II:

15. Vacillates and oscillates/Knows what actions he wants to take and with whom
16. Confident/Lacks confidence
18. Self-starting and self-propelled/Needs reassurance and encouragement in order to embark
53. Stretches to meet the situation when much is demanded of him/Retreats when much is demanded of him

Parental responses did seem to group around one competent-incompetent dimension, so that diverse items were intercorrelated.

An important finding, however, was that explicit items concerning independence were deleted:

11. Suggestible/Has a mind of his own
21. Peer leader/Follower
36. Does not question adult authority/Can question adult authority when he has a good reason

48. Resists domination by other children/Submits to demands of other children

Some of the Independence items which were included had an implicit component of cooperation or compliance:

69. Responsible about following standard operating procedure at school/Shows little concern about rules and regime
71. Nonintrusive/Domineering attitude
49. Has strong sense of self as a positive force/Seems willing to fade into the background
59. Samples activities aimlessly, lacks goals/Purposive

In view of some earlier findings on parental values (e.g. Auger and Auger, 1974) it is important to note that non-behavioral items were not excluded from the parental definitions of competence. Even items which proved unreliable due to an apparently weak link with behavior were correlated with the competence cluster for parental responses. It may be that parents perceived the task of defining competence as one of expressing values, rather than one of selecting items which were highly descriptive or had some predictive validity for children's behavior. Parents may have responded to items in terms of their meaning rather than in terms of their utility for measurement.

The process of instrument validation by questionnaire seemed fruitful for this sample of parents. A coherent pattern of responses did emerge, suggesting a measurable value consensus among the parents. One parent remarked, "I enjoyed this; it made me aware of my own values." Several parents criticized the apparent ambiguity or contradiction in items. Another parent noted that the questionnaire was easy to do, once she realized the stimulus was an ideal child or a conceptual definition.

One criticism raised by parents related to the semantics of the instrument. That was the consistent use of the male pronoun in all items. As one parent (male) remarked, after circling all male pronouns in the items, "Male chauvinist language." This is a limitation of the PBQS, not previously noted, which may create a sex bias in rating children.

Parental responses to PBQS items deviated from the pattern predicted by Baumrind's model, but did correlate in a way indicating some value consensus in the parental group. The patterns suggested a univariate but complex definition of social competence as social cooperation, with some implications for independent behavior. There was not a consistent pattern of responses to more explicit indications of independence. Therefore, there did not seem to be consensus on this behavioral dimension for the parent group. The use of parents as a sample of experts for content validation produced results which seem relevant to assessing the underlying meaning of the PBQS.

#### Conclusions and Summary

The modifications on administration of the PBQS did not appear to adversely affect the overall reliability of the instrument. However, several unreliable items were identified. The unreliability of the items appeared to be due to item wording, or to the lack of a relevant behavioral sample.

The construct validity analysis using a correlation matrix indicated that validity was affected by modifications. Although a

circumplex relationship between clusters was suggested, several clusters had low internal consistency or lacked independence from other clusters.

Both the multivariate discriminant analysis and content validation using parental responses indicated that the measurement of independence by the PBQS needs clarification. In particular, there may be an implicit bias toward independent behavior in some non-Independence items.

Parental definitions of competence tended to coincide on a univariate model which stressed socially cooperative and acceptable behavior. Some implicit expressions of independence were included, but explicit references tended to be excluded. Both behavioral and non-behavioral or introspective items were included.

The theoretical importance and practical need for an instrument such as the PBQS was demonstrated in the review of literature for this study. The findings indicated several possible problems in the use of the PBQS under modified administration procedures. Therefore, the concluding chapter of this report will describe a modified administration and scoring procedure. The findings of this study will be integrated and applied in an attempt to increase the reliability, validity, and usefulness of the PBQS.

## VI. IMPLICATIONS OF THE STUDY

In the preceding chapters, the importance of social competence as a construct was reviewed. Diverse aspects of the measurement of this construct were described as they relate to the PBQS. The findings for reliability and validity of the PBQS with modified administration procedures were then reported and discussed.

In this chapter, the implications of the preceding chapters for several issues will be discussed. The first section will recommend some changes in the PBQS suggested by the findings on reliability and validity. The second section will report procedures used for modification of scoring and statistics on the validity of the revised scoring method. The third section will summarize the revised administration and scoring procedures developed in this study. The final two sections will discuss limitations of the study and make suggestions for future research.

### PBQS Modifications

#### Recommended Changes in the PBQS

The presence of nine clearly unreliable items would not be considered crucial, if they did not enter into the scoring process of the PBQS. However, several clusters did have unreliable items, and one cluster (VI) had so many that validity assessment of the cluster was not possible. Reconstruction of items would be recommended, but it

would require complete reanalysis of the full new instrument for validity. Attempts to improve the sample of behavioral data by structuring the situation would diminish the validity inherent in the naturalistic observation method. An increase in observation might increase reliability, but is not feasible for practical reasons.

A more feasible approach, to increase reliability while preserving the instrument's validity, is to delete unreliable items from cluster scoring. An alternative solution, where individual items are analyzed (e.g. Jennings, 1975) is to use only items with demonstrated reliability.

The cluster scoring procedure itself seems to enhance reliability. In addition, clustering is one way to reduce a large number of items to a more manageable number of scores. However, clusters should also have validity, in terms of both internal consistency and inter-cluster independence.

The findings for the modified administration of the PBQS indicated low validity in cluster independence. Item analyses also indicated some lack of within-cluster correlation for definers, as well as the emergence of new cluster definers. Between-cluster correlations indicated that some clusters might be formed into new clusters by the combination of old clusters along with item deletion and addition.

The items representing Social Responsibility formed a consistent grouping for both the child ratings and parental responses. Although these clusters were homogeneous for the child data, parental responses to items with diverse meanings tended to correlate with Clusters I and II.

The representation of the Independence factor was not as clear. Although items in the Independence cluster were highly intercorrelated for child data, other items entered into a multivariate model discriminating by independence levels. Parental responses to Independence items were less consistent. Some items in the parent data were correlated with Social Responsibility clusters. The Independence cluster had low within- and between-cluster correlations for parent data. Consequently, it appeared that many items of the PBQS may have an implicit component of independence, and that the validity of the Independence cluster was upheld only for the child data. There is a need for further clarification of the meaning of independence to parents. The meaning of independence as a component of the theoretical model of social competence also needs further research.

