AN INVESTIGATION INTO THE IDENTIFICATION OF GIFTED KINDERGARTEN CHILDREN

by

BARBARA ANN PERKS

B.S., PENNSYLVANIA STATE UNIVERSITY
M.A., COLUMBIA UNIVERSITY

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF EDUCATION

in

THE FACULTY OF GRADUATE STUDIES

(Department of Educational Psychology and Special Education)

We accept this thesis as conforming

to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

JANUARY 1984

In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of Educational Psychology & Special Education (Education)

The University of British Columbia
1956 Main Mall
Vancouver, Canada
V6T 1Y3

Date February 6, 1984

ABSTRACT

Gifted children once identified may develop to their potential if appropriate and stimulating educational programs are provided. There has been a progressive search for valid and economical instruments that can be used for identification of the intellectually gifted. The purpose of this investigation was to determine what combination of three economical predictor instruments was able to identify an intellectually gifted group of kindergarten children.

Kindergarten children (n=816) from a random sample of 32 schools in two urban school districts of the Greater Vancouver area of British Columbia were administered the Vane Kindergarten Test (VKT). A further sample (n=194) was drawn from the above sample. The Wechsler Preschool and Primary Scale of Intelligence (WPPSI) was administered to the 194 children. The teachers and parents of these children (n=194) completed the questionnaires: Perks Teacher Nomination Questionnaire (PTNQ) and Perks Parent Nomination Questionnaire (PPNQ), on children's intellectual abilities.

On the basis of their WPPSI scores, the children were classified into gifted (n=42) (WPPSI IQ≥130) and non-gifted (n=152) (WPPSI IQ<130) groups. A discriminant function analysis was performed to assess the validity of the VKT, PTNQ, and PPNQ as predictors of group membership.

Of the 194 children, 88.7% were identified correctly as gifted or non-gifted by the VKT, 79.9% by the PTNQ, and

78.4% by the PPNQ. For the 152 non-gifted children, 95.4% were identified correctly by the VKT, 96.1% by the PTNQ, and 94.7% by the PPNQ. Of the 42 gifted children, 64.3% were identified correctly by the VKT, 21.4% by the PTNQ, and 19.0% by the PPNQ. The VKT was the most accurate predictor (64.3%) of intellectually gifted kindergarten children and was of particular value (97.6%) if children with VKT IQ scores of 127, 128, and 129 as well as those with scores 130 and higher were included within the gifted group.

Table of Contents

List of Tables

List of Figures

Acknowledgements

I wish to acknowledge those people whose efforts were of particular importance in the completion of this dissertation. To Dr. S. A. Perkins and Dr. D. A. Bain, I express my gratitude for their supervision and continuing support. My appreciation is extended to the other members of my committee, Dr. O. A. Oldridge and Dr. A. M. Tietjen, for their constructive advice. Thanks to Dr. W. T. Rogers for the considerable amount of statistical advice he provided.

I would like to extend my thanks to the school board staff and superintendents of the school districts for their cooperation in allowing the study to proceed. I am indebted to the teachers, parents, and children who through their generosity agreed to participate in this study. I would especially like to thank Mr. Bruce J. McGillivray and my parents who provided support and encouragement during the completion of this project. My gratitude is extended also to Dr. R. Gray, Dr. B. J. Holmes, and Ms. M. A. Karr for their assistance. Finally, I convey my thanks to numerous friends and associates who in some manner aided the progress of this dissertation.

CHAPTER I

INTRODUCTION

In the past decade, an increasing amount of money has been provided for education of the gifted (Zettel, 1980). Where suitable education has been provided for the intellectually gifted, positive results in academic subjects have been obtained (Maier, 1982). In the absence of such education, intellectually gifted individuals may not develop to their maximum potential (Hallahan, 1982). Indeed, approximately 50% of gifted children become non-active learners by age ten (National Facts Sheet on the Gifted and Talented, U.S. Government Printing Office, Item 51, 1971; Nolte, 1976). Furthermore, the bored non-active learner could become a school dropout, the school withdrawal rate being almost as high for gifted students as for non-gifted students (Nolte,1976).

Marland (1972) thought that gifted non-active learners needed a stimulating learning environment and meaningful challenges to motivate them. He wrote:

> Contrary to widespread belief, these children and youth cannot ordinarily grow toward their potential without special assistance. Placed in unchallenging educational opportunities which sometimes are even hostile toward the behavior of the gifted and the talented, they frequently tend to conceal their extraordinary abilities and bury them in underachievement (Marland, 1972, p. 23).

That the failure to provide appropriate educational experiences for the gifted may result in underachievement and behavioral problems has been shown by Shaw and McCuen (1960), Roedell, Jackson, and Robinson (1979), and Hauck and Freehill (1972). Shaw and McCuen (1960) concluded from their study of high school students that underachievement patterns began in grade three for boys and in grade six for girls. Martinson (1968) and Hunt (1961) reported that school adjustment problems of the gifted occur at the kindergarten to grade four level. These school adjustment problems are often in the form of uneven academic progress (Hauck & Freehill, 1972).

There are three problems involved in the initial identification of gifted children for special programs. First, complications arise as a result of the plethora of definitions of giftedness. The most recent United States federal government definition included in the Gifted and Talented Children's Act of 1978 says:

> Gifted children means children who are identified as possessing demonstrated or potential abilities that give evidence of high performance capabilities in areas such as intellectual, creative, specific academic, leadership ability, or in the performing and visual arts (Payne, Patton, Kauffman, Brown, & Payne, 1983, p. 138).

Other examples of the definition of giftedness are provided by Taylor (1968) and Kramer (1983). Taylor (1968) said that what was needed to define the able child was "an adjective" that could be used to cover eight to ten broad areas or high level talents such as intelligence, creative talents, planning talents, and wisdom or decision-making abilities. Kramer (1983) noted that there were different types of giftedness such as intellectual ability, specific academic talent, leadership ability, and creativity. Roedell, Jackson, and Robinson (1979) stated that giftedness is defined most often in terms of high intellectual ability which is measured through the medium of test performance. Hallahan (1982) considered people with intelligence quotients (IQs) of 130 or greater to be gifted. The IQs were measured by tests such as those developed by Weschler (1967, 1974a, 1981).

A second problem, in addition to the definitional problem, revolves around the question: At what age level should identification of the intellectually gifted occur? Biemillar (1981) stressed the importance of early identification of young children's ability and stated that research in this area was urgently needed. Furthermore, he emphasized that follow-up procedures should be continuous throughout the grades so that the educational needs of these children might be handled effectively. In the past decade, Roedell, Jackson, and Robinson (1979) have stressed the importance of early identification by focusing their research on the identification and programing for intellectually gifted four- and five-year-olds.

A third problem is the variety of identification instruments which have been used over the years to identify the intellectually gifted (Roedell, Jackson, & Robinson, 1979). Some of the most frequently used instruments for the identification of young gifted children have been individual intelligence tests (Curtis & Glaser, 1981; Terman, 1925), standardized screening tests (Zeitlin, 1976), teacher nomination questionnaires (Marland, 1972; Gear, 1976a), parent nomination questionnaires (Robinson, Roedell, & Jackson, 1979b), or a combination of the above instruments (Ulich, 1965).

Of the four types of instruments cited above, individual intelligence tests generally are believed to be the most valid (Bee, 1978). Individual intelligence tests are, however, lengthy to administer and score, and they require examiners with extensive training. On the other hand, although less valid, standardized screening tests, teacher questionnaires, and parent questionnaires usually require a shorter administration time and less stringent examiner training.

Although standardized screening tests are quick and economical to administer, the majority of these tests have been designed to identify average or below average children. Teacher and parent questionnaires are also quick and economical instruments, but often information regarding reliability and validity is missing for many questionnaires (Miley, 1975b; Simpson & Martinson, 1961; Scott, 1974). Also, most questionnaires cover a diversity of areas such as intellectual, social, and emotional (Meeker, 1976; Thompson, 1974; Johnson, 1975; Martinson, 1961; Miley, 1975; Barron, 1974); consequently, they are often too general to use for the identification of a specific ability.

Marland (1972) recommended that the gifted be assessed by more than a single instrument. He advocated continued work directed toward the improvement of identification instruments and the development of more economical instruments. In addition to Marland's recommendations, Roedell, Jackson, and Robinson (1979) and Karnes and Brown (1979) also recommended that a combination of valid and economical instruments should be used to identify gifted kindergarten children.

Statement of the Problem

The current study was undertaken in response to the recommendations of the researchers cited above. The purpose of this study was to investigate a combination of instruments that could be used for the identification of intellectually gifted kindergarten children. Specifically, the focus of this investigation into the identification of intellectually gifted kindergarten children was to assess the concurrent and predictive validity of three economical identification instruments: a standardized screening test, a teacher nomination questionnaire, and a parent nomination questionnaire. The research problem would have become unwieldy if more than one area of giftedness such as creativity, intellectual ability, and leadership had been examined for the validation of economical identification instruments.

Significance of the Problem

As mentioned previously, Roedell, Jackson, and Robinson (1979) stressed that identification of intellectually gifted children during the early years is necessary because this is a critical period when learning patterns and attitudes are formed, that is to say, when the patterns of parents' and teachers' thinking and reactions to the child take place, and when the relationships between children and their parents or teachers are fostered. Furthermore, behavioral patterns formed in the early years may be difficult to reverse in later years. The identification of gifted children should begin no later than the kindergarten level according to researchers such as Martinson and Lessinger (1966), Albee and Joffee (1977), Rogolosky (1968), Schermann (1966), Roedell, Jackson, and Robinson (1979), Bower (1969), Newton and Brown (1967), Zax and Cowen (1969), and Kellan and Schiff (1967).

Shortly after Public Law 94-142 was passed in the United States, Marland (1972) reported on the problem of identification of gifted children and made suggestions to educators in each state with regard to re-evaluation of their identification procedures. In Canada, Conry, Conry, and D'Oyley (1982) affirmed the growing need for valid identification instruments for gifted children and stated that the British Columbia Ministry of Education has recently placed a stronger emphasis on providing education for the gifted.

At a January, 1983 meeting of The Association for the Gifted, Gallagher presented a proposal to obtain additional United States federal support for research on gifted children. One of the terms of this proposal was to develop better procedures for the identification of the gifted (Delisle, 1983). Although researchers have been working on the improvement of identification procedures since

U.S. Public Law 94-142 was passed, more research is necessary because valid and economical identification procedures have not been perfected (Roedell, Jackson, & Robinson, 1979; Karnes & Brown, 1979).

Ciha, Hoffman, and Potter (1974) attempted to develop valid and economical instruments for the identification of gifted kindergarten children. They concluded that parents were able to assess their children's intellectual abilities better than were teachers, but that the parent nomination instrument was not as successful as individual intelligence tests for the identification of the gifted. Hirsch and Hirsch (1980) tried to determine whether a standardized screening test, the Ammons Quick Test (Ammons & Ammons, 1962), could be used as an alternative to the more costly identification procedure of using individual intelligence tests. They found that the Ammons Quick Test was not as useful as an individual intelligence test for the identification of the gifted at the elementary school level.

The problem of developing valid and economical identification instruments for the gifted remains unresolved. If such instruments were to be developed, then greater numbers of gifted children would be identified more accurately and economically at an earlier age, thereby allowing the early introduction of appropriate educational programs for them.

Definition of Terms

As noted previously on page 2, there are a wide range of definitions for giftedness. For the purpose of this study, giftedness was considered as intellectual ability, both verbal and performance. Verbal ability includes such areas as vocabulary, reading, and arithmetic. Drawing geometric designs, draw-a-person, and puzzle solving are some of the areas included in performance ability. Whenever the term gifted is used in this study, this word means intellectually gifted. Operationally, the term gifted referred to the kindergarten children who scored an IQ≥130 ("very superior" classification) on the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) (Wechsler, 1967, p. 20). Correspondingly, the term non-gifted was used to describe those kindergarten children who scored an IQ<130 on the WPPSI. The rationale for the definition of terms is presented in Chapter II.

The Research Question

As the focus of this investigation, the following specific research question was addressed: What combination of predictor instruments (a standardized screening instrument, a teacher nomination questionnaire, and a parent nomination questionnaire) will identify best intellectually gifted children at the kindergarten level?

The null hypothesis that not one of the predictor instruments would predict gifted versus non-gifted group membership at the five percent level of significance was tested against the alternative hypothesis that at least one of the predictor instruments examined would predict group membership at the five percent level of significance.

Organization of this Dissertation

This dissertation includes five additional chapters. The review of related literature is presented in Chapter II. In Chapter III, the standardized tests used and the development of the questionnaires are described and discussed. The methodology used to collect and analyze the data necessary to answer the research question is described in Chapter IV. The consequent results are reported in Chapter V. Chapter VI consists of the summary of this study, the conclusions, and the suggestions for practice and future research.

CHAPTER II

REVIEW OF RELATED LITERATURE

The literature reviewed in this chapter begins with an examination of the historical background of the identification of gifted children. Following this, literature pertaining to the use of a combination of identification instruments is examined. Four different types of instruments that could be used for the identification of the gifted are reviewed. Next, studies on the identification of gifted and non-gifted groups are presented. Lastly, authors' viewpoints on the criterion instrument IQ cutoff score between gifted and non-gifted children are discussed.

Historical Background of Identification of Gifted Children

Prior to this century, procedures used to identify the gifted consisted of government examinations, parent observations, and teacher observations (Tannenbaum, 1958; Pickard, 1976; & Du Bois, 1970). These procedures depended more upon subjective than objective judgment.

The first attempt to develop a precise instrument for quantifying mental ability was made at the beginning of this century by Binet and Simon under a commission to the French government in the early 1900s (Scarr-Salapatek, 1977).

Although the Binet-Simon Scale was developed primarily to identify the mentally retarded, it also identified average and gifted children.

In 1916, Terman translated and adapted the Binet-Simon Scale for use in the United States (Seagoe, 1972). He also conducted a longtitudinal study, Genetic Studies of Genius (1925-1959) (Khatena, 1982), in which he showed that predictions about future ability could be made on the basis of early measures. Although efforts to identify gifted children had long been a topic of interest (Du Bois, 1970; Fox, 1981), Terman (1925) was the first researcher to conduct a long-term, large-scale empirical study.

Subsequent to the revision of the Binet-Simon Scale, attention focussed on refining and redefining underlying constructs of identification instruments. Since the Stanford-Binet test relied primarily on verbal skills, test researchers developed instruments in which more than one fundamental skill was tested. Among the best known tests that include both verbal and performance skills are the Wechsler test batteries: The Wechsler Adult Intelligence Scale (Wechsler, 1955, 1981), The Wechsler Intelligence Scale For Children (Wechsler, 1949, 1974a), and The Wechsler Preschool and Primary Scale of Intelligence (Wechsler, 1967).

Recently, the early identification of the gifted has escalated in importance. In the late 1970s, the United

States government and special agencies encouraged the continued search for better and more economical identification methods (Tannenbaum, 1981).

Identification Instruments

Since the development of more precise instruments in the early 1900s, the gifted have been identified through tests or questionnaires administered by psychologists, teachers, and parents. These instruments are generally used in combination and not separately. A combination of identification instruments, such as individual intelligence tests, standardized screening tests, teacher nomination questionnaires, and parent nomination questionnaires, has been considered to be more effective than the use of a single instrument (Pfleger, 1977; Tuttle & Becker, 1980; Lowrance & Anderson, 1977; Sellin & Birch, 1981; The Council for Exceptional Children, 1978). The use of multiple instruments lessens the likelihood of some gifted children being overlooked (Roth & Sussman, 1972; Martinson, 1974b). The combination of instruments used by most school personnel involves standardized intelligence tests and teacher nominations (Sattler, 1982). Parent nomination and standardized screening tests have been used also to identify gifted children (Fox, 1981).

In three surveys, many educational experts reported that a combination of instruments had been used for the identification of gifted children. First, in a survey of schools in Illinois, a combination of individual intelligence tests and teacher nomination was used widely (Marland, 1972). Neither standardized screening tests nor parent nomination questionnaires were mentioned in the Illinois study (Marland, 1972).

Second, a research team from the British Columbia Coquitlam School District (1975) completed a survey of assessment methods used in the identification of the gifted. Seven school districts were included. These seven districts (Seattle, Washington; San Diego, California; London, Ontario; Edmonton, Alberta; Coquitlam, British Columbia; Hamilton, Ontario; and Ottawa, Ontario) used individual intelligence tests. Four school districts (London, Ontario; Coquitlam, British Columbia; Hamilton, Ontario; and Ottawa, Ontario) used teacher nominations in addition to individual intelligence tests, and two school districts (Edmonton, Alberta and Ottawa, Ontario) used parent nominations also. It is interesting to note that standardized screening tests were not used in these school districts.

Third, in another survey, Burdikin and Perry (1975) found that individual intelligence tests were used as one of the criteria for the identification of gifted children in the following school districts: Penticton, British Columbia; North Vancouver, British Columbia; London, Ontario; Hamilton, Ontario; Ottawa, Ontario; and San Diego, California. Teacher recommendations were used in addition to individual intelligence tests in North Vancouver, British Columbia; London, Ontario; Hamilton, Ontario; and Ottawa, Ontario (Burdikin & Perry, 1975). Burdikin and Perry (1975) stated that more children were likely to be identified when a combination of instruments was used. In the three studies cited above, the use of multiple instruments for the identification of the gifted was favoured.

In view of the multiple instruments used in these studies, it would seem desirable that any study designed to identify gifted children should include multiple criteria such as individual intelligence tests, standardized screening tests, teacher nomination questionnaires, and parent nomination questionnaires. Each of these types of instruments, noted above, is now reviewed.

Standardized Individual Intelligence Tests

The literature shows that standardized individual intelligence tests are the best predictors of the gifted (Gallagher, 1975a). The predictive accuracy of these tests appears to improve as the child approaches kindergarten age (ages four-to-six years) (Sontag, Baker, & Nelson, 1958; Roedell, Jackson, & Robinson, 1979). Furthermore, individual intelligence tests can identify the gifted child even if he is underachieving (Gallagher, 1975a) and, assuming the child's motivation remains constant, these tests can predict not only what the child is able to do at the present time, but also what the child should be able to do in the future (Roedell, Jackson, & Robinson, 1979).

The two individual intelligence tests most widely used for identifying gifted kindergarten children are the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) and the Stanford-Binet (Glasnapp, Issac, Hitz, & Carlton, 1981; Sellin & Birch, 1981; Moore, Hahn, & Brentnell, 1978; Landig & Nausmann, 1978; Fox, 1981; Rubenzer, 1979; French, 1974; Martinson, 1973; Alexander & Muia, 1982; Freeman, 1979). The Stanford-Binet relies mainly on verbal skills (Bee, 1978) while the WPPSI tests different cognitive abilities within the verbal and performance areas (Coates & Bromberg, 1973).

Individual intelligence tests have three principal weaknesses: they cannot measure student motivation; they are expensive to administer; and the psychologists needed to administer the tests may not always be available (Sellin & Birch, 1981).

In view of the literature cited above, the WPPSI is the best identification instrument for the current study because it tests a wider range of cognitive skills than the Stanford-Binet (Terman & Merrill, 1973). In addition, more information is available on the standardization, the reliability, and the validity of the WPPSI than the Stanford-Binet (Waddell, 1980). A description of the WPPSI will be presented in Chapter III.

Standardized Screening Tests

Another widely used identification instrument, in addition to individual intelligence tests, is the standardized screening test. It is used when a large sample must be tested in a short period of time. The testing and scoring times are shorter in comparison to a individual intelligence test. Also, standardized screening tests are less expensive to administer.

There are two major limitations of currently available standardized screening tests. First, many of these tests were designed to differentiate only between an average group and a below average group and do not have sufficiently high ceiling scores to select gifted children (Buros, 1974, 1978; Zeitlin, 1976). Second, standardized screening tests may not examine in depth the specific ability areas in which a child excels (e.g. mathematical skills, spatial skills). These abilities may not be determined unless further tests or observations are conducted.

Seventy-nine screening instruments (Appendix A) were reviewed before one was selected for the current study. Twenty-nine were listed in Zeitlin (1976, pp. 50-51); the remaining 50 were listed in Buros (1974, 1978). Of the 79 screening instruments reviewed, the researcher decided that the Vane Kindergarten Test (VKT) was the best instrument to use both as the initial screening instrument and also as an economical predictor instrument for identifying gifted kindergarten children for the following reasons: (1) the VKT had the highest range of IQ scores extending beyond two standard deviations above the mean (mean=100, standard deviation=15); (2) the VKT covers four assessment areas: perceptual, cognitive, oral speech, and knowledge of language (Zeitlin, 1976); and (3) information on the reliability and validity of the VKT is available (Vane, 1968). A description of the VKT will be presented in Chapter III.

Teacher Nomination

Teacher nomination questionnaires, in addition to standardized screening tests, are economical to administer. Historically, identification of gifted children has been dependent upon teacher observations (Roedell, Jackson, & Robinson, 1979), and this still is relied upon as a major method of identification (Renzulli & Smith, 1977) because teachers work with many children of the same age level and, therefore, are in a good position to compare children's abilities (Roedell, Jackson, & Robinson, 1979). On the other hand, Fox (1981) reported that, of the 204 education experts surveyed in 1971, 49% felt that individual intelligence testing was essential as an identification method of the gifted, and 19% thought teacher nomination was effective.

The literature indicates that there are strengths associated with teacher nomination of the gifted. Roth and Sussman (1972) and Martinson (1974a) suggested that teacher nomination of the gifted should be used along with other instruments because the judgment of teachers, when combined with other methods of identification, increases the likelihood that a gifted child will not be overlooked. Teachers can be more accurate (an improvement of 30% to 40%) in their nomination of gifted children if they are requested to identify those children on the basis of clearly defined characteristics (Gordon & Thomas, 1967; Koegh & Smith, 1970; Stevenson, Parker, Wilkinson, Hegan, & Fish, 1976; Weise, Meyers, & Tuel, 1965; Gear, 1976a).

In several studies the validity of teacher nominations of the gifted improved when specific requirements were fulfilled. First, the validity of teacher nominations of the gifted seems to improve when objective test questions are used instead of open-ended questions. Martinson (1968) showed that open-ended questions on teacher nomination forms for the gifted had lower validity than did check lists which could be used to focus a teacher's attention on significant behaviors of the gifted child. Second, Sanborn (1977), Martinson (1974a), Gear (1978), Smith and Salento (1971), Pegnato (1958), and Gear (1976b) noted that teachers could provide effective identification, if given guidance and specific directions on characteristics of the gifted. Third, teacher nomination classification also improved when teachers had enough time (approximately half of a school year) to familiarize themselves with their classes (Smith & Salento, 1971).

There are also weaknesses associated with teacher nomination instruments. Baldwin (1962), Barbe (1956), Cornish (1968), Jacobs (1971), Pegnanto & Birch (1959), Wilson (1963), Terman (1925), Spencer (1982), Jacobs (1971), Pohl (1970), and Cornish (1968) showed that teacher nomination was often ineffective. The accuracy of teacher identification of the gifted ranged from 9.5% to 57.0%. In these studies, nondirective questions were used instead of directive questions. For example, teachers were asked to identify gifted children in their classes without being given further explanation (Borland, 1978).

A review of specific teacher nomination questionnaires, such as the Adjective Checklist (Simpson & Martinson, 1961), A Rating Scale for Identifying Creative Potential (Meeker, 1976), and Behaviorial Descriptors of the Gifted (Thompson, 1974), indicated that shortcomings such as the combination of items (e.g., social, emotional, creative, leadership, and intellectual), open-ended formats, and too many questions (e.g., over 200 questions) or too few questions (e.g., one question) were characteristic of these questionnaires. Based upon these findings, the researcher decided that there was a need to develop a teacher nomination questionnaire with approximately 30 to 50 questions which concentrated on cognitive concepts in an objective format. The inclusion of other types of giftedness (e.g., creativity, leadership) would have been a divergence from the main focus of this investigation: the assessment of intellectual giftedness.

Parent Nomination

In addition to standardized screening tests and teacher nomination questionnaires, parent nomination questionnaires are also an economical means of identifying the gifted. The literature indicates that there are advantages associated with parent nomination of the gifted.

In general, parent nomination of gifted kindergarten children was more accurate (67%) than teacher nomination (22%) (Ciha, Harris, Hoffman, & Potter, 1974). Robinson, Roedell, and Jackson (1979b); Jacobs (1971); and Ciha, Harris, Hoffman, and Potter (1974) suggested that parent questionnaires designed to obtain relevant information on the gifted should be included in all identification procedures. Freeman (1979) noted that parents were helpful in identifying outstanding characteristics in their children.

Parents of kindergarten children are the most immediate observers of their own children in the preschool years and are, therefore, in a good position to give opinions about their children's abilities (Robinson, Roedell, & Jackson, 1979b). This is due to the fact that parents see their children in more varied as well as more familiar surroundings than do teachers and, because most parents are realistic about and interested in their children's accomplishments (Robinson, Roedell, & Jackson, 1979b), they are often willing to provide valuable feedback about their children (O'Neill, 1978; Sellin & Birch, 1981). French (1974) and Tuttle and Becker (1980) found that most parents were less likely than teachers to overestimate their children's abilities. Sisk (1979) noted that because parents have the most opportunities to observe their young children, their written observations have been useful in the identification of the gifted.

There are also weaknesses associated with parent nomination instruments. Parents from lower socioeconomic neighbourhoods were more likely to report a child as gifted than were parents from higher socioeconomic neighbourhoods (Cheyney, 1962; Ciha, Harris, Hoffman, & Potter, 1974). Furthermore, well-educated parents from middle-class communities tend to have higher standards for judging whether a child is gifted (Roedell, Jackson, and Robinson, 1979). Parents who have little or no chance to compare their child's accomplishments with those of other children of similar age may experience difficulty when requested to assess the intellectual abilities of their child (Vernon, Adamson, & Vernon, 1977). Also, parents may not always be aware of their child's outstanding intellectual abilities (Sellin & Birch, 1981).

A review of parent nomination questionnaires, such as The Parent Evaluation of Pupil (Simpson & Martinson, 1961), Illinois Parent Questionnaire for Kindergarten Children (Ciha, Harris, & Hoffman, 1974), and The Parent Nomination Form (North Carolina Division for Exceptional Children, 1976), indicated that shortcomings such as a combination of items (e.g., social, emotional, creative, leadership, and intellectual), open-ended formats, and too many questions (e.g., over 200 questions) or too few questions (e.g., one question) were inherent in the questionnaires. Based on these findings, the researcher decided that there was a need to develop a parent nomination questionnaire with approximately 30 to 50 questions that concentrated on cognitive concepts in an objective format. The assessment of intellectual giftedness was the central focus of this study and the inclusion of other factors on giftedness would have been a divergence from the topic of this investigation.

Studies on the Identification of Gifted and Non-Gifted Groups

Researchers have conducted studies on the identification of gifted and non-gifted young children. In each of the two studies reviewed, a standardized individual intelligence test was used as the criterion instrument. A cutoff score on the criterion instrument was used to classify children into gifted and non-gifted groups. Discriminant function analyses were performed to assess the validity of instruments used in identification of the gifted.

Glasnapp, Issac, Hitz, and Carlton (1981) studied 78 children in kindergarten to grade five in two Kansas school districts. The criterion instrument was the Wechsler Intelligence Scale for Children (WISC). The IQ score of 125 was used as the cutoff score between the "gifted" and "non-gifted" group. The multiple instruments used as predictors of the gifted and non-gifted groups included a teacher nomination questionnaire, a non-verbal test, and a parent nomination questionnaire. Discriminant function analysis then was carried out using two predictor instruments, teacher nominations and the non-verbal performance tasks (Glasnapp, et al., 1981). Teacher nominations generally were found to be ineffective in discriminating between gifted and non-gifted children. In fact, only one question, relating to the nomination of gifted versus average was discriminatory. Non-verbal performance tasks were better discriminators than teacher nominations, in that 89% (33 out of 37 children) of the gifted group and 84% (26 out of 31 children) of the non-gifted group were correctly identified by non-verbal performance tasks. Teachers nominated correctly 72% (27 out of the 37 children) of the gifted children and 67% (21 out of the 31 children) of the non-gifted children.

In another study, Duncan and Dreger (1978) used discriminant function analysis to predict membership in a "gifted" group and a "normal" group of children from Louisiana. The first sample was a group of 30 gifted children who had been chosen previously for a gifted child education program. Selection was based on the district staff's arbitrary Stanford-Binet IQ cutoff score of 136. The second group was a sample of 30 school children who had not been chosen for the gifted child education program. Parents filled out the Children's Behavioral Classification Project (Dreger, 1977), the predictor instrument in the discriminant function analysis. The number of correct responses from the Children's Behavioral Classification Project was tabulated on 274 items for gifted and normal children. Composite scores were placed on a continuum and a "cutoff" score was established at a point which yielded the highest number of individuals correctly classified. As a result of this analysis, 50 out of 60 (83.3%) 11-to-13-year-old children (25 out of 30 in each group) were classified correctly into their respective "gifted" or "normal" groups. As shown in the two studies cited above, discriminant function analysis is an appropriate statistical method to use, if the intent of researchers is to assess the usefulness of predictor instruments for the identification of gifted and non-gifted children. In the studies by Glasnapp et al. (1981) and Duncan and Dreger (1978), scores from individual intelligence tests were used to identify the gifted, and these researchers had to make a decision as to what IQ score would be used as the cutoff between gifted and non-gifted groups. Before the researcher of the current study selected the IQ cutoff score to use for classifying kindergarten children into gifted and non-gifted groups, the relevant literature was reviewed.

Cutoff Score on the Criterion Instrument

The selection of a cutoff score on the criterion instrument was necessary in order to identify gifted kindergarten children. If the cutoff score was set too low, most of the gifted children in the sample would be chosen along with some in the non-gifted group. If the cutoff score were set too high, the classification might be too restrictive and fail to identify many of the gifted.

The 130 IQ cutoff score is the one most commonly used when identifying a gifted group (Freeman, 1979; Tempest, 1974; Jensen, 1973; Horwitz, 1974; Martinson & Lessinger, 1966; Blank, Note 1; Perkins, Note 2). Sattler (1982) stated that children who most generally fall into the "gifted" classification have exceptionally high IQ's of ≥130. Sanderlin (1979) noted that IQ≥130 groups were termed "gifted" to "genius". Rubenzer (1979) reported that the Gifted Children's Association in California as well as the California state government used the 130 IQ cutoff to denote the "gifted" group. Wechsler (1967), in all his IQ tests, classified the IQ≥130 group as "very superior". The term "gifted" as defined by Sattler (1982), Sanderlin (1979), and Rubenzer (1979) is synonymous with the term "very superior" (IQ≥130) as defined by Wechsler (1967).

Both Gallagher (1975b) and Marland (1971) stated that approximately the top 2% (IQ≥130) of the school population was in the extremely high intellectual ability category and, according to the Ontario Ministry of Education (1971), students who have extremely high intellectual ability "comprise the upper 1% to 3% of the school population based on an IQ cutoff score of 130" (Dow & O'Reilly, 1982). The most recent legislation concerning identification of the gifted leaves the definition of higher intelligence used by the Ontario Ministry of Education unchanged from that of 1971 (Banks, Belanger, Bettiol, Borthwick, Donnelly, & Smith, 1978; "Bill 82", 1980; "Special Education Information Handbook", 1981). Researchers who have used the 130 IQ cutoff for identification of the gifted are Elman, Blixt, and Sawicki (1981); Karnes and Brown (1979); Dirks, Wessels, Quarfoth, and Quenon (1980); and Pegnanto and Birch (1959). In view of the number of researchers who recommended a Wechsler intelligence test IQ cutoff score of 130 when identifying gifted children, that score was selected for the current study.

Summary

Historically, the identification of the gifted has relied more on subjective than objective identification procedures. In this century, the emphasis has been on the development of quantitative instruments such as individual intelligence tests. A review of identification instruments revealed that standardized individual intelligence tests, standardized screening tests, teacher nomination questionnaires, and parent nomination questionnaires were used frequently to identify the gifted. Based on the studies cited in this chapter, the researcher decided that the WPPSI (an individual intelligence test) was the most suitable instrument to use as a criterion instrument and the VKT was the best standardized screening instrument to use. Previously developed teacher and parent nomination questionnaires were found to have sufficient weaknesses to merit the development of new teacher and parent nomination questionnaires.

Researchers have used the scores of individual intelligence tests to classify children into gifted and non-gifted groups. This required a decision as to what IQ score should be used as the cutoff between the groups. In this study, a WPPSI IQ score of 130 was selected by the researcher to serve as the demarcation between gifted and non-gifted children.

A description of the WPPSI (an individual intelligence test), which served as the criterion instrument, is presented in Chapter III. The standardized screening test (VKT), the teacher nomination questionnaire, and the parent nomination questionnaire, which were used as the three predictor instruments, also are described in the third chapter.

CHAPTER III

INSTRUMENTS: STANDARDIZED TESTS AND DEVELOPMENT OF QUESTIONNAIRES

Since current research supports the use of multiple criteria to identify gifted kindergarten children, four types of instruments were employed in the present study. While this chapter is concerned primarily with the development of the teacher and parent nomination questionnaires, the other two instruments used in the study also are described.

A widely used individual intelligence test, the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) (Wechsler, 1967) was used as the criterion instrument. The Vane Kindergarten Test (VKT) (Vane, 1968) served as the standardized screening instrument and one of the predictors of the gifted in the validation study. A teacher nomination questionnaire and a parent nomination questionnaire were developed by the investigator specifically for the current study and were used as two other predictors of the gifted in the validation analysis. Descriptions of all four instruments follows.

Wechsler Preschool and Primary Scale of Intelligence: Criterion Instrument

As reviewed in Chapter II, the WPPSI (Wechsler, 1967) is one of the two most widely used individual intelligence tests employed in the identification of the gifted kindergarten child (Bee, 1978). The other is the Stanford-Binet (Terman & Merrill, 1973). The WPPSI was chosen over the Stanford-Binet because it includes both verbal and performance subtests that are used to assess different cognitive skills (Coates & Bromberg, 1973; Wechsler, 1974b; McCall, Hogarty, & Hurlbert, 1972), whereas the Stanford-Binet relies mainly on verbal skills (Bee, 1978; Scarr-Salapatek, 1977).

In addition, the WPPSI is a well developed test both in terms of its comprehensiveness of the contents and the thoroughness of its standardization and norming (Oldridge & Allison, 1968). The full battery includes 11 subtests: Information, Vocabulary, Arithmetic, Similarities, Comprehension, Sentences, Animal House, Picture Completion, Mazes, Geometric Design, and Block Design.

The WPPSI, which takes approximately one hour to administer, was standardized on 200 children from each of six age groups (four through six-and-one-half years) and from various geographic regions throughout the United States (Wechsler, 1967, pp. 13-19). The mean of the WPPSI was set at 100 and the standard deviation at 15. Wechsler (1967) reported internal consistency reliabilities which ranged from 0.62 to 0.91 (odd-even correlations corrected by the Spearman-Brown formula) for the subtests, and 0.91 to 0.97 (Guilford's composite reliability method) for the total IQ scores. In a test-retest reliability study (11 week interval) on a group of 50 kindergarten children who were enrolled in two Southern United States school districts, the stability coefficients ranged from 0.62 to 0.93 for the subtests, and 0.86 to 0.91 for the total IQ scores. Although there are several validity studies on the WPPSI, only one is relevant to the current study. This validity study is reported in the next section on the VKT.

Vane Kindergarten Test: Standardized Screening and Predictor Instrument

From among the standardized screening tests reviewed in Chapter II, the Vane Kindergarten Test (VKT) was selected to serve as the initial screening test and later as a predictor instrument for the current study. This test measures the intelligence of children between the ages of four and seven years. The VKT consists of three subtests: Perceptual Motor, Vocabulary, and Man. The Perceptual Motor subtest measures reading and writing skills (Bender, 1938; Boger, 1952; Kephart, 1960; Vane, 1968); the Vocabulary subtest measures verbal knowledge and verbal usage (Anastasiow, 1964; Terman & Merrill, 1960; Wechsler, 1967; Vane, 1968);

and the Man subtest measures abstract thinking and conceptualization (Harris, 1963; Koppitz, 1966, 1967; Vane & Eisen, 1962). Initially designed as a quick screening test, the VKT requires approximately 15 minutes of administration time.

The VKT was standardized on 200 children at each half-year level from four-and-one-half to six years. These children came from two Eastern states in the U.S. (Vane, 1968, pp. 20-23). The mean of the VKT was set at 100 and the standard deviation at 15. This is the same as the mean and standard deviation of the full scale score on the WPPSI. Vane (1968) reported test-retest reliabilities of 0.97 (one-week interval) on a group of 14 kindergarten children and 0.88 (six-month interval) for a group of 36 kindergarten children. In the only validity study found in the literature, Scherr, Pasewark, and Sawyer (1973) reported a validity coefficient of 0.70 between the VKT and the WPPSI.

The VKT is a shorter, more economical instrument both to administer and to score than the WPPSI. If it could be shown to be as valid as the WPPSI (the criterion measure), then identification procedures would be less costly, less time consuming, and more efficient.

Development of the Teacher and Parent Nomination Questionnaires: Predictor Instruments

The two main methods of obtaining information from teachers and parents are through interviews and self-administered questionnaires. For this study, self-administered questionnaires for the teachers and parents were preferred over teacher or parent interviews because questionnaires were both less costly and less time consuming to administer. In addition, the respondents could be assured of confidentiality through answering anonomously.

Several teacher and parent nomination forms (see Appendix B) currently available, such as the Kindergarten Check List (Clark & Dyer, 1974), the Davis Joint Unified School District Mentally Gifted Minor Referral (Kough & De Haan, 1974), the Scale for Rating Behavioral Characteristics of Gifted Students (Renzulli & Hartman, 1971), the Check List for First Grade Pupils (Miley, 1975b), and the Parent Nomination Form at the Early Childhood Level (Stovall, 1975), were considered inadequate due to one or more of the following reasons:

1. These questionnaires were either too long or too brief (Miley, 1975b; Thompson, 1974; Scott, 1974). Questionnaires with more than 50 questions become unwieldy for the respondent to answer. If questionnaires have less than 10 questions, they often are unreliabile, thus

making it difficult to determine the validity (Mehrens & Lehman, 1980);

2. The questionnaires reviewed had a diversity of questions including creativity, talent, and social maturity, as well as some academic questions. No questionnaire which focussed primarily on verbal, mathematical, and spatial abilities was available. These cognitive concepts are thought to be the most relevant variables for identifying intellectual giftedness (Moore, Hahn, & Brentall, 1978);
3. Many questionnaires had open-ended formats. Open-ended formats are less reliable response methods than more objective formats (Martinson, 1968);
4. Some questionnaires were inappropriate because questions were designed for use at the higher elementary grade levels (Miley, 1975b); and
5. Reliability and validity information for most of the questionnaires had not been reported (Miley, 1975b; Simpson & Martinson, 1961; Scott, 1974), thus making it difficult to ascertain the acceptability of their use for identification purposes.

With the aforementioned criticisms in mind, the development of two new questionnaires, a teacher nomination questionnaire and a parent nomination questionnaire, was undertaken by the researcher. It was hoped that weaknesses in previously used predictor questionnaires could be avoided, thereby improving not only this form of identification, but also making progress toward the development of more effective and economical identification instruments.

The two new questionnaires were the Perks Teacher Nomination Questionnaire (PTNQ) and the Perks Parent Nomination Questionnaire (PPNQ). In order to develop these questionnaires (see Appendices C and D), the construct of intellectual giftedness, research studies, standardized tests, and previously developed questionnaires were reviewed. Since there was a tendency for related questions (e.g., verbal questions) from existing instruments to be similar in both phraseology and content, the central ideas were extracted and used in the development of specific questions for the PTNQ and PPNQ in consultation with an expert in the testing of gifted children (Perkins, Note 3). This same procedure for framing questions was followed throughout the development of the PTNQ and PPNQ.

The types of constructs included in the PTNQ and the PPNQ were verbal, mathematical, spatial, temperament, biographic, and demographic. These constructs were identical on both questionnaires in all categories (excepting spatial and demographic) as both the PTNQ and

PPNQ were developed simultaneously. The PPNQ also included four questions in which the parents were requested to list specific examples of their child's ability (e.g., advanced words used by child). Insofar as possible, the questionnaires were parallel in content and format. If one or both of these questionnaires were found to be as valid as the WPPSI for identification of the gifted, then more economical alternative identification methods would be available. Details on the development of the questions are presented below.

Verbal Questions

Researchers consistently have found that gifted young children are capable of completing many complicated tasks involving language and often are reading fluently before age three (Roedell, Jackson & Robinson, 1979; Humes & Eberhardt, 1977; Kincaid, 1969; Terman & Oden, 1947). Vocabulary, reading, and spelling skills were also found to be important predictive measures of ability (Moore, Hahn & Brentnall, 1978; Rogolsky, 1968). Consequently, the decision was taken to include questions involving the following verbal concepts: vocabulary, spelling, printing, stories and rhymes, reading, similarities and differences, and verbal recall. The development of each verbal question will be discussed in the following sections.

Question on vocabulary. Moore, Hahn, and Brentnall (1978); Glasnapp, Issac, Hitz, and Carlton (1981); Abroms (1981); and Roedell, Jackson, and Robinson (1979) found that advanced vocabulary was the most important indicator of intellectual ability in young children. Questions from previous questionnaires (e.g., "Has large vocabulary."; Kough & DeHaan, 1974) were examined before the vocabulary question in the PTNQ (question 1) and PPNQ (question 1), which included words from grade two and grade three readers (Clymer & Martin, 1978; Clymer, Wong, & Benedict, 1977; Clymer, Parr, Gates, & Robison, 1978; Baldwin, 1965; Biehl, 1964), was formulated. The question on vocabulary is concerned with the child's advanced vocabulary (see Appendices C and D).

Questions on spelling. Moore, Hahn, and Brentnall (1978) found spelling to be the third most important predictor of intellectual ability of fifth and sixth grade elementary school children after vocabulary and mathematical concepts. Questions such as "Knows how to spell words at a level above his/her age group" (Lundy, Carey, & Moore, 1977) were examined before the spelling questions of the PTNQ (questions 2 & 3) and PPNQ (questions 3 & 5), which included words from a grade two speller (Knapik, Levert, Neagle, & Schollen, 1961), were formulated. The questions on spelling are concerned with the child's ability to spell words correctly in both verbal and written form (see Appendices C and D).