In view of the findings on cluster internal consistency and independence, the clusters cannot be used as a valid scoring procedure for the modified administration of the PBQS. The relationships between clusters suggest that the combination of clusters would be a more valid scoring procedure. At the same time, the relationship of nondefiners to existing clusters indicates the need to add additional items as definers. Uncorrelated and unreliable definers should be deleted from the clusters.

Although Baumrind (1971a) selected items to be nondiscriminating by sex, the use of masculine pronouns in items may introduce some bias. At least, it may serve as a distraction to raters using the PBQS with girls. It was also disturbing to some parents. Therefore, items should be reworded using neutral gender.

Revisions in Scoring Procedure

Revision of the scoring procedure is recommended because of conclusions drawn from the findings of the study. The modification procedure and results of preliminary validity analyses are reported in this section.

The results of a frequency count of significant correlations in correlation matrices for both parent and child data indicated that clusters tended to be somewhat correlated with adjacent clusters, in a circumplex pattern. The relationship between Clusters I, II, and III was strong, especially for the parent data. Clusters IV, V, and VI were also somewhat related. Cluster VII was clearly independent in both child and parent data.

Baumrind's (1971a) cluster solution and theoretical model included both Social Responsibility and Independence as aspects of competence. Since Clusters I, II, and III seemed to represent an aspect of Social Responsibility, they were combined. Cluster VII was retained, to represent the Independence factor from the original model. A third set of related clusters, IV, V, and VI, was initially combined to include clusters which did not fit with I, II, III, or VII.

After combining clusters on the basis of empirical and theoretical grounds, unreliable items were deleted.

The analyses of child data matrices were then reviewed to identify cluster definers which were not strongly correlated with other definers in the combined clusters. Parent data matrices were not used for item deletion, since the univariate pattern of parental responses would lead

to deletion of almost all items except those in the combined set of Clusters I, II, and III.

New definers were added to the combined clusters on the basis of high mean correlations with existing definers in both the parent and the child correlation matrices. For example, nondefining item 22 had a high mean correlation with cluster II definers both for the child ratings and parent responses, so it was added to the combined set of Clusters I, II, and III.

After item deletions and additions were complete, the new combined clusters were examined, and labeled according to the apparent meaning of their items. The finished clusters are listed in Figure 5. The negative sign indicates items which would be reflected in scoring.

A summary of the revised analysis for validity is presented in Table 9. As might be expected from the methods used to modify clusters, the within-cluster correlations are higher for the child matrices than the parent matrices. In order to balance the conformity of clusters to both parent and child data, some items which correlated across clusters were retained.

The reliability of the new clusters should be acceptable, because they build on reliable clusters from the Baumrind model (1971a) and because unreliable items were deleted.

The validity of the clusters in terms of both internal consistency and independence is good for the child data and fair for the parent data. Cluster I may be taken as a cluster which reflects a major part of the parental definition of competence. Clusters II and III have

"--" indicates  
reflected  
for scoring

I. Cooperation (From Clusters I, II, III)

- 13 Timid with other children/Bold with other children
- 22 Supports or incites culpable behavior/Does not support or incite culpable behavior -
- 27 Tries to evade adult authority/Accepts adult guidance -
- 32 Obedient/Disobedient
- 33 Destructively impetuous and impulsive/Self-controlled and thoughtful -
- 41 Concerned about adult disapproval/Not concerned about adult disapproval
- 44 Actively facilitates nursery school routine/Undependable
- 52 Can be trusted/Sneaky, cannot be trusted
- 54 Bullies other children/Is not a bully -
- 63 Selfish/Altruistic, shares his possessions willingly -
- 67 Hits only in self-defense or doesn't hit at all/Hits aggressively
- 68 Provocative with adults/Does not challenge adult authority -
- 69 Responsible about following standard operating procedure/Shows little concern
- 70 Insulting/Does not assault another child's ego -
- 71 Nonintrusive/Domineering attitude

II. Assertion (From Clusters IV, V, VI)

- 10 Spectator/Participant
- 14 Characteristically unoccupied/Generally busy, always occupied -
- 15 Vacillates and oscillates/Knows what actions he wants to take and with whom -
- 19 Disoriented in his environment/Well-oriented in his environment -
- 21 Peer leader/Follower
- 24 Paid attention to by other children/Goes unnoticed by other children
- 42 Sets goals which expand abilities/Likes to do only what is easiest
- 47 Plans activities for other children/Seeks direction from others

Figure 5. Description of PBQS clusters.

"--" indicates  
reflected  
for scores

II. Assertion (continued)

- 48 Resists domination by other children/Submits to demands of other children
- 49 Has strong sense of self as positive force/  
Seems willing to fade into background
- 59 Samples activities aimlessly, lacks goals/  
Purposive

III. Independence (From Cluster VII)

- 11 Suggestible/Has a mind of his own
- 36 Does not question adult authority/Can question adult authority when has good reason
- 64 Individualistic/Complies to the group
- 66 Stereotyped in his thinking/Original

Table 9. Summary of Analyses for Modified Clusters.

Cluster	Percent Significant** Correlations		Uncorrelated Definiers*		Correlated Definiers from Other Clusters*	
	Child Data	Parent Data				
I/I, Cooperation	93	77	p #13	.09	c #36	.56
I/II	27	32			p { #15 #19 #42 #59	.33 .42 .39 .37
I/III	9	3				
II/II, Assertion	84	36	p { #10 #14 #21	.20 .19 .15	c { #13 #71	.53 .56
II/I	27	32	p { #24 #42 #47	.23 .23 .20		
II/III	18	11	p { #48 #59	.12 .22		
III/III, Independence	83	33	p { #11 #36 #64	.08 .20 .19	c { #49 #71	.45 .46
III/I	9	3				
III/II	18	11				

\*\*\*All critical r values computed for  $p < .05$ .

\* p = parent data; c = child data

questionable validity for the parent sample but not for Baumrind's theoretical model or the child behavior data. Interpretations which account for the discrepant parent definition should have good validity.

The three clusters provide a more simplistic model of social competence than Baumrind's (1971a) seven clusters. This decreases validity, but it also may make the instrument more useful for practitioners for the following reasons:

1. There seem to be less conceptual overlap between the three clusters than between the earlier seven so that interpretation is easier.
2. Each cluster is labeled as a competency rather than as a good/bad descriptive continuum. This is consistent with the concept of competence.
3. The reduction of data to three conceptually distinct scores should facilitate interpretation and simplify scoring.

#### Summary of the Administration and Scoring Procedures

##### Rater Training

A Q sort deck should be prepared for each rater from the PBQS Manual (Baumrind, 1968b). In preparing the deck, items should be modified to eliminate masculine pronouns. The item title and a section of the description should be included on each card (see Appendix E).

Each rater should read the PBQS Manual (Baumrind, 1968b) and some supplementary material (e.g., Anderson and Messick, 1974; Baumrind, 1970, 1973). After reading the background material, the rater should

discuss the items with another person who has familiarity with the PBQS and the concept of competence. Trial ratings using subjects excluded from the sample should increase raters' comprehension of items and their familiarity with the instrument as a whole.

The use of a periodic checker, or continuous reliability assessments with simultaneous observations, is strongly recommended.

#### Data Preparation

The sample should be selected and background data (Appendix G) collected for each subject. Valid interpretation of the data is dependent on having a sample with limited range on the background variables. Approximately 50 anecdotal records (Appendix F) should be available for each child. The shortened observation procedure relies on anecdotal records for reliability and validity, and should not be attempted without them.

#### Observation

Each subject is observed for 2.5 hours in the naturalistic pre-school setting. The observer then reads all anecdotal records and sorts the cards into a rectangular distribution with nine categories. The placement of each card is the item raw score. (Nine indicates most descriptive; one, least.)

#### Scoring

Interrater correlations should be computed using item raw scores. Scores should be standardized prior to interpretation, however. The

procedure for deriving standard cluster scores is that described by Baumrind (1974). However, the items to be used for cluster scores are listed in Figure 5.

1. Standardize all cluster definer raw scores for the sample.
2. Reflect appropriate items by multiplying the standardized item score by minus one.
3. Compute the sum of the standardized cluster definer scores to yield cluster composites.
4. Standardize cluster composites for the sample to have a mean of 50 and a standard deviation of 10.
5. The resultant data for the sample will be three sets of scores, all with mean 50 and standard deviation of 10.

Standardization makes scores more comparable across the sample, allows for comparison within subjects between the three scores, and prevents undue weighting of any one item due to its large variance.

#### Interpretation of Scores

The three-cluster solution developed in this study is based on the empirical relationship between items with some reference to Baumrind's (1971a) two factor, seven cluster solution. The three clusters represent three aspects of the construct social competence, which has some theoretical and functional importance. However, caution should be used in attaching theoretical or clinical significance to cluster scores. Although cluster definers have a functional relationship, their structural significance has not been demonstrated.

The standard score indicates a subject's position relative to others in the sample on the same cluster. The subject's three scores can also be compared, since the three scores have equal means and standard deviations. However, norms for the three clusters do not exist. It is therefore inappropriate to generalize findings beyond the sample in question, or to compare individuals who are not from the same population.

The possible bias of some PBQS items means that low levels of independent behavior may affect scores on items which are not Independence definers. Conversely, Independence items may only be sensitive to variations within high levels of independent behavior.

Parents in the sample of the present study expressed little consensus concerning an Independence dimension of social competence. Their responses to Assertion definers tended to be correlated with Cooperation. The discrepancies between parental and theoretical definitions of competence should be recognized when findings are related to general cultural expectations, parental behavior, et cetera.

#### Limitations of the Study

For methodological purposes, the child sample was limited in size and was homogeneous with respect to the variables of age, verbal intelligence, and sociocultural background. This clearly limits the extent to which findings in this study, and in particular the three cluster solution, can be applied to other settings.

The parent sample represented a limited range of sociocultural backgrounds. Findings on parental definitions of competence should not

be generalized to groups with diverse sociocultural backgrounds (see Appendix J).

Validity of the PBQS was tested only with reference to Baumrind's (1971a) model, although the Beller Scale (1957) served as an independent criterion. To the limited extent that the study demonstrated validity, it was only in terms of this model and the criteria of internal consistency and independence.

The validity of findings with reference to the Beller Scale (1957) are limited due to the age of this instrument and the variability in rating patterns between the three teacher raters.

The stepwise multivariate discriminant analysis was carried out for a limited number of steps, due to the small sample size. A similar investigation with a larger sample might illuminate the meaning of independence in the PBQS.

Although this research attempted to use parents as a group for content validation, the use of the PBQS as the stimulus probably created a bias toward the instrument in parental responses. An open ended technique might elicit a more complete and valid estimate of parental definitions of competence. The statistical methods used identified areas of consensus among parents, but could not measure the relative importance of each item to the parent group.

#### Suggestions for Future Research

This study has relied on content and construct validation of the PBQS, with little reference to external criteria to establish the

instrument's meaning. Other approaches, using time or event sampling of behavior, would delineate the concurrent validity of the test. Behavioral methods would be especially useful in evaluating the three cluster solution, which appears to have a close relationship to observable behavior.

If the PBQS is to be used in evaluation of preschool programs, some estimate of its predictive validity is needed. In particular, the relationship of competence to later emergence of social variables such as coping style, peer relationships, and sex role preference could be explored. Just as Carew et al. (1974) have identified early activities which are "intellectually valuable" for later cognitive development, it would be helpful to know if the PBQS identifies socially or interpersonally "valuable" behaviors.

Longitudinal models could be used with the PBQS to identify age shifts in patterns of competence. Selected competencies may change in relative importance as the child matures.

Definitions of independence for middle class parents need further investigation. In addition, findings from the present study should be compared to those for parents from diverse subcultures.

Definitions of competence for parents of diverse groups should also be an area of concern. These definitions would be useful both to validate existing measurement instruments and to develop new ones. There is a need to assess the functional relationship between parental definitions of competence and observed patterns of competence in children of different subcultures.