<u>Questions on printing</u>. The rationale for including questions on printing rested on information derived from a standardized test, The Anton-Brenner Developmental Screening Test (Brenner, 1964). Brenner (1964) found that, as the child approached the first school years, the ability to discriminate and print letters was an important aspect of development. Questions such as "Prints a legend on a poster" (Meredith & Landin, 1957) were examined before the printing questions in the PTNQ (question 12) and the PPNQ (question 16) were formulated. The questions on printing are concerned with the child's ability to print short words and short sentences (see Appendices C and D).

<u>Question on stories and rhymes</u>. Research on creating stories and rhymes has indicated that the ability to create stories and rhymes can be used to discriminate between the gifted and the non-gifted (Torrance, 1966; Khatena, 1982). Questions from previous questionnaires (e.g., "Constructs and/or expresses imaginative ideas, stories or solutions"; Johnson, 1975) were examined before the stories-and-rhymes question of the PTNQ (question 4) and the PPNQ (question 6) was formulated. The question on stories and rhymes is concerned with the child's ability to tell original stories and rhymes (see Appendices C and D).

Questions on reading. Roedell, Jackson, and Robinson (1979) noted that many gifted children were able to read by age two, while Terman (1925) found that nearly half of the gifted children in his study learned to read before the beginning of formal schooling. Several other research studies have also shown that many gifted children were able to read before they entered kindergarten (Humes & Eberhardt, 1977; Kincaid, 1969; Terman & Oden, 1947). Furthermore, half of the gifted children have taught themselves to read before school entry (National Facts Sheet on the Gifted and Talented, U.S. Government Printing Office, Item 14, 1971; Nolte, 1976). Additional available data indicated that children who began to read at an early age were more likely to be gifted in other academic areas (Durkin, 1966; Terman & Oden, 1947; Kincaid, 1969).

Questions from previous questionnaires (e.g., "Reads a great deal on his own."; Miley, 1975a) were examined before the reading questions of the PTNQ (questions 5, 6, 7, & 8) and PPNQ (questions 7, 9, 11, & 12) were formulated. The PTNQ and PPNQ reading questions are concerned with the child's ability to read words and entire books (see Appendices C and D).

Questions on similarities and differences. Renzulli and Hartman (1971) found that the ability to distinguish similarities and differences can be used to discriminate between gifted and non-gifted elementary school children.

The similarities and differences questions from previously mentioned questionnaires (e.g., "Looks for similarities and differences in events, people, and things"; Renzulli & Hartman, 1971) and standardized tests such as the WPPSI and the Stanford-Binet were examined before the similarities and differences questions of the PTNQ (questions 9, 10, & 11) and the PPNQ (questions 13, 14, & 15) were formulated. The questions on similarities and differences are concerned with the child's ability to distinguish similarities and differences among persons, places, and things (see Appendices C and D).

Question on verbal recall. Glasnapp et al. (1981) found that many experts in the field dealing with the gifted indicated that mastery and rapid recall of factual information was an important indicator of very superior ability. Questions from previous questionnaires (e.g., "Has quick mastery and recall of factual information"; Renzulli & Hartman, 1971) were examined before the verbal recall question of the PTNQ (question 31) and PPNQ (question 36) was formulated. The question on verbal recall is concerned with the child's ability to name streets in his city or town (see Appendices C and D).

Mathematical Questions

Moore, Hahn, and Brentnall (1978) and Rogolsky (1968) reported that the ability to understand mathematical concepts can be used to discriminate between the gifted and the non-gifted. Moore, Hahn, and Brentnall (1978), in their study with grade five and grade six elementary school children, found mathematical concepts to be the second most important predictor of intellectual ability after vocabulary. According to Wesley and Sullivan (1980), the average four-year-old could repeat three digits from memory and the average seven-year-old could repeat seven digits from memory, but often a gifted child would achieve above what was average for his age level (e.g., a five-year-old gifted child might be able to repeat the same number of digits as an average seven-year-old child).

In addition to examining the content of existing questionnaires (e.g., "The pupil understands the concepts of place value."; Miley, 1975a), the arithmetic subtest of the WPPSI also was examined before developing the general mathematical questions. The PTNQ and PPNQ included questions involving mathematical concepts such as an understanding of currency and numerical recall. The questions on mathematical concepts in the PTNQ and the PPNQ are concerned with the child's ability to count (PTNQ questions 14, 15 & 16; PPNQ questions 18, 19 & 20), tell the time (PTNQ questions 17, 18 & 19; PPNQ questions 21, 22 &

23), repeat a series of numbers from memory (PTNQ questions 23, 24, 25, 26 & 27; PPNQ questions 27, 28, 29, 30 & 31) and understand currency (PTNQ questions 20, 21 & 22; PPNQ questions 24, 25 & 26) (see Appendices C and D).

Spatial Questions

Gibson (1965) found that discrimination of graphic symbols (e.g., triangles, squares) and object copying were important developmental processes in early-grade school children. Rogolsky (1968) determined that spatial competence, in addition to verbal and mathematical competence, was a good predictor of the gifted. Both standardized tests used in the study, the WPPSI and the VKT, contained questions in spatial areas. The PTNQ included the following spatial concepts: geometric shapes and compass directions while the PPNQ included the same spatial questions plus one additional question. In this additional question, the children were requested to draw geometric shapes (e.g., square). Details of each type of spatial question are presented in the following sections.

Questions on geometric shapes. Research on geometric shapes has indicated that recognizing and reproducing geometric shapes are related to reading and writing abilities which, in turn, reflect intellectual levels (Boger, 1952). Questions about geometric shapes from previous questionnaires (e.g., "Can the pupil identify a three-dimensional object from a two-dimensional projection?"; Cherry, 1976) and standardized tests including the VKT Perceptual Motor Drawing subtest (Vane, 1968) and the WPPSI Geometric Design subtest (Wechsler, 1967) were examined before the questions on geometric shapes in the PTNQ (question 28) and the PPNQ (questions 32 & 33) were formulated. The questions on geometric shapes are concerned with the child's ability to both recognize and draw geometric shapes such as the square and triangle (see Appendices C and D).

Questions on compass directions. Roedell, Jackson, and Robinson (1979) concluded from their research that the ability to identify the points of the compass was an important indicator of the gifted. Questions from previous questionnaires (e.g., "Point to the East", Franks, 1974) were examined before the compass directions questions of the PTNQ (questions 29 & 30) and PPNQ (questions 34 & 35) were formulated. The questions on compass directions are concerned with the ability to distinguish compass points (see Appendices C and D).

Temperament Questions

Researchers such as Passow (1981), Sisk (1977), Davis (1963), Rubenzer (1979), and Ziv (1977) found that curiosity, persistence, and commitment to task were important factors in the identification of gifted children. Temperament questions from previous questionnaires (e.g., "Tries to discover the how and why of things"; Renzulli & Hartman, 1971) were examined before the temperament questions on the PTNQ and PPNQ were formulated. The questions on temperament are concerned with the child's curiosity (PTNQ question 35; PPNQ question 40), responsibility for completion of tasks (PTNQ question 32; PPNQ question 37), ability to work without supervision (PTNQ question 33; PPNQ question 38), and commitment to task (PTNQ question 34; PPNQ question 39) (see Appendices C and D).

Biographic and Demographic Questions

The only purpose for development of biographic and demographic questions was to obtain a description of the samples of children, teachers, and parents. Six biographic questions, six demographic questions for the PTNQ, and six different demographic questions for the PPNQ were designed. The sex and birthdate of the child are examples of the information gathered in the biographic section.

The rationale for inclusion of the demographic questions of the PTNQ was to gain information from the teachers about their teaching experience and academic background on gifted education. Of the six demographic questions on the PTNQ (see Appendix C) four demographic questions about workshops and courses were included to determine how many teachers had attended workshops and courses on identification of the gifted. Two demographic questions on the teacher's background (i.e., number of years teaching and grade levels taught) were also included.

The rationale for inclusion of many of the demographic questions of the PPNQ was based on the research reported by Coleman (1966), White, Kaban, and Attanucci (1979), Kaufman (1973), Kennett (1972), Evans and Waites (1981), White (1982), Willerman and Friedler (1977), Kaufman (1973), Hitchfield (1973), Barbe (1956), Jordan (1976), and Groth (1975) who found that there was a relationship between the home environment and intellectual abilities of the child. For example, Coleman (1966) found that educational and cultural questions relating to home environment accounted for 90% of the variance when children's ability was measured by standardized tests. White, Kaban, and Attanucci (1979) reported that during the early period of life a child's learning patterns are formed.

Many of the demographic questions on the PPNQ were similar to those on a questionnaire developed by Coleman (1966). The six demographic questions on the PPNQ (see Appendix D) are listed below:

1. number of people in the home,
2. number of children in the family,
3. parent's educational level,

4. father's occupation,
5. mother's occupation, and
5. type of family residence.

A general description of the PTNQ and PPNQ is presented in the following section.

General Description of the PTNQ and PPNQ

Following the examination of the concepts described above and the development of appropriate questions, a 35-question teacher questionnaire (PTNQ, see Appendix C) and a 35-question parent questionnaire (PPNQ, Appendix D) were devised. In addition to the 35 questions, another five questions on the PPNQ provided parents with an opportunity to give examples of their children's ability. The additional questions were not placed in the teacher questionnaire because teachers are able to compare the abilities of kindergarten children, whereas parents may not have this opportunity (Roedell, Jackson, & Robinson, 1979). Both teacher and parent nomination questionnaires were divided into two sections: a specific ability section and a biographic and demographic section. The specific ability section contained verbal, mathematical, spatial, and temperament questions. The biographic and demographic section contained questions such as birthdate of the child, sex of the child, father's education, and number of siblings (see Appendices C and D). Before they answered the questionnaires, the teachers and the parents were requested to provide a global estimate of the children's intellectual abilities either as average or above average. This global estimate was on a sheet separate from the questionnaire. The estimated ability question was used as the external criterion in the item analysis of the questionnaires.

The rating scale for the specific ability questions on the parent and teacher questionnaire was a four-point Likert response scale (Likert, 1932). The teachers and parents were asked to rate the child's ability on a scale of one to four. This response scale was chosen because more variability existed than with a two-point response format (Nunnally, 1967).

Preliminary Field Test of the Questionnaires

Prior to the first pilot study, three experienced teachers from local kindergartens were asked for their opinions regarding the appropriateness of the proposed questions in the verbal, mathematical, spatial, and temperament areas for the PTNQ. These teachers approved of the questionnaire content and thought that the questions would discriminate between the gifted and non-gifted children. The demographic questions also were reviewed and approved by the three teachers. As mentioned previously, the specific ability questions developed for the PTNQ were the same as those on the PPNQ.

In addition, four kindergarten-age children who were deemed above average by their parents and who came from professional families in high socioeconomic neighbourhoods were questioned by the examiner as to their understanding of the questions used on the questionnaires. The same four children were then given the VKT and WPPSI as well. Three of the children answered all the questions correctly on the questionnaire; the same three children scored two standard deviations above the mean on the Full Scale score of the VKT and the total score of the WPPSI (Mean = 100, Standard Deviation = 15). The fourth child answered fewer than half of the questions on the questionnaire correctly and scored near the mean on both the VKT and WPPSI.

First Pilot Study

Each nomination questionnaire was pilot-tested. The PTNQ and PPNQ were tested with respect to the feasibility of the Likert rating scale, the appropriateness of the items, and the internal consistency of the subtests. No names appeared on the questionnaires and identification of the children was made through code numbers.

Procedures

Three daycare centres, one from each of three urban areas located in the Greater Vancouver area of British

Columbia, were the source from which kindergarten-aged children were selected for the first pilot study. At the time of questionnaire distribution (mid-December, 1979 to March, 1980), it was more practical to use daycare centres than kindergartens because of more rapid access since testing in the public schools would have required permission from superintendents and principals, as well as teachers and parents prior to distribution of the questionnaires. This process would have taken considerably longer than receiving permission from teachers and parents which was required before testing in the daycare centres could commence. Twelve teacher and 22 parent nomination questionnaires were distributed during December, 1979, and follow-up reminders were sent within a month to those teachers and parents who had not returned their questionnaires. Questionnaires were returned during January to April, 1980.

The 12 teachers from the three daycare centres consented to complete one PTNQ, and instructions for answering the questionnaire were given in a letter attached to the first page of each questionniare (Appendix C -- First Edition). Six of the teachers were requested first to nominate and then to complete their PTNQ for an above average child; the other six were asked to complete their PTNQ for an average child. Academic ability of the children (average or above average) was estimated by teacher judgment. These estimates of academic ability were used as the external criterion in the assessment of questionnaire reliability.

At each daycare centre a meeting was held, at which time, the parents of kindergarten-aged children were requested to participate in the study. Twenty-two parents agreed to answer the PPNQ. A covering letter and the PPNQ were sent to each of the 22 parents of kindergarten-aged children. The parents were requested, first, to reply to an estimated ability question on whether their child was average or above average in intellectual ability, and then to complete the PPNQ for their child. Some of the children included in the sample for the parent questionnaire were different from those included in the sample for the teacher questionnaire, that is to say, the parents answered questionnaires on children who did not necessarily have a corresponding completed teacher questionnaire.

To ensure that scoring would be consistent, the researcher marked all the questionnaires. Verification of the scoring by an educational psychology graduate student assistant revealed no errors. The investigator coded the data and it was verified by an assistant. There were no coding errors. The data entry service verified all the keypunching of the data.

Item analysis was performed on the teacher and parent questionnaires using the LERTAP computer program (Nelson, 1974). The demographic data were summarized using the

Frequencies subprogram of the Statistical Package for the Social Sciences (Nie & Hull, 1975).

PTNQ: Results of the First Pilot Study

Of the 12 teacher questionnaires sent out, 10 (83.3%) were returned. Of the 10 children with completed PTNQs, four (40%) were nominated as above average by their teachers on the initial question on general estimated ability and six (60%) were nominated as average. The sample data were tabulated for the biographic and demographic section, the frequencies of which can be found in Appendix E. This table includes data for variables such as the sex and age of the child, enrollment of school, number of years teaching, and number of grade levels taught.

Item analysis of the specific ability questions on the PTNQ was performed (see Appendix F). All questions in the specific ability section were correlated positively with the external criterion, the teacher's estimated general ability of the child. The range of these point biserial correlations between the items and the external criterion was 0.148 to 0.863.

The internal consistency coefficients of the Hoyt's ANOVA (Hoyt, 1941) for the subtests and Cronbach's Stratified Alpha (Cronbach, 1951) for the total test of the questionnaires are shown in Table 1. The PTNQ total test reliability coefficient was 0.82. The internal consistency

Table 1

Means, Standard Deviations, Reliability Coefficients, and Standard Errors of the Measurement for the PTNQ and PPNQ: First Pilot Study

	k	Mean	SD	R	SEM
PTNQ (*n*=10)					
Verbal[1]	14	31.60	11.56	0.93	3.06
Math	14	28.00	10.84	0.91	3.25
Spatial	3	7.90	2.88	0.65	1.70
Temperament	4	13.00	3.62	0.96	0.72
Total[2]	35	80.50	26.53	0.82	11.26
PPNQ (*n*=19)					
Verbal[1]	14	38.26	9.65	0.88	3.34
Math	14	29.32	8.32	0.86	3.11
Spatial	3	10.79	3.38	0.64	2.03
Temperament	4	13.63	2.93	0.86	1.10
Total[2]	35	92.00	20.74	0.77	9.95

Note. PTNQ and PPNQ: 1st edition -- four point Likert response scale.

[1] Subtests: Hoyt's ANOVA reliability coefficients (Hoyt, 1941) are reported for the subtests.

[2] Total Tests: Cronbach's Stratified Alpha (Cronbach, 1951) is reported for the total scores.

coefficients for the verbal, mathematical, and temperament subtests exceeded 0.90. The lower spatial reliability (0.65) was likely the result of the small number of items in this subtest and/or the variation in spatial content (Mehrens & Lehman, 1980).

PPNQ: Results of the First Pilot Study

Of the 22 parent questionnaires sent out, 19 (86.4%) were returned. Of the 19 children with completed PPNQs, fifteen (78.9%) were nominated as above average by their parents on the initial question on general estimated ability and four (21.1%) were nominated as average. The sample data were tabulated for the biographic and demographic section. The frequencies can be found in Appendix E. This table includes data for variables such as the sex and age of the child, level of parental education, number of siblings, birth order of child, and number of adults in the home.

Item analysis of the specific ability questions on the PPNQ was performed. Item 27 (child is able to repeat a series of five digits from memory) and item 28 (child is able to repeat a series of four digits in reverse order from memory) in the mathematical subtest of the specific ability section were correlated negatively with the external criterion, the parents' estimated general ability of their child (Appendix G). All other items for the sample were correlated positively with the external criterion. The range of these point biserial correlations between the items and the external criterion was -0.179 to 0.811.

The internal consistency coefficients of the Hoyt's ANOVA (Hoyt, 1941) for the subtests and Cronbach's Stratified Alpha for the total test of the questionnaires are shown in Table 1. The PPNQ total test reliability coefficient was 0.77. The pattern of subtest reliabilities was the same as for the PTNQ. The verbal (0.88), the mathematical (0.86), and the temperament (0.86) reliabilities were higher than the spatial (0.64) reliability. Again, as with the teacher questionnaire, the lower spatial reliability may have been the result of the small number of items in this section, as well as the variation in spatial content (Mehrens & Lehman, 1980).

First Revision of the PTNQ and PPNQ

The results and information obtained from the first pilot test served as the basis for making several revisions of the questionnaires. First, the Likert scale used in the first edition of the questionnaires was discarded in favour of a dichotomous yes/no format for the specific ability questions. The reasons for making this change were:

1. Item stems did not fit the Likert response mode in all instances.
2. Both teachers and parents found the Likert response format confusing. Also, comments

received from teachers and parents indicated that it was too difficult to distinguish between adjacent ratings on the Likert scale. In an earlier study, Smith (1958) noted that an instrument with two-choice items was preferable to a test with more choices because it was quicker and easier to answer.

Parents and teachers were asked to list characteristics that, in their opinion, an average and an above average child would exhibit. The terms, "average" and "above average", were used instead of the terms, "non-gifted" and "gifted". Upon consultation with seven teachers and seven parents, it was decided that the terms "average" and "above average" were more comprehensible to the respondents.

The research studies of Kaufman (1973), White, Kaban, and Attanucci (1979), and Groth (1975) were examined before additional demographic questions (e.g., number of books in the home) were formulated and added to the parent nomination questionnaire to provide further background information on the children and their families. The PPNQ contained seven demographic questions, whereas the PTNQ retained the same three demographic questions as in the first edition. All specific ability first-edition questions were retained in the revised questionnaires with the new yes/no response format.

General description of the second edition of the questionnaires. The second edition of the PTNQ and the PPNQ, both with 35 specific ability questions, was used in the second pilot study (Appendix C, Second Edition and Appendix D, Second Edition). The teacher and parent nomination questionnaires were divided into three sections: (a) a specific ability section - items 1 to 35 - (i.e., verbal, mathematical, spatial, and temperament); (b) a biographic and demographic section (e.g., birthdate of child and parent's level of education); and (c) an estimated ability section (e.g., characteristics of an above average kindergarten child).

The specific ability section was the same in both nomination questionnaires. Each questionnaire contained thirty-five questions: questions 1 through 13 and question 31 were verbal questions; questions 14 through 27 were mathematical questions; questions 28 through 30 were spatial questions; and questions 32 through 35 were temperament questions. The rating scale was a yes/no response scale except for three check-mark questions in the mathematical section.

The demographic section on the teacher nomination questionnaire was related to the teacher's academic background, whereas the demographic section on the parent nomination questionnaire was related to the background of the child's family. Six additional questions were included in the demographic section of the parent nomination questionnaire. These were:

1. number of magazines subscribed to regularly,
2. number of books in the home,
3. whether or not the mother worked outside the home,
4. number of educational television programs watched by the child,
5. child's favourite television program, and
6. type of family residence (e.g., apartment).

As mentioned previously, the estimated ability section was included in the questionnaires in order to obtain a global rating of the children's intellectual abilities. The respondents were asked to estimate the child's intellectual ability as average or above average. The respondents also were asked to list intellectual characteristics of an average child and an above average child. This section was the same in both questionnaires.

Second Pilot Study

A second pilot study was conducted during early May, 1980 on the PTNQ and the PPNQ for the purposes of:

1. Testing the yes/no response format;
2. Including teachers and parents of kindergarten children rather than teachers and parents of

kindergarten-aged daycare children; a group of kindergarten teachers and parents would participate in the final study and, thus, this sample would resemble more closely the final sample;

3. Collecting data for an internal consistency study; and
4. Collecting data for a test-retest reliability study to test the stability of the questionnaires.

No names appeared on the teacher and parent questionnaires, identification of the children in the pilot study being made by code numbers.

Procedures

Fifty-five teachers from two urban school districts of the Greater Vancouver area of British Columbia were asked during early May, 1980 to complete a PTNQ on one kindergarten child from their class. A covering letter, asking the teacher either to nominate an average or an above average child, was included with each questionnaire. One week after the teachers had returned their questionnaires, a second identical questionnaire was distributed to the same teachers so that the test-retest reliability could be measured. Each teacher completed a second questionnaire on the child that they had nominated for the first questionnaire.

The officials of the two urban school districts in which the teacher questionnaires were distributed did not give permission to issue questionnaires to parents of kindergarten children in their school systems. Therefore, the parent sample came from two urban school districts different from those of the teacher sample. This did not present a problem because the PTNQ and PPNQ were analyzed separately. The parent questionnaires were distributed to 38 parents contacted individually by the researcher or by contact mothers. One week after the parents had returned these questionnaires, a second identical questionnaire was distributed to the same parents as part of a test-retest study. Questionnaires were returned during May and June, 1980.

The researcher marked all the questionnaires to ensure that scoring would be consistent. Verification of the scoring revealed no scoring errors. The researcher coded all the data and an assistant verified all the coding. There were no coding errors. The data entry service verified all the keypunching of the data.

Frequencies of the demographic data of the second pilot study and Pearson product-moment correlations for the test-retest analysis were computed using the Statistical Package for the Social Sciences (Nie & Hull, 1975). Item analysis was performed on the teacher and parent questionnaires using the Lertap computer program (Nelson, 1974).

PTNQ: Results of the Second Pilot Study

Of the 55 teacher questionnaires sent out, 45 (81.8%) were returned. On the initial question on general estimated ability, teachers nominated 19 (42.2%) children as average and 26 (57.8%) children as above average. The data provided by the teacher sample were tabulated for the biographic and demographic and estimated ability sections. The frequencies can be found in Appendix E. This table includes data for variables such as the sex and age of the child, enrollment of school, number of years teaching, and number of grade levels taught.

Item analysis of the specific ability questions on the PTNQ was performed. All items except item number 11 (child is able to identify both similarities and differences among persons, places and things) in the verbal section and item number 35 (child is curious about his environment) in the temperament section were correlated positively with the external criterion, the teacher's estimated general ability of the child. The range of the point biserial correlations between these items and the external criterion was -0.021 to 0.874. Complete item analysis information for the teacher sample is available in Appendix H.

The internal consistency coefficients of the Hoyt's

ANOVA (Hoyt, 1941) for the subtests and Cronbach's Stratified Alpha (Cronbach, 1951) for the total test of the questionnaires are shown in Table 2. The Cronbach's Stratified Alpha (0.61) for the total scores of the questionnaires indicated that more than one construct (i.e., different subtests) was being measured (Nelson, 1974). The verbal (0.86), the mathematical (0.78) and spatial (0.72) internal consistency reliabilities were higher than the temperament (0.50) reliability. The slightly lower reliabilities for the subtests and the total test on the second pilot study of the PTNQ as compared to the first pilot study seemed to have been caused by the reduction of choices on the response scale. This meant that there was less variance for each item (Smith, 1958).

The PTNQ test-retest reliabilities were calculated by the Pearson product-moment correlation (see Table 3). The test-retest reliabilities were: verbal (0.98), mathematical (0.98), spatial (0.90), temperament (0.98), and total test (0.99). These reliabilities showed that the response to the PTNQ was stable over a one-week interval.

PPNQ: Results of the Second Pilot Study

Of the 38 parent questionnaires sent out, 34 (89.5%) were returned. On the initial question on general estimated ability, the parents nominated 22 (64.7%) children as average and 12 (35.3%) children as above average. The

Table 2

Means, Standard Deviations, Reliability Coefficients, and Standard Errors of the Measurement for the PTNQ and PPNQ: Second Pilot Study

	k	Mean	SD	R	SEM
PTNQ (*n*=45)					
Verbal[1]	14	22.51	3.93	0.86	1.47
Math	14	23.13	4.45	0.78	2.09
Spatial	3	6.76	1.09	0.72	0.58
Temperament	4	7.11	1.07	0.50	0.76
Total[2]	35	59.51	8.32	0.61	5.20
PPNQ (*n*=34)					
Verbal[1]	14	23.15	3.29	0.83	1.36
Math	14	24.29	4.39	0.78	2.06
Spatial	3	10.03	1.59	0.47	1.16
Temperament	4	7.24	1.02	0.52	0.71
Total[2]	35	64.71	8.31	0.68	4.70

Note. PTNQ and PPNQ: 2nd edition -- two choice yes/no response scale.

[1] Subtests: Hoyt's ANOVA reliability coefficients (Hoyt, 1941) are reported for the subtests.

[2] Total Tests: Cronbach's Stratified Alpha (Cronbach, 1951) is reported for the total scores.

Table 3

PTNQ And PPNQ: Test Retest Reliability Coefficients (Second Edition)

	Test		Retest		
	Mean	SD	Mean	SD	Reliability Coefficient
PTNQ (n=45)					
Verbal	22.51	3.94	22.64	4.05	0.98
Math	23.13	4.45	23.38	4.76	0.98
Spatial	6.76	1.09	6.89	1.11	0.90
Temperament	7.11	1.07	7.11	1.07	0.98
Total	59.51	8.33	60.02	8.91	0.99
PPNQ (n=34)					
Verbal	23.15	3.29	23.41	3.35	0.95
Math	24.29	4.39	24.71	4.42	0.96
Spatial	10.03	1.57	10.29	1.47	0.92
Temperament	7.24	1.02	7.09	1.16	0.90
Total	64.71	8.31	65.50	8.44	0.97

description of the parent sample was tabulated for the biographic, demographic, and estimated ability sections. The frequencies can be found in Appendix E. This table includes data for variables such as the sex and age of the child, level of parental education, number of siblings, birth order of child, number of adults in the home, reading material in the home, and number of educational television programs watched.

Item analysis of the specific ability questions on the PPNQ was performed. All items except item 35 (child is curious about his environment) in the temperament section correlated positively with the external criterion, the parent's estimated general ability of their child. The range of these point biserial correlations between the items and the external criterion was -0.090 to 0.537. Complete item analysis information for the parent sample is available in Appendix I.

The internal consistency coefficients of the Hoyt's ANOVA (Hoyt, 1941) for the subtests and Cronbach's Stratified Alpha (Cronbach, 1951) for the total test of the questionnaires are shown in Table 2. The Cronbach's Stratified Alpha (0.68) for the total scores on the PPNQ indicated that more than one construct (i.e., different subtests) was being measured (Nelson, 1974). The verbal (0.83) and the mathematical (0.78) reliabilities were higher than the temperament (0.52) and the spatial (0.47) reliabilities. The reason for the lower spatial and temperament reliabilities may have been a result of the small number of items in these sections (Mehrens & Lehman, 1980).

The PPNQ test-retest reliabilities were calculated by the Pearson product-moment correlation (see Table 3). The test-retest reliabilities were: verbal (0.95), mathematical (0.96), spatial (0.92), temperament (0.90), and total test (0.97). The results indicated that the responses to the PPNQ were stable over a one-week interval.

Second Revision of the PTNQ and PPNQ

The internal consistency reliabilities for the first pilot study were slightly higher than for the second pilot study. A possible explanation is offered by Brannon (1981) who noted that items with a yes/no response format were slightly less reliable than items with more than two response options. The differences between the reliabilities of the first and second pilot studies were not considered sufficient, however, to warrant revising item stems or forfeiting the other benefits (see section: First Revision of the PTNQ and PPNQ, p. 55) of the yes/no response scale.

A second revision of the nomination questionnaires was necessary primarily because internal consistency was lower in the spatial section than in the verbal and mathematical sections. Additional specific ability questions were included in the second revision of the questionnaires to obtain a broader perspective of the children's abilities. Also, the order of several specific ability questions was changed and a demographic question relating to the background of the child and an estimated ability question was added.

In an attempt to increase the reliability of the spatial subtest, additional spatial questions were added to the teacher nomination questionnaire. According to Mehrens and Lehman (1980) and Stanley and Hopkins (1972), a subtest that has at least 10 items is more suitable than a shorter subtest for reliability and validity studies; thus, fourteen items were devised for each subtest of the PTNQ and PPNQ. Question number 28 from the second edition of the questionnaires was divided into nine separate questions and five additional spatial questions (questions 30, 39, 40, 41, and 42) were added. The decision on the types of additional questions to use was made after discussion with a group of ten teachers and ten parents of kindergarten children from the Greater Vancouver area of British Columbia. These teachers and parents made recommendations on the appropriateness and clarity of the questions. The basis for the selection of each type of additional question for the third edition of the questionnaire is discussed in the following sections.

Questions on solving puzzles. Roedell, Jackson and Robinson (1979) found that competent young children were able to complete complicated jigsaw puzzles before age three. Puzzle-solving questions from standardized tests (such as the Maze subtest of the WPPSI) and existing questionnaires (e.g., "Solves complex puzzles"; Brazosport School District, 1961) were examined before the questions on solving puzzles in the PTNQ (questions 39 & 40) and the PPNQ (questions 39 & 40) were formulated. The questions on solving puzzles are concerned with the child's ability to complete a jigsaw puzzle within a specified time limit and to navigate a maze (see Appendices C and D).

Question on graphs and symbols. Moore, Hahn, and Brentnall (1978), in their study with grade five and six students, found interpretation of graphs and symbols to be the fourth most important predictor of intellectual ability after vocabulary, mathematical concepts, and spelling. Questions such as "Child can interpret maps." (Woodliffe, 1977) were examined before the graphs-and-symbols question on the PTNQ (question 41) and PPNQ (question 41) were formulated. The question on graphs and symbols is concerned with the child's ability to interpret a weather map and locate his home on a map (see Appendices C and D).

Question on draw-a-person. Research on the draw-a-person questions has indicated that these questions measure intelligence and predict future achievement (Goodenough, 1926; Harris, 1963; Koppitz, 1967; & Ames, 1943). For example, the Man question on the VKT subtest required the child to draw a person with body details. Points were given as a child completed each portion of the person (e.g., head, eyes, legs). Questions from previous questionnaires (e.g., "Can the pupil draw a person?"; Cherry, 1976) and standardized tests (Vane, 1968) were examined before the draw-a-person question on the PTNQ (item number 42) and the PPNQ (item number 42) was formulated. The draw-a-person question in the PTNQ and the PPNQ is concerned with the child's ability to draw a person with proper proportions and details such as clothes and hair (see Appendices C and D). The draw-a-person question on the PTNQ and PPNQ was scored as correct if the child was able to draw all of the basic features of a person.

Additional revisions occurred in the temperament section. The four temperament questions were eliminated from the third edition of the questionnaires for the following reasons:

1. The internal consistency coefficients on the Hoyt's ANOVA for the temperament section in the second pilot study were 0.50 for the PTNQ and 0.52 for the PPNQ. These internal consistency coefficients were too low to be of value in the current study.

2. Noncognitive characteristics, such as temperament, often affect a teacher's opinion of whether a child is gifted. Teachers find it difficult to separate the cognitive behaviors from the noncognitive behaviors of attention and persistence (Pedulla, Airasian, & Madaus, 1980; Thomas & Chess, 1977); they usually identify the hard or enthusiastic worker as being gifted (Fox, 1981; Gordon & Thomas, 1967).

Other changes in the specific ability section affected the verbal and mathematical sections. The order of the three verbal questions dealing with similarities and differences was rearranged so that these questions would not appear in consecutive order. The question to do with place value was rewritten using the words "units" and "tens" instead of a real number example because of the confusion among respondents to the original question.

Revisions to the demographic sections included:

1. Two demographic questions (number of years teaching and grade levels taught) were eliminated from the teacher questionnaire because teachers tended not to answer the questions.
2. A question about the relationship of the respondent to the child (mother, father, both

mother and father or guardian) was added to the parent questionnaire so that a description of the respondents in each category could be tallied.

An additional section on estimated ability was added so that other areas of ability could be surveyed. The respondent was requested to rate the child's ability as average or above average for reading, spatial reasoning, memory, mathematics, and language.

General description of the third edition of the PTNQ and PPNQ. The third edition of the PTNQ and PPNQ was divided into three sections: a specific ability section, a biographic and demographic section, and an estimated ability section (Appendix C, third edition of the PTNQ; Appendix D, third edition of the PPNQ). The sections on specific ability, biographic, and estimated ability were identical on both forms, whereas the demographic questions were different.

Specific ability section. For the third edition, the specific ability section in each of the two questionnaires was organized so as to produce three subtests -- verbal, mathematical, and spatial. As previously stated, measures of these three constructs were considered to be important because previous research had identified them as valid predictors of gifted children (Moore, Hahn & Brentnall, 1978; Rogolsky, 1968).

The third edition of both questionnaires included the following categories of questions: verbal - questions 1 through 12 and questions 37 and 38 - (vocabulary, spelling, printing, stories and rhymes, reading, similarities and differences, verbal recall); mathematical - questions 13 through 26 - (mathematical concepts); and spatial - questions 27 through 36 and 39 through 42 - (geometric shapes, solving puzzles, graphs and symbols, and draw-a-person).

In the second revision (the third edition) of the PTNQ and PPNQ, each of the three subtests had 14 questions. The maximum score on the 42-item questionnaires was 84 points. A NO response received one point; a YES response received two points. In the check mark questions, one check mark received one point and two check marks received two points. Three mathematical questions were answered with check marks, while all other questions were answered using a yes/no response scale. The third edition of the questionnaires had clear directions, could be answered quickly, and scoring was accomplished rapidly.

Biographic and demographic section. The biographic questions (e.g., sex and birthdate of the child) in this section provided a general description of the sample. The demographic questions on the PTNQ contained a question relating to the teacher's educational background on the gifted (e.g., number of workshops attended on the identification of the gifted). The demographic section on the PPNQ contained eight questions relating to the child's family background (e.g., parent's level of education).

Estimated ability section. The estimated ability questions were retained in the third edition because these questions may have provided an accurate global estimate of the children's abilities. The section from the PTNQ and the PPNQ on estimated ability in the third edition contained several questions. One of the questions was on estimating the general ability of children whom the teachers and parents were asked to nominate either as average or above average. Another question contained several parts on estimating abilities which covered reading ability, spatial reasoning ability, memory ability, mathematical ability, and language ability. This question was adapted from the parent questionnaire developed by Robinson, Roedell, and Jackson (1979a).

Summary Statement

After reviewing the literature, the following instruments were chosen for the study: a standardized screening instrument - the VKT; a criterion instrument - the WPPSI; and three predictor instruments - the VKT, the PTNQ, and the PPNQ. The emphasis in this chapter was on the development of the teacher and parent nomination questionnaires. A description of the initial development, including the selection of the concepts, and the two revisions of the questionnaires were presented. Two pilot studies were conducted for the purpose of improving the nomination questionnaires. Internal consistency and stability reliability studies were performed on the PTNQ and the PPNQ.

Following the pilot studies, the main investigation into the economical identification of gifted kindergarten children was undertaken. The methodology for this study is described in Chapter IV.

CHAPTER IV

METHODOLOGY

As noted in the previous chapter, two standardized tests and two nomination questionnaires were administered in this study. The Wechsler Preschool and Primary Scale of Intelligence (WPPSI) was used as the criterion instrument to define two groups -- gifted ($IQ \geq 130$) and non-gifted ($IQ < 130$). The Vane Kindergarten Test (VKT) was used as a screening instrument to select the validation sample, and as one of the three predictor instruments of membership in the gifted group. The Perks Teacher Nomination Questionnaire (PTNQ) and the Perks Parent Nomination Questionnaire (PPNQ) were used as the other two predictor instruments.

In this chapter, the methodology used to assess the validity of the predictor instruments is described. First, a description of the population and the procedures for selecting the screening and final samples is presented, followed by a description of the data collection procedures, scoring and data preparation, and data analysis procedures. The VKT means and standard deviations for the initial screening sample are reported as well as the results of the tests for equality of means and equality of variance-covariance structure for the data collected from different school districts.

Population

The samples were selected from two urban districts, labelled as District A and District B, located in the Greater Vancouver area of British Columbia. The community population was 128,977 for District A and 99,319 for District B (Statistics Canada, 1982). District A is a residential suburb that has a wide range of manufacturing activities which include machinery, food and beverage, metal fabrication, chemicals, and wood products (British Columbia Regional Index, 1978). In addition to being a residential suburb, District B is an important shipping and rail centre and has a centralized industrial area that includes a diversity of industries such as the manufacture of pulp mill chemicals, baked goods, plastics, transportation equipment, and deep-diving submersibles. The average income of people in the two districts is $28,152 for District A and $33,740 for District B (Statistics Canada, 1982). Of the adult population in District A, 30% had post-secondary education and 70% had grade 12 or a lower level of education (The Financial Post: Canadian Markets, 1982). In District B, 47% of the adult population had post-secondary education, whereas 53% had grade 12 or a lower level of education.

In the public school population there were 30,490 children in District A and 17,589 in District B (Ministry of Education, 1982). At the elementary school level there were 18,869 children in District A and 9,823 in District B. The kindergarten population consisted of 3,538 children from 96 public elementary schools: 2,456 children from 62 elementary schools in Distrct A and 1,082 children from 34 schools in District B.

Sample Selection

The final samples of gifted and non-gifted kindergarten children were selected and identified in three steps, as shown in Figure 1. At Step 1, an initial screening sample was identified and administered the VKT. Employing the scores from this test, this sample was then stratified into groups (Step 2a). A random sample of the children was then selected from each group (Step 2b). Finally, following administration of the WPPSI to all the children in the sample at Step 2b, the children were reclassified to form the gifted and non-gifted final sample (Step 3).

Initial Screening Sample

The purpose of the initial screening was to identify a sample of kindergarten children from which further samples could be drawn. This was done first by selecting the schools and then by selecting the subjects to be screened.

Selection of schools. Consent to conduct the study in the schools was obtained from the superintendents of the two urban school districts. The target number of schools for

Sampling Process

Step		Tests Administered
1	Initial Screening Sample n=816	VKT
2a	Stratified Screening Sample IQ≤115 (VKT) n=463 — IQ>115 (VKT) n=353	
2b	Random Stratified Screening Sample IQ≤115 (VKT) n=79 — IQ>115 (VKT) n=115	WPPSI PTNQ PPNQ
3	Stratified Criterion Sample IQ<130 (WPPSI) n=152 — IQ≥130 (WPPSI) n=42	

Figure 1: Sampling process for the current study

the initial screening sample was set at 40% of the schools from each of the two urban school districts. In District A, the 62 elementary schools were assigned numbers 1 through 62 and in District B, the 34 elementary schools were assigned numbers 1 through 34. Two random samples were then drawn using a table of random numbers. Of the 62 elementary schools in District A, 25 (40%) schools were selected; in District B, 14 (40%) of the 34 schools were selected. All participating principals and teachers agreed to allow the study to proceed in their schools. Unfortunately, only seven (20%) of the schools selected in District B were included in the current study because of a change in policy by district officials. District officials placed a restriction on the number of schools that could be used in the study. This did not affect the random representation of the sample from District B because these seven schools were a random sample of all schools within District B. From the 32 schools included in this study, subjects were selected to participate in the three steps of the sampling process.

Selection of subjects. The subjects were restricted to kindergarten children who spoke and understood English as their first language. From the selected schools, all the kindergarten children, who spoke English as a first language, were included initially in the screening sample. Parental consent forms (Appendix D) were sent to the parents of all the kindergarten children (n=1272) in the selected schools. A total of 1001 (78.7%) parents returned their forms; 921 (92.0%) parents gave permission for their children to participate in the study. One hundred and five (11.4%) of these 921 children were unable to participate because of absenteeism or because they had moved away from the school prior to completion of data collection. The remaining 816 (88.6%) were screened with the VKT (see Figure 1).

Random Stratified Screening Sample

Using the scores from the VKT, the children in the initial screening sample were stratified into two groups - average (IQ scores of ≤115) and above average (IQ scores of >115). The cutoff score of 115 corresponded to a point one standard deviation above the VKT mean. Hallahan (1982) pointed out that using a cutoff score higher than 115 on a general screening test greatly reduces the chances of obtaining all the gifted children when an individual intelligence test is used later to classify the children into gifted and non-gifted groups.

Using the 115 cutoff, this stratification produced 463 subjects in the average group and 353 subjects in the above average group (see Figure 1). A simple random sample of 120 children from each of the two groups (average and above average) was selected to form the random stratified screening sample. The selection of 120 above average subjects was made to ensure that a sufficient number of gifted children would be tested for the validation study.

All of the above average children (n=120) were assessed on the WPPSI; matching teacher and parent questionnaires were completed and returned for 115 (95.8%) of these students. Only 79 of the 120 children in the average group were assessed with the WPPSI due to time constraints brought about by labor problems (a civic union strike) during the data collection period. Matching parent and teacher questionnaires were completed for all of the average children assessed. Consequently, the final stratified screening sample consisted of 194 subjects, 115 of whom were above average and 79 of whom were average (see Figure 1, Step 2b).

Stratified Criterion Sample

To arrive at the final sample for validation of the predictor instruments, the children in the random stratified screening sample (n=194) were reclassified into two groups on the basis of their performance on the WPPSI. This produced a gifted group of 42 subjects and a non-gifted group of 152 subjects (see Figure 1). For the purposes of clarity, this stratified sample was called the "stratified criterion sample". Data from the children in the stratified criterion sample then were used to examine the validity of the three predictor instruments considered in this study.

PTNQ and PPNQ Test-Retest Sample

To determine the test-retest reliabilities of the PTNQ and PPNQ, two separate samples of 38 kindergarten children were selected randomly from the total random stratified screening sample (Figure 1, Step 2b). Teachers of the children in the first test-retest sample were asked to complete a second copy of the PTNQ one month following the main data collection. Similarly, the parents of the children in the second test-retest sample were asked to complete the PPNQ one month later.