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## **APPENDICES**

## Appendix A

Description of Social Responsibility Clusters, PBQS  
Baumrind's (1971a) Seven Cluster Solution

No.	Description	Average r
<b>Cluster I: Hostile-Friendly</b>		
55	Understands other children's positions in interaction	-.83
7	Nurturant or sympathetic toward other children	-.80
54	Bullies other children	.78
72	Thoughtless of other children's productions	.74
70	Insulting	.70
63	Selfish	.63
35	Helps other children carry out their plans	-.61
<b>Cluster II: Resistive-Cooperative</b>		
32	Obedient	-.91
69	Responsible about following standard operating procedure at school	-.88
44	Actively facilitates nursery school routine	-.86
33	Impetuous and impulsive	.84
27	Tries to evade adult authority	.82
52	Can be trusted	-.81
68	Provocative with adults	.82
<b>Cluster VI: Achievement Oriented--Not Achievement Oriented</b>		
8	Does not persevere when he encounters frustration	-.85
58	Stretches to meet the situation when much is demanded	.82
20	Does not become pleasurable involved in tasks	-.82
6	Likes to learn new skills	.81
42	Sets himself goals which expand his abilities, e.g., learning to pump on swings, trying difficult puzzles	.77
12	Gives his best to work and play	.71
26	Easily frustrated or upset when an obstacle to task performance is encountered	-.71

Note--Average r = the average correlation of the item with the other cluster definers (Baumrind, 1971a, 7-8).

## Appendix B

Description of Independence Clusters, PBQS  
Baumrind's (1971a) Seven Cluster Solution

No.	Description	Average r
<b>Cluster III: Domineering-Tractable</b>		
71	Nonintrusive	-.82
13	Timid with other children	-.75
67	Hits only in self-defense or doesn't hit at all	-.74
41	Concerned about adult disapproval	-.70
36	Does not question adult authority	-.69
2	Manipulates other children to enhance his own position or to get what he wants	.67
<b>Cluster IV: Dominant-Submissive</b>		
21	Peer leader	.85
11	Suggestible	-.84
47	Plans activities for other children	.79
64	Individualistic	.70
48	Resists domination of other children	.65
<b>Cluster V: Purposive-Aimless</b>		
10	Spectator	-.86
14	Characteristically unoccupied	-.83
49	Has strong sense of self as a positive force	.82
59	Samples activities aimlessly, lacks goals	-.81
15	Vacillates and oscillates	-.81
19	Disoriented in his environment	-.77
16	Confident	.76
24	Dominates group activity	.75
18	Self-starting and self-propelled	.75
<b>Cluster VII: Independent-Suggestible</b>		
64	Individualistic	.85
11	Suggestible	-.78
66	Stereotyped in his thinking	-.71
36	Does not question adult authority	-.64

Note--Average r = the average correlation of the item with the other cluster definers (Baumrind, 1971a, 7-8).

## Appendix C

Comparison of Items from Crandall et al. (1958) and Baumrind (1968b). Baumrind's Item Numbers are in Brackets.

Opinions are more readily influenced by others	(31)
Has a higher energy level	(28)
Is more suggestible	(11)
More often seeks attention and praise from others	(41)
Shows more empathic sensitivity to others' feelings	(55)
Finds it less difficult to admit mistakes	(65)
Is more deferential to persons considered superior	(36, 2)
Is less easily irritated by minor frustrations	(26)

## Appendix D

Comparison of Statements from Anderson and Messick (1974)  
 and Items from Baumrind (1968b)  
 Baumrind's Item Numbers are in Brackets.

- "2...The child tends to initiate action and direct his own behavior within realistic environmental constraints; (42,19)
- "4...resiliency in the face of failure or frustration... reflected in level of aspiration and other motivational processes... (26)
- "5...The child knows about and expresses different types of negative and positive feelings... (1,29,56,51)
- "6...The child perceives and accepts differences between himself and others... (55)
- "8...The child recognizes that children and adults take somewhat different roles in different...contexts, he knows what is expected of others and of himself in these different contexts... (39, 9,44)
- "9...The child does not...avoid (antisocial)...behaviors through massive and primitive defenses...(but) through moderation, redirection, or other mechanisms of impulse regulation that are at least partially under his cognitive control (1,29,65)
- "10...When there is an opportunity or situational expectation for prosocial behavior the child engages in such behavior more often than not... (45,40,10)
- "11...The child evidences curiosity about his environment and actively explores it. (6,17)
- "23...Flexibility in the application of information-processing strategies... (8,15)
- "26...Competence motivation: The child wants to improve his skills, exhibits satisfaction with improvement or mastery, and seeks learning experiences in the absence of external pressure or reward. (5, 6,18,40,42,51,53)
- "27...Facility in the use of resources for learning and problem solving... (15,20,69)
- "28...Some positive attitude toward learning and school experiences..." (6,20,56,57)

## Appendix E

## Sample Item from PBQS Manual

**Item 5. Forcefully goes after what he wants (hesitates or is easily put off.)**

High: The child characteristically knows what he wants in terms of the resources available and does not hesitate to pursue his goal using whatever appropriate techniques are required to obtain it. The emphasis is on the amount of commitment the child gives to his own desires and his willingness to confront obstacles, by obtaining the help of teachers and the cooperation of other children. An example of a child who is rated high is one who when encountering opposition from another child uses reason and persuasion to change the other's mind, expending time and energy in so doing, or uses the same approach on a teacher in order to have her intercede on his behalf. Some use of muscle instead of reason might also be rated high if such behavior typically is successful and not self-defeating.

Low: The child makes only feeble attempts at obtaining what he wants. He accepts the prepotency of another's need if it conflicts with his own and will not push a teacher beyond her initial 'no' to obtain a goal. He is apt to be hesitant about expressing desires or evasive when asked what he wants.

Pertinent Situations and Behavior: Stubbornness when encountering an obstacle is not a good indicator of a very high rating, although giving up would indicate a low rating. Stubbornness is a reaction to not getting what is wanted and in its most rigid form is apt to be self-defeating.

Differentiations: This item is more general and at a higher level of competence than just overcoming frustration in problem solving tasks, as in item 8, Does not persevere when he encounters frustration (perseveres), although it is apt to be related for some children. Rated here is a form of constructive self-assertiveness, quite different in its effects from behavior rated by item 54, Bullies other children (is not a bully) and by item 71, Non-intrusive (domineering attitude).

\*Portion typed on PBQS card.

## Appendix F

Sample Anecdotal Record  
With Descriptive Statistics

Child's Name	Name of Observer
	Date of Observation
	Carolyn was standing with her high heels on next to her tennis shoes. Miss Johnson said to her, "Are your tennis shoes the same size as your high heels?". Carolyn looked down at the two different pairs of shoes and said, "no", Miss Johnson said, "Which one is bigger?" Carolyn replied, "The high heels". Miss Johnson asked, "Are the high heels bigger than Sally's tennis shoes?". Carolyn looked at Sally's tennis shoes and said, "Yes". Miss Johnson then asked if the high heels were bigger than her own shoes. Carolyn looked at Miss Johnson's shoes and did not answer. She then moved to the side of Miss Johnson and put her high heels right next to Miss Johnson's shoes. She bent over to look at both of them. She then stood up and said, "No, yours are bigger ones".
This is a good example in which Carolyn showed her ability to reason and to distinguish between various sizes.	

	Range	Mean	S.D.
Total Records per Child	106	47.6	22.9
By Term			
Fall	58	21.4	16.4
Winter	45	14.8	9.2
Spring	23	11.4	5.2

## Appendix G

## Descriptive Statistics for Child Sample

	<u>N</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>
Age	36	11 months	54.6 months	3.11
Ordinal Position				
Oldest	8	---	---	---
Middle	3	---	---	---
Youngest	16	---	---	---
Only	8	---	---	---
Twin	1	---	---	---
Number of Children in Family	36	3	2.1	.87
Sex				
Girls	16	---	---	---
Boys	20	---	---	---
Parental Education				
Mothers	33	6 years	15.7 years	1.77
Fathers	33	8 years	17.9 years	2.01
Hollingshead Index	36	2	1.6	.90
Intelligence (Peabody Picture Vocabulary Test)	33	26	120.3	7.36

Appendix H

Sample Copy of Beller's Scale of Independence

Beller's Scale of Independence  
or Autonomy Among Children

Name of Child

Name of Rater

Date

1. How often does the child derive satisfaction from his work?

This can be judged from the following behavior: The child finishes its activity, e.g., painting, building, play, etc., without asking teacher for comment; without making derogatory comment on the work of other children; or without showing disturbance or irritation by bullying other children, dashing off wildly, destroying one's own work, etc., but instead moving away from a completed activity and getting ready for a new period.

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely without persistence
*	*	*	*
7	6	5	4
3	2	1	

2. How often does the child attempt to carry out routine tasks by himself?

Routine tasks: e.g., dressing, washing, eating, toilet behavior, etc. The rater is to put special emphasis on the child's attempts to carry out these routine tasks by himself. The occurrence of such attempts can be observed directly by seeing the child trying to dress by himself, to dress or undress at the toilet, trying to get the water running for washing, etc., (while the teacher assisted another child), or the child may be found doing any of these in a clumsy way but doing them as best he can. (The rater must be careful to not let their feelings of a self-evident duty to assist the child in all routines when the child needs assistance interfere with an objective appraisal).

Very Often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely without persistence
*	*	*	*
7	6	5	4
3	2	1	

3. How often does the child attempt to overcome obstacles in the environment by himself?

By obstacle we mean missing a necessary tool or object in play or work, having misplaced a towel, a toy, clothing apparel, etc., desired objects that are placed out of reach, etc. The extent of the child's striving to overcome such obstacles by himself can be seen when, after his turning away from an ongoing activity (play or work), he returns and continues after having overcome the obstacle. This is distinguished from reaction to such obstacles which are characterized by the child's interrupting his play or work to join other children or another child, to scream out loud -- "I need a hammer", "I need another truck" -- to go from child to child begging, demanding, and finally grabbing the desired object, or simply beginning to daydream, wandering off aimlessly or crying. How often does the child seek or strive to overcome obstacles in the environment on his own without getting distracted from his ongoing activity?

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely without persistence
*	*	*	*
7	6	5	4

4. How often does the child take initiative in carrying out his own activity?

When the child comes into the playroom, art room, or playground, he knows what he wants to do and proceeds to do so, e.g., sandbox, bicycle, swing, building a ship, or a tunnel with blocks, etc. This can be distinguished from going out into the playground and looking around for someone to join, clinging to the teacher, standing or wandering around aimlessly until teacher takes initiative, asking someone to play with him, or mostly wanting toys or tools which other children have already begun to use. It does not matter whether another child enters his activity occasionally, the main criteria being whether he has his own ideas and proceeds to carry them out.

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely without persistence
*	*	*	*
7	6	5	4

5. How often does the child complete an activity?

Once the task is set by the teacher or selected by the child, the child carries it out to completion, e.g., construction, play, art, etc. This is to be distinguished from giving up easily, getting bored, disinterested or distracted. It is also to be distinguished from rigid perseveration, i.e., a child just keeping on doing one thing regardless

whether it is successful or unsuccessful attack on the task. Use as your basic criterion how often a child carries an activity to its completion.

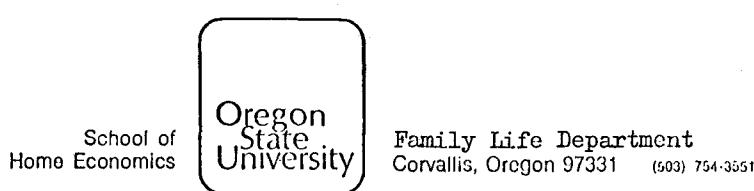
Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely without persistence
*	*	*	*

---

7	6	5	4
3	2	1	

**Appendix I**

**Sample Questionnaire and Cover Letter**



April 28, 1976

Dear Parents,

Enclosed are questionnaires which are a part of my dissertation research on children's social development.

I have included a copy of the questionnaire for each parent. The questionnaires should be completed separately; please wait until both are completed to discuss them or your ideas about social development.

You may take as long as you wish to work on the questionnaire. However, I would appreciate having the questionnaires returned during the week of May 3-May 7. Please return the questionnaires to your child's teacher in the manila envelopes in which they were sent.

Your name is on the envelope only so that we can keep track of who has returned the questionnaires. Your name will not be recorded with the questionnaire responses. For this reason, your responses are entirely anonymous.

If you have any questions, please call me at 753-1701 (evenings), or leave a note for me with your child's teacher.

I appreciate your assistance in this important phase of my research.

Sincerely,

**Redacted for privacy**

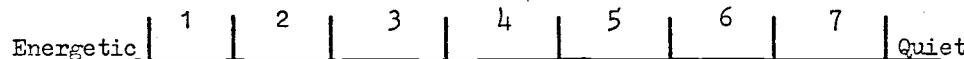
Willa Bowman Pettygrove  
Graduate Research Assistant

PRESCHOOL BEHAVIOR QUESTIONNAIRE

The following questionnaire contains many items which may be used to describe young children's behavior in school or at home. We would like to know how well each item describes a preschool child who is especially competent.