Of the 38 retest questionnaires sent to teachers, 37 (97.4%) were returned. Due to a national postal strike which occurred during this phase of the study, only 25 of the 38 parent retest questionnaires could be delivered. Of these, 20 (80.0%) were returned.

For convenience, a summary of the various response rates reported above and corresponding to the steps used to identify the final sample and test-retest samples is presented in Table 4. As mentioned previously, a pictorial representation of this sampling process is displayed in Figure 1.

Table 4

Target Samples and Actual Samples

Sample	Target Sample Size	Actual Sample Size	% of Goal	Test Used	# Used	% Used
Initial Screening[1]	--	816	--	VKT	816	100.0
Random Stratified Screening[1]	240	194	80.8	WPPSI	194	100.0
				VKT	194	100.0
				PTNQ	194	100.0
				PPNQ	194	100.0
Stratified Criterion						
Gifted	--	42	--		194	100.0
Non-gifted	--	152	--			
Test-retest (PTNQ)	38	37	97.4	PTNQ	37	100.0
Test-retest (PPNQ)	38	20	52.6	PPNQ	20	100.0

Note. Number of students in initial population was 1272.

[1] The initial screening sample and the stratified criterion sample did not have target sample sizes.

Data Collection

No names appeared on any tests or questionnaires. Instead, children were identified by code numbers preprinted on each instrument. The data were collected in stages according to the steps shown in Figure 1.

Administration of the VKT

In the first testing session during the winter months (mid-February to mid-April), the VKT was adminstered in the schools to all 816 kindergarten children by five qualified level C examiners (psychologists and psychology graduate students; Cronbach, 1970, p. 18). The group administration of the Perceptual Motor subtest and the Man subtest took approximately ten minutes. The individual administration of the Vocabulary subtest required approximately five minutes per child. The total time necessary to administer the VKT was approximately 15 minutes per child.

Initial Screening Sample: Description of Performance on VKT

Before proceeding with the second testing session, the standardized screening instrument was scored and descriptive statistics calculated for the initial screening sample. The results of these statistics are presented in this section.

The mean of the VKT total scores for the initial screening sample (n=816) was 113.18 with a standard deviation of 12.38. The means on the three VKT subtests (Perceptual Motor, Vocabulary, and Man) ranged from 110.16 to 115.34 and the standard deviations ranged from 14.79 to 23.08 (see Table 5).

Table 5

VKT Means and Standard Deviations for the Initial Screening Sample

Test		Mean	SD
VKT (n=816)	Perceptual Motor	110.16	15.13
	Vocabulary	115.34	23.08
	Man	114.45	14.79
	Full Scale IQ	113.18	12.38

The means of the VKT subtest and total test scores were higher than the published mean of 100.00 (Vane, 1968). The standard deviations were approximately the same as the published standard deviations (Vane, 1968). The means and standard deviations reported by Vane (1968) were based on a sample of kindergarten children from a cross-section of rural and urban school districts. In the current study, however, the children tested came from two urban school districts and had English as their first language.

All the protocols of the VKT were classified into average and above average groups. Random samples were drawn from each of the two groups before the adminstration of the WPPSI, PTNQ, and PPNQ commenced.

Administration of the WPPSI, PTNQ, and PPNQ

WPPSI. In the second testing session during the spring months (mid-April to the end of June), the children who were selected randomly from the stratified screening sample to form the random stratified screening sample (n=194) were administered the WPPSI in the schools by seven qualified level C examiners (psychologists and psychology graduate students; Cronbach, 1970, p. 18). The administration of the WPPSI took approximately one hour per child. All subtests were administered except the Animal House Subtest Retest (an optional subtest) which was omitted because of time constraints.

PTNQ. Teachers of kindergarten children in the random stratified screening sample were asked to answer the PTNQ. The questionnaires were delivered to them at the schools, and a self-addressed stamped envelope was provided for the return of each questionnaire to the university.

As reported earlier, a test-retest reliability study was performed in which the teachers of 38 randomly selected children were requested to answer questionnaires on the same child twice. Approximately one month after the teachers had returned the first nomination questionnaire, a second identical questionnaire was distributed to the same teachers.

PPNQ. The procedures for obtaining parents' responses to the questionnaires (n=194) were identical to that of the teachers with the exception of questionnaire distribution. The parents' questionnaires were taken home by their children. The test-retest reliability procedures were the same for the PPNQ as for the PTNQ.

Scoring and Data Preparation

Scoring

All completed standardized tests and teacher and parent questionnaires were scored by the researcher. A random sample of 24 sets of tests/questionnaires was scored independently by a second marker (level C examiner; Cronbach, 1970, p. 18). The level of agreement between the two markers was assessed by comparing each item on the 24 tests. The percentage agreement between the two sets of tests for the WPPSI was 99.02%; the only discrepancies noted occurred on the Geometric Design subtest. For the VKT, the corresponding percentage agreement was 99.01%; the observed discrepancies again appeared in only one subtest, the Man. No scoring discrepancies between the markers were observed for both the PTNQ and PPNQ.

Data Preparation

The coding of the data for the initial screening sample (n=816) was completed by an assistant and verified for 50% of the sample by the researcher. The coding error rate was 0.058%.

All scored data for the random stratified screening sample (n=194) were coded with 20 percent verification. The coding error rates were 0.026% for the WPPSI, 0.114% for the VKT, and 0.00% for the PTNQ and PPNQ. The keypunching was verified for 100% of the sample for each instrument by the keypunching staff of a professional keypunching service. An additional check by the researcher on a 10% random sample of all keypunching against the coding sheets revealed no mistakes.

Data Analysis

Description of the Samples

A biographic and demographic description of the random stratified screening sample and the stratified criterion sample was obtained from the information reported in the biographic and demographic section of the teacher and parent questionnaires. The frequencies were determined for each of these question sections using the FREQUENCIES and CROSSTABS subprograms of the Statistical Package for the Social Sciences, Version 9.00 (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). T-tests and chi squares on the biographic and demographic data were calculated by the T-TEST and CROSSTABS subprograms of the Statistical Package for the Social Sciences, Version 9.00 (Nie & Hull, et al., 1975).

Comparability of the School Districts

A preliminary analysis was performed to compare the data from the children, teachers, and parents in District A with corresponding data collected in District B. The equality of means was assessed by Hotelling's T^2 Test (Morrison, 1976, pp. 128-141); the equality of variance-covariance structure was tested using the Bartlett-Box Homogeneity of Dispersion Test (Timm, 1975, pp. 250-260). These calculations were performed using the multivariate statistical computer program OWMAR (Hakstian, Note 4). The 0.05 level of significance was adopted in each case. The Bartlett-Box Homogeneity of Dispersion Test yielded a homogeneity of variance-covariance F-ratio statistic of 1.15 with a corresponding probability level of 0.323 which showed that there was no significant difference in the variance-covariance structure between samples in the two urban districts. The F-ratio for the Hotelling's T^2 Test for the two districts was 14.54 which is significant beyond the 0.05 level. Examination of the simultaneous confidence intervals revealed that on each of the four variables - VKT, WPPSI, PTNQ, and PPNQ - the children of school district B scored at a higher level than the children from school district A. Despite this difference and in the light of the homogeneity of variance-covariance, the data from the school districts were combined and treated as one. Indeed, as might be expected, differences in central tendency do occur between school districts. What was necessary for this study, however, was the acquisition of sufficient numbers of gifted and non-gifted kindergarten children. Therefore, the data collected from these two districts were pooled.

Statistical Characteristics of the VKT, WPPSI, PTNQ, and PPNQ

Means and standard deviations were calculated for all the instruments by the CONDESCRIPTIVES Subprogram of the Statistical Package for the Social Sciences, Version 9.00 (Nie & Hull, et al., 1975). Group means and standard deviations also were calculated for the VKT, WPPSI, PTNQ, and PPNQ. T-tests for the group means were calulated by the T-TEST subprogram of the Statistical Package for the Social Sciences, Version 9.00 (Nie & Hull, et al., 1975).

Item analysis was completed for the PTNQ and PPNQ using the computer program LERTAP (Nelson, 1974). The internal consistency reliability coefficients were calculated for the

WPPSI, PTNQ, and PPNQ. The internal consistency reliability coefficient for the WPPSI Full Scale IQ was computed following the procedures of Wechsler (1967). Details of the reliability computations are described in Guilford (1954, p. 393). The Guilford Composite was used because the WPPSI has varying basal and ceiling scores. Although test-retest is the appropriate method to determine the reliability of the VKT, it was not possible to conduct a retest on the VKT because it was too near to the end of the school year. The internal consistency reliability coefficients for the subtests of the PTNQ and PPNQ were computed using Hoyt's ANOVA (Hoyt, 1941) and the reliabilities of the corresponding total scores of the questionnaires were computed using Cronbach's Stratified Alpha (Cronbach, 1951).

Test-retest reliabilties were calculated for both the PTNQ and PPNQ subtests and total test scores using the PEARSON CORR Subprogram of the Statistical Package for the Social Sciences, Version 9.00 (Nie & Hull, et al., 1975). For the estimated ability questions where the teachers and parents were requested to nominate the child as average or above average, the reliabilities were assessed by calculating ϕ coefficients (Glass & Stanley, 1970). These coefficients were calculated using the CROSSTABS Subprogram of the Statistical Package for the Social Sciences, Version 9.00 (Nie & Hull, et al., 1975).

Validity of the VKT, PTNQ, and PPNQ

The purpose of the validation study, as stated in Chapter I, was to discover how well the VKT, PTNQ and PPNQ discriminated between gifted (WPPSI IQ≥130) and the non-gifted (WPPSI IQ<130) children. To determine the discriminating ability, hence predictive validity, of these instruments, discriminant analysis was performed.

The Pearson product-moment correlations were examined to determine the degree of association between the total scores of the predictor variables and the criterion variable (WPPSI). The research question was answered by using a stepwise discriminant function analysis (Kerlinger & Pedhazur, 1973) in which the identification of the best discriminatory linear combination of the three predictor instruments was sought.
The general statistical model for the stepwise discriminant function analyses was:

$$GM_i = \beta_0 + \sum_{j=1}^{3} \beta_j \overline{X}_{ij}$$

where:

GM_i = the mean index for the (i)th group, i=1,2;
β_0 = the constant;
β_j = the discriminant weight attached to the predictor variable, j=1,2,3; and
$\overline{X}_{ij}$ = the mean of (j)th predictor variable of the (i)th group

The hypothesis tested was that all the weights (β's) equalled zero against the alternative hypothesis that at least one discriminant weight differed from zero at the 0.05 level of significance (Kerlinger & Pedhauzur, 1973; Tatsuoka, 1969). The computations were performed using the DISCRIMINANT subprogram of the Statistical Package for the Social Sciences Version 9.00 (Nie & Hull, et al., 1975).

In the fifth chapter, the descriptive results of the biographic and demographic variables are reported. Next, the results of the statistical analyses followed by a discussion of these results are presented.

CHAPTER V

RESULTS

In this chapter, the biographic and demographic characteristics of the stratified criterion sample are reported. This description is followed by the presentation of the statistical characteristics for each instrument -- Wechsler Preschool and Primary Scale of Intelligence (WPPSI), Vane Kindergarten Test (VKT), Perks Teacher Nomination Questionnaire (PTNQ), and Perks Parent Nomination Questionnaire (PPNQ). Then the outcome of the predictive validity analysis is presented, followed by a discussion of the results.

Biographic and Demographic Results

As described in Chapter III, data were collected for biographic and demographic descriptive variables. A breakdown of the gifted (n=42) and non-gifted (n=152) groups by sex of the child, birth order of the child, father's level of education, mother's level of education, number of adults in the home, number of adults in the family working outside the home, number of siblings, number of educational television programs watched per week by the child, number of books in the home, and number of newspapers subscribed to per week is reported in Table 6 and in more detail in Appendices J and K.

Biographic and Demographic Results for the Gifted Group Versus the Non-gifted Group

Age. The mean age of the gifted kindergarten children was 5.7 years with a standard deviation of 0.3 years (see Appendix K). The non-gifted group had a mean age of 5.8 years with a standard deviation of 0.3 years. The one-month difference between the mean ages of the gifted and non-gifted groups was statistically significant (t=3.09, p<0.05).

Sex. In Table 6, the distribution of the ability groups of the stratified criterion sample by sex is shown. There were more gifted females (57.1%) than gifted males (42.9%), and more non-gifted males (52.6%) than non-gifted females (47.4%). There was no statistically significant differences between the distribution of males and females within the gifted and non-gifted groups (χ^2=0.90, p>0.05).

Father's level of education. As shown in Table 6, the highest percentage (59.5%) of fathers of gifted children had post-secondary education and the second highest (31.0%) had a grade 11 or 12 level of education. Of the remaining fathers, 7.1% had a grade 9 or 10 level of education and 2.4% did not indicate their level of education.

In the non-gifted group, the highest percentage (44.7%)

Table 6

Biographic and Demographic Results for the Gifted and Non-gifted Groups

Variable	% Gifted	% Non-gifted
Sex of the Child		
Male	42.9	52.6
Female	57.1	47.4
Father's Level of Education		
Gr 1-8	0.0	7.2
Gr 9-10	7.1	11.9
Gr 11-12	31.0	44.7
Post-Secondary	59.5	30.9
No Reply	2.4	5.3
Mother's Level of Education		
Gr 1-8	0.0	3.3
Gr 9-10	0.0	13.2
Gr 11-12	47.6	55.9
Post-Secondary	50.0	27.0
No Reply	2.4	0.6
# of Adults in the Home		
1	9.5	12.5
2	80.9	81.6
3	4.8	3.3
4	4.8	2.6
# of Adults in the Family Working Outside the Home		
0	0.0	2.6
1	71.4	66.4
2	21.5	29.0
3	7.1	2.0
Birth Order		
1st	52.4	44.1
2nd	35.7	40.8
3rd	7.1	10.5
4th	2.4	3.9
5th	0.0	0.7
6th	2.4	0.0

Note. Gifted (*n*=42) Non-gifted (*n*=152)

Table 6 —— Continued

Variable	% Gifted	% Non-gifted
# of Siblings		
0	14.3	11.8
1	57.1	59.2
2	19.0	19.7
3	4.8	6.6
4	2.4	2.7
5	2.4	0.0
# of Educational TV Programs Watched per Week by Child		
0	0.0	7.9
1 - 5	73.8	63.8
6 - 10	21.4	23.1
11 - 15	0.0	3.9
16 or more	4.8	1.3
# of Books in the Home		
0-100	19.1	52.0
101-200	9.5	21.0
201-300	9.5	8.6
300 or more	61.9	18.4
# of Newspapers Subscribed per Week		
0	20.4	9.5
1	48.0	47.6
2	24.3	35.8
3	5.9	7.1
4 or more	1.4	0.0

Note. Gifted (*n*=42) Non-gifted (*n*=152) of fathers had a grade 11 or 12 level of education. The second highest proportion (30.9%) of the fathers had post-secondary education. Of the remaining fathers, 19.1% had levels of education ranging from grade one to grade ten and 5.3% did not indicate their level of education.

Mother's level of education. As depicted in Table 6, the highest percentage (50.0%) of mothers of gifted children had post-secondary education and the second highest (47.6%) had a grade 11 or 12 level of education. There were missing data for 2.4% of the mothers of gifted children.

In the non-gifted group, the highest percentage (55.9%) of mothers had a grade 11 or 12 level of education. The second highest proportion (27.0%) of the mothers had post-secondary education. Of the remaining mothers, 16.5% had levels of education ranging from grade one to grade ten and 0.6% did not indicate their level of education.

Number of adults in the home. There were two adults in 80.9% of the homes of gifted children, one adult in 9.5% of the homes, and more than two adults in 9.6% of the homes (see Table 6). In the non-gifted group, there were two adults in 81.6% of the homes, one adult in 12.5% of the homes, and more than two adults in 5.9% of the homes.

Number of adults in the family working outside the home. There was one adult working outside the home in 71.4% of the families of gifted children, two adults working outside the home in 21.5% of the families, and three adults working outside the home in 7.1% of the families (see Table 6). There was one adult working outside the home in 66.4% of the families of non-gifted children, two adults working outside the home in 29.0% of the families, and three adults working outside the home in 2.0% of the families. In 2.6% of the families, there were no adults working outside the home.

Birth order of the child. The highest percentage (52.4%) of gifted children were first born, whereas 35.7% were second born. The remaining gifted children (11.9%) were either third, fourth, or sixth in birth order (see Table 6). The highest percentage (44.1%) of non-gifted children were first born, whereas 40.8% were second born. The remaining non-gifted children (15.1%) were either third, fourth, or fifth in birth order.

Number of siblings. The highest percentage (57.1%) of gifted children had one sibling, whereas 19.0% had two and 14.3% had no siblings. The remaining gifted children (10.6%) had from three to five siblings (see Table 6). The highest percentage (59.2%) of non-gifted children had one sibling, whereas 19.7% had two and 11.8% had no siblings. The remaining non-gifted children (9.3%) had three or four siblings.

Number of educational television programs watched per week by the child. The highest percentage (73.8%) of gifted children watched between one and five educational television programs per week, whereas 21.4% watched between six and ten programs per week. The remaining gifted children (4.8%) watched 16 or more educational programs per week (see Table 6). The highest percentage (63.8%) of non-gifted children watched between one and five educational programs per week, whereas 23.1% watched between six and ten programs per week, 3.9% watched between 11 and 15 programs per week, and 1.3% watched 16 or more educational programs per week. The remaining non-gifted children (7.9%) did not watch educational television.

Number of books in the home. As reported in Table 6, there were 300 or more books in 61.9% of the homes of gifted children, whereas there were fewer than 300 books in 38.1% of the homes. There were fewer than 100 books in 52.0% of the homes of the non-gifted, whereas there were between 100 and 300 books in 29.6% of the homes. More than 300 books were found in 18.4% of the homes of the non-gifted children.

Number of newspapers subscribed to per week. There was one newspaper subscription in 48.0% of the homes of gifted children, two newspaper subscriptions in 24.3% of the homes, and three to seven subscriptions in 6.3% of the homes (see Table 6). There were no newspaper subscriptions in 20.4% of the homes of gifted children. There was one newspaper subscription in 47.6% of the homes of non-gifted children, two newspaper subscriptions in 35.8% of the homes, and three in 7.1% of the homes. There were no newspaper subscriptions in 9.5% of the homes of non-gifted children.

Discussion of Demographic Results

In this discussion, trends in the descriptive data are noted. Comparisons with previous studies also are presented.

There was a greater proportion of fathers (59.5%) from the gifted group with post-secondary education than fathers (30.9%) from the non-gifted group. Also, a greater proportion of mothers (50.0%) from the gifted group had post-secondary education than mothers (27.0%) from the non-gifted group. The proportion of families with more than 300 books in the home was greater for families (61.9%) from the gifted group than for families (18.4%) from the non-gifted group.

These trends on the educational levels of parents and the number of books in the home are consistent with those reported by Kennett (1972), Evans and Waites (1981), White (1982), Willerman and Friedler (1977), Kaufman (1973), Hitchfield (1973), Barbe (1956), Jordan (1976), and Groth (1975). Research has indicated that reading ability is an important indicator of intellectual giftedness (Roedell, Jackson, & Robinson, 1979; Kincaid, 1969; Humes & Eberhardt, 1977). The link between reading and giftedness appears to be supported in the current study by the high proportion (61.9%) of families of the gifted with more than 300 books in the home. The availability of reading material in the home may encourage the development of reading ability. Although the literature indicates that gifted children often are the first born child (White, Kaban, & Attanuci, 1979), the birth order of the children in this study showed no discernible trends.

Statistical Analyses

Statistical Characteristics of the VKT, WPPSI, PTNQ, and PPNQ

Results of the item analyses are reported for the PTNQ (Appendix L) and PPNQ (Appendix M). The statistical characteristics (means, standard deviations, reliabilties, and standard errors of measurement) of the total scores for the four instruments are reported in the next section because total scores were used in the validation analysis. Additional statistical characteristics for the VKT and WPPSI subtests can be found in Appendix N. In subsequent sections, the statistical characteristics for the PTNQ and PPNQ subtests as well as the rationale for reporting these characteristics are presented.

VKT: random stratified screening sample. The mean and standard deviation of the VKT total scores for the entire random stratified screening sample (_n_=194) were 118.56 and 14.27, respectively (see Table 7). Using the test-retest method for assessing the reliability of the VKT, Vane (1968) reported a coefficient of 0.88 (based on a five-month interval). There was not enough time, however, to conduct a test-retest reliability study on the VKT in the current study because it was too near to the end of the school year.

Table 7

VKT and WPPSI: Means, Standard Deviations, Reliability Coefficients, and Standard Errors of Measurement

	Mean	SD	R	SEM
VKT	118.56	14.27	--	--
WPPSI	117.21	14.63	0.93	3.87

Note. WPPSI: Guilford's Composite (Guilford, 1954) is reported for the reliability of the WPPSI Full Scale score.

_n_=194

WPPSI: random stratified screening sample. The mean of the WPPSI scores for the entire random stratified screening sample (_n_=194) was 117.21 with a standard deviation of 14.63. The internal consistency reliability coefficient for the Full Scale IQ was 0.93 and the standard error of measurement (SEM) was 3.87. The SEM is in IQ score units (see Table 7).

PTNQ: random stratified screening sample. Item analysis of the questions on the PTNQ was performed. The range of the point biserial correlations between the individual PTNQ items and the teacher estimated general ability question was 0.134 to 0.569 (Appendix L). All items correlated positively with the external criterion, the teacher's estimated general ability of the child.

As shown in Table 8, the mean total PTNQ score was 61.96 and the standard deviation was 9.01 for the entire random stratified screening sample (n=194). The total test reliability was 0.88 with a SEM of 3.12 in raw score units.

Statistical characteristics of the PTNQ subtests are reported because the subtests were used in a validation analysis. The mean of the verbal subtest was 20.97 with a standard deviation of 3.68. For the mathematical subtest, the mean was 19.08 and the standard deviation was 3.24. The mean of the spatial subtest was 21.91 with a standard deviation of 3.05. The internal consistency coefficients for the PTNQ subtests were 0.87 (verbal), 0.83 (mathematical), and 0.80 (spatial) with SEM's (raw score units) of 1.33, 1.34, and 1.36, respectively.

PPNQ: random stratified screening sample. Item analysis of the questions on the PPNQ was performed. The

Table 8

PTNQ and PPNQ: Means, Standard Deviations, Reliability Coefficients, and Standard Errors of Measurement

	K	Mean	SD	R	SEM
PTNQ					
Verbal[1]	14	20.97	3.68	0.87	1.33
Math	14	19.08	3.24	0.83	1.34
Spatial	14	21.91	3.05	0.80	1.36
Total[2]	42	61.96	9.01	0.88	3.12
PPNQ					
Verbal[1]	14	21.87	3.10	0.80	1.39
Math	14	19.46	2.98	0.77	1.43
Spatial	14	22.84	2.62	0.72	1.39
Total[2]	42	64.17	7.17	0.77	3.44

Note. PTNQ and PPNQ: 3rd edition -- two-choice yes/no response scale.

[1] Subtests: Hoyt's ANOVA reliability coefficients (Hoyt, 1941) are reported for all subtest scores.

[2] Total Tests: Cronbach's Stratified Alpha (Cronbach, 1951) is reported for the total scores.

n=194

range of the point biserial correlations between the individual PPNQ items and the parent estimated general ability question was -0.004 to 0.422 (Appendix M). All items except item 10 (child is able to identify differences between persons, places and things) in the verbal section correlated positively with the external criterion, the parent's estimated general ability of the child.

As shown in Table 8, the mean total PPNQ score was 64.17 and the standard deviation was 7.17 for the entire random stratified screening sample ($\underline{n}$=194). The total test reliability was 0.77 with a SEM of 3.44 in raw score units.

Statistical characteristics of the PPNQ subtests are reported because the subtests were used in a validation analysis. The mean of the verbal subtest was 21.87 with a standard deviation of 3.10. For the mathematical subtest, the mean was 19.46 and the standard deviation was 2.98. The mean of the spatial subtest was 22.84 with a standard deviation of 2.62. The internal consistency coefficients for the PPNQ subtests were 0.80 (verbal), 0.77 (mathematical), and 0.72 (spatial) with SEM's (raw score units) of 1.39, 1.43, and 1.39, respectively.

PTNQ test-retest reliability. The test-retest reliability results of the PTNQ are reported in Table 9. As shown, the test-retest reliabilities (one-month interval) were 0.95 for the verbal subtest, 0.95 for the mathematical subtest, and 0.88 for the spatial subtest. For the total

Table 9

Means, Standard Deviations, and Test-retest Reliability Coefficients of the PTNQ and PPNQ Subtests and Total Scores

	Test		Retest		
	Mean	SD	Mean	SD	Reliability Coefficient
PTNQ (n=37)					
Verbal	20.30	4.03	20.16	4.54	0.95
Math	18.70	4.04	15.46	3.36	0.95
Spatial	21.81	3.56	19.43	2.64	0.88
Total	60.81	11.02	55.05	9.87	0.97
PPNQ (n=20)					
Verbal	22.75	3.49	23.75	3.51	0.89
Math	20.00	3.23	17.30	2.76	0.83
Spatial	23.25	3.65	21.10	2.79	0.78
Total	66.00	8.71	62.15	7.98	0.92

test, the test-retest reliability was 0.97. The test-retest reliabilities of the PTNQ estimated ability questions are reported in Table 10. The highest test-retest reliability of the PTNQ estimated abilities was 0.95 for general ability and the lowest was 0.68 for language ability.

PPNQ test-retest reliability. Test-retest reliability results of the PPNQ are reported in Table 9. The test-retest reliabilities (one-month interval) were 0.89 for the verbal subtest, 0.83 for the mathematical subtest, and 0.78 for the spatial subtest. The test-retest reliability was 0.92 for the total test. Test-retest reliabilities of the PPNQ estimated ability questions are reported in Table 10. The most reliable of the PPNQ estimated abilities was reading ability (1.00) and the least reliable was mathematical ability (0.47).

Performance on the VKT, WPPSI, PTNQ, and PPNQ for the Gifted and Non-gifted Groups

The means, standard deviations, and t-test statistics of the WPPSI and VKT total scores for the gifted group and the non-gifted group are shown in Table 11.

Table 10

Means, Standard Deviations, and Test-retest Reliabilities of the PTNQ and PPNQ Estimated Ability Questions

	Test		Retest		Reliability Coefficient
	Mean	SD	Mean	SD	
PTNQ (*n*=37)					
General	1.51	0.51	1.49	0.51	0.95
Reading	1.27	0.45	1.32	0.48	0.88
Spatial	1.43	0.50	1.49	0.51	0.90
Memory	1.51	0.51	1.54	0.51	0.84
Math	1.43	0.50	1.49	0.51	0.79
Language	1.50	0.51	1.51	0.51	0.68
PPNQ (*n*=20)					
General	1.55	0.51	1.45	0.51	0.62
Reading	1.35	0.49	1.35	0.49	1.00
Spatial	1.30	0.47	1.30	0.47	0.76
Memory	1.70	0.47	1.65	0.49	0.66
Math	1.25	0.44	1.25	0.44	0.47
Language	1.60	0.50	1.50	0.51	0.82

<u>Note</u>. ϕ coefficients (Glass & Stanley, 1970) are reported for each estimated ability.

Table 11

Means, Standard Deviations, and T-tests of the WPPSI and VKT Total Scores for the Gifted and Non-gifted

	Gifted (n=42)		Non-gifted (n=152)		
	Mean	SD	Mean	SD	t-test
WPPSI	136.62	5.12	111.84	11.52	20.25 *
VKT	134.74	5.70	114.09	12.59	15.33 *

*$p<.05$

In the gifted group the mean of the WPPSI total test scores was 136.62 with a standard deviation of 5.12, whereas in the non-gifted group, the mean was 111.84 with a standard deviation of 11.52. The mean of the VKT total test scores was 134.74 with a standard deviation of 5.70 for the gifted group and 114.09 with a standard deviation of 12.59 for the non-gifted group.

The means, standard deviations, and t-test statistics of the PTNQ and PPNQ subtest and total test scores for the gifted and non-gifted groups are reported in Table 12. The PTNQ verbal subtest mean was 23.31 with a standard deviation of 3.61 for the gifted group and the mean was 20.32 with a standard deviation of 3.45 for the non-gifted group. In the PTNQ mathematical subtest, the mean was 21.24 with a

Table 12

Means, Standard Deviations, and T-tests of the PTNQ and PPNQ Subtest and Total Scores for the Gifted and Non-gifted

	Gifted (n=42)		Non-gifted (n=152)		
	Mean	SD	Mean	SD	t-test
PTNQ					
Verbal	23.31	3.61	20.32	3.45	4.92 *
Math	21.24	3.10	18.49	3.03	5.19 *
Spatial	23.98	2.25	21.34	3.00	6.23 *
Total	68.52	7.70	60.14	8.50	5.77 *
PPNQ					
Verbal	23.93	3.17	21.30	2.83	5.20 *
Math	20.81	3.35	19.09	2.77	3.39 *
Spatial	24.17	2.50	22.47	2.53	3.84 *
Total	68.90	7.12	62.86	6.62	5.15 *

*$p<.05$

standard deviation of 3.10 for the gifted group and the mean was 18.49 with a standard deviation of 3.03 for the non-gifted group. The mean of the PTNQ spatial subtest was 23.98 with a standard deviation of 2.25 for the gifted group and the mean was 21.34 with a standard deviation of 3.00 for the non-gifted group. In the gifted group the mean of the PTNQ total scores was 68.52 with a standard deviation of 7.70, whereas in the non-gifted group, the mean was 60.14 with a standard deviation of 8.50

In the PPNQ verbal subtest, the mean was 23.93 with a standard deviation of 3.17 for the gifted group and the mean was 21.30 with a standard deviation of 2.83 for the non-gifted group. The PPNQ mathematical subtest mean was 20.81 with a standard deviation of 3.35 for the gifted group and the mean was 19.09 with a standard deviation of 2.77 for the non-gifted group. For the PPNQ spatial subtest, the mean was 24.17 with a standard deviation of 2.50 for the gifted group and the mean was 22.47 with a standard deviation of 2.53 for the non-gifted group. The mean of the PPNQ total scores was 68.90 with a standard deviation of 7.12 for the gifted group and 62.86 with a standard deviation of 6.62 for the non-gifted group.

T-tests were performed on the gifted and non-gifted group means of the WPPSI, VKT, PTNQ, and PPNQ. In each case, the gifted group mean was significantly higher than the non-gifted group mean ($\underline{p}<0.05$).

The data for the PTNQ and PPNQ estimated abilities were dichotomous. Means, standard deviations, and t-tests for the estimated abilities are reported in Table 13. The means of the estimated abilities were higher for the gifted group than the non-gifted group. All of the t-test statistics were significant ($p<0.05$) except the t-tests for mathematical ability on the PTNQ and language ability on the PPNQ.

Predictive Validity of the PTNQ and PPNQ Estimated Abilities

A preliminary discriminant function analysis on the PTNQ estimated abilities was performed to determine if the predictive accuracy of the teacher estimated abilities was greater than the predictive accuracy of the corresponding total scores of the questionnaire. On the PTNQ, the estimated general ability, estimated memory ability, estimated mathematical ability, estimated language ability, estimated reading ability, and estimated spatial ability were included as independent variables in a discriminant function analysis. At the beginning of the first step of this analysis, estimated mathematical ability was the only variable with a F-to-enter ratio (2.76) that was not significant at the five percent level, suggesting that the remaining variables were significant predictors of membership in the gifted and non-gifted groups. While five

Table 13

Means, Standard Deviations, and T-tests of the PTNQ and PPNQ Estimated Abilities for the Gifted and Non-gifted

	Gifted (n=42)		Non-gifted (n=152)		
	Mean	SD	Mean	SD	t-test
PTNQ					
General	1.67	0.48	1.41	0.49	3.03 *
Reading	1.48	0.51	1.24	0.43	2.98 *
Spatial	1.57	0.50	1.30	0.46	3.38 *
Memory	1.67	0.48	1.44	0.50	2.62 *
Math	1.52	0.51	1.38	0.49	1.66
Language	1.67	0.48	1.37	0.48	3.55 *
PPNQ					
General	1.60	0.50	1.24	0.43	4.53 *
Reading	1.48	0.51	1.16	0.37	4.42 *
Spatial	1.43	0.50	1.23	0.42	2.58 *
Memory	1.76	0.43	1.51	0.50	3.01 *
Math	1.52	0.51	1.28	0.45	3.08 *
Language	1.50	0.51	1.34	0.48	1.88

*p<.05

of the six estimated ability variables were significant, only the estimated language ability variable was entered into the predictive equation ($p<0.05$); the remaining F-to-enter ratios were less than 2.40.

As shown in the prediction accuracy matrix of Table 14, the accuracy of the estimated language ability variable to predict membership in the gifted group was nonexistent. These results were a function of the two separate steps involved in the discriminant function analysis. The first step was the fitting of a prediction equation to the predictor variables. In this analysis, estimated language ability was the only variable entered into the equation. The second step was the application of the predictive equation to the data. In other words, the values of estimated language ability were used in conjunction with the predictive equation to calculate the probabilities of membership in the gifted and non-gifted groups for each child in the sample. These probabilities then were used to assign a child to either the gifted group or the non-gifted group. For this sample, the probabilities for membership in the non-gifted group were higher than the probabilities for membership in the gifted group; therefore, all the children were classified as non-gifted. The results of the discriminant function analysis on the PTNQ estimated abilities indicated that these variables were not useful predictors of the gifted; therefore, it was decided that the

Table 14

The Prediction Accuracy of the PTNQ and PPNQ Estimated Abilities

Analysis	Total Prediction Accuracy (n=194)	Non-gifted Group (n=152)	Gifted[1] Group (n=42)	
	Prediction Accuracy (%)			
PTNQ: Wilks Stepwise Method on Estimated Abilities (only PTNQ Language Ability entered)	78.35 n=152	100.0 n=152	0.0 n=0	C
		0.0 n=0	100.0 n=42	I
PPNQ: Wilks Stepwise Method on Estimated Abilities (PPNQ General Ability and Reading Ability entered)	76.80 n=149	87.5 n=133	38.1 n=16	C
		12.5 n=19	61.9 n=26	I

Note. C - Correct predictions
I - Incorrect predictions

[1] Gifted WPPSI IQ≥130
Non-gifted WPPSI IQ<130

estimated abilities of the PTNQ would not be used in subsequent validation analyses. The discriminant function analysis results for the PTNQ estimated abilities are reported in Appendix O.

The PPNQ estimated abilities were included in a separate preliminary discriminant function analysis which was performed to determine if the predictive accuracy of the parent estimated abilities was greater than the predictive accuracy of the corresponding total scores of the questionnaire. On the PPNQ, the estimated abilities (as listed for the PTNQ) were included as independent variables in a discriminant function analysis. At the beginning of the first step of this analysis, estimated language ability was the only variable with a F-to-enter ratio (3.52) that was not significant at the five percent level, suggesting that the remaining variables were significant predictors of membership in the gifted and non-gifted groups. As the first step, the estimated general ability variable was entered into the predictive equation ($p<0.05$). Of the variables remaining after step one, estimated reading ability was the only variable with a significant F-to-enter ratio (5.72) at the five percent level; the other variables had F-to-enter ratios that were less than 2.30. While five of the six estimated ability variables were significant, the estimated general ability and the estimated reading ability were the only variables entered into the predictive equation ($p<0.05$).

As shown in the prediction accuracy matrix of Table 14, the discriminant function analysis on the estimated general ability and estimated reading ability variables resulted in the correct identification of 16 (38.1%) of the 42 gifted children. The remaining 26 (61.9%) were classified incorrectly as non-gifted. Of the 152 non-gifted children, 133 (87.5%) were identified correctly; the remaining 19 (12.5%) were assigned incorrectly to the gifted group.

The results of the discriminant function analysis on the PPNQ reveal that the predictive accuracy of the parent estimated abilities was lower than the predictive accuracy of the PPNQ total scores. Therefore, the PPNQ total scores were used instead of the parent estimated abilities in subsequent validation analyses. The results for the PPNQ total scores are reported later in this chapter. Since no further analyses were performed on the PPNQ estimated abilities, the results for the discriminant function analysis on these abilities are reported in Appendix O.

Predictive Validity of PTNQ and PPNQ Subtest Scores

Two additional preliminary discriminant function analyses, one on the PTNQ and the other on the PPNQ, were performed to test whether the predictive accuracy of the subtest scores was superior to the predictive accuracy of the corresponding total score. The results of these two analyses revealed that the predictive accuracy of the verbal, mathematical, and spatial subtest scores was lower than the predictive accuracy of the PTNQ and PPNQ total scores. Therefore, the total scores of the PTNQ and PPNQ together with the VKT total scores were used in the subsequent discriminant function analysis. The results for the PTNQ and PPNQ total scores are reported later in this chapter. The discriminant function analysis results for the PTNQ and PPNQ subtest scores are presented in Appendix P because no further analyses were performed on the subtest scores.

Predictive Validity of the VKT, PTNQ, and PPNQ Total Scores

The purpose of this investigation was to determine what combination of predictor instruments -- VKT, PTNQ, PPNQ -- when compared to the criterion instrument (WPPSI) was able to identify best the intellectually gifted group of children at the kindergarten level. Discriminant function analysis was used to determine this combination.

The correlations among the total scores of the predictor instruments (VKT, PTNQ, PPNQ) and the criterion instrument (WPPSI) from the random stratified screening sample (n=194) were computed. These correlations provide an indication of the degree of association between scores on the WPPSI and scores on the VKT, PTNQ, and PPNQ.

Examination of the correlation matrix, reported in Table 15, reveals that the total scores of the VKT, PTNQ, and PPNQ correlated significantly ($p<0.05$) with the total scores of the WPPSI. The VKT correlated most highly with the WPPSI (0.90). The next highest correlation with the WPPSI is 0.60 on the PTNQ, followed by 0.52 on the PPNQ. The correlations among the predictors themselves were all above 0.50. All correlations were significant at the five percent level.

Table 15

Pearson Product-moment Correlations Between the Total Scores of the VKT, PTNQ, PPNQ and the WPPSI

	WPPSI	VKT	PTNQ	PPNQ
WPPSI	1.00			
VKT	0.90 *	1.00		
PTNQ	0.60 *	0.59 *	1.00	
PPNQ	0.52 *	0.52 *	0.61 *	1.00

*$p<.05$.

The results of the final validation analysis, stepwise discriminant function analysis, are reported in Table 16. As shown at the beginning of the first step of this analysis, the VKT, the PTNQ, and the PPNQ all had significant ($p<0.05$) F-to-enter ratios (106.7, 33.25, and 26.50, respectively), suggesting that, alone, each instrument was a significant predictor of gifted versus

Table 16

Discriminant Function Analysis for the VKT, PTNQ, and PPNQ Total Scores

Wilks Stepwise Method on the VKT, PTNQ, and PPNQ

	F-to-Enter prior to step 1	F-to-enter after step 1	Wilks Lambda
VKT	106.72 *		0.643
PTNQ	33.25 *	0.52	0.641
PPNQ	26.50 *	0.50	0.641

*p<.05. F=3.89 $\nu_1=1$ $\nu_2=192$

non-gifted. The VKT was the only variable entered in the predictive equation (p<0.05); the remaining PTNQ and PPNQ F-to-enter ratios were both less than one. All three instruments were statistically significant, but the PTNQ and PPNQ were not as valid as the VKT when discriminating between a gifted group and a non-gifted group.

Prediction accuracy of the VKT, PTNQ, and PPNQ. To further clarify the predictive validity of the VKT, PTNQ, and PPNQ, the prediction accuracy matrices resulting from the inclusion of each of the predictor variables taken alone are reported in Table 17. The predictive accuracy for the gifted and non-gifted groups, as well as the total predictive accuracy, are presented.

Table 17

The Prediction Accuracy of the VKT, PTNQ, and PPNQ Total Scores

Analysis	Total Prediction Accuracy (n=194)	Non-gifted Group (n=152)	Gifted[1] Group (n=42)	
	Prediction Accuracy (%)			
VKT, PTNQ, & PPNQ: Wilks Stepwise Method (only VKT entered)	88.66 n=172	95.4 n=145	64.3 n=27	C
		4.6 n=7	35.7 n=15	I
PTNQ: Direct Method	79.90 n=155	96.1 n=146	21.4 n=9	C
		3.9 n=6	78.6 n=33	I
PPNQ: Direct Method	78.35 n=152	94.7 n=144	19.0 n=8	C
		5.3 n=8	81.0 n=34	I

Note. C - Correct predictions
I - Incorrect predictions

[1] Gifted WPPSI IQ≥130
Non-gifted WPPSI IQ<130

Of the 194 children in the total sample, 88.7% were identified correctly by the VKT (see Table 17). The discriminant function analysis on the VKT resulted in the correct identification of 27 (64.3%) of the 42 gifted children. The remaining 15 (35.7%) gifted children were classified incorrectly as non-gifted. Of the 152 non-gifted children, 145 (95.4%) were identified correctly; the remaining seven (4.6%) were assigned incorrectly to the gifted group.

The discriminant function analysis on the PTNQ resulted in the correct identification of 79.9% of the 194 children from the total sample (see Table 17). Nine (21.4%) of the 42 gifted children were identified correctly; the remaining 33 (78.6%) gifted children were classified incorrectly as non-gifted. Of the 152 non-gifted children, 146 (96.1%) were identified correctly; the remaining six (3.9%) were assigned incorrectly to the gifted group.

The discriminant function analysis on the PPNQ resulted in the correct classification of 78.4% of the 194 children from the total sample (see Table 17). Eight (19.0%) of the 42 gifted children were identified correctly; the remaining 34 (81.0%) gifted children were classified incorrectly as non-gifted. Of the 152 non-gifted children, 144 (94.7%) were identified correctly; the remaining eight (5.3%) were assigned incorrectly to the gifted group.

Discussion

The means of the VKT and WPPSI for the current study are higher than those (Mean=100.0) published in the respective test manuals (Vane, 1968; Wechsler, 1967). In the random stratified screening sample (*n*=194), the mean of the VKT was 118.56 and the mean of the WPPSI was 117.21. The means of the total scores on the PTNQ (61.96) and PPNQ (64.17) were higher than the midpoint score of 42 for each questionnaire. Although equal numbers of average and above average children (*n*=120) were selected from the stratified screening sample, a larger proportion of children were tested on the WPPSI from the above average (VKT IQ>115) group (*n*=115) as opposed to the average (VKT IQ≤115) group (*n*=79). There was insufficient time to test all of the average group because civic strikers prevented testing staff from crossing the picket lines. The fact that more children were tested from the above average group (*n*=115) than from the average group (*n*=79) of the random stratified screening sample was one of the reasons for the higher means of the VKT and WPPSI in the current study than those reported in the test manuals. Other possible explanations for the higher means are that children with English as their first language were the only ones tested, and that all children came from two urban districts. A random sample of kindergarten children from school districts throughout Canada should be tested on the VKT and WPPSI before generalizations about the means of these tests can be formulated. The published means of the VKT and WPPSI were based on samples of preschool children drawn from a cross-section of rural and urban school districts. In this study, however, the standard deviations for the VKT (14.27) and the WPPSI (14.63) were approximately the same (see Table 7) as the published standard deviations (SD=15.00) for the VKT and WPPSI (cf. Vane, 1968; Wechsler, 1967).

Although a test-retest reliability study on the VKT would have been the appropriate method to use, a test-retest study was not possible because it was too near to the end of the school year. In this study, the internal consistency reliability of the total WPPSI scores was 0.93 (see Table 7), as determined by Guilford's composite reliability method. This reliability coefficient was comparable to that of the published WPPSI coefficients which ranged from 0.96 to 0.97 (Wechsler, 1967).

The internal consistency reliability for the total PTNQ was 0.88 and for the total PPNQ was 0.77 (see Table 8). The higher reliability of the PTNQ suggests that teachers were more consistent than parents when answering the specific ability questions of the nomination questionnaire. Test-retest reliabilities for the PTNQ and the PPNQ total scores were 0.96 and 0.92, respectively (see Table 9). This indicated that the questionnaires were stable over a one-month interval.

Predictive validity involves two concepts: effectiveness and efficiency. These concepts were defined by Pegnato and Birch (1959). Effectiveness is the percentage of gifted children correctly identified by the predictor instrument. Efficiency is the ratio between the number of children designated as gifted by the predictor instrument and the number of children in this "gifted" group that had WPPSI IQ scores ≥130. The effectiveness and efficiency of the VKT, PTNQ, and PPNQ, the predictor instruments, are discussed.

The ability of the VKT, PTNQ, and PPNQ to predict membership in the gifted and non-gifted groups was assessed by discriminant function analysis. Of the 194 children in the criterion sample, 88.7% were identified correctly by the the VKT, 79.9% by the PTNQ, and 78.4% by the PPNQ. Non-gifted group prediction accuracy (based on total scores) was higher for the PTNQ (96.1%) than for the VKT (95.4%) or the PPNQ (94.7%). The VKT (64.3%) was the most effective predictor of gifted group membership, whereas the PTNQ (21.4%) and the PPNQ (19.0%) were less effective. Seven or 4.6% of the 152 non-gifted children were classified incorrectly as gifted by the VKT and 15 or 35.7% of the 42 gifted children were classified as non-gifted.

The VKT was the most efficient instrument for the identification of gifted children. Of the 34 kindergarten children placed in the gifted group by the VKT, 27 (79.4%)

were gifted according to their WPPSI scores. The PTNQ and PPNQ were less efficient identification instruments than the VKT. Of the 15 children identified as gifted by the PTNQ, 9 (60.0%) were designated as gifted by their WPPSI scores. Sixteen children were classified as gifted by the PPNQ; however, 8 (50.0%) had WPPSI IQ scores ≥130.

The VKT was also the most efficient instrument for the identification of non-gifted children. Of the 160 kindergarten children placed in the non-gifted group by the VKT, 145 (90.6%) were non-gifted according to their WPPSI scores. The PTNQ and PPNQ were less efficient identification instruments for the non-gifted than the VKT. Of the 179 children identified as non-gifted by the PTNQ, 146 (81.6%) were designated as non-gifted by their WPPSI scores. One hundred seventy-eight children were classified as non-gifted by the PPNQ; however, 144 (80.9%) had WPPSI IQ scores <130.

If VKT IQ scores of 130 and higher are used to identify gifted children, few non-gifted children would be identified as gifted, whereas approximately one-third of the gifted children would be rejected. Which VKT score to use to identify gifted kindergarten children would require a decision as to the percentage of gifted children one is willing to classify incorrectly.

It is interesting to note that of the 15 gifted children who were identified incorrectly as non-gifted, 14 had VKT IQ scores of 127, 128, or 129. There were 10 non-gifted children with VKT scores in the range of 127 to 129. If the 24 children with VKT IQ scores of 127, 128, or 129 had been included in the gifted group, the effectiveness of the VKT for the gifted group would have increased from 64.3% to 97.6%, whereas the efficiency would have decreased from 79.4% to 70.7%. The decrease in efficiency would occur because an additional 10 non-gifted children would have been classified incorrectly as gifted. These ten incorrectly classified non-gifted children also would have caused a decrease from 95.6% to 88.8% in the effectiveness of the VKT for the non-gifted group. There would have been, however, an increase in the efficiency of the VKT for the non-gifted group from 90.6% to 99.3% because only one gifted child would have been misclassified.

If the VKT is used as an economical instrument to identify intellectually gifted kindergarten children (VKT IQ≥130), a decision to include children with VKT IQ scores of 127, 128, or 129 in the gifted group would maximize the number of gifted kindergarten children identified. An individual intelligence test such as the WPPSI could be administered before there is a final classification of these children, but the cost of identification would increase.

Results of the discriminant function analyses provided the answer to the research question, which was: What combination of the three predictor instruments would identify best an intellectually gifted group of kindergarten children? The null hypothesis that not one of the predictor instruments was as valid as the criterion instrument was rejected at the five percent level of significance. The results for the predictive validity study showed that all three instruments were significant at the five percent level, but the majority of the gifted group were classified incorrectly by the discriminant function analysis predictive equations for the PTNQ and PPNQ. The VKT proved to be the most valid predictor of gifted kindergarten children.

In the final chapter, the summary and conclusions of the study are presented. Directions for further research also are suggested.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND SUGGESTIONS

The results of the current study are summarized in this chapter. Conclusions and limitations are presented as well as suggestions for further research.

Summary of the Study

White, Kaban, and Attanucci (1979) and Pines (1969) believe that the fundamental learning patterns of children are set before the age of three. For example, children who learned to read early frequently had stories read to them by their families (Durkin, 1966). Researchers such as Martinson and Lessinger (1966); Pressey (1965); and Roedell, Jackson, and Robinson (1979) have recognized the critical period when learning patterns are formed; thus, they have stressed the importance of early identification of the intellectually gifted so that suitable education can be provided.

The identification of intellectually gifted children is achieved often through the use of a combination of instruments such as intelligence tests, standardized screening tests, teacher nominations, and, at times, parent nominations (Fox, 1981). Although well-known, reliable, and valid individual intelligence tests have been used widely for the identification of the intellectually gifted (Fox, 1981; Alexander & Muia, 1982), administrating these instruments is time consuming and costly. Finding valid identification instruments that are more economical and that can be administered to many children within a relatively brief period of time is an unresolved problem (Karnes & Brown, 1979; Roedell, Jackson, & Robinson, 1979).

The literature indicates that standardized screening tests have potential as valid identifiers of the intellectually gifted (Glasnapp, Issac, Hitz, & Carlton, 1981; Hirsch & Hirsch, 1980). Standardized screening tests are used when a large sample must be tested in a short period of time. The testing and scoring times are shorter in comparison to an individual intelligence test. Teacher nomination of the intellectually gifted also has been used frequently by local school districts (Marland, 1972), but many of the teacher nomination methods are invalid (Jacobs, 1971; Pohl, 1970). Martinson (1968), however, found that teacher nominations were more reliable if objective rather than open-ended questions were used, apparently because they focussed a teacher's attention on specific behaviors. Smith and Salento (1971) found that teachers who were given some instructions on identifying the gifted classified children more accurately into gifted and non-gifted groups than teachers who were given no directions. Smith and Salento (1971) also found that teacher identification of the gifted was more precise when teachers had a chance to familiarize themselves with their classes. According to Ciha, Harris, Hoffman, and Potter (1974), identification of the intellectually gifted by parent nomination (67.0%) has been found to be more accurate than teacher nomination (22.4%). Parents of kindergarten children are the most immediate observers of their own children in the preschool years; thus, they are in a good position to give opinions about their children's abilities (Robinson, Roedell, & Jackson, 1979b).

The conclusions of the authors mentioned above provided the basis for the research question which was: What combination of valid predictor instruments (a standardized screening instrument, a teacher nomination questionnaire, and a parent nomination questionnaire), when compared with a criterion instrument (an individual intelligence test), will identify economically the intellectually gifted child at the kindergarten level? (In the current study, an intellectually gifted kindergarten child was one who obtained a WPPSI IQ score ≥ 130.)

In this investigation, a standardized screening test, the Vane Kindergarten Test (VKT) was used as an initial screening instrument and also as a predictor instrument. The other two predictor instruments, which were developed by the investigator, were both nomination questionnaires: the Perks Teacher Nomination Questionnaire (PTNQ) and the Perks

Parent Nomination Questionnaire (PPNQ). An individual intelligence test, the Wechsler Preschool and Primary Scale of Intelligence (WPPSI), was used as the criterion instrument to determine gifted and non-gifted group membership. The ability of the VKT, PTNQ, and PPNQ to predict membership in gifted (WPPSI IQ≥130) and non-gifted (WPPSI IQ<130) groups was explored.

Ideas extracted from the related literature were used to formulate questions (items) for the nomination questionnaires (PTNQ and PPNQ). The initial form of the PTNQ and PPNQ contained verbal, mathematical, spatial, and temperament questions. Biographic and demographic questions were included for background information on the children and their families. The teachers and parents also were requested to give global estimates of the children's intellectual abilities. One of these estimates, general ability, was used as the external criterion in the reliability studies.

Two pilot studies were performed to measure the reliability and to test the response format of the PTNQ and PPNQ. In the first pilot study, the internal consistency reliability (Cronbach's Statified Alpha) for the PTNQ was 0.82 and for the PPNQ was 0.77. Initially, a four-point Likert response scale was used. This response format was changed to a yes/no format because teachers and parents found it difficult to discriminate among the four choices of the Likert scale. Also, item stems did not fit the Likert scale in all instances. A second pilot study was performed on the revised questionnaires. The internal consistency reliability (Cronbach's Stratified Alpha) for the PTNQ was 0.61 and for the PPNQ was 0.68. Test-retest reliabilities (Pearson Product-moment Correlations) also were calculated for the PTNQ (0.99) and for the PPNQ (0.97). There was a one-week interval between the test and the retest for both the PTNQ and PPNQ.

Then, a final revision of the questionnaires was performed. The number of spatial questions was increased to make it equal (n=14) to the number of questions in the verbal and mathematical subtests of the questionnaires. The temperament questions were deleted because the internal consistency coefficients of the temperament questions on the PTNQ (0.50) and PPNQ (0.52) were too low to be of value in the current study.

After the completion of the two pilot studies, the main investigation was performed. The kindergarten children in the study were identified by teachers and parents as those whose primary language was English. Schools were selected randomly from two urban districts. Within these schools all kindergarten children for whom parental consent was given were included in the screening sample.

Three successive sampling steps were used. As the first step, 816 children were screened with the VKT. As the second step, the 816 subjects in the initial screening sample were then stratified into a group of 463 average subjects (VKT IQ≤115) and a group of 353 above average subjects (VKT IQ≥116). This sample was called the stratified screening sample. A random subset of each of the two groups was selected from the stratified screening sample to form the random stratified screening sample. The WPPSI was then administered to the subjects in the average and above average groups. The children's teachers and parents were asked to complete the PTNQ and PPNQ, respectively. Finally, as the third step, the subjects in the random stratified screening sample were divided into two groups: the gifted group (n=42) with WPPSI IQ scores ≥130 and the non-gifted group (n=152) with WPPSI IQ scores <130. This sample was called the stratified criterion sample and was used in the validation analyses to determine whether the VKT, the PTNQ, and the PPNQ could predict membership in the gifted and non-gifted groups.

Internal consistency coefficients were calculated for three of the four instruments used in the current study. The internal consistency coefficient (0.93) of the WPPSI was calculated using Guilford's Composite because the WPPSI has varying basal and ceiling scores. The internal consistencies of the PTNQ (0.88) and PPNQ (0.77) were calculated using Cronbach's Stratified Alpha. Test-retest reliabilities coefficients (based on a one-month interval) were reported for the PTNQ (0.97) and the PPNQ (0.92). Using the test-retest method for assessing reliability of the VKT, Vane (1968) reported a coefficient of 0.88 (based on a five-month interval). In the current study, a test-retest reliability on the VKT was not possible, however, because it was too near to the end of the school year.

The validity of the predictor instruments (VKT, PTNQ, and PPNQ) was assessed by discriminant function analysis. Although at the beginning of the first step of discriminant function analysis, the VKT, PTNQ, and PPNQ all had significant ($p<0.05$) F-to-enter ratios (106.7, 33.25, and 26.05, respectively), the VKT was the only variable entered in the predictive equation. The remaining PTNQ and PPNQ F-to-enter ratios were both less than one after the VKT was entered. For the 194 children, 88.7% were correctly identified as gifted or non-gifted by the VKT, 79.9% by the PTNQ, and 78.4% by the PPNQ. Of the 152 non-gifted children, 95.4% were identified correctly by the VKT, 96.1% by the PTNQ, and 94.7% by the PPNQ. Twenty-seven (64.3%) of the 42 gifted children were classified correctly by the VKT, nine (21.4%) by the PTNQ, and eight (19.0%) by the PPNQ. The VKT, therefore, was the most effective predictor of membership in the gifted group (64.3%).

Of the three predictor instruments, the VKT was the most efficient (79.4%), the PTNQ was the second most efficient (60.0%), and the PPNQ was the least efficient (50.0%) predictor of the gifted. Also, the VKT was the most efficient predictor (90.6%) of the non-gifted. The PTNQ (81.6%) and the PPNQ (80.9%) were less efficient than the VKT when used to identify non-gifted children. (Efficiency is the ratio between the number of children designated as gifted by the predictor instrument and the number of children in this "gifted" group that had WPPSI IQ scores ≥130.)

Conclusions

The validation of three economical predictor instruments (VKT, PTNQ, and PPNQ) was the focus of the current investigation into the identification of intellectually gifted kindergarten children. The correlation (0.90) between WPPSI and VKT scores for the current study was higher than the correlation coefficient of 0.70 obtained by Scherr, Pasewark, and Sawyer (1973).

If VKT IQ scores of 130 and higher are used to identify intellectually gifted children, few non-gifted children (4.6%) would be identified as intellectually gifted, but approximately one-third of the intellectually gifted children would be classified as non-gifted. Using VKT IQ scores of 130 and higher to identify gifted kindergarten children would require a willingness to reject a percentage of gifted children. On the other hand, if children with VKT

IQ scores of 127 and higher were included in the intellectually gifted group, then the effectiveness of the VKT to identify correctly intellectually gifted children would increase from 64.3% to 97.6%. There would be a decrease, however, in the efficiency of the VKT from 79.4% to 70.7% because more non-gifted children would be misclassified.

Although the PTNQ and the PPNQ were more efficient than effective, neither was as valid as the VKT. The PTNQ was more valid than the PPNQ, but neither questionnaire should be used as an valid predictor of the intellectually gifted without being revised and revalidated.

The PTNQ prediction result of 21.4% for the intellectually gifted group was comparable to the result of Ciha, Harris, Hoffman, and Potter (1974) who reported the effectiveness of teacher nomination as 22.4% for the intellectually gifted, whereas the PPNQ prediction result of 19.0% for the intellectually gifted group was lower than the effectiveness of 67.0% for the parent nomination accuracy reported by the authors cited above. The lower results of the PPNQ may be attributable to differences between the PPNQ and the instrument used in the Ciha et al. (1974) study as well as differences in the samples.

In the current study, parents may not have been able to identify intellectually gifted kindergarten children as well as teachers because parents may lack experience at assessing their children's specific abilities in intellectual areas such as verbal, mathematical, and spatial (Sellin and Birch, 1981). Parents also may have had more difficulty than teachers with questions concerning children's specific ability because parents may have had little or no chance to compare their child's accomplishments with other children of their own age (Vernon, Adamson, & Vernon, 1977). The teachers, however, were able to compare the specific intellectual abilities of a kindergarten child with his/her peers, having had most of an academic year to familiarize themselves with the children.

Limitations of the Study

The limitations of this investigation were in both the sample size and scope.

Sample Size

Only 194 (80.8%) of the planned target sample of 240 subjects constituted the random stratified criterion sample. Civic strikers picketing the schools prevented the testing staff from crossing picket lines making it impossible to administer any more WPPSI tests. Consequently, the stratified screening sample might be biased because the amount of time available for testing average subjects was reduced. Although a larger number of above average children than average children were tested, the sample size for the average group (*n*=79) was large enough to allow for the computation of statistical analyses. The means for the VKT and the WPPSI were higher than those reported in the literature because there was a difference in sample sizes of the average and above average groups.

Scope

First, in this study, only three predictor instruments were used: a standardized screening test (VKT), a teacher nomination questionnaire (PTNQ), and a parent nomination questionnaire (PPNQ). If more data collection time and funding had been available, instruments such as aptitude tests, which have been used to identify the intellectually gifted, could have been included as predictors.

Second, since only two urban districts were involved, the generalizability of the results is restricted to similar districts. Another restriction on the generalizability of the results is the inclusion of only children with English as a first language in the study.

Third, the major focus of this investigation was the economical identification of kindergarten children with high intellectual ability. Other areas such as creative talents, planning talents, leadership, and decision-making abilities, which are often associated with gifted children, were not included because the study would have become unwieldy.

Suggestions For Further Research

Five suggestions for further research arise from the results and limitations of this investigation into the identification of intellectually gifted kindergarten children. First, although it is possible that several other instruments could have been used, the review of the literature indicated that the ones selected were the best for use in the current study. Researchers might wish to investigate other instruments which have been used to measure intellectual ability.

Second, of the three predictor instruments (VKT, PTNQ, and PPNQ) used in this study, the VKT, a task oriented instrument, was the most valid predictor of the intellectually gifted. New instruments should be more task oriented because, as shown in this study, the validity for these instruments was better than for questionnaires. Such instruments should be similar to the VKT, but cover areas such as reading and mathematical skills. These instruments, which should be developed so that either teachers or parents could administer them, would provide an alternative identification criterion.

Third, if awareness information on gifted children were distributed to questionnaire responders (i.e., teachers and parents), such awareness information could make teachers and parents more cognizant of the attributes of intellectually gifted children. Thus, teachers and parents may become more objective in their identification of the gifted. According to Sanborn (1977), Martinson (1974a), and Smith and Salento (1971), teachers provide more accurate identification information when guidance and specific directions on gifted characteristics are available. Such awareness information could result in more accurate identification of the intellectually gifted. Most of the teachers in this study had not attended workshops, conferences, and/or courses on the gifted.

Fourth, the generalizability of the VKT results should be investigated. As stated previously, the VKT mean of the initial screening sample (n=816) was 113.18 which was higher than the published mean of 100 (Vane, 1968). In order to dertermine if the VKT mean is in fact higher in Canada, a large number of kindergarten children from a cross-section of Canadian school districts should be tested. To carry this investigation one step further, a validation study on the VKT and the WPPSI should be performed for such a sample of Canadian children.

Fifth, as previously mentioned, the definition for intellectual giftedness used in this study was based on a WPPSI IQ cutoff score of 130. Inspection of the VKT IQ scores for the 15 misclassified gifted children showed that 14 had VKT IQ scores of 127, 128, or 129. If these 14 misclassified gifted children had been placed in the gifted group, the predictive validity of the VKT for the gifted group would have increased the instrument effectiveness from 64.3% to 97.6%. To optimize economical identification of intellectually gifted children, VKT IQ scores of 127 and higher should be considered. If one assumes that there is a normal distribution of VKT scores with a mean of 100 and a standard deviation of 15, then approximately two percent of the children would have VKT scores of either 127, 128, or 129. Therefore, the number of children requiring more extensive testing before placement in the gifted program would not be excessive. On the other hand, educators might wish to designate all children with scores of 127, 128, and 129 as gifted in order to determine if they would benefit by being in a gifted program.

Concluding Remarks

The PTNQ and PPNQ were not as valid as anticipated, therefore, these questionnaires should not be used to designate intellectually gifted kindergarten children unless revised and revalidated. The results of this study clearly indicate that the VKT was the most valid predictor of the intellectually gifted, particularly when VKT IQ scores of 127 and higher are used to identify intellectually gifted kindergarten children.

Reference Notes

1. Blank, S. S. Personal communication. Vancouver, B.C.: University of British Columbia, November, 1979.

2. Perkins, S. Personal communication. Vancouver, B.C.: University of British Columbia, November, 1979.

3. Perkins, S. A. Personal communication. Vancouver, B.C.: University of British Columbia, Fall, 1979.

4. Hakstian, R. OWMAR: One-way multivariate analysis of variance. Unpublished manuscript, University of British Columbia, undated.

References

Abroms, K. I. Birth cry to five: Milestones in the psychological development of the gifted. New York: International Convention for Exceptional Children, 1981. (ERIC Document Reproduction Service No. ED 209 820)

Albee, G. W., & Joffe, J. M. Primary prevention of psychopathology (Vol. 1): The issues. Hanover, N. Y.: University Press of New England, 1977.

Alexander, P. A., & Muia, J. A. Gifted education. Rockville, Maryland: Aspen Systems Corporation, 1982.

Ames, L. B. The Gesell incomplete man test as a differential indicator of average and superior behavior in preschool children. Journal of Genetic Psychology, 1943, 62, 217-274.

Ammons, R. B., & Ammons, C. H. The Quick Test: Provisional manual. Psychological Reports, 1962, 11, 111-161.

Anastasiow, N. J. Maximizing identification of the gifted. Journal of Educational Research, 1964, 57(10), 538-541.

Baldwin, C. M. Stories of fun and adventure. Vancouver, British Columbia: The Copp Clark Publishing Company, 1965.

Baldwin, J. W. The relationship between teacher-judged giftedness, a group intelligence test and an individual test with possible gifted kindergarten pupils. The Gifted Child Quarterly, 1962, 6(4), 153-156.

Banks, R., Belinger, B., Bettiol, I., Borthwick, B., Donnelly, B., & Smith A. Gifted/talented children. Ontario, Canada: Ontario Minsitry of Education, 1978.

Barbe, W. B. A study of the family background of the gifted. Journal of Educational Psychology, 1956, 47, 207-217.

Barron F. Kindergarten checklist. In F. Barron, The measurement of creativity or in D. K. Whilla (Ed), Handbook of measurement and assessment in behavioral sciences. Menlo Park: Addison Wesley, 1968 or in R. Martinson, The identification of the gifted and talented. National/State Leadership Training Institute on the Gifted and Talented. Los Angeles, California, Ventura County, Superintendent of Schools, California, June, 1974. (ERIC Document Reproduction Service No. ED 104 094)

Bee, H. The developing child (2nd ed.). New York: Harper & Row, Publishers, 1978.

Bender, L. A visual motor Gestalt test and its clinical use. American Orthopsychiatry Association Research Monograph, 1938 (3).

Biehl, F. c. Stories old and new. Vancouver, British Columbia: The Copp Clark Publishing Company, 1964.

Biemiller, A. Early childhood education. In J. H. M. Andrews & W. T. Rogers (Eds.), Canadian research in education: A state of the art review. Vancouver, B.C.: University of British Columbia, 1981.

Bill 82, Ontario, Canada: J. C. Thatcher, Queens Printer for Ontario, 1980.

Boger, J. H. An experimental study of the effects of perceptual training on group IQ scores of elementary pupils in rural ungraded schools. Journal of Educational Research, 1952, 46, 43-53.

Borland, J. Teacher identification of the gifted: A new look. Journal for the Education of the Gifted, 1978, 2, 22-32.

Bower, E. M. Early identification of emotionally handicapped children in school (2nd ed.). Springfield, Ill.: Charles C. Thomas, 1969.

Brannon, R. Current methodological issues in paper-and-pencil measuring instruments. Psychology of Women Quarterly, 1981, 5(4), 618-627.

Brazosport Independent School District Staff. Identification of academically gifted students. Sacramento, California: Authors, 1961.

Brenner, A. Anton Brenner developmental Gestalt test of school readiness. Los Angeles, California: Western Psychological Services, 1964.

British Columbia Regional Index. Victoria, British Columbia: British Columbia Ministry Of Economic Development, 1978.

Burdikin, J., & Perry, J. A report to the board of school trustees on provision for gifted children in school district #43 (Coquitlam). Coquitlam, B.C.: Coquitlam School Board, Summer, 1975.

Buros, O. K. (Ed.). Tests in print II. Highland Park, N. J.: The Gryphon Press, 1974.

Buros, O. K. (Ed.). The eighth mental measurements yearbook. Highland Park, N. J.: The Gryphon Press, 1978.

Cherry, B. The intellectually gifted student: His nature and his needs. Manatee, Fl.: Manatee Junior College, 1976. (ERIC Document Reproduction Service No. ED 135 173)

Cheyney, A. B. Parents view their intellectually gifted children. Peabody Journal of Education, 1962, 40, 98-101.

Ciha, T. E., Harris, R., Hoffman, C., & Potter, M. Parents as identifiers of giftedness, ignored but accurate. The Gifted Child Quarterly, 1974, 18(3), 191-195.

Clark, C., & Dyer, E. Kindergarten check list. Los Angeles, California: Authors, 1974.

Clymer, T., & Martin, P. M. The dog next door. Scarborough, Ontario: Ginn and Company, 1978.

Clymer, T., Parr, B., Gates, D., & Robison, E. G. Helicopters and gingerbread. Scarborough, Ontario: Ginn and Company, 1978.

Clymer, T., Wong, O., & Benedict, V. J. One to grow on. Scarborough, Ontario: Ginn and Company, 1977.

Coates, S., & Bromberg, P. M. Factorial structure of the Wechsler preschool and primary scale of intelligence between the ages of 4 and 6 $^{1}/_{2}$. Journal of Consulting and Clinical Psychology, 1973, 40, 364-370.

Coleman, J. S. Equality of educational opportunity. Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1966.

Conry, J., Conry, R., & D'Oyley, V. Testing in British Columbia: Emphasis, trends, and conflicts in the 1980s. The School Guidance Worker, 1982, 37(4), 5-12.

Coquitlam School District, Number 43. A report to the board of school trustees on provision for gifted children in school district #43. Coquitlam, B.C., Canada, Summer 1975.

Cornish, R. C. Parents', teachers', and pupils' perception of the gifted child's ability. The Gifted Child Quarterly, 1968, 12(1), 14-17.

Council for Exceptional Children, The. The nation's commitment to the education of gifted and talented children and youth. Reston, Virginia: Author, 1978.

Cronbach, L. J. Coefficient alpha and the internal structure of tests. Psychometrika, 1951, 16, 297-334.

Cronbach, L. J. Essentials of psychological testing (3rd ed.). New York: Harper & Row, 1970.

Curtis, M. E., & Glaser, R. Changing conceptions of intelligence. In D. C. Berliner (Ed.), Review of research in education (Vol. 9). Washington, D.C.: American Educational Research Association, 1981.

Davis, B. W. Identifying the gifted child in the average classroom. Peabody Journal of Education, 1963, 41(1), 28-32.

Delisle, J. R. (Ed.) Tag executive board endorses Gallagher proposal to National Commission on Excellence. Tag Update, 1983, 6(1), p. 1

Dirks, J., Wessels, K., Quarforth, J., & Quenon, B. Can short-form WISC-R IQ tests identify children with Full Scale IQ? Psychology in the Schools, 1980, 17, 40-46.

Dow, I. & O'Reilly, R. R. Exceptional children: A review of the literature. Ontario, Canada: Ministry of Education, 1982. (Microlog No. 82-1133)

Dreger, R. M. The children's behavioral classification project: An interim report. Journal of Abnormal Child Psychology, 1977, 5, 289-297.

Du Bois, P. H. A history of psychological testing. Boston: Allyn & Bacon, Inc., 1970.

Duncan, J. A., & Dreger, R. M. Behavioral analysis and identification of gifted children. The Journal of Genetic Psychology, 1978, 133, 43-57.

Durkin, D. Children who read early. New York: Columbia Teachers College Press, 1966.

Elman, L., Blixt, S., & Sawicki, R. The development of cutoff scores on a WISC-R in the multidimensional assessment of gifted children. Psychology in the Schools, 1981, 18, 426-428.

Evans, B., & Waites, B. IQ and mental testing. London, England: The Mac-Millan Press Ltd., 1981.

Financial Post, The: Canadian Markets 1983 (58th Ed.). Vancouver, British Columbia: McClean Hunter Limited, 1982.

Fox, L. H. Identification of the academically gifted. American Psychologist, 1981, 36(10), 1103-1111.

Franks, F. L. Introduction to map study. Unpublished doctoral dissertation, George Peabody College for Teachers, Nashville, Tenn., 1974.

Freeman, J. Gifted children - Their identification and development in a social context. Baltimore: University Park Press, 1979.

French, J. L. The gifted. In M. V. Wisland (Ed.), Psychoeducational diagnosis of exceptional children. Springfield, Illinois: Charles C. Thomas, 1974.

Gallagher, J. J. Teaching the gifted child. Boston, Mass.: Allyn & Bacon Inc., 1975a.

Gallagher, J. J. The gifted child in the elementary school. Washington, D.C.: American Educational Research Association, 1975b.

Gear G. H. Accuracy of teacher judgment in identifying intellecually gifted children: A review of the literature. The Gifted Child Quarterly, 1976a, 20(4), 478-489.

Gear, G. H. Effects of the training program identification of the potentially gifted on teachers' accuracy in the identification of intellectually gifted children (Doctoral dissertation, University of Connecticut, 1975). Dissertation Abstacts International, 1976b, 36, 6548A-6549A. (University Microfilms No. 76-01, 183)

Gear G. H. Effects of training on teacher accuracy in the identification of gifted children. The Gifted Child Quarterly, 1978, 22(1), 90-97.

Gibson, E. J. Development of perception: Discrimination of depth compared with discrimination of graphic symbols. In R. E. Hartley & E. L. Hartley (Eds.), Readings in psychology. New York: Crowell, 1965.

Glasnapp, D. R., Issac, R., Hitz, J., & Carlton, R. Use of discriminant analysis in the identification of gifted students. Lawerence, Kansas: University of Kansas, 1981. (ERIC Document Reproduction Service No. ED 209 823)

Glass, G. V., & Stanley, J. C. Statistical methods in education and psychology. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970.

Goodenough, F. L. Measurement of intelligence by drawings. Yonkers-on-Hudson, N.Y.: World Book, 1926.

Gordon, E. M., & Thomas, A. Children's behaviorial style and teachers' appraisal of their intelligence. Journal of School Psychology, 1967, 5, 292-300.

Groth, N. Mothers of gifted. The Gifted Child Quarterly, 1975, 19(3), 217-222.

Guilford, J. P. Psychometric methods. New York: McGraw-Hill Book Company, 1954.

Hallahan, D. P, & Kauffman, J. M. Exceptional children (2nd ed.). Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1982.

Harris, D. B. Children's drawings as measures of intellectual maturity. New York: Harcourt, Brace & World, 1963.

Hauck, B. B., & Freehill, M. F. The gifted - case studies. Dubuque, Iowa: William C. Brown Company Publishers, 1972.

Hirsch, F. J., & Hirsch, S. J. Quick test as a screening device for gifted students. Psychology in the Schools, 1980, 17, 37-39.

Hitchfield, E. M. In search of promise. London, England: Longman Group Ltd., 1973.

Horwitz, E. H. Educating the gifted child. The Gifted Child Quarterly, 1974, 18(1), 18-19.

Hoyt, C. Test reliability estimated by analysis of variance. Psychometrika, 1941, 6, 153-160.

Hull, C. H., & Nie, N. H. Statistical package for the social sciences (Update 7-9). New York: McGraw-Hill Book Company, 1981.

Humes, C. W., Jr., & Eberhardt, D. G. The multi-level approach to the identification of kindergarten gifted pupils. North Carolina Association for the Gifted and Talented Quarterly Journal, 1977, 3(1), 10-16.

Hunt, J. McV. Intelligence and experience. New York: Ronald Press, 1961.

Jacobs, J. C. Effectiveness of teacher and parent identification of gifted children as a function of school level. Psychology in the Schools, 1971, 8, 140-142.

Jensen, A. R. Educability and group differences. London: Methuen, 1973.

Johnson, D. L. Check list characteristics for screening the gifted and talented. In Johnson, D. L. Summary of studies and uses of the social interaction and creativity in communication systems (SICCS). Technical Report No. 1, Institute of Human Resources, Albuquerque, New Mexico, 1975. (ERIC Document Reproduction Service No. ED 144 970)

Jordan, T. E. Developmental factors influencing exceptional status at age six years. Contemporary Educational Psychology, 1976, 1(4), 4-19.

Karnes, F. A., & Brown, K. E. Comparison of the SIT with the WISC-R for gifted students. Psychology in the Schools, 1979, 16, 478-480.

Kaufman, A. S. The relationship of WPPSI IQs to sex and other background variables. Journal of Clinical Psychology, 1973, 29, 354-357.

Kellam, S. G., & Schiff, S. K. Adaptation and mental health in the first grade classroom of an urban community. American Psychiatric Association: Psychiatric Research Reports, 1967, 21, 79-91.

Kennett, K. F. Intelligence and socioeconomic status in a Canadian sample. Alberta Journal of Educational Research, 1972, 18, 45-50.

Keogh, B. K., & Smith, C. E. Early identification of educationally high potential and high risk children. Journal of School Psychology, 1970, 8(4), 285-290.

Kephart, N. C. The slow learner in the classroom. Columbus, Ohio: Charles Merrill, 1960.

Kerlinger, F. N., & Pedhazur, E. J. Multiple regression in behaviorial research. New York: Holt, Rinehart, & Winston, 1973.

Khatena, J. Educational psychology of the gifted. New York: John Wiley & Sons, 1982.

Kincaid, D. A study of highly gifted elementary pupils. The Gifted Child Quarterly, 1969, 13(4), 264-267.

Knapik, I., Levert, G., Neagle, C., & Scholler, R. The Macmillan spelling series. Toronto, Ontario: The Macmillan Company of Canada Limited, 1961.

Koppitz, E. M. Emotional indicators on human figure drawings of shy and aggressive children. Journal of Clinical Psychology, 1966, 22, 466-468.

Koppitz, E. M. Expected and exceptional items on human figure drawings and IQ scores of children age 5 to 12. Journal of Clinical Psychology, 1967, 23, 81-83.

Kough, J., & De Haan, R. Teacher guidance handbook. Chicago: Science Research Associates, 1974.

Kramer, A. The gifted child as freak: Brilliance as handicap. In B.M. Shore, F. Gagné, S. Lariveé, R.H. Tali, & R.E. Tremblay (Eds.), Face to Face. New York: Trillium Press, Inc., 1983.

Landig, H. L., & Nausmann, T. F. Aspects of intelligence in gifted preschoolers. The Gifted Child Quarterly, 1978, 22(1), 85-89.

Likert, R. A. A technique for the measurement of attitudes. Archives of Psychology, 1932, 22, 140-155.

Lowerance, D., & Anderson, H. N. Intercorrelations of the WISC-R and the Renzulli-Hartman Scale for determination of gifted placement. Atlanta, Georgia: Paper presented at the Annual International Convention, The Council for Exceptional Children, April, 1977. (ERIC Document Reproduction Service No. ED 139 140)

Lundy, R. A., Carey, R. W., & Moore, R. K. Dimensions of learning for the highly gifted student. Palo Alto, California: Palo Alto Unified School District, 1977.

Maier, N. Teaching the gifted, challenging the average. Toronto, Ontario: University of Toronto Guidance Centre, 1982.

Marland, S. P. Jr. Education of the gifted and talented (Vol. 2): Background papers (appendices). U.S. Dept. of Health, Education and Welfare, Washington, D.C.: U.S. Government Printing Office, 1971.

Marland, S. P. Education of the gifted and talented (Vol. 1). U.S. Dept. of Health, Education and Welfare, Washington, D.C.: U.S. Government Printing Office, 1972.

Martinson, R. Characteristics of gifted: brief form. In Martinson, R. A guide toward better teaching of the gifted or in R. E. Simpson, & R. Martinson, Educational programs for the gifted pupils: A report to the California legislature. Sacramento, California, January 1961.

Martinson, R. A. Curriculum enrichment for the gifted in the primary grades. Englewood Cliffs, N.J.: Prentice-Hall, 1968.

Martinson, R. A. Children with superior cognitive abilities. In L. M. Dunn (Ed.), Exceptional children in the schools: Special education in transition. New York: Holt, Rinehart and Winston, 1973.

Martinson, R. A. The identification of the gifted and talented. Los Angeles, California: Ventura County Superintendent of Schools, June 1974a. (ERIC Document Reproduction Service No. ED 104 094)

Martinson, R. Intellectual functioning. In R. Martinson, The identification of the gifted and talented. National/State Leadership Training Institute on the Gifted and Talented. Los Angeles, California, Ventura County, Superintendent of Schools, June 1974b. (ERIC Document Reproduction Service No. ED 104 094)

Martinson, R. A., & Lessinger, L. M. Problems in the identification of intellectually gifted pupils. In J. J. Gallagher (Ed.), Teaching gifted students. Boston, Mass.: Allyn and Bacon, Inc., 1966.

McCall, R. B., Hogarty, P. S., & Hurlburt, N. Transitions in infant sensori-motor development and the prediction of childhood IQ. American Psychologist, 1972, 27, 728-748.

Meeker, M. A rating scale for identifying creative potential. In B. Cherry (Ed.), The intellectually gifted student: His nature and his needs. Manatee County, Florida, 1976. (ERIC Document Reproduction Service No. ED 135 173)

Mehrens, W. A., & Lehmann, I. J. Standardized tests in education (3rd ed.). New York: Holt, Rinehart, and Winston, 1980.

Meredith, P., & Landin, L. 100 activities for gifted children. Belmont, California: Fearon Publishers, 1957.

Miley, J. Characteristics of talented pupils checklist. In O. Watson & C. Tongue, Suggestions for identification of gifted and talented students. North Carolina State Department of Public Instruction, Raleigh Division for Exceptional Children, Raleigh, North Carolina, 1975a. (ERIC Document Reproduction Service No. ED 111 167)

Miley, J. Check list for first grade pupils. J. Miley, Coordinator for the Gifted, Florida Public Schools, Dade County, Florida, or in O. Watson & C. Tongue, Suggestions for identification of gifted and talented students. North Carolina State Department of Public Instruction, Raleigh Division for Exceptional Children, Raleigh, North Carolina, 1975b. (ERIC Document Reproduction Service No. ED 111 167)

Miley, J. Check list for kindergarten. In O. Watson & C. Tongue, Suggestions for identification of gifted and talented students. North Carolina State Department of Public Instruction, Raleigh Division for Exceptional Children, Raleigh, North Carolina, 1975c. (ERIC Document Reproduction Service No. ED 111 167)

Ministry of Education. Report on education 1980-81. Victoria, B.C.: Queen's Printer, 1982.

Moore, W. D., Hahn, W. G., & Brentall, L. C. Academic achievement of gifted children: A comparitive approach. Exceptional Children, 1978, 44, 618-619.

Morrison, D. Multivariate statistical method (2nd ed.).new York: McGraw-Hill, 1976.

National facts sheet on the gifted and talented. In Education of the gifted and talented, U.S. department of Health, Education and Welfare, Washington, D.C.: U.S. Government Printing Office, 1971.

Nelson, L. R. Guide to LERTAP use and interpretation. Dunedin, New Zealand: University of Otago, 1974.

Newton, M. R., & Brown, R. D. A preventative approach to developmental problems in school children. In E. M. Bower & W. G. Hollister (Eds.), Behavior science frontier in education. New York: Wiley, 1967.

Nie, N. G., Hull, C. H., Jenkins, J., Steinbrenner, K., & Bent, D. H. Statistical package for the social sciences (2nd ed.). New York: McGraw-Hill Book Company, 1975.

Nolte, J. Nearly . . . everything you've always wanted to know about the gifted and talented. Wawatosa, Wisc.: Wisconsin Council for the Gifted and Talented, 1976. (ERIC Document Reproduction Service No. ED 140 553)

North Carolina Division For Exceptional Children Staff. Parent nomination form at the early childhood level. From North Carolina Division for Exceptional Children, Gifted and Talented Section and Division of Research, Raleigh, North Carolina or in Tongue, C., & Sperling, C. An identification model: Gifted and talented. North Carolina State Department of Public Instruction, Raleigh Division for Exceptional Children, Raleigh, N.C., 1976. (ERIC Document Reproduction Service No. ED 125 226)

Nunnally, J. C. Psychometric theory. New York: McGraw-Hill Book Company, 1967.

Oldridge, O. A., & Allison, E. E. Review of the Wechsler Preschool and Primary Scale of Intelligence (WPPSI). Journal of Educational Measurement, 1968, 5(4), 347-348.

O'Neill, K. K. Parent involvement: A key to the education of gifted children. The Gifted Child Quarterly, 1978, 22(2), 235-242.

Ontario Minstry of Education. The development of comprehensive programs and services in special education. Toronto, Ontario: Special Education Branch, Author, 1971.

Passow, H. A. The nature of giftedness and talent. Gifted Child Quarterly, 1981, 25(1), 5-10.

Payne, J. S., Patton, J. R., Kauffman, J. M., Brown, G. B., & Payne R. A. Exceptional children in focus (3rd ed.). Columbus, Ohio: Charles E. Merrill Publishing Company, 1983.

Pedulla, J. J., Airasian, P. W., & Madaus, G. F. Do teacher ratings and standardized test results of students yield the same information? American Educational Research Journal, 1980, 17(3), 303-307.

Pegnato, C. V. An evaluation of various initial methods of selecting intellectually gifted children at the junior high school level (Doctoral dissertation, Pennsylvania State University, 1958). Dissertation Abstracts International, 1958, 19, 1254A. (University Microfilms No. 58-07, 298)

Pegnato, C. V., & Birch, J. W. Locating gifted children in junior high schools . . . a comparison of methods. Exceptional Children, 1959, 25, 300-304.

Pfleger, L. R. Research and guidance laboratory practices: Identification and programming gifted and talented students. Madison, Wisconsin, 1977. (ERIC Document Reproduction Service No. ED 138 001)

Pickard, P. M. If you think your child is gifted. London, England: George Allen & Unwin Ltd., 1976.