By competent, we mean a child who has successful relations with other people, and who is especially successful in tasks she or he is engaged in.

In working on the questionnaire, you may think of an "ideal child" who best represents your idea of competence. Rate each item according to how well it describes that child. For example, look at the following item.



You may feel that energy is very important in describing the competent child; you would mark "1" for this item. Similarly, if it was less important, you would mark "3", "4", or "5". If you felt that "Energetic" did not describe the competent child, you would mark "6" or "7" for this item.

Mark every item, but mark only one space (1 through 7) for each item. If you wish to comment on competence or items on the questionnaire, please wait until you have finished marking. Write your comments on the last page of the questionnaire.

If you are the mother of a preschool child, mark here.

If you are the father of a preschool child, mark here.

If you are the teacher of a preschool child, mark here.

1 2 3 4 5 6 7

Frustrated or bound up by feelings | Expresses negative feelings openly and directly

Non-manipulative | Manipulates other children to enhance his own position or to get what he wants

Poorly coordinated and clumsy | Well-coordinated and agile

Needs support of other children | Willing to pursue tasks alone

Forcefully goes after what he wants | Hesitates or is easily put off

Does not actively seek new learning experiences | Likes to learn new cognitive skills

Unsympathetic when another child is in distress | Nurturant or sympathetic towards other children

1 2 3 4 5 6 7

Perseveres when he encounters frustration | Does not persevere when he encounters frustrations

Interacts smoothly with other children | Lacks ability to get along with other children

Participant | Spectator

Has a mind of his own | Suggestible

Puts little effort into what he does | Gives his best to work and play

Bold with other children | Timid with other children

Characteristically unoccupied | Generally busy, always occupied

1      2      3      4      5      6      7

Knows what actions he wants to take and with whom | Can't make up his mind; chooses activity with difficulty

Lacks confidence | Confident

Lacking in curiosity | Curious

Needs reassurance and encouragement from others in order to embark | Self-starting and self-propelled

Disoriented in his environment | Well-oriented in his environment

Does not enjoy participation in structured activities | Enjoys participation in structured tasks

Peer leader | Follower

1 2 3 4 5 6 7

Does not support wrongdoing or inhibits misbehavior in others | | | | | | | | Supports or incites misbehavior by other children

Company seldom sought by other children | | | | | | | | Other children seek his company

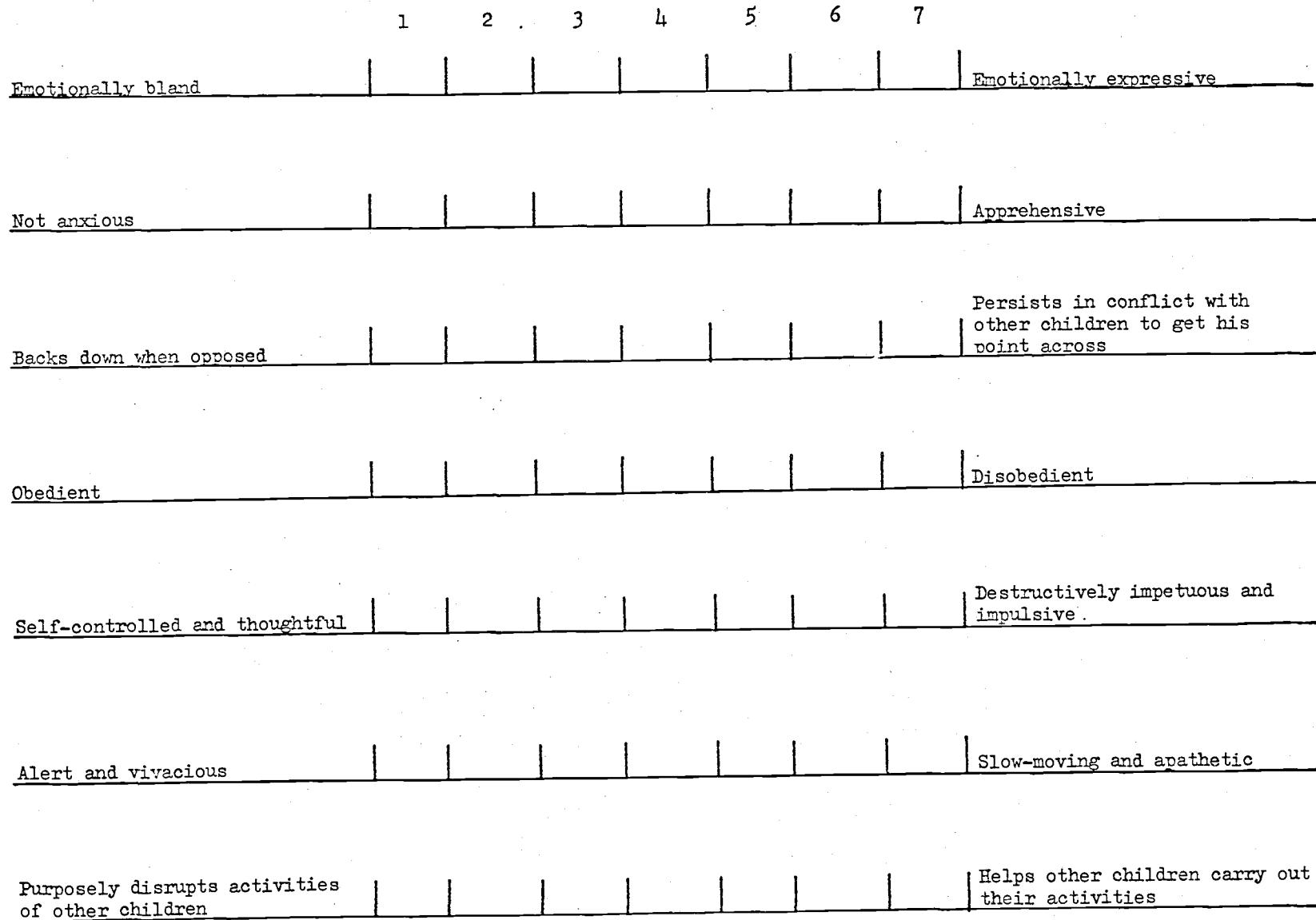
Goes unnoticed by other children | | | | | | | | Paid attention to by other children