Pines, M. Why some 3-year-olds get A's -- and some get C's. The New York Times Magazine, July 6, 1969, pp. 4-5; 10; 12-17.

Pohl, R. Teacher nomination of intellectually gifted children in the primary grades (Doctoral dissertation, University of Illinois, 1970). Dissertation Abstracts International, 1970, 31, 2237A. (University Microfilms No. 70-21, 037)

Pressey, S. P. Concerning the nature and nurture of genius. In W. B. Barbe, Psychology and education of the gifted: Selected readings. New York: Century-Crofts, 1965.

Renzulli, J., & Hartman, R. K. The Renzulli-Hartman scale for rating behavioral characteristics of superior students. Arlington, Virginia: The Council for Exceptional Children, 1971 or in: Renzulli, J., & Hartman, R. K. Out of the classroom. Exceptional Children, 1971, 38, 243-248.

Renzulli, J. S., & Smith, L. H. Two approaches to identification of gifted students. Exceptional Children, 1977, 43, 512-518.

Robinson, H., Roedell, W., & Jackson, N. Rating summary form. Seattle, Washington: Authors, 1979a.

Robinson, H. B., Roedell, W. C., Jackson, N. E. The gifted and the talented: Their education and development. Chicago, Ill.: The National Society for the Study of Education, 1979b.

Roedell, W. C., Jackson, N. E., & Robinson, H. B. Gifted young children. Seattle, Wash.: University of Washington, January 1979.

Rogolsky, M. M. Screening kindergarten children: A review and recommendations. Journal of School Psychology, 1968, 7, 18-27.

Roth, J., & Sussman, S. Educating gifted children. Toronto, Ontario: York Borough Board of Education, 1972. (Ontario Document Reproduction Service No. ON00555)

Rubenzer, R. Identification and evaluation procedures for gifted and talented programs. The Gifted Child Quarterly, 1979, 23(2), 304-314.

Sanborn, M. P. A statewide program in the discovery and guidance of gifted students. In J. C. Stanley, W. C. George, & C. H. Solana (Eds.), Educational programs and intellectual prodigies. Baltimore, Maryland: The John Hopkins University Press, 1977.

Sanderlin, O. Gifted children: How to identify and teach them. New York: A. S. Barnes & Company, 1979.

Sattler, J. M. Assessment of children's intelligence and special abilities (2nd ed.). Boston: Allyn & Bacon, Inc., 1982.

Scarr-Salapatek, S. Learning, intelligence, and intelligence testing. In M. H. Marx & M. E. Bunch (Eds.), Fundamentals and applications of learning. New York: MacMillan Publishing Company, Inc., 1977.

Schermann, A. A research institute's approach to giftedness. In E. P. Willenberg (Chairman), Special education: Strategies for educational progress. Paper presented at the meeting for the Council for Exceptional Children, Toronto, Canada, April, 1966. Cited in J. Carroll, Identifying gifted and creative school children: Toward a multiple model of assessment. Paper presented at the meeting of the Annual Convention of the American Psychological Association, 1976. (ERIC Document Reproduction Service No. ED 137 638)

Scherr, S. S., Pasewark, R. A., & Saywer, R. N. Relationship of the Vane kindergarten test and Wechsler preschool and primary scale of intelligence. Journal of Clinical Psychology, 1973, 29, 466-468.

Scott, E. Teacher evaluation of pupil. Palos Verde Unified School District, California, or in Martinson, R. The identification of the gifted and talented. National/State Leadership Training Institute on the Gifted and Talented. Los Angeles, California, Ventura County, Superintendent of Schools, June 1974. (ERIC Document Reproduction Service No. ED 104 094)

Seagoe, M. V. Terman and the gifted. The Elementary Principal, 1972, 51, 76-78.

Sellin, D. F., & Birch, J. W. Psychoeducational development of gifted and talented learners. Rockville, Maryland: Aspen Systems Corporation, 1981.

Shaw, M. C., & McCuen, J. T. The onset of academic underachievement in bright children. Journal of Educational Psychology, 1960, 53(3), 103-108.

Simpson, R., & Martinson, R. Adjective check list. In Simpson, R. E., and Martinson, R. A. Educational programs for gifted pupils: A report to the California legislature. Sacramento, California, January, 1961.

Sisk, D. A. What if your child is gifted? In the Yearbook of Special Education (4th ed.). Chicago, Illinois: Marquis Academic Media, 1978-1979.

Smith, K. An investigation of the use of "double-choice" items in testing achievement. Journal of Educational Research, 1958, 51, 387-389.

Smith, S. A., & Salanto, J. An approach to preschool evaluation. Psychology in the Schools, 1971, 8, 142-147.

Sontag, L. W., Baker, C. T., & Nelson, V. L. Mental growth and personality development: A longtitudinal study. Monographs of the Society for Research in Child Development, 1958, 23, (2, Serial No. 68).

Special education information handbook, Ontario, Canada: Ontario Ministry of Education, 1981.

Spencer, D. Classroom failure to spot gifted. The Times Educational Supplement, March 26, 1982, Number 3430, p. 6.

Stanley, J. C., & Hopkins, K. D. Educational and psychological measurement and evaluation. Englewood Cliffs, New Jersey: Prentice-Hall, 1972.

Statistics Canada. 1981 Census of Canada. Ottawa, Ontario: Ministry of Supply and Services Canada, 1982.

Stevenson, H. W., Parker, T., Wilkinson, A., Hegan, A., & Fish, E. Predictive value of teachers' ratings of young children. Journal of Educational Psychology, 1976, 68, 507-517.

Stovall, B. Student evaluation sheet. In O. Watson & C. Tongue (Eds.) Suggestions for identification of gifted and talented students. Raleigh, North Carolina: Raleigh Division for Exceptional Children, 1975. (ERIC Document Reproduction Service No. ED 111 167)

Tannenbaum, A. J. History Of Interest In The Gifted. In N. B. Henry (Ed.), Education For The Gifted. the Fifty-seventh Yearbook Of The National Society For The Study Of Education, Part II. Chicago, Illinois: The University Of Chicago Press, 1958.

Tannenbaum, A. J. Pre-sputnik To Post Watergate Concern About The Gifted. In W. B. Barbe & J. S. Renzulli (Eds.), Psychology And Education Of The Gifted (3rd Ed.). New York: Irvington Publishers, Inc., 1981.

Tatsuoka, M. M. Discriminant analysis: The study of group differences, (Number 6). Champaign, Ill.: The Institute for Personality and Ability Testing, 1969.

Taylor, C. W. Instructional media and creativity. New York: John Wiley and Sons, Inc., 1968.

Tempest, N. R. Teaching clever children 7-11. London: Routledge & Kegan Paul, 1974.

Terman, L. M. Genetic studies of genius: Mental and physical traits of a thousand gifted children (Vol. 1). Stanford, California: Stanford University Press, 1925.

Terman, L. M. Scientists and nonscientists in a group of 800 gifted men. Psychological Monographs, 1954, 68, 1-41.

Terman, L. M., & Merrill, M. A. Stanford-Binet intelligence scale manual for second revision form L-M. Boston, Mass.: Houghton Mifflin Company, 1960.

Terman, L. M., & Merrill, M. A. Stanford-Binet intelligence scale (third revision Form L-M, Norms Edition). Boston, Mass.: Houghton Mifflin Company, 1973.

Terman, L.M., & Oden, M. H. Genetic studies of genius: The gifted child grows up: Twenty-five years follow-up of a superior group (Vol. 4). Stanford, California: Stanford University Press, 1947.

Thomas, A., & Chess, S. Temperament and development. New York: Brunner/Mazel Publishers, 1977.

Thompson, M. D. Behaviorial descriptors of the gifted. Thompson, M. D., Office of Research anf Field Services, University of Pittsburgh, 2901. Cathedral of Learning, Pittsburgh, Pennsylvania 15260, or in Behavioral descriptors of the gifted. Pittsburgh University, Pennsylvania Office of Research and Field Services, 1974. (ERIC Document Reproduction Service No. ED 093 108)

Timm, N. H. Multivatiate analysis with applications in education and psychology. Monterey, California: Brooks/Cole Ublishing Company, 1975.

Torrance, E. P. Torrance test of creative thinking. Columbus, Ohio: Personnel Press, 1966.

Tuttle, F. B., & Becker, L. A. Characteristics and identification of gifted and talented students. Washington, D.C.: National Education Association, 1980.

Ulich, R. Three thousand years of educational wisdom: Selections from great documents (2nd ed.). Cambridge, Massachusetts: Harvard University Press, 1965.

Vane, J. R. The Vane kindergarten test. Brandon, Vermont: Clinical Psychology Publishing Company, Inc., 1968.

Vane, J. R., & Eisen, V. The Goodenough draw-a-man test and signs of maladjustment in kindergarten children. Journal of Clinical Psychology, 1962, 18, 276-279.

Vernon, P. E., Adamson, G., & Vernon, D. F. The psychology and education of gifted children. London: Methuen & Co. Ltd., 1977.

Waddell, D. D. The Stanford-Binet: An evaluation of the technical data available since the 1972 restandardization. Journal of School Psychology, 1980, 18(3), 203-209.

Wechsler, D. Wechsler intelligence scale for children. New York: The Psychological Corporation, 1949.

Wechsler, D. Wechsler adult intelligence scale. New York: The Psychological Corporation, 1955.

Wechsler, D. Manual for the Wechsler preschool and primary scale of intelligence. New York: The Psychological Corporation, 1967.

Wechsler, D. Wechsler intelligence scale for children - revised. New York: The Psychological Corporation, 1974a.

Wechsler, D. Rationale of the Wechsler preschool and primary scale. In A. J. Edwards (Ed.), Selected papers of David Wechsler. New York: Academic Press, 1974b.

Wechsler, D. Wechsler adult intelligence scale-revised. New York: Harcourt Brace Jovanovich, 1981.

Weise, P., Meyers, C. E., & Tuel, J. K. PMA factors, sex and teacher nomination in screening kindergarten gifted. Educational and Psychological Measurement, 1965, 25(2), 597-603.

Wesley, F., & Sullivan, E. Human growth and development: A psychological approach. New York: Human Sciences Press, 1980.

White, B. L., Kaban, B. T., & Attanucci, J. S. The origins of human competence: The final report of the Harvard preschool project. Lexington, Mass.: D.C. Heath and Company, 1979.

White, K. R. The relationship between socioeconomic status and academic achievement. Psychological Bulletin, 1982, 91(3), 461-481.

Willerman, L., & Friedler, M. F. Intellectual precocious preschool children: Early development and later intellectual accomplishments. Journal of Genetic Psychology, 1977, 131, 13-20.

Wilson, C. Using test results and teacher evaluation in identifying gifted pupils. Personnel and Guidance, 1963, 41, 720-721.

Woodliffe, H. M. Teaching gifted learners: A handbook for teachers. Toronto, Ontario: Ontario Institute for Studies in Education, 1977.

Ysseldyke, J. E., Sabatino, D. A., & Lamanna, J. Convergent and discriminant validity of the Peabody individual achievement test with educable mentally retarded children. Psychology in the Schools, 1973, 10, 200-204.

Zax, M., & Cowen, E. L. Research on early detection and prevention of emotional dysfunction in young school children. In C. D. Spielberger (Ed.), Current topics in clinical and community psychology (Vol. 1). New York: Academic Press, 1969, 67-108.

Zeitlin, S. Kindergarten screening: Early identification of potential high-risk learners. Sringfield, Ill.: Charles C. Thomas, Publishers, 1976.

Zettel, J. Gifted and talented children from a nationwide perspective. Reston, Va.: Council for Exceptional Children, 1980.

Ziv, A. Counselling the intellectually gifted child. Toronto, Ontario: University of Toronto Guidance Centre, 1977.

APPENDIX A

Screening Test References

Screening Test References

Adair, N., & Blesch, G. ABC inventory. Muskegon, Michigan: Test Maker, Inc., 1965.

Ahr, A. E. Screening test of academic readiness. Skokie, Illinois: Priority Inovations, Inc., 1966.

Ahr, A. E., & Simons, B. Parent readiness evaluation od preschoolers. Skokie, Illinois: Priority Inovations, Inc., 1969.

Anderhalter, O. F. School readiness test. Bensenville, Illinois: Scholastic Testing Service, Inc., 1977.

Austin, J. J., Lafferty, C., Leaske, F., & Cousino, F. The school readiness check list. Muskegon, Michigan: Research Concepts, 1968.

Banham, K. N. Maturity level for school entrance and reading readiness. Circle Pines, Minnesota: American Guidance Service, Inc., 1959.

Bannatyne, A. Bannatyne system. LaFayette, Louisiana: Learning Systems Press, 1970.

Bender, L. Bender visual-motor Gestalt test. Beverly Hills, California: Western Psychological Sevices, 1938.

Berry, K., & Buktenica, N. Developmental test of visual-motor integration. Chicago, Illinois: Follett Educational Corporation, 1967.

Binion, H. S., & Beck, R. L. Binion-Beck reading readiness test for kindergarten and first grade. Munster, Indiana: Psychometric Affiliates, 1945.

Boehm, A. E., Slater, B. R. Cognitive skills assessment battery. New York: Teachers College Press, 1974.

Brenner, A. Anton Brenner developmental Gestalt test of school readiness. Los Angeles, California: Western Psychological Services, 1964.

Burger, S., & Perlman, E. The K-Q kindergarten questionnaire. Lexington, Massachusetts: S. Burger & E. Perlman, 1972.

Burks, H. F. _Academic readiness scale_. Huntington Beach, California: Arden Press, 1968.

Cadwell, B. M. _Preschool inventory revised edition - 1970_. Princeton, New Jersey: Educational Testing Service, 1970.

Carrow-Woolfolk, E. _Screening test for auditory comprehension of language_. Austin, Texas: Learining Concepts, Inc., 1973.

Clymer, T., & Barrett, T. C. _Clymer-Barrett prereading battery_. Columbus, Ohio: Personnel Press, 1969.

Cochran, E. V., & Shannon, J. L. _The apell test: Assessment program of early learning levels_. Orange, California: Edcodyne Corporation, 1969.

Daberon Research. _Daberon_. Portland, Oregon: Daberon Research, 1972.

DeRenzi, Z., & Vignolo, Q. The token test. _Brain_, 1962, _85_, 665-678.

DiNola, A. J., Kaminsky, B. P., & Sternfield, A. E. _Preschool and kindergarten performance profile_. Ridgefield, New Jersey: Educational Performance Associates, 1970.

Doll, E. _Vineland social maturity scale_. Circle Pines, Minnesota: American Guidance Service, Inc., 1965.

Dunn, L. M. _Peabody picture vocabulary test_. Circle Pines, Minnesota: American Guidance Service, Inc., 1959.

Engelmann, S. E. _The basic concept inventory_. Chicago, Illinois : Follett Publishing Company, 1967.

Frankenburg, W., & Dodds, J. B. _Denver developmental screening test_. Denver, Colorado: Ladoca Project and Publishing Foundation, Inc., 1968.

Frostig, M. N., LeFever, D., & Whittlesey, J. _Frostig developmental test of visual perception_. Chicago, Illinois: Follett Publishing Company, 1966.

Gates, A. I., & MacGinitie, W. H. _Gates-MacGinitie reading test_. New York: Teachers College Press, 1969.

Goldman, R., & Fristoe, M. Goldman Fristoe test of articulation. Circle Pines, Minnesota: American Guidance Service, Inc., 1969.

Goldman, R., Fristoe, M., & Woodcock, R. Goldman Fristoe Woodcock test of auditory discrimination. Circle Pines, Minnesota: American Guidance Service, Inc., 1970.

Hainsworth, P., & Hainsworth, R. Preschool screening system. Pawtucket, Rhode Island: P. Hainsworth & R. Hainsworth, 1974.

Hainsworth, P., & Siqueland, M. The meeting street school screening test. Providence, Rhode Island: P. Hainsworth & M. Siqueland, 1969.

Harris, A. J., & Sipay, E. R. The Macmillan reading readiness test. New York: Macmillan Publishing Company, Inc., 1970.

Harrison, M. L., & Stroud, J. B. The Harrison-Stroud reading readiness profiles. Boston, Mass.: Houghton Mifflin Company, 1956.

Hartlage, L. C., & Lucas, D. G. Prereading expectancy screening scales. Jacksonville, Illinois: Psychologists and Educators, Inc., 1973.

Haworth, M. Primary visual-motor test. New York: Grune and Sratton, Inc., 1970.

Hess, R. J. Hess school readiness scale. Johnstown, Pennsylvania: Mafex Associates, Inc., 1975.

Ilg, F. L., Ames, L. B., & Haines, J. The Gesell developmental tests. Lumberville, Pennsylvania: Programs for Education, 1971.

Jansky, J. Jansky modified screening index. Towson, Maryland: The Orton Society, Inc., 1973.

Jansky, J., & de Hirsch, K. Jansky screening index. New York: Matt-Jansky, 1972.

Jordan, F. L., & Massey, J. School readiness survey. Palo Alto, California: Consulting Psychologists Press, Inc., 1969.

Kallstrom, C. The yellow brick road. Austin, Texas: Learning Concepts, Inc., 1975.

Katz, J. Kindergarten auditory screening test. Chicago, Illinois: Follett Education Corporation, 1971.

Koppitz, E. M. Draw-a-person - Koppitz scoring system. New York: Grune and Stratton, Inc., 1968.

Lee, J. M, & Clark, W. W. Lee-Clark reading readiness test. New York: McGraw-Hill, 1962.

Lee, L. L. Northwestern syntax screening test. Evanston, Illinois: Northwestern University, 1969.

Mardell Z., & Goldenberg, D. DIAL. Highland Park, Illinois: DIAL, Inc., 1974.

McHugh, W. J., & McParland, M. McHugh-McParland reading readiness test. Hayward, California: Cal-state Bookstore, 1968.

McLoed, P. H. Lippincott reading readiness test. Philadelphia, Pennsylvania: J. P. Lippincott Company, 1973.

Monroe, M. Reading aptitude test. Boston, Mass.: Houghton Mifflin Company, 1935.

Monroe, M., Manning, J. C., Wepman, J. M., & Gibb, E. G. Initial survey test. Glenview, Illinois: Scott, Foresman & Company, 1972.

Murphy, H. A., & Durrell, D. D. Murphy-Durrell reading readiness analysis. New York: Harcourt Brace Jovanovich, Inc., 1965.

Nurss, J R., & McGauvran, M. E. Metropolitan readiness test. New York: Psychological Corporation, 1976.

Percival, R., & Poxon, S. Dallas preschool screening test. Richardson, Texas: Dallas Educational Diagnostic and Developmnt Center, 1968.

Pratt, W. E., Stouffer, G. W., Young, R. V., & Whitmer, C. A. American school reading readiness test, revised. Indianapolis, Indiana: Bobbs Merrill Company, Inc., 1964

Rhoades, W. M. Delco readiness test. Media, Pennsylvania: Delco Readiness Test, 1970.

Riley, C. M. D. Riley preschool developmental screening inventory. Beverly Hills, California: Western Psychological Services, 1969.

Roach, J, & Kephart, K. *Purdue perceptual-motor survey.* Columbus, Ohio: Charles E. Merrill, 1966.

Rodriegues, M. C., Vogler, W. H., & Wilson, J. F. *Analysis of readiness skills: Reading and mathematics.* Boston, Mass.: Houghton Mifflin Company, 1972.

Sauer, C. E. *The contemporaty school readiness test.* Billings, Montana: Montana Reading Publications, 1970.

Scott, R., Nelson, J., & Dunbar, A. N. *LRS seriation test.* New York: Harper & Row, Publishers, Inc., 1968.

Slingerland, B. H. *Pre-reading screening procedures.* Cambridge, Mass: Educators Publishing Service, Inc., 1969.

Slossan, R. L. *Slossan intelligence test for children and adults.* East Aurora, New York: Slossan Educational Publications, 1961.

Sprigle, H. A. *Sprigle school readiness test.* Jacksonville, Florida: Learning to Learn school, Inc., 1965.

Steinbach, M. N. *The Steinbach test of reading readiness.* Bensenville, Illinois: Scholastic Testing Service, Inc., 1966.

Stern, C. *Echoic response inventory for children.* Los Angeles, California: C. Stern, 1969.

Thackray, D., & Thackray, L. *Thackray reading readiness profiles.* Kent, England: Hodder & Stoughton Educational, 1974.

Thompson, G. R. *Primary academic sentiment scale.* Skokie, Illinois: Priority Inovations, Inc., 1968.

Thurstone, T. G. *PMA readiness level.* Chicago, Illinois: Science research Associates, Inc., 1974.

Valett, R. E. *Valett developmental survey.* Palo Alto, California: Consulting Psychologists Press, Inc., 1966.

Valett, R. E. *An inventory of primary skills.* Belmont, California: Lear Seigler Inc./Fearon Publishers, 1970.

Vane, J. R. *The Vane kindergarten test.* Brandon, Vermont: Clinical Psychology Publishing Comapny, Inc., 1968.

Van Wagenen, M. J., & Klaeger, M. L. G. Van Wagenen reading readiness test. Minneapolis, Minnesota: Van Wagenen Psycho-Educational Research Laboratories, 1958.

Warner, S., & Myers, W. Reading inventory probe. Fort Lauderdale, Florida: American Testing Company, 1973.

Watson, G. M. Watson reading-readiness test. Agincourt, Ontario: Book Society of Canada, Limited, 1960.

Wilson, A. R., & Robeck, M. C. Kindergaten evaluation of learning potential. New York, New York: McGraw-Hill Book Company, Inc., 1969.

APPENDIX B

Teacher and Parent Questionnaire References

Teacher and Parent Questionnaire References

Barron F. Kindergarten checklist. In F. Barron, The measurement of creativity or in D. K. Whilla (Ed), Handbook of measurement and assessment in behavioral sciences. Menlo Park: Addison Wesley, 1968 or in R. Martinson, The identification of the gifted and talented. National/State Leadership Training Institute on the Gifted and Talented. Los Angeles, California, Ventura County, Superintendent of Schools, California, June, 1974. (ERIC Document Reproduction Service No. ED 104 094)

Brazosport Independent School District Staff. Identification of academically gifted students. In R. E. Simpson & R. Martinson, Educational programs for gifted pupils: A report to the California legislature. Sacramento, California, January, 1961.

Brazosport Independent School District Staff. Pupil inventory. In R. E. Simpson, & R. Martinson, Educational programs for gifted pupils: A report to the California legislature. Sacramento, California, January, 1961.

Ciha, T. E., Harris, R., & Hoffman, C. Illinois parent questionnaire for kindergarten children (parent information sheet). Rockford Public Schools, 121 South Stanley Street, Rocford, Illinois, 61102, 1974.

Clark, C., & Dyer E. Kindergarten checklist. Clark, C., & Dyer E., Compton; Peterson, L., Paramont; Lund, M., Manhattan Beach; Lantz, B., Division of Research and Guidance, Office of Los Angeles County Superintendent of Schools.

Davis Joint Unified School District Staff. Davis Joint Unified School District mentally gifted minor referral. In Kough, J., and De Haan, R. Teacher's Guidance Handbook. Chicago: Science Research Associates, 1965, or in R. Martinson, The identification of the gifted and talented. National/State Leadership Training Institute on the Gifted and Talented, Los Angeles, California, Ventura County, Superintendent of Schools, June, 1974. (ERIC Document Reproduction Service No. ED 104 194)

Johnson, D. L. Check list characteristics for screening the gifted and talented. In Johnson, D. L. Summary of studies and uses of the social interaction and creativity in communication systems (SICCS). Technical Report No. 1, Institute of Human Resources, Albuquerque, New Mexico, 1975. (ERIC Document Reproduction Service No. ED 144 970)

Los Angeles Unified School District Staff. Alternate teacher screening instrument. In Simpson, R. E., & Martinson, R. Educational program for gifted pupils: A report to the California legislature. Sacramento, California, January, 1961.

Manatee County School Board Staff. Manatee County program for the intellectually gifted referral GK. Cherry, B. Manatee County program for the intellectually gifted pupil personnel services, Manatee, Florida and in B. Cherry (Ed.), The intellectually gifted student: His nature and his needs. Manatee County, Florida, 1976. (ERIC Document Reproduction Service No. ED 135 173)

Martinson, R. Characteristics of gifted: brief form. In Martinson, R. A guide toward better teaching of the gifted or in R. E. Simpson, & R. Martinson, Educational programs for the gifted pupils: A report to the California legislature. Sacramento, California, January 1961.

Martinson, R. Intellectual functioning. In R. Martinson, The identification of the gifted and talented. National/State Leadership Training Institute on the Gifted and Talented. Los Angeles, California, Ventura County, Superintendent of Schools, June 1974. (ERIC Document Reproduction Service No. ED 104 094)

Meeker, M. A rating scale for identifying creative potential. In B. Cherry (Ed.), The intellectually gifted student: His nature and his needs. Manatee County, Florida, 1976. (ERIC Document Reproduction Service No. ED 135 173)

Miley, J. Characteristics of talented pupils checklist. J. Miley, Coordinator for the Gifted, Florida Public Schools, Dade County, Florida, or in O. Watson & C. Tongue, Suggestions for identification of gifted and talented students. North Carolina State Department of Public Instruction, Raleigh Division for Exceptional Children, Raleigh, North Carolina, 1975. (ERIC Document Reproduction Service No. ED 111 167)

Miley, J. Check list for first grade pupils. J. Miley, Coordinator for the Gifted, Florida Public Schools, Dade County, Florida, or in O. Watson & C. Tongue, <u>Suggestions for identification of gifted and talented students</u>. North Carolina State Department of Public Instruction, Raleigh Division for Exceptional Children, Raleigh, North Carolina, 1975. (ERIC Document Reproduction Service No. ED 111 167)

Miley, J. Check list for kindergarten. J. Miley, Coordinator for the Gifted, Florida Public Schools, Dade County, Florida, or in O. Watson & C. Tongue, <u>Suggestions for identification of gifted and talented students</u>. North Carolina State Department of Public Instruction, Raleigh Division for Exceptional Children, Raleigh, North Carolina, 1975. (ERIC Document Reproduction Service No. ED 111 167)

North Carolina Division For Exceptional Children Staff. Parent nomination form at the early childhood level. From North Carolina Division for Exceptional Children, Gifted and Talented Section and Division of Research, Raleigh, North Carolina or in Tongue, C., & Sperling, C. <u>An identification model: Gifted and talented</u>. North Carolina State Department of Public Instruction, Raleigh Division for Exceptional Children, Raleigh, N.C., 1976. (ERIC Document Reproduction Service No. ED 125 226)

Renzulli, J., & Hartman, R. K. The Renzulli-Hartman scale for rating behavioral characteristics of superior students. In Renzulli, J., & Hartman, R. <u>Exceptional Children</u>, <u>38</u>(3), November 1971, pp. 211-214, 243-248, or in Syphers, D. F. <u>Gifted and talented children: Practical programming for teachers and principals</u>. Arlington, Virginia: The Council for Exceptional Children, Arlington, Virginia.

Robinson, H., Roedell, W., & Jackson, N. <u>Rating summary form</u>. Child Development Research Group, Guthrie Annex 2, NI-20, University of Washington, Seattle, Washington, 98195.

Scott, E. Teacher evaluation of pupil. Palos Verde Unified School District, California, or in Martinson, R. <u>The identification of the gifted and talented</u>. National/State Leadership Training Institute on the Gifted and Talented. Los Angeles, California, Ventura County, Superintendent of Schools, June 1974. (ERIC Document Reproduction Service No. ED 104 094)

Simpson, R., & Martinson, R. Adjective check list. In Simpson, R. E., and Martinson, R. A. Educational programs for gifted pupils: A report to the California legislature. Sacramento, California, January, 1961.

Simpson, R. E., & Martinson, R. : Parent evaluation of pupil. In Simpson, R. E., & Martinson, R. Educational programs for gifted pupils: A report to the California legislature. Sacramento, California, January, 1961.

Simpson, R. E., & Martinson, R. Parent questionnaire. In Simpson, R. E., & Martinson, R. Educational programs for gifted pupils: A report to the California legislature. Sacramento, California, January, 1961.

Simpson, R. E., & Martinson, R. Teacher evaluation of pupil. In Simpson, R. E., & Martinson, R. Educational programs for gifted pupils: A report to the California legislature. Sacramento, California, January, 1961.

Stovall, B. Student evaluation sheet. Stovall, B., Talent Development Director Charlotte-Mecklenburg Schools, Charlotte, North Carolina, or in O. Watson & C. Tongue, Suggestions for identification of gifted and talented students. North Carolina State Department of Public Instruction, Raleigh Division for Exceptional Children, Raleigh, North Carolina, 1975. (ERIC Document Reproduction Service No. ED 111 167)

Thompson, M. D. Behaviorial descriptors of the gifted. Thompson, M. D., Office of Research anf Field Services, University of Pittsburgh, 2901. Cathedral of Learning, Pittsburgh, Pennsylvania 15260, or in Behavioral descriptors of the gifted. Pittsburgh University, Pennsylvania Office of Research and Field Services, 1974. (ERIC Document Reproduction Service No. ED 093 108)

Waitjen W. Parents concept of the child as a learner. Waitjen, W., Bureau of Educational Research and Field Services, University of Maryland, College Park, Maryland, 20740.

Weiner, J. J. Attitude scale toward the gifted. In Wiener, J. L. The Relationship Between Selected Variables and Attitudes of Teachers Toward Gifted Children (Doctoral Dissertation, University of California at Los Angeles, 1960).

APPENDIX C

Teacher Questionnaires

Teacher Questionnaire -- First Edition

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF EDUCATION
2125 MAIN MALL
UNIVERSITY CAMPUS
VANCOUVER, B.C., CANADA
V6T 1Z5

Dear Kindergarten Teacher:

As a kindergarten teacher, your kind assistance is being sought in the construction of the attached questionnaire. The questionnaire is being used in a study of the identification of academically able kindergarten children. The purpose of this study is to obtain information which may assist in the development of a questionnaire to identify academically able kindergarten children in an efficient and economic way.

This study is being conducted by the writer, Barbara A. Perks, for completion of her doctorate in education, under the supervision of Dr. Stanley A. Perkins, Professor of Special Education, University of British Columbia.

It would be greatly appreciated if you would kindly complete the attached questionnaire on several students from your class, as part of the preliminary study for the questionnaire. As you complete the questionnaire, place beside each question your comments about the construction of the question. Your critique of the questions will be highly valued.

Your participation in the study is completely voluntary. After reading the questionnaire, you may not wish to participate. Please note that the complete questionnaire will be treated confidentially and that the data will be used for research purposes only, the prime purpose being the development of a relevant questionnaire.

Yours truly,

Barbara A. Perks
Doctoral Candidate

Dr. Stanley A. Perkins
Professor
Special Education

Encl.

PERKS TEACHER NOMINATION QUESTIONNAIRE

Please list the requested information for each child for whom you prepare a questionnaire.

1. Child's Initials (Optional): ____________________

2. Sex of Child: Male: _____ Female: _____

3. Date of Child's Birth: _________________

4. Date of Questionnaire: _________________

5. School Code: ____________________

6. Kindergarten: A.M. _____ P.M. _____
   Daycare: A.M. _____ P.M. _____

7. Enrollment of School _____

8. Teacher: Number of Years Teaching: _____

9. Grade Levels Taught: _____

10. Previous Participation:
    (academically able childhood education)

    10.1 Number of workshops: _____

    10.2 Number of conferences: _____

    10.3 Number of courses: _____

    10.4 Names of courses: _____________________________

    ____

    ____

    ____

    10.5 Other (specify): ______________________________

    ____

    ____

PERKS TEACHER NOMINATION QUESTIONNAIRE

Teachers in a kindergarten setting are able to understand their students on a variety of levels.

The main purpose of this questionnaire is to obtain information which will help to increase the understanding of kindergarten children's educational requirements. It is anticipated that the results from this study will provide for effective, efficient, and economic measurement instrument which will help with educational planning.

Questionnaires are completely anonymous. Your participation in this study is voluntary. After reading the questionnaire you may not wish to participate. Responses will be used for research purposes only. It should take no more than ten minutes per child of your valuable time to complete the questionnaire.

While answering the questions, if you are not sure of an answer to a particular question, it would be appreciated if you would verify the question by asking the student to complete the tasks (e.g., "Is the student able to tell directions such as, east, west, north, and south?" Ask the student to differentiate the different compass directions.) Use the student worksheet as an aid.

Please return the questionnaire to the researcher, using the stamped envelope which is enclosed. Thank you for your kind assistance.

Answer Scale for Questionnaire

The answer scale is based on a four-point system called a "likert" scale. The purpose for the likert scale was the following:

Kindergarten or pre-kindergarten age children may be able to complete a portion of a task, but may be unable to complete the entire task. In a case where the child is able to complete only a portion of a task, a score of 'occasionally' or 'rarely' (which are responses between the two extremes scores of 'frequently' or 'never') may be the appropriate response.

Answer Key

Score for questions	Definitions
4 -- Frequently	Often, many times
3 -- Occasionally	Now and then; sometimes
2 -- Rarely	Infrequently; seldom
1 -- Never	Not ever; not at all; at no time

TEACHER NOMINATION FORM

Questions	Answers Circle appropriate rating
1. The child's vocabulary is advanced for his age. The child uses and knows the meaning of words such as language, frighten, moment, thermometer, believe.	4 3 2 1
2. The child is able to spell aloud at least five words correctly, e.g., his own name, cat, dog, dad, mom.	4 3 2 1
3. The child is able to print with correct spelling at least five words, e.g., his own name, cat, dog, dad, mom.	4 3 2 1
4. Does the child seem unusually talented in telling his/her own original stories or rhymes, the quality of which is beyond his/her age level?	4 3 2 1
5. The child is able to read six labels in the grocery store or at home, such as SOUP, EGGS, MILK, JUICE, FISH, POISON.	4 3 2 1
6. The child is able to read six street signs such as STOP, GO, SLOW, WET, WALK, EXIT.	4 3 2 1
7. The child is able to read a sentence of at least five words.	4 3 2 1

8. The child is able to read an entire book such as The Cat and the Hat, Mother Goose, Sesame Street, and Are You My Mother? 4 3 2 1

9. The child is able to identify similarities among persons, places, and things 4 3 2 1

10. The child is able to identify differences among persons, places, and things (See child's worksheet) 4 3 2 1

11. The child is able to identify both similarities and differences among persons, places, and things. (See child's worksheet) 4 3 2 1

12. The child is able to print a complete sentence. If the answer to Question 12 is (4), (3) or (2), please have the child print a sentence of at least three words on the child's worksheet. 4 3 2 1

13. The child has written a letter or a note to a friend or relative of at least two sentences in length. 4 3 2 1

14. The child is able to count aloud a series of numbers in the following categories: Place a check mark (√) in front of the highest category in which the student is able to recite at least the first five numbers in a category.

    ___ 1 to 10
    ___ 11 to 20
    ___ 21 to 30
    ___ 30+

15. The child is able to recognize written numbers in the following categories: Place a check mark (√) in front of the highest category in which the student is able to recognize at least the first five numbers in the category.

    ___ 1 to 10
    ___ 11 to 20
    ___ 21 to 30
    ___ 30+

16. The child is able to understand the meaning of place value in the following categories: Place a check mark (√) in front of the highest category for the child. (Place value: units and tens).

___ 1 to 10
___ 11 to 20
___ 21 to 30
___ 30+

17. The child is able to tell the time for hour positions of the clock hands. For example, 2 o'clock, 6 o'clock. 4 3 2 1

18. The child is able to tell the time for half-hour positions of the clock hands. For example, 4:30 or half past four. 4 3 2 1

19. The child is able to tell the time for quarter-hour positions of the clock hands. For example, 3:15 or quarter past three, 6:45 or quarter to seven. 4 3 2 1

20. The child is actually able to buy a 10¢ item, pay for this item, and know how much change to receive from 25¢, when using real money. 4 3 2 1

21. The child is able to calculate mentally the purchase of a 5¢ item in a store, and know how much change to receive from 25¢. 4 3 2 1

22. The child is able to calculate mentally, in 30 seconds or less, mathematical problems such as: If an item costs 10¢, how much change would one receive from 25¢? 4 3 2 1

23. The child is able to repeat, after an adult, a series of five digits from memory. For example, 2,6,7,3,5. 4 3 2 1

24. The child is able to repeat, after an adult, a series of four digits in reverse order from memory. For example, if the examiner says, 4,9,7,6, the child says 6,7,9,4. 4 3 2 1

25. The child is able to repeat, after an adult, a series of five digits in reverse order from memory. For example, if the examiner says, 3,9,5,4,1, the child says 1,4,5,9,3. 4 3 2 1

26. The child knows his/her own telephone number. 4 3 2 1

27. The child knows the telephone numbers of at least two friends and/or relatives. (If you are unsure of the child's capability, ask the child to repeat the telephone numbers.) 4 3 2 1

28. The child recognizes and knows the name of the geometric shapes, including the circle, square, triangle and diamond. Place a check mark (√) if the child knows the shape:

○ ______

□ ______

△ ______

◇ ______

29. The child is able to distinguish two of the four points on the compass. For example, two out of the following: north, east, south, west. (Refer to the child's worksheet if necessary.) 4 3 2 1

30. The child is able to distinguish among the four compass points, east, west, north, and south. (Does the child know all four points?) 4 3 2 1

31. The child is able to name at least three main streets in his/her own town/city. 4 3 2 1

32. The child shows responsibility for the completion of tasks assigned. 4 3 2 1

33. The child can work independently without constant supervision. 4 3 2 1

34. The child has a high commitment to tasks assigned. 4 3 2 1

35. The child is constantly curious about the environment, asking questions and seeking responses about a variety of topics. 4 3 2 1

36. Other comments about the child.

(a)

____

____

(b)

____

____

(c)

____

____

____

____

CHILD'S WORKSHEET

9. Similarities:

Example: Ask the child how the following words are similar:

Apple Pear Orange	Fruits
Orange Ball Sun	All are round
Hat Coat Shoes	Clothing

10. Differences:

Orange -- You eat it.

Ball -- You play with it.

Sun -- It shines in the sky during the day.

11. Similarities and Differences:

Give both answers.

(a) Differences: Answer as above in No. 10

(b) Similarities: All are round.

12. Child prints a complete sentence of at least 3 words.

____

____

Questions 29 and 30: Compass Points:

Say: "These letters below stand for the four directions on a compass. Tell me what "N" stands for, what "W" stands for, what "S" stands for, and what "E" stands for.

N

W E

S

Teacher Questionnaire -- Second Edition

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF EDUCATION
2125 MAIN MALL
UNIVERSITY CAMPUS
VANCOUVER, B.C., CANADA
V6T 1Z5

Dear Kindergarten Teacher:

As a kindergarten teacher your kind assistance is being sought in the construction of the attached questionnaire. The questionnaire is being used in a study of the identification of above average and average academic abilities of kindergarten children. The purpose of this study is to obtain information which may assist in the development of a questionnaire to identify academic abilities in academically able and average kindergarten children in an effective, efficient, and economic way.

This study is being conducted by the writer, Barbara A. Perks, for completion of her doctorate in education, under the supervision of Dr. Stanley A. Perkins, Professor of Special Education, University of British Columbia.

As the attached questionnaire needs to have a reliability study done, your assistance in conducting the reliability study will be greatly appreciated. This will require completing the questionnaire on two separate occasions at least one week apart on the same child in your class. Please complete the questionnaire on the kindergarten child who has been identified by number from the class record sheet. As you complete the questionnaire, place beside each question your comments about the construction of the question. Your critique of the questions will be highly valued. Please return the questionnaire to the researcher promptly, using the stamped envelope which is enclosed so that the statistical analysis can be done as soon as possible.

Your participation in the study is completely voluntary. After reading the questionnaire, you may not wish to participate. Please note that the complete questionnaire will be treated confidentially and that the data will be used for research purposes only, the prime purpose being the development of a relevant questionnaire.

Thank you for your kind assistance.

Yours truly,

Barbara A. Perks
Doctoral Candidate

Dr. Stanley A. Perkins
Professor
Special Education

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF EDUCATION
2125 MAIN MALL
UNIVERSITY CAMPUS
VANCOUVER, B.C., CANADA
V6T 1Z5

Dear Kindergarten Teacher:

As a kindergarten teacher your kind assistance is being sought in the construction of the attached questionnaire. The questionnaire is being used in a study of the identification of above average and average academic abilities of kindergarten children. The purpose of this study is to obtain information which may assist in the development of a questionnaire to identify academic abilities in academically able and average kindergarten children in an effective, efficient, and economic way.

This study is being conducted by the writer, Barbara A. Perks, for completion of her doctorate in education, under the supervision of Dr. Stanley A. Perkins, Professor of Special Education, University of British Columbia.

As the attached questionnaire needs to have a reliability study done before it can be used in the main study, your assistance in conducting the reliability study will be greatly appreciated. This will require completing the questionnaire on two separate occasions at least one week apart on the same child in your class. Please complete the questionnaire on a kindergarten child who has average academic abilities. As you complete the questionnaire, place beside each question your comments about the construction of the question. Your critique of the questions will be highly valued. Please return the questionnaire to the researcher promptly, using the stamped envelope which is enclosed so that the statistical analysis can be done as soon as possible.

Your participation in the study is completely voluntary. After reading the questionnaire, you may not wish to participate. Please note that the complete questionnaire will be treated confidentially and that the data will be used for research purposes only, the prime purpose being the development of a relevant questionnaire.

Thank you for your kind assistance.

Yours truly,

Barbara A. Perks
Doctoral Candidate

Stanley A. Perkins
Professor
Special Education

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF EDUCATION
2125 MAIN MALL
UNIVERSITY CAMPUS
VANCOUVER, B.C., CANADA
V6T 1Z5

Dear Kindergarten Teacher:

As a kindergarten teacher, your kind assistance is being sought in the construction of the attached questionnaire. The questionnaire is being used in a study of the identification of academically able kindergarten children. The purpose of this study is to obtain information which may assist in the development of a questionnaire to identify academically able kindergarten children in an effective, efficient, and economic way.

This study is being conducted by the writer, Barbara A. Perks, for completion of her doctorate in education, under the supervision of Dr. Stanley A. Perkins, Professor of Special Education, University of British Columbia.

As the attached questionnaire needs to have a reliability study done before it can be used in the main study your assistance in conducting the reliability study will be greatly appreciated. This will require completing the questionnaire on two separate occasions at least one week apart on the same child in your class. Please complete the questionnaire of your most academically able child. As you complete the questionnaire, place beside each question your comments about the construction of the question. Your critique of the questions will be highly valued. Please return the questionnaire to the researcher promptly using the stamped envelope which is enclosed so that the statistical analysis can be done as soon as possible.

Your participation in the study is completely voluntary. After reading the questionnaire, you may not wish to participate. Please note that the complete questionnaire will be treated confidentially and that the data will be used for research purposes only, the prime purpose being the development of a relevant questionnaire.

Thank you for your kind assistance.

Yours truly,

Barbara A. Perks
Doctoral Candidate

Dr. Stanley A. Perkins
Professor
Special Education

Encl.

PERKS TEACHER NOMINATION QUESTIONNAIRE

Please list the requested information for each child for whom you prepare a questionnaire.

1. Code Number: ____________________

2. Sex of Child: Male: _____ Female: _____

3. Date of Child's Birth: _________________
year month day

4. Date of Questionnaire: _________________

5. Kindergarten: A.M. _____ P.M. _____
Daycare: A.M. _____ P.M. _____

6. Enrollment of School _____

7. Teacher: Number of Years Teaching: _____

8. Grade Levels Taught: _____

9. Previous Participation: (academically able childhood education)

   9.1 Number of workshops: _____

   9.2 Number of conferences: _____

   9.3 Number of courses: _____

   9.4 Names of courses: _____________________________

   ____

   9.5 Other (specify): ______________________________

   ____

10. The child's overall academic abilities at the kindergarten grade level.
_____ average _____ above average _____ other

11. Name one or two characteristics which you think would indicate that a child has above average ability for the kindergarten grade level.
    a. ____________________
    b. ____________________

12. Name one or two characteristics which you think would indicate that a child has average ability for the kindergarten grade level.
    a. ____________________
    b. ____________________

PERKS TEACHER NOMINATION QUESTIONNAIRE

The main purpose of this questionnaire is to obtain information which may assist in the construction of an effective, efficient, and economic measurement instrument to identify kindergarten children with average and above average academic abilities. Participation in this study is voluntary and you may withdraw at any time.

Questionnaire responses will be used for research purposes only. It should take no longer than 10 minutes of your time to complete the questionnaire. It is assumed that if you agree to answer the questionnaire, then you will have given your consent to participate in this portion of the study. Thank you for your kind assistance.

Answer Scale for Questionnaire

The answer scale for the majority of questions is based on a yes-no response format. If the child is able to complete the task, circle "yes". If the child is unable to complete the task, circle "no". A few questions are in check mark response format. Please place a check mark (√) in front of the best answer for these questions.

TEACHER NOMINATION FORM

Questions	Circle your answer
1. The child's vocabulary is advanced for his age. The child uses and knows the meaning of words such as language, frighten, moment, thermometer, believe.	YES NO
2. The child is able to spell aloud at least five words correctly (e.g., his own name, cat, dog, dad, mom).	YES NO
3. The child is able to print with correct spelling at least five words (e.g., his own name, cat, dog, dad, mom).	YES NO
4. Does the child seem unusually talented in telling his/her own original stories or rhymes, the quality of which is beyond his/her age level?	YES NO

5. The child is able to read six labels in the grocery store or at home, such as SOUP, EGGS, MILK, JUICE, FISH, POISON. YES NO

6. The child is able to read six street signs such as STOP, GO, SLOW, WET, WALK, EXIT. YES NO

7. The child is able to read a sentence of at least five words. YES NO

8. The child is able to read an entire book such as The Cat and the Hat, Mother Goose, Sesame Street, and Are You My Mother? YES NO

9. The child is able to identify similarities among persons, places, and things YES NO

10. The child is able to identify differences among persons, places, and things (See child's worksheet) YES NO

11. The child is able to identify both similarities and differences among persons, places, and things. (See child's worksheet) YES NO

12. The child is able to print a complete sentence. YES NO

13. The child has written a letter or a note of at least two sentences in length to a friend or relative. YES NO

14. The child is able to count aloud a series of numbers in the following categories: Place a check mark (√) in front of the highest category in which the student is able to recite at least the first five numbers in the category.

    ___ 1 to 10
    ___ 11 to 20
    ___ 21 to 30
    ___ 30+

15. The child is able to recognize written numbers in the following categories: Place a check mark (√) in front of the highest category in which the student is able to recognize at least the first five numbers in the category.

    ___ 1 to 10
    ___ 11 to 20
    ___ 21 to 30
    ___ 30+

16. The child is able to understand the meaning of place value in the following categories: Place a check mark (√) in front of the highest category for the child. (Place value: units and tens).

__ 1 to 10
__ 11 to 20
__ 21 to 30
__ 30+

17. The child is able to tell the time for hour positions of the clock hands. For example, 2 o'clock, 6 o'clock. YES NO

18. The child is able to tell the time for half-hour positions of the clock hands. For example, 4:30 or half past four. YES NO

19. The child is able to tell the time for quarter-hour positions of the clock hands. For example, 3:15 or quarter past three, 6:45 or quarter to seven. YES NO

20. The child is actually able to buy a 10¢ item, pay for this item, and know how much change to receive from 25¢, when using real money. YES NO

21. The child is able to calculate mentally the purchase of a 5¢ item in a store, and know how much change to receive from 25¢. YES NO

22. The child is able to calculate mentally, in 30 seconds or less, mathematical problems such as: If an item costs 10¢, how much change would one receive from 25¢? YES NO

23. The child is able to repeat, after an adult, a series of five digits from memory. For example, 2,6,7,3,5. YES NO

24. The child is able to repeat, after an adult, a series of four digits in reverse order from memory. For example, if the examiner says, 4,9,7,6, the child says 6,7,9,4. YES NO

25. The child is able to repeat, after an adult, a series of five digits in reverse order from memory. For example, if the examiner says, 3,9,5,4,1, the child says 1,4,5,9,3. YES NO

26. The child knows his/her own telephone number. YES NO

27. The child knows the telephone numbers of at least two friends and/or relatives. (If you are unsure of the child's capability, ask the child to repeat the telephone numbers.) YES NO

28. The child recognizes and knows the name of the geometric shapes, including the circle, square, triangle and diamond. Place a check mark (√) if the child knows the shape:

○ ______

□ ______

△ ______

◇ ______

29. The child is able to distinguish two of the four points on the compass. For example, two out of the following: north, east, south, west. (Refer to the child's worksheet if necessary.) YES NO

30. The child is able to distinguish among the four compass points, east, west, north, and south. (Does the child know all four points?) YES NO

31. The child is able to name at least three main streets in his/her own town/city. YES NO

32. The child shows responsibility for the completion of tasks assigned. YES NO

33. The child can work independently without constant supervision. YES NO

34. The child has a high commitment to tasks assigned. YES NO

35. The child is constantly curious about the environment, asking questions and seeking responses about a variety of topics. YES NO

36. Other comments about the child.

(a)

____

____

(b)

____

____

(c)

____

____

____

____

CHILD'S WORKSHEET

9. Similarities:

Example: Ask the child how the following words are similar:

Apple)
Pear) Fruits
Orange)

Orange)
Ball) All are round
Sun)

Hat)
Coat) Clothing
Shoes)

10. Differences:

Orange -- You eat it.

Ball -- You play with it.

Sun -- It shines in the sky during the day.

11. Similarities and Differences:

Give both answers.

(a) Differences: Answer as above in No. 10

(b) Similarities: All are round.

Questions 29 and 30: Compass Points:

Say: "These letters below stand for the four directions on a compass. Tell me what "N" stands for, what "W" stands for, what "S" stands for, and what "E" stands for.

N

W E

S

Teacher Questionnaire -- Third Edition

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF EDUCATION
2125 MAIN MALL
UNIVERSITY CAMPUS
VANCOUVER, B.C., CANADA
V6T 1Z5

Dear Teacher:

An important research study on the ability levels of average and above average kindergarten children is being conducted by the writer, Barbara A. Perks, for the completion of her Doctorate in Education, under the supervision of Dr. Stanley A. Perkins, Professor of Special Education, University of British Columbia.

Since it is important to obtain as many responses as possible from you as teacher of kindergarten children, it would be greatly appreciated if you would complete the teacher questionnaire. Statistical analysis can only be completed after questionnaires have been returned from a high number of participating teachers.

All data will be treated confidentially and will be used for research purposes only. Your replies will be highly valued.

Thank you for your kind assistance.

Sincerely yours,

Barbara A. Perks

Stanley A. Perkins
Research Supervisor
Special Education

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF EDUCATION
2125 MAIN MALL
UNIVERSITY CAMPUS
VANCOUVER, B.C., CANADA
V6T 1Z5

Dear Teachers:

As a kindergarten teacher, your kind assistance is being sought in responding to the attached questionnaire. The efficiency and effectiveness of the questionnaire when used for identification of above average and average academic abilities of kindergarten children is under investigation. This study is being conducted by the writer, Barbara A. Perks, for completion of her doctorate in education, under the supervision of Dr. Stanley A. Perkins, Professor of Special Education, University of British Columbia.

________________________ School has agreed to participate in this research project involving kindergarten children's abilities. The children whose names and code numbers appear on this list have been randomly selected as possible participants in this research project. These children will be asked to take part in two testing sessions of approximately one half hour each. This testing involves academic questions which are usually enjoyed by children. Children's names will not appear on the test forms, and all forms will be returned to the University of British Columbia for scoring. Parents and teachers of the randomly selected children are being asked to complete a questionnaire about the selected children's academic abilities. Names of the children will not appear on the questionnaire; thus the questionnaires and tests are coded so that statistical analysis of the data can be completed. All questionnaires are to be returned to the researcher using stamped addressed envelopes which are enclosed. It should take no longer than 15 minutes of your time to complete the attached questionnaire.

Your participation in the study is completely voluntary, and you may withdraw from the project at any time. We would, however, greatly appreciate your involvement in this research.

Please note that all questionnaires and tests will be treated confidentially, and that data will be used for research pruposes only, the prime purpose being the development of an effective, economic, and efficient identification method of kindergarten children's abilities.

Thank you for your kind assistance.

Yours truly,

Barbara A. Perks
Doctoral Candidate

Dr. Stanley A. Perkins
Professor, Special Education

PERKS TEACHER NOMINATION QUESTIONNAIRE

Please list the requested information for each child for whom you prepare a questionnaire. If the answer to a question is zero please record the zero.

1. Code Number: ____________________
2. Sex of Child: Male: _____ Female: _____
3. Date of Child's Birth: ____________________
   year month day
4. Date of Questionnaire: ____________________
   year month day
5. Kindergarten: A.M. _____ P.M. _____
   Daycare: A.M. _____ P.M. _____
6. Previous Participation: (academically able childhood education)
   - 6.1 Number of workshops dealing with academically able (above average) children: _____
   - 6.2 Number of conferences dealing with academically able (above average) children: _____
   - 6.3 Number of courses dealing with academically able (above average) children: _____
   - 6.4 Names of courses dealing with academically able (above average) children: ____________________
7. The child's general overall academic abilities at the kindergarten grade level.
   _____ average _____ above average _____ other
8. Rate this child's academic abilities for the following areas:

Levels of Abilities:	Kindergarten Average	Kindergarten Above Average
Reading Ability	_____	_____
Spatial Reasoning Ability	_____	_____
Memory Ability	_____	_____
Math Ability	_____	_____
Language Ability	_____	_____

9. Rate this child's commitment to the academic tasks assigned.

    Average kindergarten level _____

    Above average kindergarten level _____

10. Name one or two characteristics which you think would indicate that the child has above average ability for the kindergarten grade level.
    a. ____
    b. ____

11. Name one or two characteristics which you think would indicate that the child has average ability for the kindergarten grade level.
    a. ____
    b. ____

PERKS TEACHER NOMINATION QUESTIONNAIRE

The main purpose of this questionnaire is to obtain information which may assist in the construction of an effective, efficient, and economic measurement instrument to identify kindergarten children with average and above average academic abilities. Participation in this study is voluntary and you may withdraw at any time.

Questionnaire responses will be used for research purposes only. It should take no longer than 15 minutes of your time to complete the questionnaire. It is assumed that if you agree to answer the questionnaire, then you will have given your consent to participate in this portion of the study. Thank you for your kind assistance.

Answer Scale for Questionnaire

The answer scale for the majority of questions is based on a yes-no response format. If the child is able to complete the task, circle "yes". If the child is unable to complete the task, circle "no". A few questions are in check mark response format. Please place a check mark (√) in front of the best answer for these questions. Please answer all questions. A space is provided after question #43 for extra comments.

TEACHER NOMINATION FORM

Questions	Circle your answer
1. (a) The child's vocabulary is advanced. The child uses and knows the meaning of words such as language, frighten, moment, thermometer, believe. Can the child identify all five words listed above?	YES NO
(b) If your answer to (a) was "yes" please give some examples of the child's advanced vocabulary:	
(i) ______________________________	
(ii) ______________________________	
2. (a) The child is able to spell aloud at least five words correctly (e.g., his own name, cat, dog, dad, mom).	YES NO

(b) If your answer to (a) was "yes" please give some examples of words the child can spell aloud:

(i) ______________________________

(ii) ______________________________

3. The child is able to print with correct spelling at least five words (e.g., his own name, cat, dog, dad, mom). YES NO

4. Does the child seem unusually talented in telling his/her own original stories or rhymes, the quality of which is beyond his/her age level? YES NO

5. (a) The child is able to read six labels in the grocery store or at home, such as SOUP, EGGS, MILK, JUICE, FISH, POISON. YES NO

(b) Please give some other examples of labels or brand names which the child reads:

(i) ______________________________

(ii) ______________________________

6. The child is able to identify similarities among persons, places, and things (e.g., apples, pears, oranges = fruits; men, women, children = people; Vancouver, Victoria, Edmonton = cities). YES NO

7. (a) The child is able to read six street signs such as STOP, GO, SLOW, WET, WALK, EXIT. YES NO

(b) Please give some other examples of street signs or road advertisements which the child can read:

(i) ______________________________

(ii) ______________________________

8. The child is able to read a sentence of at least five words. YES NO

9. The child is able to read entire books such as The Cat and the Hat, Mother Goose, Sesame Street, and Are You My Mother? Can the child read all of the books listed above? YES NO

10. The child is able to identify differences among persons, places, and things (e.g., orange = you eat it, ball = you play with it, a boy = younger person, man = older person, grocery = place where you buy food, post office = place where you buy stamps for letters). YES NO

11. The child is able to print a complete sentence. YES NO

12. The child has written a letter or a note of at least two sentences in length to a friend or relative. YES NO

13. The child is able to count aloud a series of numbers in the following categories: Place a check mark (√) in front of the highest category in which the child is able to recite at least the first five numbers in the category.
   ___ 1 to 30
   ___ 30+

14. The child is able to recognize written numbers in the following categories: Place a check mark (√) in front of the highest category in which the child is able to recognize at least the first five numbers in the category.
   ___ 1 to 30
   ___ 30+

15. The child is able to understand the meaning of place value in the following categories: Place a check mark (√) in front of the highest category for the child. (Place value: units and tens).
   ___ 1 to 30
   ___ 30+

16. The child is able to tell the time for hour positions of the clock hands. For example, 2 o'clock, 6 o'clock. YES NO

17. The child is able to tell the time for half-hour positions of the clock hands. For example, 4:30 or half past four. YES NO

18. The child is able to tell the time for quarter-hour positions of the clock hands. For example, 3:15 or quarter past three, 6:45 or quarter to seven. YES NO

19. The child is actually able to buy a 10¢ item, pay for this item, and know how much change to receive from 25¢, when using real money. YES NO

20. The child is able to calculate mentally the purchase of a 5¢ item in a store, and know how much change to receive from 25¢. YES NO

21. The child is able to calculate mentally, in 30 seconds or less, mathematical problems such as: If an item costs 10¢, how much change would one receive from 25¢? YES NO

22. The child is able to repeat after an adult, a series of five digits from memory. For example, 2,6,7,3,5. YES NO

23. The child is able to repeat, after an adult, a series of four digits in reverse order from memory. For example, if the examiner says, 4,9,7,6, the child says 6,7,9,4. YES NO

24. The child is able to repeat, after an adult, a series of five digits in reverse order from memory. For example, if the examiner says, 3,9,5,4,1, the child says 1,4,5,9,3. YES NO

25. The child knows his/her own telephone number. YES NO

26. The child knows the telephone numbers of at least two friends and/or relatives. (If you are unsure of the child's capability, ask the child to repeat the telephone numbers.) YES NO

27. The child recognizes and knows the name of the geometric shape, the square. □ YES NO

28. The child recognizes and knows the name of the geometric shape, the triangle. △ YES NO

29. The child recognizes and knows the name of the geometric shape, the diamond. ◇ YES NO

30. The child recognizes and knows the name of the geometric shape, the pyramid.  YES NO

31. The child is able to draw and correctly label a square. □ YES NO

32. The child is able to draw and correctly label a triangle. △ YES NO

33. The child is able to draw and correctly label a diamond. ◇ YES NO

34. The child is able to draw and correctly label two intersecting circles. YES NO

35. The child is able to distinguish two of the four points on the compass. For example, two out of the following: north, east, south, west. YES NO

N
W E
S

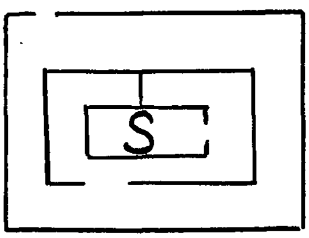
36. The child is able to distinguish among the four compass points, east, west, north, and south. (Does the child know all four points?) YES NO

37. The child is able to name at least three main streets in his/her own town/city. YES NO

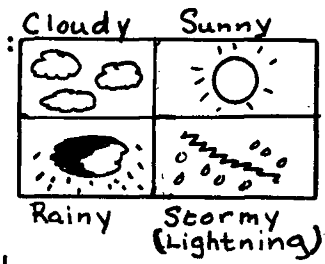
38. The child is able to identify both similarities and differences among persons, places, and things (e.g., similarities: a ball and an orange = round, differences: a ball = you play with it, an orange = you eat it; similarities: a boy and a man = people, differences: a girl = younger person, a woman = older person; similarities: a river and a mountain = features on the earth, differences: a river = water, a mountain = high part of land). YES NO

39. The child can complete a 30 piece jigsaw puzzle within two minutes. YES NO

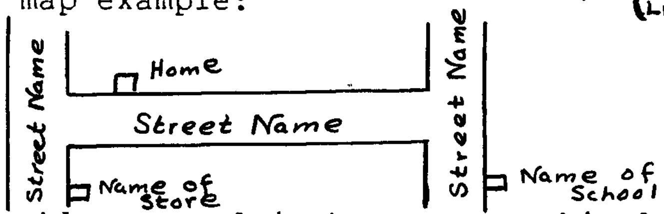
40. The child can complete a maze with six corner turns within 30 seconds. Maze example: YES NO



41. The child is able to interpret a weather graph and a geographical map of her/her own neighbourhood. Weather graph example:



Geographical map example:



The child is able to explain by a geographical map where his/her house, school, and closest store are located. The child is able to interpret both items: a weather graph and a map of his/her own neighborhood. YES NO

42. The child is able to draw a person in proper proportions (e.g., mouth is bigger than one eye). Characteristics of the person would include all the following numbered categories.
1. Complete figure including head, eyes, nose, mouth, body, arms, legs, and feet
2. Hair and/or ears
3. Fingers and hands
4. Clothes -- two basic items (e.g., dress, trousers); two specific items (e.g., necklace, hat, shoes, belt, buttons)
5. At least one of the following details: eyebrows, eyelashes, ears, nostrils, lips). The child can complete a figure which includes details from all five categories listed above. YES NO

43. Other comments about child's abilities to perform verbal, mathematical, or spatial tasks.

____

____

Extra Comments ______________________________

____

APPENDIX D

Parent Questionnaires

Parent Questionnaire -- First Edition

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF EDUCATION
2125 MAIN MALL
UNIVERSITY CAMPUS
VANCOUVER, B.C., CANADA
V6T 1Z5

Dear Parents:

As a parent of a kindergarten child, your kind assistance is being sought in the construction of the attached questionnaire. The questionnaire is being used in a study of the identification of academically able kindergarten children. The purpose of this study is to obtain information which may assist in the development of a questionnaire to identify academically able kindergarten children in an efficient and economic way.

This study is being conducted by the writer, Barbara A. Perks, for completion of her doctorate in education, under the supervision of Dr. Stanley A. Perkins, Professor of Special Education, University of British Columbia.

It would be greatly appreciated if you would kindly complete the attached questionnaire as it applies to your child. As you complete the questionnaire, please place beside each question your comments about the construction of the question. Your critique of the questions will be highly valued.

Your participation in the study is completely voluntary. After reading the questionnaire, you may not wish to participate. Please note that the complete questionnaire will be treated confidentially, and that the data will be used for research purposes only, the prime purpose being the development of a relevant questionnaire.

Yours truly,

Barbara A. Perks
Doctoral Candidate

Dr. Stanley A. Perkins
Professor
Special Education

Encl.

PERKS PARENT NOMINATION QUESTIONNAIRE

Please list the requested information for your child.

1. Child's Initials (optional) ____________________
2. Sex of Child: Male: _____ Female: _____
3. Date of Child's Birth: _________________
4. Date of Questionnaire: _________________
5. School Code: __________
6. Kindergarten: A.M. _____ P.M. _____
   Daycare: A.M. _____ P.M. _____
7. Number of adults in the home: _____

   7.1 Relationship of each adult in the Home to the Child:

   ____

   ____

8. Father's Occupation: ______________________________

   Employed by: ______________________________

   Working at Home: ______________________________

9. Mother's Occupation: ______________________________

   Employed by: ______________________________

   Working at Home: ______________________________

10. Family residence. Please check below:

    10.1 Apartment _____

    10.2 Duplex _____

    10.3 Single family dwelling _____

11. Siblings:

    11.1 Number of Brothers _____

    11.2 Ages of Brothers _____

    11.3 Number of Sisters _____

    11.4 Ages of Sisters _____

11. Parent's education level:

	Father	Mother
12.1 Grade 8 or below	______	______
12.2 Grade 9-10	______	______
12.3 Grade 11-12	______	______
12.4 Post Secondary (not university)	______	______
12.5 Post secondary (university)	______	______
12.6 Post secondary (graduate)	______	______

PERKS PARENT NOMINATION QUESTIONNAIRE

Parents know their own children better than anyone else knows them. The main purpose of this questionnaire is to obtain information which will help to increase the understanding of your child's educational needs. It is anticipated that the results from this study will provide for effective, efficient, and economic measurement instrument which will help with educational planning.

Participation in this study is voluntary. After reading the questionnaire you may not wish to participate. Questionnaires are completely anonymous and responses will be used for research purposes only. It should take no more than 15 minutes of your time to complete the questionnaire.

While answering the questions, if you are not sure of an answer to a particular question, it would be appreciated if you would ask your child to complete the tasks. (For example, "Is your child able to tell directions such as, east, west, north, and south?" Ask your child to tell you the differences in the various compass points.) Use the student worksheet as an aid.

Please return the questionnaire to the researcher, using the stamped envelope which is enclosed. Thank you for your kind assistance.

Answer Scale for Questionnaire

The answer scale is based on a four-point system called a "likert" scale. The purpose for the likert scale was the following:

Kindergarten or pre-kindergarten age children may be able to complete a portion of a task, but may be unable to complete the entire task. In a case where the child is able to complete only a portion of a task, a score of 'occasionally' or 'rarely' (which are responses between the two extremes scores of 'frequently' or 'never') may be the appropriate response.

Answer Key

Score for questions	Definitions
4 -- Frequently	Often, many times
3 -- Occasionally	Now and then; sometimes
2 -- Rarely	Infrequently; seldom
1 -- Never	Not ever; not at all; at no time

PARENT NOMINATION FORM

Questions	Answers Circle appropriate rating
1. Your child's vocabulary is advanced for his age level. He uses and knows the meaning of words such as language, frighten, moment, thermometer, believe.	4 3 2 1
2. If your answer to question No. 1 was (4) "frequently", please give some examples of your child's advanced vocabulary: (a) ____________________ (b) ____________________	
3. Your child is able to spell aloud at least five words correctly (e.g., his own name, cat, dog, dad, mom).	4 3 2 1
4. If your answer to question No. 3 was "yes" please give some examples of words that your child can spell aloud: (a) ____________________ (b) ____________________	
5. Your child is able to print with correct spelling at least five words (e.g., his own name, cat, dog, dad, mom).	4 3 2 1

6. Does your child seem unusually talented in telling his/her own original stories or rhymes, the quality of which is beyond his/her age level? 4 3 2 1

7. Your child is able to read six labels in the grocery store or at home, such as SOUP, EGGS, MILK, JUICE, FISH, POISON. 4 3 2 1

8. Please give some other examples of labels or brand names which your child reads:

   (a) ______________________________

   (b) ______________________________

9. Your child is able to read six street signs such as STOP, GO, SLOW, WET, WALK, EXIT. 4 3 2 1

10. Please give some other examples of street signs or road advertisements which your child can read:

   (a) ______________________________

   (b) ______________________________

11. Your child is able to read a sentence of at least five words. 4 3 2 1

12. Your child is able to read an entire book such as Dr. Suess, Sesame Street, and Are You My Mother? 4 3 2 1

13. Your child is able to identify similarities among persons, places, and things. (See child's worksheet) 4 3 2 1

14. Your child is able to identify differences among persons, places, and things. (See child's worksheet) 4 3 2 1

15. Your child is able to identify both similarities and differences among persons, places and things. (See child's worksheet) 4 3 2 1

16. Your child is able to print a complete sentence. If the answer to question No. 16 was (4), (3), or (2), please have your child print a sentence of at least 3 words on the student's worksheet. 4 3 2 1

17. Your child has written a letter or a note to a friend or relative. (at least two sentences long) 4 3 2 1

18. Your child is able to count aloud a series of numbers in the following categories: Please place a check mark (√) in front of the highest category in which your child is able to recite at least the first five numbers in that category.

___ 1 to 10
___ 11 to 20
___ 21 to 30
___ 30+

19. Your child is able to recognize written numbers in the following categories: Place a check mark (√) in front of the highest category in which your child is able to recognize at least the first five numbers in that category.

___ 1 to 10
___ 11 to 20
___ 21 to 30
___ 30+

20. Your child is able to understand the meaning of numbers such as "14", which consists of one ten plus 4 ones. Please place a check mark (√) in front of the highest category for your child.

___ 1 to 10
___ 11 to 20
___ 21 to 30
___ 30+

21. Your child is able to tell the time for hour positions of the clock hands. For example, 2 o'clock, 6 o'clock. 4 3 2 1

22. Your child is able to tell the time for half-hour positions of the clock hands. For example, 4:30 or half past four. 4 3 2 1

23. Your child is able to tell the time for quarter-hour positions of the clock hands. For example, 3:15 or quarter past three, 6:45 or quarter to seven. 4 3 2 1

24. Your child is actually able to buy a 10¢ item, pay for this item, and know how much change to receive from 25¢, when using real money. 4 3 2 1

25. Your child is able to calculate mentally the purchase of a 5¢ item in a store, and know how much change to receive from 25¢. 4 3 2 1

26. Your child is able to calculate mentally, in 30 seconds or less, mathematical problems such as: If an item costs 10¢, how much change would one receive from 25¢? 4 3 2 1

27. Your child is able to repeat after an adult, a series of five digits from memory. For example, 2,6,7,3,5. 4 3 2 1

28. Your child is able to repeat, after an adult, a series of four digits in reverse order from memory. For example, if the examiner says, 4,9,7,6, the child says 6,7,9,4. 4 3 2 1

29. Your child is able to repeat, after an adult, a series of five digits in reverse order from memory. For example, if the examiner says, 3,9,5,4,1, the child says 1,4,5,9,3. 4 3 2 1

30. Your child knows his own telephone number. 4 3 2 1

31. Your child knows the telephone numbers of at least two friends and/or relatives. (If you are unsure of your child's capability, ask him/her to repeat the telephone numbers.) 4 3 2 1

32. Your child recognizes and knows the name of the geometric shapes, including the circle, square, triangle and diamond. Place a check mark (√) if the child knows the shape:

○ ______

□ ______

△ ______

◇ ______

33. Please ask your child to draw the above geometric shapes.

34. Your child is able to distinguish two of the four points on the compass. (e.g. two out of the following: west, south, east, north). Refer to your child's worksheet, if necessary. 4 3 2 1

35. Your child is able to distinguish among the four compass points, east, west, north, and south. (Does your child know all four points?) 4 3 2 1

36. Your child is able to name at least three main streets in his/her own town/city. 4 3 2 1

37. Your child shows responsibility for the completion of tasks assigned. 4 3 2 1

38. Your child can work independently without constant supervision. 4 3 2 1

39. Your child has a high commitment to tasks assigned. 4 3 2 1

40. Your child is constantly curious about the environment, asking questions and seeking responses about a variety of topics. 4 3 2 1

41. Other comments about your child.

(a) ______________________________

(b) ______________________________

(c) ______________________________

CHILD'S WORKSHEET

13. Similarities:

Example: Ask your child how the following words are similar:

Apple Pear Orange	Fruits
Hat Coat Shoes	Clothing
Orange Ball Sun	All are round

14. Differences:

Orange -- You eat it.

Ball -- You play with it.

Sun -- It shines in the sky during the day.

15. Similarities and Differences:

Give both answers.

(a) Differences: Answer as above in No. 14

(b) Similarities: All are round.

16. Child prints a complete sentence of at least 3 words.

____

____

Questions 34 and 35: Compass Points:

Say: "These letters below stand for the four directions on a compass. Tell me what "N" stands for, what "W" stands for, what "S" stands for, and what "E" stands for.

N

W E

S

Parent Questionnaire -- Second Edition

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF EDUCATION
2125 MAIN MALL
UNIVERSITY CAMPUS
VANCOUVER, B.C., CANADA
V6T 1Z5

Dear Parent:

As a parent of a kindergarten child, your kind assistance is being sought in the construction of the attached questionnaire. The questionnaire is being used in a study of the identification of above average and average academic abilities of kindergarten children. The purpose of this study is to obtain information which may assist in the development of a questionnaire to identify academic abilities in academically able and average kindergarten children in an effective, efficient, and economic way.

This study is being conducted by the writer, Barbara A. Perks, for completion of her doctorate in education, under the supervision of Dr. Stanley A. Perkins, Professor of Special Education, University of British Columbia.

As the attached questionnaire needs to have a reliability study done before it can be used in the main study, your assistance in conducting the reliability study will be greatly appreciated. This will require completing the questionnaire on two separate occasions at least one week apart on your child. As you complete the questionnaire, place beside each question your comments about the construction of the question. Your critique of the questions will be highly valued. Please return the questionnaire to the researcher promptly, using the stamped envelope which is enclosed so that the statistical analysis can be done as soon as possible. It should take no longer than 15 minutes of your time to complete the questionnaire.

Your participation in the study is completely voluntary. After reading the questionnaire, you may not wish to participate. Please note that the complete questionnaire will be treated confidentially, and that the data will be used for research purposes only, the prime purpose being the development of a relevant questionnaire.

Thank you for your kind assistance.

Yours truly,

Barbara A. Perks
Doctoral Candidate

Dr. Stanley A. Perkins
Professor
Special Education

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF EDUCATION
2125 MAIN MALL
UNIVERSITY CAMPUS
VANCOUVER, B.C., CANADA
V6T 1Z5

Dear Parents:

An important research study on the ability levels of average and above average kindergarten children is being conducted by the writer, Barbara A. Perks, for the completion of her Doctorate in Education, under the supervision of Dr. Stanley A. Perkins, Professor of Special Education, University of British Columbia.

Since it is important to obtain as many responses as possible from you as parents of kindergarten children, it would be greatly appreciated if you would complete the two parent questionnaires on the same child. A one-week interval between questionnaire replies is necessary in order to obtain test-retest data. Statistical analysis can only be completed after both questionnaires have been returned from a high number of participating parents.

All data will be treated confidentially and will be used for research purposes only. Your replies will be highly valued.

Thank you for your kind assistance.

Sincerely yours,

Barbara A. Perks

Stanley A. Perkins
Research Supervisor
Special Education

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF EDUCATION
2125 MAIN MALL
UNIVERSITY CAMPUS
VANCOUVER, B.C., CANADA
V6T 1Z5

Dear Parent:

As a parent, your kind assistance is being sought in the construction of the attached questionnaire. The questionnaire is being used in a study of the identification of academically able kindergarten children. The purpose of this study is to obtain information which may assist in the development of a questionnaire to identify academically able kindergarten children in an effective, efficient, and economic way.

This study is being conducted by the writer, Barbara A. Perks, for completion of her doctorate in education, under the supervision of Dr. Stanley A. Perkins, Professor of Special Education, University of British Columbia.

As the attached questionnaire needs to have a reliability study done, your assistance in conducting the reliability study will be greatly appreciated. This will require completing the questionnaire on two separate occasions at least one week apart on your child. As you complete the questionnaire, place beside each question your comments about the construction of the question. Your critique of the questions will be highly valued. Please return the questionnaire to the researcher promptly using the stamped envelope which is enclosed so that the statistical analysis can be done as soon as possible.

Your participation in the study is completely voluntary. After reading the questionnaire, you may not wish to participate. Please note that the complete questionnaire will be treated confidentially and that the data will be used for research purposes only, the prime purpose being the development of a relevant questionnaire.

Thank you for your kind assistance.

Yours truly,

Barbara A. Perks
Doctoral Candidate

Dr. Stanley A. Perkins
Professor
Special Education

PERKS PARENT NOMINATION QUESTIONNAIRE

Please list the requested information for your child.

1. Code Number: ____________________
2. Sex of Child: Male: _____ Female: _____
3. Date of Child's Birth: _________________
4. Date of Questionnaire: _________________
5. School Code: __________
6. Kindergarten: A.M. _____ P.M. _____
Daycare: A.M. _____ P.M. _____
7. Number of adults in the home: _____
8. Number of adults working outside the home: _____
9. Family residence. Please check below:
   - 9.1 Apartment _____
   - 9.2 Duplex _____
   - 9.3 Single family dwelling _____
10. Brothers and sisters.
    - 10.1 Number of brothers _____
    - 10.2 Number of sisters _____
    - 10.3 Birth order of this child _____
(1st, 2nd, 3rd, etc.)

11. Parent's education level:	Father	Mother
11.1 Grade 8 or below	______	______
11.2 Grade 9-10	______	______
11.3 Grade 11-12	______	______
11.4 Post Secondary	______	______

12. Educational reading materials in the home:

    12.1 Number of books in the home ______
    12.2 Number of newspapers per week ______
    12.3 Number of news magazines to per month ______
    12.4 Number of culture magazines to per month ______
    12.5 Number of literary magazines to per month ______

13. Educational television programs

    13.1 Number of educational television programs watched by your child each week ______

    (For example: Sesame Street, The Electric Company, Mr. Rogers, Mr. Dressup, Romper Room, Friendly Giant.)

    13.2 Which educational television program does your child like the best?

    ____

14. Your child's academic abilities at the kindergarten grade level.
    _____ average _____ above average

15. Name one or two characteristics which you think would indicate that a child has above average ability for the kindergarten grade level.

    a. ______________________________

    b. ______________________________

18. Name one or two characteristics which you think would indicate that a child has average ability for the kindergarten grade level.

    a. ______________________________

    b. ______________________________

PERKS PARENT NOMINATION QUESTIONNAIRE

The main purpose of this questionnaire is to obtain information which may assist in the construction of an effective, efficient, and economic measurement instrument to identify kindergarten children with average and above average academic abilities.

Participation in this study is voluntary and you may withdraw at any time. Questionnaire responses will be used for research purposes only. It should take no longer than 15 minutes of your valuable time to complete the questionnaire. It is assumed that if you agree to answer the questionnaire, then you will have given your consent to participate in this portion of the study.

Thank you for your kind assistance.

Answer Scale for Questionnaire

The answer scale for the majority of questions is based on a yes-no response format. If your child is able to complete the task, circle "yes". If your child is unable to complete the task, circle "no". A few questions are in check mark response format. Please place a check mark (√) in front of the best answer for these questions.

PARENT NOMINATION FORM

Questions	Circle your answer
1. (a) Your child's vocabulary is advanced for his age level. He uses and knows the meaning of words such as language, frighten, moment, thermometer, believe.	YES NO
(b) If your answer to question No. 1 was "yes" please give some examples of your child's advanced vocabulary:	
(a) ______________________________	
(b) ______________________________	
2. (a) Your child is able to spell aloud at least five words correctly (e.g., his own name, cat, dog, dad, mom).	YES NO

(b) If your answer to question No. 2 was "yes" please give some examples of words that your child can spell aloud:

(a) ______________________________

(b) ______________________________

3. Your child is able to print with correct spelling at least five words (e.g., his own name, cat, dog, dad, mom). YES NO

4. Does your child seem unusually talented in telling his/her own original stories or rhymes, the quality of which is beyond his/her age level? YES NO

5. (a) Your child is able to read six labels in the grocery store or at home, such as SOUP, EGGS, MILK, JUICE, FISH, POISON. YES NO

(b) Please give some other examples of labels or brand names which your child reads:

(a) ______________________________

(b) ______________________________

6. (a) Your child is able to read six street signs such as STOP, GO, SLOW, WET, WALK, EXIT. YES NO

(b) Please give some other examples of street signs or road advertisements which your child can read:

(a) ______________________________

(b) ______________________________

7. Your child is able to read a sentence of at least five words. YES NO

8. Your child is able to read an entire book such as <u>Dr. Suess</u>, <u>Sesame Street</u>, and <u>Are You My Mother</u>? YES NO

9. Your child is able to identify similarities among persons, places, and things. (See child's worksheet) YES NO

10. Your child is able to identify differences among persons, places, and things. (See child's worksheet) YES NO

11. Your child is able to identify both similarities and differences among persons, places and things. (See child's worksheet) YES NO

12. (a) Your child is able to print a complete sentence. YES NO

    (b) If the answer to question No. 12 was "yes", please have your child print a sentence of at least 3 words on the child's worksheet.

13. Your child has written a letter or a note to a friend or relative. (at least two sentences long) YES NO

14. Your child is able to count aloud a series of numbers in the following categories: Place a check mark (√) in front of the highest category in which your child is able to recite at least the first five numbers in that category.

    ___ 1 to 10
    ___ 11 to 20
    ___ 21 to 30
    ___ 30+

15. Your child is able to recognize written numbers in the following categories: Place a check mark (√) in front of the highest category in which your child is able to recognize at least the first five numbers in that category.

    ___ 1 to 10
    ___ 11 to 20
    ___ 21 to 30
    ___ 30+

16. Your child is able to understand the meaning of numbers such as "14", which consists of one ten plus 4 ones. Please place a check mark (√) in front of the highest category for your child.

    ___ 1 to 10
    ___ 11 to 20
    ___ 21 to 30
    ___ 30+

17. Your child is able to tell the time for hour positions of the clock hands. For example, 2 o'clock, 6 o'clock. YES NO

18. Your child is able to tell the time for half-hour positions of the clock hands. For example, 4:30 or half past four. YES NO

19. Your child is able to tell the time for quarter-hour positions of the clock hands. For example, 3:15 or quarter past three, 6:45 or quarter to seven. YES NO

20. Your child is actually able to buy a 10¢ item, pay for this item, and know how much change to receive from 25¢, when using real money. YES NO

21. Your child is able to calculate mentally the purchase of a 5¢ item in a store, and know how much change to receive from 25¢. YES NO

22. Your child is able to calculate mentally, in 30 seconds or less, mathematical problems such as: If an item costs 10¢, how much change would one receive from 25¢? YES NO

23. Your child is able to repeat after an adult, a series of five digits from memory. For example, 2,6,7,3,5. YES NO

24. Your child is able to repeat, after an adult, a series of four digits in reverse order from memory. For example, if the examiner says, 4,9,7,6, the child says 6,7,9,4. YES NO

25. Your child is able to repeat, after an adult, a series of five digits in reverse order from memory. For example, if the examiner says, 3,9,5,4,1, the child says 1,4,5,9,3. YES NO

26. Your child knows his own telephone number. YES NO

27. Your child knows the telephone numbers of at least two friends and/or relatives. (If you are unsure of your child's capability, ask him/her to repeat the telephone numbers.) YES NO

28. (a) Your child recognizes and knows the name of the geometric shapes, including the circle, square, triangle and diamond. Place a check mark (√) if the child knows the shape:

○ ____

□ ____

△ ____

◇ ____

(b) Please ask your child to draw the above geometric shapes.

29. Your child is able to distinguish two of the four points on the compass. (e.g. two out of the following: west, south, east, north). Refer to your child's worksheet, if necessary. YES NO

30. Your child is able to distinguish among the four compass points, east, west, north, and south. (Does your child know all four points?) YES NO

31. Your child is able to name at least three main streets in his/her own town/city. YES NO

32. Your child shows responsibility for the completion of tasks assigned. YES NO

33. Your child can work independently without constant supervision. YES NO

34. Your child has a high commitment to tasks assigned. YES NO

35. Your child is constantly curious about the environment, asking questions and seeking responses about a variety of topics. YES NO

36. Other comments about your child.

(a)

____

____

(b)

____

____

CHILD'S WORKSHEET

13. Similarities:

Example: Ask your child how the following words are similar:

Apple	)	
Pear	)	Fruits
Orange	)	
Orange	)	
Ball	)	All are round
Sun	)	
Hat	)	
Coat	)	Clothing
Shoes	)	

14. Differences:

Orange -- You eat it.

Ball -- You play with it.

Sun -- It shines in the sky during the day.

15. Similarities and Differences:

Give both answers.

(a) Differences: Answer as above in No. 14

(b) Similarities: All are round.

16. Child prints a complete sentence of at least 3 words.

____

____

Questions 34 and 35: Compass Points:

Say: "These letters below stand for the four directions on a compass. Tell me what "N" stands for, what "W" stands for, what "S" stands for, and what "E" stands for.

N

W E

S

Parent Questionnaire -- Third Edition

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF EDUCATION
2125 MAIN MALL
UNIVERSITY CAMPUS
VANCOUVER, B.C., CANADA
V6T 1Z5

Dear Parents:

As a parent of a kindergarten child, your kind assistance is being sought in responding to the attached questionnaire. The efficiency and effectiveness of the questionnaire when used for identification of above average and average academic abilities of kindergarten children is under investigation. This study is being conducted by the writer, Barbara A. Perks, for completion of her doctorate in education, under the supervision of Dr. Stanley A. Perkins, Professor of Special Education, University of British Columbia.