Dependent upon any one adult, especially mother | | | | | | | | Self-reliant in relating to adults

Easily frustrated or upset when an obstacle to task performance is encountered | | | | | | | | Has high tolerance for frustration

Accepts adult guidance | | | | | | | | Tries to evade adult authority

Low energy level | | | | | | | | High energy level



1 2 . 3 4 5 6 7

Can question adult authority when he has a good reason | | | | | | | Does not question adult authority

Expresses preferences for one kind of activity over another | | | | | | | Does not express preferences

Communicates well verbally | | | | | | | Rambling, inarticulate

Requires a great deal of adult supervision | | | | | | | Does not require supervision

Likes to compete with other children in performance of activities | | | | | | | Avoids competitive situations

Not concerned about adult disapproval | | | | | | | Concerned about adult disapproval

Likes to do only what is easiest for him | | | | | | | Sets goals which expand his abilities, e.g., learning to pump on swings

1 2 . 3 4 5 6 7

Gets other children in trouble  
with the teacher | | | | | | | Protects other children from  
adult disapproval and punishment

Can be counted on to cooperate  
in nursery school routine | | | | | | | Undependable

Seeks company of other  
children | | | | | | | Avoids company of other  
children

Avoids peer interaction by  
techniques such as seeking  
adult attention | | | | | | | Comfortable and secure in inter-  
action with peers

Seeks direction from other  
children or teacher | | | | | | | Plans activities for other children

Resists domination by other  
children | | | | | | | Submits to demands of other  
children

Has a strong sense of self as a  
positive force | | | | | | | Seems willing to fade into  
background

1 2 3 4 5 6 7

Socially withdrawn

Outgoing

Physically courageous with  
playground apparatus

Fearful

Can be trusted

Sneaky, cannot be trusted

Stretches to meet the situation  
when much is demanded of  
him

Retreats when much is demanded  
of him

Bullies other children

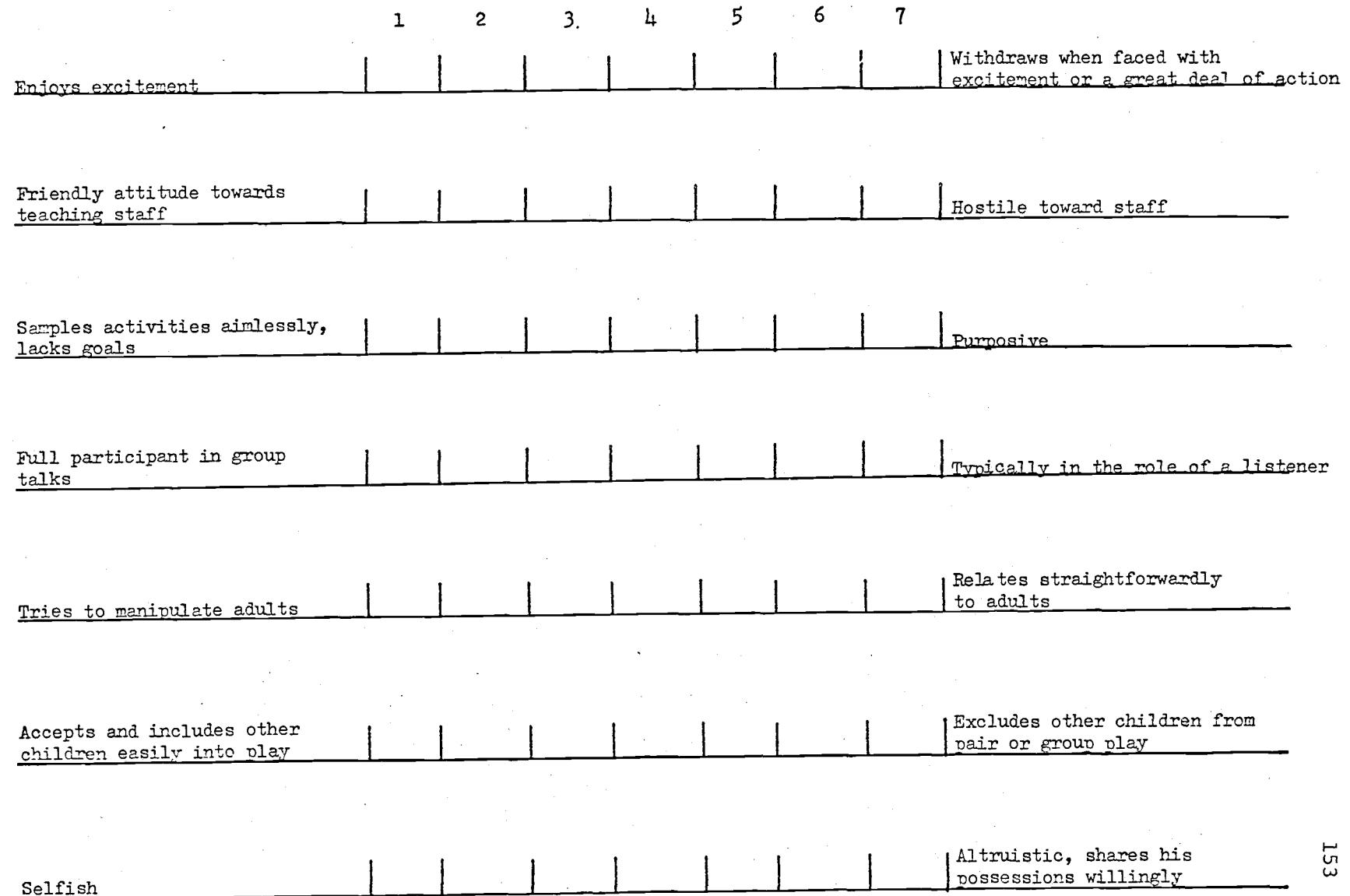
Is not a bully

Understands other children's  
position in interaction or  
conflict

Doesn't understand other  
children's position

Discontent

Content, cheerful attitude



1 2 3 4 5 6 7

Individualistic | Complies to the group

Blame-avoidant | Accepts responsibility for wrongdoing

Original | Stereotyped in his thinking

Hits only in self-defense or doesn't hit at all | Hits aggressively

Does not challenge adult authority | Provocative with adults

Shows little concern about rules and regime | Responsible about following standard operating procedure at school

Does not assault another child's ego | Insulting

1 2 3 4 5 6 7

Willing to take turns | Domineering attitude

Thoughtless of other children's productions | Takes care not to destroy another child's work

Other children don't seek his company | Other children seek his company

Understands and remembers detailed instructions when given the first time | Must be given directions several times

Does not question or talk back when being corrected for wrong doing | Questions or talks back to parents when being corrected for wrongdoing

Will eat a snack right before a meal; does not show self-discipline | Shows self-discipline in that he will not eat a snack right before a meal

Makes very high grades in school | Does not make high grades in school

Doesn't take care of things.  
Doesn't put things away when  
finished with them.