_________________________ School has agreed to participate in this research project involving kindergarten children's abilities. ______'s name was randomly drawn as a possible participant in this research. If you and your child agree to participate, ______ will be asked to take part in two testing sessions of approximately one half hour each. The testing involves academic questions which are usually enjoyed by children. Your child's name will not appear on the test form, and all forms will be returned to the University of British Columbia for scoring. Parents and teachers of the randomly selected children are being asked to complete a questionnaire about academic abilities. The name of your child will not appear on the questionnaires, thus the questionnaires and tests are coded so that statistical analysis of the data can be completed. All questionnaires are to be returned to the researcher using stamped, addressed envelopes, which are enclosed. It should take no longer than 20 minutes of your time to complete the attached questionnaire.

Your participation in the study is completely voluntary and you may withdraw from the project at any time. We would, however, greatly appreciate your and your child's involvement in this research.

Your child's educational program will not be affected in any way as a result of this research study.

Please note that all questionnaires and tests will be treated confidentially, and that data will be used for research purposes only, the prime purpose being the development of an effective, economic, and efficient identification method of kindergarten children's abilities.

Thank you for your kind assistance.

Yours truly,

Barbara A. Perks
Doctoral Candidate

Dr. Stanley A. Perkins
Professor, Special Education

PERKS PARENT NOMINATION QUESTIONNAIRE

Please list the requested information for your child. If the answer is zero please record the zero.

1. Code Number: ____________________
2. Sex of Child: Male: _____ Female: _____
3. Date of Child's Birth: _________________
   year month day
4. Date of Questionnaire: _________________
   year month day
5. School Code: __________
6. Kindergarten: A.M. _____ P.M. _____
   Daycare: A.M. _____ P.M. _____
7. Number of adults in the home: _____
8. Number of adults working outside the home: _____
9. Family residence. Please check below:
   - 9.1 Apartment _____
   - 9.2 Duplex _____
   - 9.3 Single family dwelling _____
10. Brothers and sisters.
    - 10.1 Number of brothers _____
    - 10.2 Number of sisters _____
    - 10.3 Birth order of this child _____
      (1st, 2nd, 3rd, etc.)
11. Parent's education level:

	Father	Mother
11.1 Grade 8 or below	______	______
11.2 Grade 9-10	______	______
11.3 Grade 11-12	______	______
11.4 Post Secondary	______	______

12. Educational reading materials in the home:

    12.1 Number of books (children and adult) in the home ______
    12.2 Number of different newspapers subscribed to per week ______
    12.3 Number of different news magazines subscribed to per month ______
    12.4 Number of different culture magazines subscribed to per month ______
    12.5 Number of different literary magazines subscribed to per month ______
    12.6 Number of different educational magazines subscribed to per month ______

13. Educational television programs

    13.1 Number of educational television programs watched by your child each week (record the average if the number varies from week to week) ______

    (Examples of TV programs: Sesame Street, The Electric Company, Mr. Rogers, Mr. Dressup, Romper Room, Friendly Giant, Zoom, Polka Dot Door)

    13.2 Which educational television program does your child like the best? State the name of the program. ____________________

14. Your child's general overall academic abilities at the kindergarten grade level.

    _____ average _____ above average _____ other

15. Rate your child's academic abilities for the following areas:

Levels of Abilities:	Kindergarten Average	Kindergarten Above Average
Reading Ability	_____	_____
Spatial Reasoning Ability	_____	_____
Memory Ability	_____	_____
Math Ability	_____	_____
Language Ability	_____	_____

16. Rate your child's commitment to the academic tasks assigned.

    Average kindergarten level _____

    Above average kindergarten level _____

17. Name one or two characteristics which you think would indicate that your child has above average ability for the kindergarten grade level.

    a. ____

    b. ____

18. Name one or two characteristics which you think would indicate that your child has average ability for the kindergarten grade level.

    a. ____

    b. ____

19. Respondent to this questionnaire:

    19.1 Mother _____
    19.2 Father _____
    19.3 Both mother and father _____
    19.4 Guardian _____

PERKS PARENT NOMINATION QUESTIONNAIRE

The main purpose of this questionnaire is to obtain information which may assist in the construction of an effective, efficient, and economic measurement instrument to identify kindergarten children with average and above average academic abilities. Participation in this study is voluntary and you may withdraw at any time.

Questionnaire responses will be used for research purposes only. It should take no longer than 20 minutes of your time to complete the questionnaire. It is assumed that if you agree to answer the questionnaire, then you will have given your consent to participate in this portion of the study. Thank you for your kind assistance.

Answer Scale for Questionnaire

The answer scale for the majority of questions is based on a yes-no response format. If your child is able to complete the task, circle "yes". If your child is unable to complete the task, circle "no". A few questions are in check mark response format. Please place a check mark (√) in front of the best answer for these questions. Please answer all questions. A space is provided after question #43 for extra comments.

PARENT NOMINATION FORM

Questions	Circle your answer
1. (a) Your child's vocabulary is advanced. Your child uses and knows the meaning of words such as language, frighten, moment, thermometer, believe. Can your child identify all five words listed above?	YES NO
(b) If your answer to (a) was "yes" please give some examples of your child's advanced vocabulary:	
(i) ______________________________	
(ii) ______________________________	
2. (a) Your child is able to spell aloud at least five words correctly (e.g., his own name, cat, dog, dad, mom).	YES NO

(b) If your answer to (a) was "yes" please give some examples of words your child can spell aloud:

(i) ______________________________

(ii) ______________________________

3. Your child is able to print with correct spelling at least five words (e.g., his own name, cat, dog, dad, mom). YES NO

4. Does your child seem unusually talented in telling his/her own original stories or rhymes, the quality of which is beyond his/her age level? YES NO

5. (a) Your child is able to read six labels in the grocery store or at home, such as SOUP, EGGS, MILK, JUICE, FISH, POISON. YES NO

(b) Please give some other examples of labels or brand names which your child reads:

(i) ______________________________

(ii) ______________________________

6. Your child is able to identify similarities among persons, places, and things (e.g., apples, pears, oranges = fruits; men, women, children = people; Vancouver, Victoria, Edmonton = cities). YES NO

7. (a) Your child is able to read six street signs such as STOP, GO, SLOW, WET, WALK, EXIT. YES NO

(b) Please give some other examples of street signs or road advertisements which your child can read:

(i) ______________________________

(ii) ______________________________

8. Your child is able to read a sentence of at least five words. YES NO

9. Your child is able to read entire books such as The Cat and the Hat, Mother Goose, Sesame Street, and Are You My Mother? Can your child read all of the books listed above? YES NO

10. Your child is able to identify differences among persons, places, and things (e.g., orange = you eat it, ball = you play with it, a boy = younger person, man = older person, grocery = place where you buy food, post office = place where you buy stamps for letters). YES NO

11. Your child is able to print a complete sentence. YES NO

12. Your child has written a letter or a note of at least two sentences in length to a friend or relative. YES NO

13. Your child is able to count aloud a series of numbers in the following categories: Place a check mark (√) in front of the highest category in which your child is able to recite at least the first five numbers in the category.
    ___ 1 to 30
    ___ 30+

14. Your child is able to recognize written numbers in the following categories: Place a check mark (√) in front of the highest category in which your child is able to recognize at least the first five numbers in the category.
    ___ 1 to 30
    ___ 30+

15. Your child is able to understand the meaning of place value in the following categories: Place a check mark (√) in front of the highest category for your child. (Place value: units and tens).
    ___ 1 to 30
    ___ 30+

16. Your child is able to tell the time for hour positions of the clock hands. For example, 2 o'clock, 6 o'clock. YES NO

17. Your child is able to tell the time for half-hour positions of the clock hands. For example, 4:30 or half past four. YES NO

18. Your child is able to tell the time for quarter-hour positions of the clock hands. For example, 3:15 or quarter past three, 6:45 or quarter to seven. YES NO

19. Your child is actually able to buy a 10¢ item, pay for this item, and know how much change to receive from 25¢, when using real money. YES NO

20. Your child is able to calculate mentally the purchase of a 5¢ item in a store, and know how much change to receive from 25¢. YES NO

21. Your child is able to calculate mentally, in 30 seconds or less, mathematical problems such as: If an item costs 10¢, how much change would one receive from 25¢? YES NO

22. Your child is able to repeat after an adult, a series of five digits from memory. For example, 2,6,7,3,5. YES NO

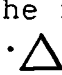
23. Your child is able to repeat, after an adult, a series of four digits in reverse order from memory. For example, if the examiner says, 4,9,7,6, the child says 6,7,9,4. YES NO

24. Your child is able to repeat, after an adult, a series of five digits in reverse order from memory. For example, if the examiner says, 3,9,5,4,1, the child says 1,4,5,9,3. YES NO

25. Your child knows his/her own telephone number. YES NO

26. Your child knows the telephone numbers of at least two friends and/or relatives. (If you are unsure of the child's capability, ask the child to repeat the telephone numbers.) YES NO

27. Your child recognizes and knows the name of the geometric shape, the square.  YES NO

28. Your child recognizes and knows the name of the geometric shape, the triangle.  YES NO

29. Your child recognizes and knows the name of the geometric shape, the diamond.  YES NO

30. Your child recognizes and knows the name of the geometric shape, the pyramid.  YES NO

31. Your child is able to draw and correctly label a square. □ YES NO

32. Your child is able to draw and correctly label a triangle. △ YES NO

33. Your child is able to draw and correctly label a diamond. ◇ YES NO

34. Your child is able to draw and correctly label two intersecting circles.  YES NO

35. Your child is able to distinguish two of the four points on the compass. For example, two out of the following: north, east, south, west. YES NO

N
W E
S

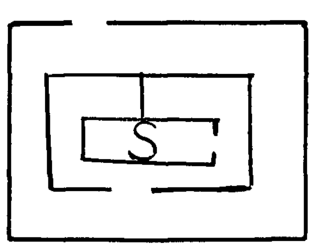
36. Your child is able to distinguish among the four compass points, east, west, north, and south. (Does the child know all four points?) YES NO

37. Your child is able to name at least three main streets in his/her own town/city. YES NO

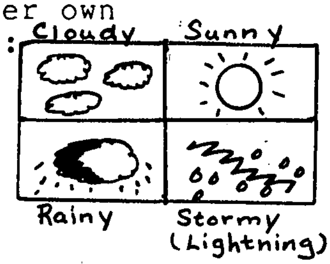
38. Your child is able to identify both similarities and differences among persons, places, and things (e.g., similarities: a ball and an orange = round, differences: a ball = you play with it, an orange = you eat it; similarities: a boy and a man = people, differences: a girl = younger person, a woman = older person; similarities: a river and a mountain = features on the earth, differences: a river = water, a mountain = high part of land). YES NO

39. Your child can complete a 30 piece jigsaw puzzle within two minutes. YES NO

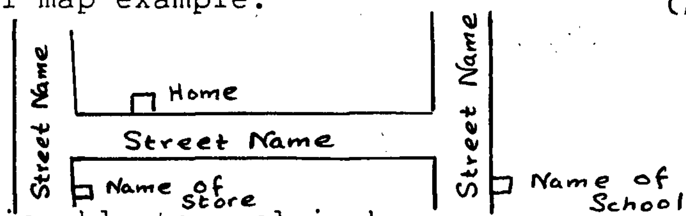
40. Your child can complete a maze with six corner turns within 30 seconds. Maze example: YES NO



41. Your child is able to interpret a weather graph and a geographical map of her/her own neighbourhood. Weather graph example:



Geographical map example:



Your child is able to explain by a geographical map where his/her house, school, and closest store are located. The child is able to interpret both items: a weather graph and a map of his/her own neighborhood. YES NO

42. Your child is able to draw a person in proper proportions (e.g., mouth is bigger than one eye). Characteristics of the person would include all the following numbered categories.
   1. Complete figure including head, eyes, nose, mouth, body, arms, legs, and feet
   2. Hair and/or ears
   3. Fingers and hands
   4. Clothes -- two basic items (e.g., dress, trousers); two specific items (e.g., necklace, hat, shoes, belt, buttons)
   5. At least one of the following details: eyebrows, eyelashes, ears, nostrils, lips).
   Your child can complete a figure which includes details from all five categories listed above. YES NO

43. Other comments about child's abilities to perform verbal, mathematical, or spatial tasks.

____

____

Extra Comments ______________________________

____

PARENT CONSENT FORM

I consent to ____'s
Child's name

participation in a research study involving two testing sessions. Test data will be returned to the University of British Columbia. Collected data will be used for research purposes only, the prime purpose being to develop a valid screening procedure for above average and average kindergarten children. All data will be treated confidentially.

Participation in this study is completely voluntary, and you may withdraw at any time during the study.

____
Signature

____
Date

I am unable to have ____
Child's name

participate in this study.

Table 1

Consent Form Information

Current Study

Consent Form Information	Number	Percentage
1. Total number of consent forms which were sent to parents.	1272	100.0
2. Total number of consent forms which were returned.	1001	78.7
3. Total number of consent forms which were not returned.	271	21.3
4. Total number of consent forms in which parents gave consent to participation of their children in the study.	921	92.0
5. Total number of consent forms in which parents did not give consent to participation of their children in the study.	80	8.0
6. Total number of children who were given the VKT screening.	816	88.6
7. Total number of children who were given permission to be part of the research study but who were absent or had moved when the study began.	99	10.7

Note: Items four and five are subsets of the total number of consent forms returned (Item two).

Items six and seven are subsets of the total number of children granted permission to participate in the study (Item four).

APPENDIX E

Demographic Data of the Pilot Studies

First Pilot Study: Day Care Study

Second Pilot Study: Kindergarten Study

Table 1

DEMOGRAPHIC DATA

Teacher Questionnaire: Results of the First and Second Pilot Studies

Characteristics of the Children Who Were Nominated as Average in Ability by Their Teachers

	First Pilot (n=6)			Second Pilot (n=19)		
Questions from Questionnaire	Variable	# of Cases	%	Variable	# of Cases	%
Sex of child	Male	2	33.3	Male	13	68.4
	Female	4	66.7	Female	6	31.6
Age of child in months calculated from date of child's birth and date of questionnaire	45	1	16.7	65	2	10.5
	49	1	16.7	66	1	5.3
	50	2	33.3	67	2	21.1
	57	1	16.7	68	4	21.1
	66	1	16.7	70	2	10.5
				71	2	10.5
				72	2	10.5
				73	2	10.5
				74	1	5.3
				77	1	5.3
Time attending kindergarten (A.M. or P.M.)	P.M.	2	33.3	A.M.	12	63.2
	Not attending kindergarten	4	66.7	P.M.	7	36.8
Time attending daycare (A.M. or P.M.)	A.M. + P.M.	6	100.0		0	0.0
Enrollment of school	20	3	50.0	Between 200-350	19	100.0
	25	3	50.0			

Table 1 —— Continued

Teacher Demographic Data of Average Children

	First Pilot (n=6)			Second Pilot (n=19)		
Questions from Questionnaire	Variable	# of Cases	%	Variable	# of Cases	%
Teacher: Number of years teaching	1	1	16.7	2	1	5.3
	2	1	16.7	3	2	10.5
	3	1	16.7	4	2	10.5
	15	1	16.7	5	2	10.5
	19	2	33.3	6	1	5.3
				9	2	10.5
				10	2	10.5
				11	3	15.8
				12	2	10.5
				20	1	5.3
Number of grade levels taught	1	4	66.7	1	7	36.8
	2	4	66.7	2	5	26.3
				3	3	15.8
				4	3	15.8
Name one or two characteristics which you think would indicate that a child has above average ability for the kindergarten grade level.	Superior characteristics 1st selection			Skillful reading	10	52.6
				Excellent general language knowledge	3	15.8
				Social maturity	2	10.5
				Curious	1	5.3
				Excellent vocabulary	3	15.8
	Superior characteristics 2nd selection			Advanced problem solving	1	5.3
				Skillful reading	2	10.5
				Excellent general language knowledge	3	15.8

Note. There were no further demographic data in the first pilot study.

Table 1 —— Continued

Teacher Demographic Data of Average Children

	First Pilot (n=6)		Second Pilot (n=19)		
Questions from Questionnaire	Variable	# of Cases	Variable	# of Cases	%
	Superior characteristics 2nd selection continued		Advanced math concepts	3	15.8
			Social maturity	2	10.5
			Excellent overall academic achievement	1	5.3
			Curious	1	5.3
Name one or two characteristics which you think would indicate that a child has average ability for the kindergarten grade level.	Average characteristics 1st selection		Excellent vocabulary	2	10.5
			Superior fine motor skills	1	5.3
			Artistic maturity	1	5.3
			High comprehension	1	5.3
			Interest in numbers, letters, words	7	36.8
			Good general knowledge	3	15.8
			Ability to concentrate on activity for short period of time	3	15.8
			Good language development	2	10.5
			Socializing well	4	21.1
			Following directions, listening skills	1	5.3
	Average characteristics 2nd selection		Interest in numbers, letters, words	1	5.3
			Good general knowledge	3	15.8
			Ability to concentrate on activity for short period of time	3	15.8

Table 1 —— Continued

Teacher Demographic Data of Average Children

	First Pilot (n=6)		Second Pilot (n=19)		
Questions from Questionnaire	Variable	# of Cases	Variable	# of Cases	%
	Average characteristics 2nd selection continued		Stimulated to find solutions to problems,	2	10.5
			Socializing well	3	15.8
			Good drawings	1	5.3
			Works independently	1	5.3
			Works with kindergarten expectation	3	15.8

Table 2

DEMOGRAPHIC DATA

Teacher Questionnaire: Results of the First and Second Pilot Studies

Characteristics of the Children Who Were Nominated as Above Average in Ability by Their Teachers

	First Pilot (n=4)			Second Pilot (n=26)		
Questions from Questionnaire	Variable	# of Cases	%	Variable	# of Cases	%
Sex of child	Male	2	50.0	Male	15	57.7
	Female	2	50.0	Female	11	42.3
Age of child in months calculated from date of child's birth and date of questionnaire	61	2	50.0	Missing data	1	3.8
	65	1	25.0	65	1	3.8
	66	1	25.0	66	2	7.7
				67	2	7.7
				68	4	15.4
				69	2	7.7
				72	2	7.7
				73	1	3.8
				74	3	11.5
				75	2	7.7
				76	5	19.2
				77	1	3.8
Time attending kindergarten (A.M. or P.M.)	A.M.	4	100.0	A.M.	16	61.5
				P.M.	9	34.6
				A.M. & P.M.	1	3.8
Time attending daycare (A.M. or P.M.)	A.M.	1	25.0	A.M.	2	7.7
	P.M.	3	75.0	Not attending day care	24	92.3
Enrollment of school	20	4	100.0	Between 60-600	26	100.0

Table 2 —— Continued

Teacher Demographic Data of Above Average Children

Questions from Questionnaire	First Pilot (n=4) Variable	# of Cases	%	Second Pilot (n=26) Variable	# of Cases	%
Teacher: Number of years teaching	2	3	75.0	1	2	7.7
	3	1	25.0	2	2	7.7
				4	2	7.7
				5	2	7.7
				6	5	19.2
				7	1	3.8
				8	3	11.5
				9	2	7.7
				10	3	11.5
				11	1	3.8
				13	1	3.8
				18	1	3.8
				25	1	3.8
Number of grade levels taught	1	4	100.0	1	8	30.8
				2	6	23.1
				3	5	19.2
				4	3	11.5
				5	1	3.8
				6	2	7.7
Name one or two characteristics which you think would indicate that a child has above average ability for the kindergarten grade level.	Superior characteristics 1st selection			Skillful reading	2	7.7
				Excellent general language knowledge	1	3.8
	Superior characteristics 2nd selection			Curious	1	3.8
				Excellent vocabulary	2	7.7

Note. There were no further demographic data in the first pilot study.

The characteristics were taken from a few follow-up forms.
The questions were not on the original copies.

Table 2 —— Continued

Teacher Demographic Data of Above Average Children

Questions from Questionnaire	First Pilot (n=4) Variable	# of Cases	Second Pilot (n=26) Variable	# of Cases	%
Name one or two characteristics which you think would indicate that a child has average ability for the kindergarten grade level.	Average characteristics 1st selection		Good language development	1	3.8
			Good drawings	1	3.8
			Works independently	1	3.8
	Average characteristics 2nd selection		Stimulated to find solutions to problems	1	3.8
			Works independently	1	3.8
			Ability to concentrate on activity for short period of time	1	3.8

Table 3

DEMOGRAPHIC DATA

Parent Questionnaire: Results of the First and Second Pilot Studies

Characteristics of the Children Who Were Nominated as Average in Ability by Their Parents

	First Pilot (n=4)			Second Pilot (n=22)		
Questions from Questionnaire	Variable	# of Cases	%	Variable	# of Cases	%
Sex of child	Male	2	50.0	Male	10	45.5
	Female	2	50.0	Female	12	54.5
Age of child in months calculated from date of child's birth and date of questionnaire	50	1	25.0	62	1	4.5
	52	1	25.0	65	2	9.1
	53	1	25.0	66	1	4.5
	66	1	25.0	67	1	4.5
				68	5	22.7
				69	1	4.5
				70	1	4.5
				71	3	13.6
				72	2	9.1
				73	1	4.5
				74	3	13.6
				75	1	4.5
Time attending kindergarten (A.M. or P.M.)	P.M.	1	25.0	A.M.	11	50.0
	Not attending kindergarten	3	75.0	P.M.	11	50.0
Time attending daycare (A.M. or P.M.)	A.M. & P.M.	4	100.0	A.M. & P.M.	1	4.5
Number of adults in home	2	4	100.0	2	22	100.0

Table 3 —— Continued

Parent Demographic Data of Average Children

	First Pilot (n=4)			Second Pilot (n=22)		
Questions from Questionnaire	Variable	# of Cases	%	Variable	# of Cases	%
Number of adults working outside the home	2	4	100.0	1	17	77.3
				2	4	18.2
Family residence	Apartment	1	25.0	Apartment	0	0.0
	Duplex	0	0.0	Duplex	1	4.5
	Single family dwelling	3	75.0	Single family dwelling	2	9.1
Number of brothers	0	2	50.0	0	4	18.2
	1	1	25.0	1	16	72.7
	2	1	25.0			
Number of sisters	0	3	75.0	0	11	50.0
	1	1	25.0	1	10	45.5
Birth order of this child	1st child	2	50.0	1st child	8	36.4
	2nd child	1	25.0	2nd child	8	36.4
	3rd child	1	25.0	3rd child	5	22.7
				4th child	1	4.5

		Father		Mother			Father		Mother	
		#	%	#	%		#	%	#	%
Education level	Grade 8 or below	0	0.0	0	0.0	Grade 8 or below	0	0.0	0	0.0
	Grade 9-10	0	0.0	0	0.0	Grade 9-10	0	0.0	0	0.0
	Grade 11-12	0	0.0	1	25.0	Grade 11-12	4	18.2	6	27.3
	Post secondary	4	100.0	3	75.0	Post secondary	18	81.8	16	72.7

Table 3 —— Continued

Parent Demographic Data of Average Children

	First Pilot ($\underline{n}$=4)		Second Pilot ($\underline{n}$=22)		
Questions from Questionnaire	Variable	# of Cases	Variable	# of Cases	%
Number of books in the home			Missing data	2	9.1
					9.1
			50	1	4.5
			100	7	31.8
			200	4	18.2
			250	1	4.5
			300	1	4.5
			400	1	4.5
			500	1	4.5
			600	2	9.1
			1000	2	9.1
Number of newspapers per week			Missing data	2	9.1
			1	9	40.9
			2	6	27.3
			3	3	13.6
			4	1	4.5
			8	1	4.5
Number of newmagazines per month			Missing data	2	9.1
			1	9	40.9
			2	6	27.3
			3	3	13.6
			4	1	4.5
			8	1	4.5
Number of cultural magazines per month			0	6	27.3
			1	9	40.9
			2	3	13.6
			3	1	4.5
			4	1	4.5
			5	2	9.1

Note. There were no further demographic data in the first pilot study.

Table 3 —— Continued

Parent Demographic Data of Average Children

Questions from Questionnaire	First Pilot (n=4) Variable	# of Cases	Second Pilot (n=22) Variable	# of Cases	%
Number of literary magazines per month			0	12	54.5
			1	4	18.2
			2	4	18.2
			3	1	4.5
			4	1	4.5
Number of educational television programmes watched by your child each week			0	4	18.2
			1	2	9.1
			3	3	13.6
			4	2	9.1
			5	1	4.5
			7	1	4.5
			10	3	13.6
Which educational television programme does your child like the best?	1st selection		Not Applicable	2	9.1
			Sesame Street	5	22.7
			Electric Company	4	18.2
			Mr. Rogers	1	4.5
			Mr. Dressup	8	36.4
			Friendly Giant	1	4.5
			Zoom	1	4.5
	2nd selection		Not Applicable	18	81.8
			Mr. Dressup	1	4.5
			Zoom	2	9.1
			Polka Dot Door	1	4.5

Table 3 —— Continued

Parent Demographic Data of Average Children

	First Pilot (n=4)		Second Pilot (n=22)		
Questions from Questionnaire	Variable	# of Cases	Variable	# of Cases	%
Name one or two characteristics which you think would indicate that a child has above average ability for the kindergarten grade level.	Superior characteristics 1st selection		Missing data	8	36.4
			Advanced problem solving	1	4.5
			Skillful reading	10	45.5
			Quick learning rate	1	4.5
			Advanced math concepts	1	4.5
			Excellent vocabulary	1	4.5
	Superior characteristics 2nd selection		Missing data	11	50.0
			Skillful reading	2	9.1
			Advanced math concepts	2	9.1
			Excellent memory	1	4.5
			Excellent spelling	1	4.5
			Social maturity	1	4.5
			Excellent overall academic achievement	1	4.5
			Excellent vocabulary	1	4.5
			Excellent comprehension	1	4.5
			Written ability	1	4.5
Name one or two characteristics which you think would indicate that a child has average ability for the kindergarten grade level.	Average characteristics 1st selection		Missing data	0	0.0
			Interest in numbers, letters, and words	11	50.0
			Good general knowledge	1	4.5
			Ability to concentrate on activity for short period of time	1	4.5
			Socializing well	2	9.1
			Good drawings	1	4.5
			Eye-hand coordination	1	4.5
			Printing	1	4.5

Table 3 —— Continued

Parent Demographic Data of Average Children

	First Pilot ($\underline{n}$=4)		Second Pilot ($\underline{n}$=22)		
Questions from Questionnaire	Variable	# of Cases	Variable	# of Cases	%
	Average characteristics 2nd selection		Missing data	7	31.8
			Interest in numbers, letters, and words	1	4.5
			Good general knowledge	1	4.5
			Stimulated to find solutions to problems	1	4.5
			Socializing well	2	9.1
			Good drawings	1	4.5
			Printing	3	13.6
			Works within kindergarten expectation	6	27.3

Table 4

DEMOGRAPHIC DATA

Parent Questionnaire: Results of the First and Second Pilot Studies

Characteristics of the Children Who Were Nominated as Above Average in Ability by Their Parents

	First Pilot (n=15)			Second Pilot (n=12)		
Questions from Questionnaire	Variable	# of Cases	%	Variable	# of Cases	%
Sex of child	Male	6	40.0	Male	4	33.3
	Female	9	60.0	Female	8	66.7
Age of child in months calculated from date of child's birth and date of questionnaire	59	3	30.0	68	2	16.7
	61	3	30.0	72	2	16.7
	65	1	6.7	73	3	25.0
	66	3	30.0	74	1	8.3
	68	2	13.3	75	2	16.7
	70	2	13.3	77	2	16.7
	72	1	6.7			
Time attending kindergarten (A.M. or P.M.)	A.M.	5	33.3	A.M.	8	66.7
	P.M.	2	13.3	P.M.	4	33.3
	Not attending kindergarten	8	53.3			
Time attending daycare (A.M. or P.M.)	A.M.	5	33.3	A.M.	0	0.0
	P.M.	2	13.3	P.M.	1	8.3
	A.M. & P.M.	7	46.7			
Number of adults in home	1	3	30.0	1	1	8.3
	2	12	80.0	2	9	75.0
				3	2	16.7

Table 4 —— Continued

Parent Demographic Data of Above Average Children

	First Pilot (n=15)					Second Pilot (n=12)				
Questions from Questionnaire	Variable	# of Cases	%			Variable	# of Cases	%		
Number of adults working outside the home	Part time	0	0.0			Part time	1	8.3		
	1	5	33.3			1	8	66.7		
	2	10	66.7			2	3	25.0		
Family residence	Apartment	0	0.0			Apartment	1	8.3		
	Duplex	0	0.0			Duplex	0	0.0		
	Single family dwelling	10	66.7			Single family dwelling	11	91.7		
	Other	2	13.3							
Number of brothers	0	8	53.3			0	5	41.7		
	1	5	33.3			1	5	41.7		
	2	1	6.7			2	2	16.7		
	3	1	6.7							
Number of sisters	0	10	66.7			0	7	58.3		
	1	5	33.3			1	4	33.3		
						2	1	8.3		
Birth order of this child	1st child	10	66.7			1st child	6	50.0		
	2nd child	4	26.7			2nd child	6	50.0		
	3rd child	1	6.7							
		Father #	Father %	Mother #	Mother %		Father #	Father %	Mother #	Mother %
Education level	Grade 8 or below	0	0.0	0	0.0	Grade 8 or below	0	0.0	0	0.0
	Grade 9-10	0	0.0	0	0.0	Grade 9-10	0	0.0	0	0.0
	Grade 11-12	3	20.0	2	13.3	Grade 11-12	5	41.7	4	33.3
	Post secondary	12	80.0	13	86.7	Post secondary	7	58.3	8	66.7

Table 4 —— Continued

Parent Demographic Data of Above Average Children

	First Pilot (n=15)		Second Pilot (n=12)		
Questions from Questionnaire	Variable	# of Cases	Variable	# of Cases	%
Number of books in the home			0 (missing data)	2	16.7
			70	2	16.7
			100	1	8.3
			200	4	33.3
			300	1	8.3
			800	1	8.3
			1000	2	16.7
Number of newspapers per week			1	3	25.0
			2	6	50.0
			3	2	16.7
			6	1	8.3
Number of newmagazines per month			0	5	41.7
			1	4	33.3
			2	1	8.3
			4	1	8.3
			8	1	8.3
Number of cultural magazines per month			0	5	41.7
			1	4	33.3
			2	1	8.3
			3	2	16.7

Note. There were no further demographic data in the first pilot study.

Table 4 —— Continued

Parent Demographic Data of Above Average Children

	First Pilot (n=15)		Second Pilot (n=12)		
Questions from Questionnaire	Variable	# of Cases	Variable	# of Cases	%
Number of literary magzines per month			0	8	67.7
			1	1	8.3
			2	1	8.3
			3	1	8.3
Number of educational television programmes watched by your child each week			0	2	16.7
			1	1	8.3
			2	1	8.3
			3	3	25.0
			4	1	8.3
			5	1	8.3
			7	1	8.3
			10	1	8.3
			14	1	8.3
Which educational television programme does your child like the best?	1st selection		0	1	8.3
			Sesame Street	3	25.0
			Electric Company	4	33.3
			Mr. Rogers	2	16.7
			Zoom	2	16.7
	2nd selection		0	8	67.7
			Mr. Dressup	1	8.3
			Mr. Rogers	1	8.3
			Polka Dot Door	1	8.3
			Electric Company	1	8.3

Table 4 — Continued

Parent Demographic Data of Above Average Children

	First Pilot ($\underline{n}$=15)		Second Pilot ($\underline{n}$=12)		
Questions from Questionnaire	Variable	# of Cases	Variable	# of Cases	%
Name one or two characteristics which you think would indicate that a child has above average ability for the kindergarten grade level.	Superior characteristics 1st selection		Skillful reading	1	8.3
			Abstractions	1	8.3
			Excellent general language knowledge	3	25.0
			Excellent overall academic achievement	2	16.7
			Social maturity	1	8.3
			Curious	2	16.7
			Excellent vocabulary	1	8.3
			Scientific exploration	1	8.3
	Superior characteristics 2nd selection		Skillful reading	2	16.7
			Advanced math concepts	1	8.3
			Excellent memory	1	8.3
			Social maturity	1	8.3
			Excellent overall academic advancement	2	16.7
			Excellent vocabulary	1	8.3
			High comprehension	3	25.0
			Long attention span	1	8.3
Name one or two characteristics which you think would indicate that a child has average ability for the kindergarten grade level.	Average characteristics 1st selection		Missing data	2	16.7
			Interest in numbers, letters, and words	3	25.0
			Good language development	1	8.3
			Ability to concentrate on activity for short period of time	2	16.7
			Socializing well	2	16.7
			Eye-hand coordination	1	8.3
			Printing	1	8.3

Table 4 —— Continued

Parent Demographic Data of Above Average Children

	First Pilot (n=15)		Second Pilot (n=12)		
Questions from Questionnaire	Variable	# of Cases	Variable	# of Cases	%
	Average characteristics 2nd selection		Missing data	3	25.0
			Ability to concentrate	2	16.7
			Good general knowledge	1	8.3
			Works independently	1	8.3
			Eye-hand coordination	1	8.3
			Separation anxiety	1	8.3
			Works within kindergarten expectations	2	16.7

APPENDIX F

Teacher Questionnaire Item Analysis

First Pilot Study

Table 1

TOTAL TEACHER SAMPLE: Pilot 1

Teacher Questionnaire: Verbal Subtest

Item		I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	I13	I31
Percentages	01	10.0	20.0	20.0	10.0	50.0	30.0	90.0	80.0	50.0	20.0	20.0	70.0	80.0	40.0
	02	20.0	30.0	30.0	30.0	30.0	30.0	0.0	10.0	10.0	0.0	10.0	10.0	10.0	0.0
	03	40.0	40.0	20.0	30.0	10.0	30.0	0.0	0.0	10.0	20.0	10.0	0.0	0.0	20.0
	04	30.0	10.0	30.0	30.0	10.0	10.0	10.0	10.0	30.0	60.0	60.0	20.0	10.0	40.0
Item Means		2.900	2.400	2.600	2.800	1.800	2.200	1.300	1.400	2.200	3.200	3.100	1.700	1.400	2.600
Item S D		0.994	0.966	1.174	1.033	1.033	1.033	0.949	0.966	1.398	1.229	1.287	1.252	0.966	1.430
External Criterion Correlation		0.736	0.757	0.660	0.583	0.583	0.667	0.408	0.312	0.339	0.385	0.435	0.722	0.535	0.692

Note. Standard Error of Measurement = 2.91
Internal Consistency (Hoyt) = 0.93

O = Options 01 = Never
02 = Rarely
03 = Occasionally
04 = Frequently

I = Items

S D = Standard Deviation

n = 110.

Table 1 —— Continued

TOTAL TEACHER SAMPLE: Pilot 1

Teacher Questionnaire: Mathematics Subtest

Item		I14	I15	I16	I17	I18	I19	I20	I21	I22	I23	I24	I25	I26	I27
Percentages	01	10.0	30.0	40.0	50.0	60.0	80.0	80.0	80.0	90.0	30.0	60.0	80.0	30.0	50.0
	02	20.0	20.0	30.0	0.0	10.0	10.0	10.0	10.0	0.0	10.0	20.0	0.0	0.0	20.0
	03	0.0	20.0	0.0	0.0	10.0	10.0	10.0	0.0	10.0	20.0	10.0	10.0	20.0	10.0
	04	70.0	30.0	20.0	50.0	20.0	0.0	0.0	10.0	0.0	40.0	10.0	10.0	50.0	20.0
Item Means		3.300	2.500	1.800	2.500	1.900	1.300	1.300	1.400	1.200	2.700	1.700	1.500	2.900	2.000
Item S D		1.160	1.269	1.317	1.581	1.287	0.675	0.675	0.966	0.632	1.337	1.059	1.080	1.370	1.247
External Criterion Correlation		0.148	0.678	0.458	0.408	0.401	0.574	0.574	0.535	0.408	0.676	0.650	0.598	0.534	0.863

Note. Standard Error of Measurement = 3.19
Internal Consistency (Hoyt) = 0.91

O = Options 01 = Never
02 = Rarely
03 = Occasionally
04 = Frequently

Items 14,15,16 01 = Lowest ability level
02, 03 = Intermediate ability levels
04 = Highest ability level

I = Items

S D = Standard Deviation

n = 10.

Table 1 —— Continued

TOTAL TEACHER SAMPLE: Pilot 1

Teacher Questionnaire: Verbal and Temperament Subtests and Total Test

		Spatial			Temperament				Total
Item		I28	I29	I30	I32	I33	I34	I35	
Percentages	01	0.0	70.0	40.0	10.0	10.0	10.0	10.0	Item Number I = 35
	02	10.0	0.0	0.0	10.0	0.0	0.0	0.0	Highest Score = 136.00
	03	30.0	10.0	20.0	40.0	50.0	30.0	40.0	Lowest Score = 43.00
	04	60.0	20.0	40.0	40.0	40.0	60.0	50.0	Mean = 80.50
									Standard Deviation = 26.53
Item Means		3.500	1.800	2.600	3.100	3.200	3.400	3.300	Internal Consistency = 0.96 (Hoyt)
Item S D		0.707	1.317	1.430	0.994	0.919	0.966	0.949	S. E. of Measurement = 5.00
External Criterion Correlation		0.609	0.784	0.692	0.563	0.515	0.535	0.408	Internal Consistency = 0.82 (Cronbach's Alpha)

Note. Standard Error of Measurement = 1.48
Internal Consistency (Hoyt) = 0.65

Standard Error of Measurement = 0.62
Internal Consistency (Hoyt) = 0.96

O = Options 01 = Never
02 = Rarely
03 = Occasionally
04 = Frequently

Item 28 01 = Lowest ability level
02, 03 = Intermediate ability levels
04 = Highest ability level

I = Items
S D = Standard Deviation
n = 10.

APPENDIX G

Parent Questionnaire Item Analysis

First Pilot Study

Table 1

TOTAL PARENT SAMPLE: Pilot 1

Parent Questionnaire: Verbal Subtest

Item		I1	I3	I5	I6	I7	I9	I11	I12	I13	I14	I15	I16	I17	I36
Percentages	01	5.3	5.3	10.5	5.3	31.6	10.5	57.9	68.4	15.8	10.5	10.5	57.9	78.9	31.6
	02	10.5	15.8	15.8	10.5	15.8	26.3	5.3	5.3	5.3	5.3	5.3	0.0	10.5	15.8
	03	21.1	31.6	5.3	52.6	21.1	36.8	5.3	10.5	10.5	31.6	21.1	5.3	0.0	26.3
	04	63.2	47.4	68.4	31.6	31.6	26.3	31.6	15.8	68.4	52.6	63.2	36.8	10.5	26.3
Item Means		3.421	3.211	3.316	3.105	2.526	2.789	2.105	1.737	3.316	3.263	3.368	2.211	1.421	2.474
Item S D		0.902	0.918	1.108	0.809	1.264	0.976	1.410	1.195	1.157	0.991	1.012	1.475	0.961	1.219
External Criterion Correlation		0.542	0.411	0.750	0.069	0.431	0.565	0.416	0.327	0.603	0.542	0.455	0.435	0.232	0.206

Note. Standard Error of Measurement = 3.28
Internal Consistency (Hoyt) = 0.88

O = Options 01 = Never
02 = Rarely
03 = Occasionally
04 = Frequently

I = Items

S D = Standard Deviation

n = 19.

Table 1 —— Continued

TOTAL PARENT SAMPLE: Pilot 1

Parent Questionnaire: Mathematics Subtest

Item		I18	I19	I20	I21	I22	I23	I24	I25	I26	I27	I28	I29	I30	I31
Percentages	01	0.0	21.1	78.9	31.6	52.6	68.4	78.9	84.2	89.5	5.3	31.6	57.9	36.8	68.4
	02	21.1	21.1	10.5	5.3	21.1	21.1	10.5	10.5	0.0	0.0	31.6	36.8	5.3	5.3
	03	15.8	10.5	0.0	15.8	10.5	5.3	10.5	0.0	10.5	10.5	26.3	0.0	5.3	10.5
	04	63.2	47.4	5.3	47.4	15.8	5.3	0.0	5.3	0.0	84.2	10.5	5.3	52.6	15.8
Item Means		3.421	2.842	1.211	2.789	1.895	1.474	1.316	1.263	1.211	3.737	2.158	1.526	2.737	1.737
Item S D		0.838	1.259	0.787	1.357	1.150	0.841	0.671	0.733	0.631	0.733	1.015	0.772	1.447	1.195
External Criterion Correlation		0.425	0.566	0.310	0.406	0.067	0.299	0.250	0.190	0.177	-0.190	-0.179	0.018	0.545	0.216

Note. Standard Error of Measurement = 2.98
Internal Consistency (Hoyt) = 0.86

O = Options
01 = Never
02 = Rarely
03 = Occasionally
04 = Frequently

Items 18,19,20
01 = Lowest ability level
02, 03 = Intermediate ability levels
04 = Highest ability level

I = Items

S D = Standard Deviation

n = 19.

Table 1 —— Continued

TOTAL PARENT SAMPLE: Pilot 1

Parent Questionnaire: Verbal and Temperament Subtests and Total Test

Item		Spatial I32	Spatial I33	Spatial I34	Spatial I35	Temperament I37	Temperament I38	Temperament I39	Temperament I40	Total
Percentages	01	0.0	15.8	42.1	63.2	5.3	5.3	0.0	0.0	Item Number I = 36
	02	0.0	21.1	5.3	5.3	21.1	15.8	21.1	10.5	Highest Score = 140.00
	03	21.1	15.8	5.3	10.5	15.8	5.3	31.6	15.8	Lowest Score = 60.00
	04	78.9	42.1	42.1	21.1	57.9	73.7	47.4	73.7	Mean = 92.00
										Standard Deviation = 20.74
Item Means		3.789	2.737	2.368	1.895	3.263	3.474	3.263	3.632	Internal Consistency = 0.93 (Hoyt)
Item S D		0.419	1.327	1.535	1.286	0.991	0.964	0.806	0.684	S. E. of Measurement = 5.32
External Criterion Correlation		0.050	0.695	0.300	0.369	0.810	0.811	0.503	0.684	Internal Consistency = 0.77 (Cronbach's Alpha)

Note. Standard Error of Measurement = 1.75 Internal Consistency (Hoyt) = 0.64

Standard Error of Measurement = 0.94 Internal Consistency (Hoyt) = 0.86

0 = Options
01 = Never
02 = Rarely
03 = Occasionally
04 = Frequently

Item 32
01 = Lowest ability level
02, 03 = Intermediate ability levels
04 = Highest ability level

I = Items
S D = Standard Deviation
n = 19.