1

2

3

4

5

6

7

Takes care of his things. When  
finished using something, returns  
it to its place

Uses a large vocabulary for  
his age

|

|

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|

Doesn't use a large vocabulary

Learns things more quickly than  
other children do

|

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|

Doesn't learn things more  
quickly than other children

Speaks correctly, with good  
grammar for his age

|

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|

|

Speaks incorrectly, may use  
incorrect grammar.

Now that you have finished marking the questionnaire items, please feel free to add your own comments here.

## Appendix J

## Descriptive Statistics for Parent Sample

Age	less than				Older than	
	25	25-29	30-34	30-40	40	
n	1	28	41	10	2	
Years Education	12	13	14	15	16	17
n	6	1	4	4	23	1
mean = 18.09						
Number of Children	1	2	3	4	5	6
n	15	57	16	4	2	1
mean = 1.57						
Sex	Men	Women				
n	47	49				
Cultural Background		North American	Other			
		89	9			
Hollingshead	1	2	3	4		
n	47	36	10	3		
mean = 1.58						

## Appendix K

List of All Items of the Preschool Behavior  
Q Sort (Baumrind, 1968b)

1. Expresses negative feelings openly and directly (frustrated or bound up by feelings).
2. Manipulates other children to enhance his own position or to get what he wants (non-manipulative).
3. Well-coordinated and agile (poorly coordinated and clumsy).
4. Willing to pursue tasks alone (needs support of other children).
5. Forcefully goes after what he wants (hesitates or is easily put off).
6. Likes to learn new cognitive skills (does not actively seek new learning experiences).
7. Nurturant or sympathetic towards other children (unsympathetic when another child is in distress).
8. Does not persevere when he encounters frustrations (perseveres).
9. Lacks ability to get along with other children (interacts smoothly with other children).
10. Spectator (participant).
11. Suggestible (has a mind of his own).
12. Gives his best to work and play (puts little effort into what he does).
13. Timid with other children (bold with other children).
14. Characteristically unoccupied (generally busy, always occupied).
15. Vacillates and oscillates (knows what actions he wants to take and with whom).
16. Confident (lacks confidence).
17. Lacking in curiosity (curious).

## Appendix K (continued)

18. Self-starting and self-propelled (needs reassurance and encouragement from others in order to embark).
19. Disoriented in his environment (well-oriented in his environment).
20. Does not become pleasurable involved in structured tasks (involves self pleasurable in structured activities).
21. Peer leader (follower).
22. Supports or incites culpable behavior by other children (does not support wrongdoing or inhibits culpable behavior).
23. Other children seek his company (company seldom sought by other children).
24. Paid attention to by other children (goes unnoticed by other children).
25. Dependent upon any one adult, especially mother (self-reliant in relating to adults).
26. Easily frustrated or upset when an obstacle to task performance is encountered (has high tolerance for frustration).
27. Tries to evade adult authority (accepts adult guidance).
28. High energy level (low energy level).
29. Emotionally expressive (emotionally bland).
30. Apprehensive (not anxious).
31. Argues with other children to get his point across (backs down when opposed).
32. Obedient (disobedient).
33. Destructively impetuous and impulsive (self-controlled and thoughtful).
34. Slow-moving and phlegmatic (alert and vivacious).
35. Helps other children carry out their activities (purposely disrupts activities of other children).
36. Does not question adult authority (can question adult authority when he has a good reason).

## Appendix K (continued)

37. Expresses preferences for one kind of activity over another (does not express preferences).
38. Communicates well verbally (rambling, inarticulate).
39. Requires a great deal of adult supervision (does not require supervision).
40. Likes to compete with other children in performance of activities (avoids competitive situations).
41. Concerned about adult disapproval (not concerned about adult disapproval).
42. Sets goals which expand his abilities, e.g., learning to pump on swings, trying difficult puzzles (likes to do only what is easiest for him).
43. Gets other children in trouble with teacher (protects other children from adult disapproval and punishment).
44. Actively facilitates nursery school routine (undependable).
45. Seeks company of other children (avoids company of other children).
46. Avoids peer interaction by techniques such as seeking adult attention (comfortable and secure in interaction with peers).
47. Plans activities for other children (seeks direction from other children or teacher).
48. Resists domination by other children (submits to demands of other children).
49. Has strong sense of self as a positive force (seems willing to fade into background).
50. Socially withdrawn (outgoing).
51. Physically courageous with playground apparatus (fearful).
52. Can be trusted (sneaky, cannot be trusted).
53. Stretches to meet the situation when much is demanded of him (re-treats when much is demanded of him).
54. Bullies other children (is not a bully).

## Appendix K (continued)

55. Understands other children's position in interaction or altercation (nonempathic).
56. Content, cheerful attitude (discontent).
57. Withdraws when faced with excitement or a great deal of activity (enjoys excitement).
58. Friendly attitude towards teaching staff (hostile toward staff).
59. Samples activities aimlessly, lacks goals (purposive).
60. Typically in the role of a listener (full participant in group talks).
61. Tries to manipulate adults (relates straightforwardly to adults).
62. Excludes other children from pair or group plan (accepts and includes other children easily into play).
63. Selfish (altruistic, shares his possessions willingly).
64. Individualistic (complies to the group).
65. Blame-avoidant (accepts responsibility for wrongdoing).
66. Stereotyped in his thinking (original).
67. Hits only in self-defense or doesn't hit at all (hits aggressively).
68. Provocative with adults (does not challenge adult authority).
69. Responsible about following standard operating procedure at school (shows little concern about rules and regime).
70. Insulting (does not assault another child's ego).
71. Nonintrusive (domineering attitude).
72. Thoughtless of other children's productions (takes care not to destroy another child's work).