APPENDIX H

Teacher Questionnaire Item Analysis

Second Pilot Study

Table 1

TOTAL TEACHER SAMPLE: Pilot 2

Teacher Questionnaire: Verbal Subtest

Item		I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	I13	I31
Percentages	01	28.9	33.3	24.4	55.6	40.0	31.1	48.9	53.3	11.1	11.1	17.8	53.3	64.4	48.9
	02	71.1	66.7	75.6	44.4	60.0	68.9	51.1	44.4	88.9	88.9	80.0	44.4	28.9	51.1
Item Means		1.711	1.667	1.756	1.444	1.600	1.689	1.511	1.422	1.889	1.889	1.778	1.422	1.222	1.511
Item S D		0.458	0.477	0.435	0.503	0.495	0.468	0.506	0.543	0.318	0.318	0.471	0.543	0.560	0.506
External Criterion Correlation		0.547	0.636	0.561	0.584	0.588	0.689	0.874	0.505	0.270	0.270	-0.021	0.421	0.506	0.334

Note. Standard Error of Measurement = 1.44
Internal Consistency (Hoyt) = 0.86

O = Options   01 = No   02 = Yes

I = Items

S D = Standard Deviation

n = 45.

Table 1 --- Continued

TOTAL TEACHER SAMPLE: Pilot 2

Teacher Questionnaire: Mathematics Subtest

Item		I14	I15	I16	I17	I18	I19	I20	I21	I22	I23	I24	I25	I26	I27
Percentages	01	6.7	11.1	56.6	37.8	64.4	84.4	80.0	82.2	88.9	31.1	82.2	88.9	11.1	71.1
	02	4.4	13.1	8.9	62.2	35.6	15.6	17.8	15.6	11.1	68.9	15.6	8.9	88.9	28.9
	03	6.7	2.2	2.2											
	04	82.2	73.3	17.8											
Item Means		3.644	3.378	1.511	1.622	1.356	1.156	1.156	1.133	1.111	1.689	1.133	1.067	1.889	1.289
Item S D		0.857	1.093	1.308	0.490	0.484	0.367	0.424	0.405	0.318	0.468	0.405	0.330	0.318	0.458
External Criterion Correlation		0.385	0.507	0.164	0.633	0.447	0.243	0.317	0.285	0.302	0.300	0.060	0.037	0.414	0.247

Note. Standard Error of Measurement = 2.02
Internal Consistency (Hoyt) = 0.78

O = Options 01 = No 02 = Yes (Items with two options)

01 = Lowest ability level
02, 03 = Intermediate ability levels (Items with four options)
04 = Highest ability level

I = Items

S D = Standard Deviation

n = 45.

Table 1 —— Continued

TOTAL TEACHER SAMPLE: Pilot 2

Teacher Questionnaire: Spatial and Temperament Subtests and Total Test

		Spatial			Temperament				Total
Item		I28	I29	I30	I32	I33	I34	I35	
Percentages	01	0.0	51.1	60.0	11.1	15.6	35.6	22.2	Number of Items = 35
	02	0.0	48.9	40.0	88.9	84.4	64.4	75.6	Highest Score = 78.00
	03	13.3							Lowest Score = 46.00
	04	86.7							Mean = 59.51
									Standard Deviation = 8.32
Item Means		3.867	1.489	1.400	1.889	1.844	1.644	1.733	Internal Consistency = 0.88 (Hoyt)
Item S D		0.334	0.506	0.495	0.318	0.367	0.484	0.495	S. E. of Measurement = 2.83
External Criterion Correlation		0.194	0.334	0.606	0.270	0.254	0.399	-0.006	Internal Consistency = 0.61 (Cronbach's Alpha)

Note. Standard Error of Measurement = 0.47 Standard Error of Measurement = 0.65
Internal Consistency (Hoyt) = 0.72 Internal Consistency (Hoyt) = 0.50

O = Options 01 = No 02 = Yes (Items with two options)

01 = Lowest ability level
02, 03 = Intermediate ability levels (Items with four options)
04 = Highest ability level

I = Items
S D = Standard Deviation
_n_ = 45.

APPENDIX I

Parent Questionnaire Item Analysis

Second Pilot Study

Table 1

TOTAL PARENT SAMPLE: Pilot 2

Parent Questionnaire: Verbal Subtest

Item		I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	I13	I31
Percentages	01	14.7	20.6	17.6	76.5	47.1	35.3	58.8	73.5	11.8	2.9	8.8	38.2	52.9	26.5
	02	85.3	79.4	82.4	23.5	52.9	64.7	41.2	26.5	88.2	97.1	91.2	61.8	47.1	73.5
Item Means		1.853	1.794	1.824	1.235	1.529	1.647	1.412	1.265	1.882	1.971	1.912	1.618	1.471	1.735
Item S D		0.359	0.410	0.387	0.431	0.507	0.485	0.500	0.448	0.327	0.172	0.288	0.493	0.507	0.448
External Criterion Correlation		0.307	0.224	0.180	0.316	0.326	0.288	0.383	0.533	0.270	0.129	0.230	0.201	0.413	0.025

Note. Standard Error of Measurement = 1.31
Internal Consistency (Hoyt) = 0.83

O = Options   O1 = No   O2 = Yes

I = Items

S D = Standard Deviation

n = 34.

Table 1 —— Continued

TOTAL PARENT SAMPLE: Pilot 2

Parent Questionnaire: Mathematics Subtest

Item		I14	I15	I16	I17	I18	I19	I20	I21	I22	I23	I24	I25	I26	I27
Percentages	01	2.9	11.8	35.3	32.4	58.8	79.4	91.2	91.2	91.2	23.5	70.6	91.2	11.8	70.6
	02	5.9	14.7	17.6	67.6	41.2	20.6	8.8	8.8	8.8	76.5	29.4	8.8	88.2	29.4
	03	2.9	8.8	8.8	0.0										
	04	88.2	64.7	35.3	0.0										
Item Means		3.765	3.265	2.382	1.676	1.412	1.206	1.088	1.088	1.088	1.765	1.294	1.088	1.882	1.294
Item S D		0.699	1.109	1.371	0.475	0.500	0.410	0.288	0.288	0.288	0.431	0.462	0.288	0.327	0.462
External Criterion Correlation		0.163	0.384	0.292	0.379	0.383	0.537	0.421	0.421	0.421	0.265	0.199	0.204	0.270	0.469

Standard Error of Measurement = 1.98
Internal Consistency (Hoyt) = 0.78

O = Options 01 = No 02 = Yes (Items with two options)

01 = Lowest ability level
02, 03 = Intermediate ability levels (Items with four options)
04 = Highest ability level

I = Items

S D = Standard Deviation

n = 34

Table 1 —— Continued

TOTAL PARENT SAMPLE: Pilot 2

Parent Questionnaire: Spatial and Temperament Subtests and Total Test

		Spatial				Temperament				Total
Item		I28a	I28b	I29	I30	I32	I33	I34	I35	
Percentages	01	0.0	2.9	41.2	52.9	11.8	11.8	41.2	5.9	Number of Items = 36
	02	2.9	29.4	58.8	47.1	88.2	88.2	58.8	91.2	Highest Score = 82.00
	03	11.8	17.6							Lowest Score = 50.00
	04	85.3	50.0							Mean = 64.71
										Standard Deviation = 8.31
Item Means		3.824	3.147	1.588	1.471	1.882	1.882	1.588	1.882	Internal Consistency = 0.88 (Hoyt)
Item S D		0.459	0.958	0.500	0.507	0.327	0.327	0.500	0.409	S. E. of Measurement = 2.85
External Criterion Correlation		0.016	0.407	0.243	0.290	0.270	0.270	0.368	-0.090	Internal Consistency = 0.68 (Cronbach's Alpha)

Note. Standard Error of Measurement = 1.00 Standard Error of Measurement = 0.61
Internal Consistency (Hoyt) = 0.47 Internal Consistency (Hoyt) = 0.52

O = Options 01 = No 02 = Yes (Items with two options)

01 = Lowest ability level
02, 03 = Intermediate ability levels (Items with four options)
04 = Highest ability level

I = Items
S D = Standard Deviation
n = 34.

APPENDIX J

Teacher Demographic Data of the Current Study

Teacher Overview of Children's Intellectual Abilities

Table 1

PTNQ Demographic Data

Teacher Background

Demographic Variable	Number of Cases	Percentage of Cases
Workshops attended by teachers.		
0	32	65.3
1 - 4	14	28.6
5 - 8	2	4.1
More than 8	1	2.0
Conferences attended by teachers.		
0	40	81.6
1 - 4	7	14.3
5 - 8	1	2.0
More than 8	1	2.0
Courses attended by teachers.		
0	38	77.6
1 - 4	9	18.4
5 - 8	1	2.0
More than 8	1	2.0

Note. Workshops, conferences and courses on above average children attended by the teachers.

n = 49 teachers

Table 2

Teachers' Opinions of Above Average Characteristics of Kindergarten Children

Above Average Characteristics	First #	First %	Second #	Second %
Excellent Reading Skills	15	30.6	6	12.3
Long Attention Span (Concentration)	2	4.1	5	10.3
Excellent Writing Skills			1	2.0
Extensive Vocabulary	11	22.5	6	12.3
Understanding Abstract Generalizations	3	6.1	7	14.3
Excellent Problem Solving Skills	4	8.3	9	18.4
Creative Art Abilities	3	6.1	1	2.0
Excellent Overall General Knowledge	1	2.0	3	6.1
Eagerness To Learn (Enthusiasm)	1	2.0		
Originality	1	2.0	1	2.0
Ability To Learn New Work Quickly	1	2.0	2	4.1
Excellent Reasoning Ability	2	4.1		
Initiate Own Work Projects (Self Sufficient)	1	2.0	1	2.0
Excellent Verbal Expression (Communication)	2	4.1	2	4.1
Excellent Social Skills			1	2.0
Excellent Awareness			1	2.0
No Response	2	4.1	3	6.1

Note. Teachers were asked to give first and second opinions of above average characteristics. (n=49)

First : first opinion. Second : second opinion

-- Number of subjects. % -- Percentage of subjects

Table 3

Teachers' Opinions of Average Characteristics of Kindergarten Children

Average Characteristics	First #	First %	Second #	Second %
Learning the Alphabet and Simple Words	9	18.4	10	20.4
Average Attention Span (Concentration)	7	14.3	3	6.1
Average Social Skills	3	6.1	3	6.1
Solving Simple Problems	3	6.1	7	14.3
Overall Average Level Skills	15	30.7	6	12.3
Needs Assistance in Some Kindergarten Skills	1	2.0		
Average Printing Skills	4	8.2		
Kindergarten Communication Skills	1	2.0		
Preference for Gross Motor Tasks Over Fine Motor Tasks	1	2.0		
Learning the Colours	1	2.0		
Average Kindergarten Participation			2	4.1
Following Simple Directions			1	2.0
Average Artistic Skills			1	2.0
No Response	4	8.2	16	32.7

Note. Teachers were asked to give first and second opinions of average characteristics. (n=49)

First : first opinion. Second : second opinion

-- Number of subjects. % -- Percentage of subjects

APPENDIX K

Parent Demographic Data of the Current Study

Parent Overview of Children's Intellectual Abilities

Table 1

PPNQ Biographic Data

Age of Children

	Mean	SD
Age	5.9	0.3

Gender of Children

Gender	Number of Cases	Percentage of Cases
Male	98	50.5
Female	96	49.5

n = 194.

PPNQ Demographic Data
Relationship of Respondents to the Child

Respondent	Number	Percentage
Mother	116	59.8
Father	12	6.2
Both Mother and Father	66	34.0

Table 1 —— Continued

Family Demographics

# of Adults in the Home	Number of Cases (n=194)	Percentage of Cases
1	23	11.9
2	158	81.4
3	7	3.6
4	6	3.1

# of Adults Working Outside the Home	Number of Cases (n=194)	Percentage of Cases
0	4	2.1
1	131	67.5
2	53	27.3
3	6	3.1

Family Residence	Number of Cases (n=194)	Percentage of Cases
Apartment	14	7.2
Duplex	12	6.2
Single Family Dwelling	168	86.6

Table 1 —— Continued

# of Siblings	Number of Cases (<u>n</u>=194)	Percentage of Cases
0	24	12.4
1	114	58.7
2	38	19.6
3	12	6.2
4	5	2.6
5	1	0.5

# of Brothers	Number of Cases (<u>n</u>=194)	Percentage of Cases
0	92	47.4
1	86	44.3
2	14	7.2
4	2	1.1

# of Sisters	Number of Cases (<u>n</u>=194)	Percentage of Cases
0	95	49.0
1	75	38.7
2	20	10.3
3	3	1.5
5	1	0.5

Table 1 —— Continued

Birth Order of Child	Number of Cases (n=194)	Percentage of Cases
1st	89	45.9
2nd	77	39.7
3rd	19	9.8
4th	7	3.6
5th	1	0.5
6th	1	0.5

Father's Education	Number of Cases (n=194)	Percentage of Cases
Grade 8 or below	11	5.7
Grade 9 - 10	21	10.8
Grade 11 - 12	81	41.8
Post-Secondary	72	37.1
No Response	9	4.6

Mother's Education	Number of Cases (n=194)	Percentage of Cases
Grade 8 or below	5	2.6
Grade 9 - 10	20	10.3
Grade 11 - 12	105	54.1
Post-Secondary	62	32.0
No Response	2	1.0

Table 1 —— Continued

# of Books in Home	Number of Cases (n=194)	Percentage of Cases
0	4	2.1
1 - 10	8	4.1
11 - 30	10	5.2
31 - 40	5	2.6
41 - 60	11	5.7
61 - 80	7	3.6
81 - 100	39	20.1
101 - 200	36	18.6
201 - 300	17	8.8
301 - 600	19	9.8
601 - 1000	6	3.1
Over 1000	4	2.1
Numerous	25	12.9
Few	2	1.0
No response	1	0.5

Table 1 —— Continued

# of Newspapers Subscribed to per Week	Number of Cases (n=194)	Percentage of Cases
0	35	18.0
1	93	48.0
2	52	26.8
3	12	6.2
4	1	0.5
7	1	0.5

# of News Magazines Subscribed to per Month	Number of Cases (n=194)	Percentage of Cases
0	104	53.6
1	40	20.6
2	36	18.6
3	9	4.6
4	4	2.1
5	1	0.5

# of Cultural Magazines Subscribed to per Month	Number of Cases (n=194)	Percentage of Cases
0	124	64.0
1	48	24.7
2	13	6.7
3	6	3.1
4	1	0.5
5	2	1.0

Table 1 —— Continued

# of Literary Magazines Subscribed to per Month	Number of Cases	(n=194)	Percentage of Cases
0	152		78.4
1	26		13.4
2	8		4.1
3	5		2.6
4	3		1.5

# of Educational Magazines Subscribed to per Month	Number of Cases	(n=194)	Percentage of Cases
0	106		54.6
1	45		23.1
2	29		14.9
3	8		4.1
4	2		1.0
5	3		1.5
6	1		0.5

# of Educational Television Programmes Watched by Child per Week	Number of Cases	(n=194)	Percentage of Cases
0	12		6.2
1 - 5	128		66.0
6 - 10	44		22.7
11 - 15	6		3.1
16 - 20	1		0.5
21 - 40	3		1.5

Table 2

PPNQ Demographic Data

Child's Favourite Educational Television Programme

Television Programme	Number of Cases	(n=194)	Percentage of Cases
Mr. Rogers	11		5.7
Zoom	3		1.5
Boomerang	5		2.6
Mr. Dressup	37		19.1
Polka Dot Door	6		3.1
Sesame Street	76		39.2
The Electric Company	15		7.7
3-2-1 Contact	12		6.2
That's Incredible	1		0.5
Animal World	3		1.5
Nature of Things	1		0.5
Muppets	2		1.0
I Like Myself	1		0.5
J. P. Patches	1		0.5
News from Zoos	1		0.5
Friendly Giant	2		1.0
Big Blue Marble	2		1.0
Art Cart	1		0.5
No Television Watching	11		5.7
No Response	3		1.5

Table 3

Parents' Opinions of Above Average Characteristics of Kindergarten Children

Above Average Characteristics	First #	First %	Second #	Second %
Excellent Reading Skills	27	13.9	15	7.7
Long Attention Span (Concentration)	19	9.8	10	5.2
Curiosity	4	2.1	3	1.5
Excellent Writing Skills	1	0.5	4	2.1
Extensive Vocabulary	13	6.7	3	1.5
Excellent Problem Solving Skills	12	6.2	10	5.2
Excellent Memory	4	2.1	3	1.5
Creative Art Abilities	6	3.1	5	2.6
Creative Imagination	1	0.5	2	1.0
Excellent Overall General Knowledge	5	2.6	1	0.5
Eagerness to Learn (Enthusiasm)	3	1.5	4	2.1
Originality	1	0.5		
Ability to Learn New Work Quickly	3	1.5	5	2.6
Initiate Own Projects (Self-sufficient)	4	2.1	5	2.6
Excellent Verbal Expression (Communication)	9	4.6	1	0.5
Excells in Learning	2	1.0	2	1.0
Understands Abstract Generalizations			7	3.6
Excellent Reasoning Ability			5	2.6
No Response	80	41.2	109	56.2

Note. Parents were asked to give first and second opinions of above average characteristics. (n=194)

First : first opinion. Second : second opinion

-- Number of subjects. % -- Percentage of subjects

Table 4

Parents' Opinions of Average Characteristics of Kindergarten Children

Average Characteristics	First #	First %	Second #	Second %
Learning the Alphabet and Simple Words	27	13.9	10	5.2
Average Attention Span (Concentration)	12	6.2	4	2.1
Average Social Skills	22	11.3	7	3.6
Solving Simple Problems	13	6.7	13	6.7
Overall Average Level Skills	27	13.9	11	5.7
Needs Assistance in Some Kindergarten Skills	3	1.5	3	1.5
Average Writing Skills	7	3.6	7	3.6
Average Communication Skills	1	0.5		
Average Fine Motor Control	1	0.5	2	1.0
Average Memory	2	1.0	1	0.5
Average Kindergarten Participation			2	1.0
Average Adjustment	2	1.0	2	1.0
Average Artistic Skills	3	1.5	2	1.0
Average Kindergarten Level Concepts			1	0.5
Learning the Colours			3	1.5
No Response	74	38.1	126	64.9

Note. Parents were asked to give first and second opinions of average characteristics. (n=194)

First : first opinion. Second : second opinion

-- Number of subjects. % -- Percentage of subjects

Table 5

PPNQ Demographic Data

Family Demographics by WPPSI Grouping Crosstabulation

# of Adults in the Home	# of Cases	Non-gifted #	Non-gifted %	Gifted #	Gifted %
1	23	19	12.5	4	9.5
2	158	124	81.6	34	80.9
3	7	5	3.3	2	4.8
4	6	4	2.6	2	4.8

($\chi^2=0.88$, df=2, $p>0.05$, levels 3 and 4 combined)

# of Adults Working Outside the Home	# of Cases	Non-gifted #	Non-gifted %	Gifted #	Gifted %
0	4	4	2.6	0	0.0
1	131	101	66.4	30	71.4
2	53	44	29.0	9	21.5
3	6	3	2.0	3	7.1

($\chi^2=1.29$, df=2, $p>0.05$, levels 2 and 3 combined)

Family Residence	# of Cases	Non-gifted #	Non-gifted %	Gifted #	Gifted %
Apartment	14	11	7.2	3	7.1
Duplex	12	11	7.2	1	2.4
Single Family Dwelling	168	130	85.6	38	90.5

($\chi^2=0.33$, df=1, $p>0.05$, levels 1 and 2 combined)

Note. # Number of subjects % Percentage of subjects
Total number of cases=194

Table 5 —— Continued

# of Siblings	# of Cases	Non-gifted #	Non-gifted %	Gifted #	Gifted %
0	24	18	11.8	6	14.3
1	114	90	59.2	24	57.1
2	38	30	19.7	8	19.0
3	12	10	6.6	2	4.8
4	5	4	2.7	1	2.4
5	1	0	0.0	1	2.4

($\chi^2=0.19$, df=3, $p>0.05$, levels 3, 4, and 5 combined)

# of Brothers	# of Cases	Non-gifted #	Non-gifted %	Gifted #	Gifted %
0	92	68	44.7	24	57.1
1	86	71	46.8	15	35.8
2	14	11	7.2	3	7.1
4	2	2	1.3	0	0.0

($\chi^2=2.04$, df=2, $p>0.05$, levels 2 and 4 combined)

# of Sisters	# of Cases	Non-gifted #	Non-gifted %	Gifted #	Gifted %
0	95	80	52.6	15	35.8
1	75	52	34.2	23	54.7
2	20	17	11.2	3	7.1
3	3	3	2.0	0	0.0
5	1	0	0.0	1	2.4

($\chi^2=5.87$, df=2, $p>0.05$, levels 2, 3 and 5 combined)

Table 5 —— Continued

Birth Order of Child	# of Cases	Non-gifted #	Non-gifted %	Gifted #	Gifted %
1st	89	67	44.1	22	52.4
2nd	77	62	40.8	15	35.7
3rd	19	16	10.5	3	7.1
4th	7	6	3.9	1	2.4
5th	1	1	0.7	0	0.0
6th	1	0	0.0	1	2.4

(χ^2=0.95, df=2, p>0.05, levels 3 to 6 combined)

Father's Education	# of Cases	Non-gifted #	Non-gifted %	Gifted #	Gifted %
Grade 8 or below	11	11	7.2	0	0.0
Grade 9 - 10	21	18	11.9	3	7.1
Grade 11 - 12	81	68	44.7	13	31.0
Post-Secondary	72	47	30.9	25	59.5
No Response	9	8	5.3	1	2.4

(χ^2=9.62, df=1, p<0.05, levels 1 to 3 combined)

Mother's Education	# of Cases	Non-gifted #	Non-gifted %	Gifted #	Gifted %
Grade 8 or below	5	5	3.3	0	0.0
Grade 9 - 10	20	20	13.2	0	0.0
Grade 11 - 12	105	85	55.9	20	47.6
Post-Secondary	62	41	27.0	21	50.0
No Response	2	1	0.6	1	2.4

(χ^2=7.48, df=1, p<0.05, levels 1 to 3 combined)

Table 5 —— Continued

# of Books in Home	# of Cases	Non-gifted #	Non-gifted %	Gifted #	Gifted %
0	4	4	2.6	0	0.0
1 - 10	8	8	5.3	0	0.0
11 - 30	10	8	5.3	2	4.8
31 - 40	5	5	3.3	0	0.0
41 - 60	11	10	6.6	1	2.4
61 - 80	7	6	3.9	1	2.4
81 - 100	39	35	23.0	4	9.5
101 - 200	36	32	21.0	4	9.5
201 - 300	17	13	8.5	4	9.5
301 - 600	19	10	6.6	9	21.4
601 - 1000	6	0	0.0	6	14.3
Over 1000	4	3	2.0	1	2.4
Numerous	25	15	9.9	10	23.8
Few	2	2	1.3	0	0.0
No Response	1	1	0.7	0	0.0

(χ^2=31.31, df=2, p<0.05)

levels 1 to 100 and 'Few' combined
levels 101 to 300 combined
levels 301 or more and 'Numerous' combined

Table 5 —— Continued

# of Newspapers Subscribed to per Week	# of Cases	Non-gifted #	%	Gifted #	%
0	35	31	20.4	4	9.5
1	93	73	48.0	20	47.6
2	52	37	24.3	15	35.8
3	12	9	5.9	3	7.1
4	1	1	0.7	0	0.0
7	1	1	0.7	0	0.0

(χ^2=3.74, df=3, p>0.05, levels 3, 4, and 7 combined)

# of News Magazines Subcribed to per Month	# of Cases	Non-gifted #	%	Gifted #	%
0	104	80	52.6	24	57.1
1	40	31	20.4	9	21.4
2	36	30	19.7	6	14.3
3	9	7	4.6	2	4.8
4	4	3	2.0	1	2.4
5	1	1	0.7	0	0.0

(χ^2=0.67, df=3, p>0.05, levels 3, 4, and 5 combined)

# of Cultural Magazines Subcribed to per Month	# of Cases	Non-gifted #	%	Gifted #	%
0	124	104	68.4	20	47.6
1	48	32	21.1	16	38.1
2	13	9	5.9	4	9.5
3	6	6	3.9	0	0.0
4	1	0	0.0	1	2.4
5	2	1	0.7	1	2.4

(χ^2=6.50, df=2, p<0.05, levels 2 to 5 combined)

Table 5 —— Continued

# of Literary Magazines Subscribed to per Month	# of Cases	Non-gifted #	%	Gifted #	%
0	152	120	78.9	32	76.1
1	26	24	15.8	2	4.8
2	8	4	2.6	4	9.5
3	5	3	2.0	2	4.8
4	3	1	0.7	2	4.8

(χ^2=0.03, df=1, p>0.05, levels 1 to 4 combined)

# of Educational Magazines Subscribed to per Month	# of Cases	Non-gifted #	%	Gifted #	%
0	106	92	60.5	14	33.3
1	45	35	23.0	10	23.8
2	29	17	11.1	12	28.6
3	8	5	3.3	3	7.1
4	2	1	0.7	1	2.4
5	3	1	0.7	2	4.8
48	1	1	0.7	0	0.0

(χ^2=14.83, df=3, p<0.05, levels 3 to 48 combined)

# of Educational Television Programmes Watched by Child per Week	# of Cases	Non-gifted #	%	Gifted #	%
0	12	12	7.9	0	0.0
1 - 5	128	97	63.8	31	73.8
6 - 10	44	35	23.1	9	21.4
11 - 15	6	6	3.9	0	0.0
16 - 20	1	0	0.0	1	2.4
21 - 40	3	2	1.3	1	2.4

(χ^2=0.01, df=1, p>0.05)

levels 0 to 5 combined
levels 6 to 40 combined

Table 6

PPNQ Demographic Data

Child's Favourite Educational Television Programme

by WPPSI Grouping Crosstabulation

Television Programme	# of Cases	Non-gifted #	Non-gifted %	Gifted #	Gifted %
Mr. Rogers	11	7	4.6	4	9.5
Zoom	3	2	1.3	1	2.4
Boomerang	5	3	1.9	2	4.8
Mr. Dressup	37	29	19.0	8	19.0
Polka Dot Door	6	5	3.3	1	2.4
Sesame Street	76	67	44.0	9	21.4
The Electric Company	15	11	7.2	4	9.5
3-2-1 Contact	12	5	3.3	7	16.6
That's Incredible	1	1	0.7	0	0.0
Animal World	3	1	0.7	2	4.8
Nature of Things	1	1	0.7	0	0.0
Muppets	2	2	1.3	0	0.0
I Like Myself	1	1	0.7	0	0.0
J. P. Patches	1	1	0.7	0	0.0
News from Zoos	1	0	0.0	1	2.4
Friendly Giant	2	2	1.3	0	0.0
Big Blue Marble	2	1	0.7	1	2.4
Art Cart	1	1	0.7	0	0.0
No Television Watching	11	11	7.2	0	0.0
No Response	3	1	0.7	2	4.8

Note. # Number of subjects % Percentage of subjects

Total number of cases=194

Table 7

Mean Age of Children in Gifted and Non-gifted Groups

Age (VKT, WPPSI, PTNQ, PPNQ)	Mean	SD
Gifted	5.7	0.3
Non-gifted	5.8	0.3

APPENDIX L

Teacher Questionnaire Item Analysis

Current Study

Table 1

TOTAL TEACHER SAMPLE: Current Study

Teacher Questionnaire: Verbal Subtest

Item		I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	I37	I38
Percentages	01	39.2	40.7	42.8	62.9	61.3	10.8	52.6	72.2	88.7	5.7	67.5	80.4	64.9	13.4
	02	60.8	59.3	57.2	37.1	38.7	89.2	47.4	27.8	11.3	94.3	32.5	19.6	35.1	86.5
Item Means		1.608	1.593	1.572	1.371	1.387	1.892	1.474	1.278	1.113	1.943	1.325	1.196	1.351	1.866
Item S D		0.489	0.493	0.496	0.484	0.488	0.312	0.501	0.449	0.318	0.232	0.469	0.398	0.478	0.342
External Criterion Correlation		0.535	0.540	0.512	0.569	0.386	0.258	0.462	0.506	0.352	0.183	0.282	0.296	0.291	0.275

Note. Standard Error of Measurement = 1.29
Internal Consistency (Hoyt) = 0.87

O = Options 01 = No 02 = Yes

I = Items

S D = Standard Deviation

External criterion is the teacher estimated ability.

n = 194.

Table 1 —— Continued

TOTAL TEACHER SAMPLE: Current Study

Teacher Questionnaire: Mathematics Subtest

Item		I13	I14	I15	I16	I17	I18	I19	I20	I21	I22	I23	I24	I25	I26
Percentages	01	26.3	31.4	68.0	42.3	74.2	96.9	84.5	88.7	91.8	14.9	76.8	92.3	13.9	63.9
	02	73.7	68.6	32.0	57.7	25.8	3.1	15.5	11.3	8.2	85.1	23.2	7.7	86.1	36.1
Item Means		1.737	1.686	1.320	1.577	1.258	1.031	1.155	1.113	1.082	1.851	1.232	1.077	1.861	1.361
Item S D		0.441	0.465	0.468	0.495	0.439	0.174	0.362	0.318	0.276	0.357	0.423	0.268	0.347	0.481
External Criterion Correlation		0.438	0.474	0.360	0.336	0.350	0.192	0.288	0.254	0.134	0.245	0.346	0.311	0.284	0.377

Note. Standard Error of Measurement = 1.21
Internal Consistency (Hoyt) = 0.83

O = Options 01 = No 02 = Yes

I = Items

S D = Standard Deviation

External criterion is the teacher estimated ability.

n = 194.

Table 1 — Continued

TOTAL TEACHER SAMPLE: Current Study

Teacher Questionnaire: Spatial Subtest

Item		I27	I28	I29	I30	I31	I32	I33	I34	I35	I36	I39	I40	I41	I42
Percentages	01	2.1	3.6	21.1	83.0	23.7	25.3	38.7	50.5	72.7	84.0	64.9	18.0	75.3	46.4
	02	97.9	96.4	78.9	17.0	76.3	74.7	61.3	49.5	27.3	16.0	35.1	82.0	24.7	53.6
Item Means		1.979	1.964	1.789	1.170	1.763	1.747	1.613	1.495	1.273	1.160	1.351	1.820	1.247	1.536
Item S D		0.142	0.187	0.409	0.377	0.426	0.436	0.488	0.501	0.447	0.367	0.478	0.386	0.433	0.500
External Criterion Correlation		0.135	0.180	0.279	0.184	0.227	0.255	0.420	0.320	0.195	0.243	0.226	0.302	0.425	0.223

Note. Standard Error of Measurement = 1.31
Internal Consistency (Hoyt) = 0.80

O = Options 01 = No 02 = Yes

I = Items

S D = Standard Deviation

External criterion is the teacher estimated ability.

n = 194.

Table 1 —— Continued

TOTAL TEACHER SAMPLE: Current Study

Teacher Questionnaire: Total Test

Number of Items = 42
Highest Score = 84.00
Lowest Score = 43.00
Mean = 62.22
Standard Deviation = 8.83
Internal Consistency (Hoyt) = 0.93
S. E. of Measurement = 2.30
Internal Consistency (Cronbach's Alpha) = 0.88

n = 194.

APPENDIX M

Parent Questionnaire Item Analysis

Current Study

Table 1

TOTAL PARENT SAMPLE: Current Study

Parent Questionnaire: Verbal Subtest

Item		I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	I37	I38
Percentages	01	26.3	32.0	29.9	59.3	46.4	4.6	45.4	69.6	88.1	1.5	68.6	72.7	58.2	10.8
	02	73.7	68.0	70.1	40.7	53.6	95.4	54.6	30.4	11.9	98.5	31.4	27.3	41.8	89.2
Item Means		1.737	1.680	1.701	1.407	1.536	1.954	1.546	1.304	1.119	1.985	1.314	1.273	1.418	1.892
Item S D		0.441	0.468	0.459	0.493	0.500	0.211	0.499	0.461	0.324	0.124	0.465	0.447	0.494	0.312
External Criterion Correlation		0.334	0.422	0.375	0.174	0.416	0.099	0.358	0.364	0.262	-0.004	0.369	0.299	0.204	0.096

Note. Standard Error of Measurement = 1.35
Internal Consistency (Hoyt) = 0.80

O = Options 01 = No 02 = Yes

I = Items

S D = Standard Deviation

External criterion is the parent estimated ability.

n = 194.

Table 1 —— Continued

TOTAL PARENT SAMPLE: Current Study

Parent Questionnaire: Mathematics Subtest

Item		I13	I14	I15	I16	I17	I18	I19	I20	I21	I22	I23	I24	I25	I26
Percentages	01	19.1	31.9	56.2	38.1	73.2	95.4	88.1	87.1	90.7	18.0	69.1	87.6	12.4	64.4
	02	80.9	68.0	43.8	61.9	26.8	4.6	11.9	12.9	9.3	82.5	30.9	12.4	87.6	35.6
Item Means		1.804	1.675	1.428	1.619	1.268	1.046	1.119	1.129	1.093	1.820	1.309	1.124	1.876	1.356
Item S D		0.411	0.480	0.517	0.487	0.444	0.211	0.324	0.336	0.291	0.386	0.463	0.330	0.330	0.480
External Criterion Correlation		0.274	0.280	0.353	0.311	0.309	0.112	0.193	0.231	0.162	0.120	0.235	0.045	0.123	0.114

Note. Standard Error of Measurement = 1.30
Internal Consistency (Hoyt) = 0.77

O = Options 01 = No 02 = Yes

I = Items

S D = Standard Deviation

External criterion is the parent estimated ability.

n = 194.

Table 1 —— Continued

TOTAL PARENT SAMPLE: Current Study

Parent Questionnaire: Spatial Subtest

Item		I27	I28	I29	I30	I31	I32	I33	I34	I35	I36	I39	I40	I41	I42
Percentages	01	1.0	5.2	17.0	83.0	12.9	17.5	34.5	36.1	68.0	76.8	55.7	14.4	67.0	26.8
	02	99.0	94.8	83.0	17.0	87.1	82.5	65.5	63.9	32.0	23.2	44.3	85.6	33.0	73.2
Item Means		1.990	1.948	1.830	1.170	1.871	1.825	1.655	1.639	1.320	1.232	1.443	1.856	1.330	1.732
Item S D		0.101	0.222	0.377	0.377	0.336	0.381	0.477	0.481	0.468	0.423	0.498	0.352	0.471	0.444
External Criterion Correlation		0.070	0.160	0.163	0.072	0.000	0.083	0.219	0.147	0.265	0.357	0.078	0.219	0.248	0.240

Note. Standard Error of Measurement = 1.33
Internal Consistency (Hoyt) = 0.72

O = Options 01 = No 02 = Yes

I = Items

S D = Standard Deviation

External criterion is the parent estimated ability.

n = 194.

Table 1 —— Continued

TOTAL PARENT SAMPLE: Current Study

Parent Questionnaire: Total Test

Number of Items = 42
Highest Score = 82.00
Lowest Score = 47.00
Mean = 64.37
Standard Deviation = 7.06
Internal Consistency (Hoyt) = 0.88
S. E. of Measurement = 2.41
Internal Consistency (Cronbach's Alpha) = 0.77

n = 194.

APPENDIX N

Statistical Characteristics of the VKT, WPPSI, PTNQ, and PPNQ

Table 1

Type of Reliability Coefficients Computed

Test	Reliability Coefficients	Items
WPPSI		
Information	Split-Half (odd vs. even)[3]	I1-CI[1]
Vocabulary	Split-Half (odd vs. even)	I1-CI
Arithmetic	Split-Half (odd vs. even)	BI-CI[2]
Similarities	Split-Half (odd vs. even)	I1-CI
Comprehension	Split-Half (odd vs. even)	I1-CI
Sentences	Split-Half (odd vs. even)	I1-CI
Animal House	None	
Picture Completion	Split-Half (odd vs. even)	I1-CI
Mazes	Split-Half (odd vs. even)	I1-CI
Geometric Design	Split-Half (odd vs. even)	I1-CI
Block Design	Split-Half (odd vs. even)	BI-CI
		Tests
Verbal IQ	Reliabilities of a	5 Verbal
Performance IQ	composite group of	4 Performance
Full Scale IQ	tests (Guilford, 1954)[4]	9 Full Scale
VKT		
Vocabulary	Hoyt's ANOVA	All Items
Perceptual Motor	Hoyt's ANOVA	All Items
Man	None	
Full Scale IQ	Cronbach's Stratified *a*	2 Tests
PTNQ and PPNQ		
Verbal	Hoyt's ANOVA, Test-Retest	All Items
Math	Hoyt's ANOVA, Test-Retest	All Items
Spatial	Hoyt's ANOVA, Test-Retest	All Items
Total	Cronbach's Stratified *a*, Test-Retest	3 Tests

[1] I1-CI Item 1 through ceiling item were used in the calculation

[2] BI-CI Basal item through ceiling item were used in the calculation

[3] Split-half (odd-even) corrected by the Spearman-Brown

[4] The sentence subtest was not included in the computation of reliability of Verbal or Full Scale IQ's (cf. Wechsler, 1967, p. 22).

Table 2

WPPSI: Means, Standard Deviations, Spearman-Brown Split-Half Reliability Coefficients and Standard Errors of Measurement

Verbal Subtests	Mean	SD	R	SEM
Information	12.35	2.85	0.68	1.61
Vocabulary	12.81	3.57	0.85	1.38
Arithmetic	11.67	2.97	0.80	1.33
Similarities	11.87	2.96	0.81	1.29
Comprehension	12.76	3.47	0.77	1.66
Sentences[1]	12.04	3.08	0.82	1.31
Performance Subtests				
Animal House[2]	11.71	2.71	--	--
Picture Completion	12.35	2.47	0.71	1.33
Mazes	12.72	2.79	0.84	1.12
Geometric Design	13.20	3.30	0.85	1.28
Block Design	12.50	2.70	0.84	1.08
Sums of Scaled Scores				
Verbal IQ[3]	114.33	15.90	0.93	4.21
Performance IQ	117.00	13.55	0.92	3.83
Full Scale IQ	117.21	14.63	0.93	3.87

[1] The sentences subtest was not included in the computation of the Verbal and Full Scale R and SEM (Wechsler, 1967, p. 22).

[2] The Animal House subtest reliability can not be calculated by the split-half reliability process (Wechsler, 1967, p. 22).

[3] The Verbal, Performance, and Full Scale reliabilities were calculated from the formula for the reliability of a composite group of tests (Guilford, 1954, p. 393).

n=194

Table 3

VKT Means, Standard Deviations, Reliability Coefficients[1], and Standard Errors of Measurement

	K	Mean	SD	R	SEM
VKT					
Perceptual Motor	3	115.02	16.97	--	--
Vocabulary	11	124.46	22.55	--	--
Man	--	116.75	15.92	--	--
Total	14	118.56	14.27	--	--

[1] Reliability coefficients were not calculated for the VKT. See Vane (1968) for test-retest reliability coefficients.

N=194

APPENDIX O

Estimated Abilities Discriminant Function Analyses

Table 1

Discriminant Function Analysis: Wilks Stepwise Method on the Estimated Abilities of the PTNQ and PPNQ

PTNQ			
	F-to-Enter prior to step 1	F-to-enter after step 1	Wilks Lambda
General	9.19 *	0.35	0.937
Reading	8.90 *	2.39	0.927
Spatial	11.42 *	2.20	0.928
Memory	6.89 *	0.02	0.938
Mathematical	2.76	0.98	0.934
Language	12.57 *		0.939

PPNQ			
	F-to-Enter prior to step 1	F-to-enter after step 1	Wilks Lambda
General	20.52 *		0.903
Reading	19.57 *	5.72	0.877
Spatial	6.66 *	0.05	0.903
Memory	9.03 *	1.17	0.898
Mathematical	9.47 *	0.18	0.903
Language	3.52	0.51	0.901
	F-to-Enter prior to step 2	F-to-enter after step 2	Wilks Lambda
General			0.907
Reading	5.72 *		0.903
Spatial	0.05	0.00	0.877
Memory	1.17	0.46	0.875
Mathematical	0.18	0.00	0.877
Language	0.51	0.66	0.874

*$p<.05$. $F=3.89$ $\nu_1=1$ $\nu_2=192$

APPENDIX P

Questionnaire Subtests Discriminant Function Analyses

Table 1

Pearson Product-moment Correlations Between the WPPSI Scores and the Scores of the Subtests and Total Test of the PTNQ and PPNQ

PTNQ

	WPPSI	Total	Verbal	Math	Spatial
WPPSI	1.00				
Total	0.60 *	1.00			
Verbal	0.54 *	0.91 *	1.00		
Math	0.56 *	0.92 *	0.76 *	1.00	
Spatial	0.52 *	0.88 *	0.68 *	0.72 *	1.00

PPNQ

	WPPSI	Total	Verbal	Math	Spatial
WPPSI	1.00				
Total	0.52 *	1.00			
Verbal	0.50 *	0.86 *	1.00		
Math	0.39 *	0.82 *	0.57 *	1.00	
Spatial	0.40 *	0.78 *	0.54 *	0.44 *	1.00

*$p<.05$.

Table 2

Discriminant Function Analyses

Wilks Stepwise Method on the Subtests of the PTNQ

	F to Enter		Wilks Lambda
Verbal	0.90	*	0.850
Math	4.05	*	0.854
Spatial	28.08	*	0.872

Wilks Stepwise Method on the Subtests of the PPNQ

	F to Enter		Wilks Lambda
Verbal	27.02	*	0.877
Math	0.48	*	0.874
Spatial	1.91	*	0.868

*$p < .05$.

Table 3

Prediction Accuracy of the Questionniare Subtests

PTNQ

Actual Group	# of Cases	Predicted Group Non-gifted	Gifted
Non-gifted	152	148 97.4%	4 2.6%
Gifted	42	33 78.6%	9 21.4%

Total prediction accuracy: 80.93%

$\underline{n}$=194

PPNQ

Actual Group	# of Cases	Predicted Group Non-gifted	Gifted
Non-gifted	152	146 96.1%	6 3.9%
gifted	42	29 69.0%	13 31.0%

Total Prediction Accuracy: 81.96%

$\underline{n}$=194.

FORMAT name PORTAIT is invalid. Near record 10451 page 345 line 56.