DOCUMENT RESUME

ED 200 307 PS 012 053

AUTHOR Biemiller, Andrew J.
TITLE Characteristics of Kindergarten Children Perceived as "Thriving," "Average," or "Non-Thriving" by Their Teachers.
PUB DATE [80]
NOTE 46p.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Achievement Rating; Behavior Rating Scales; Foreign Countries; *Identification; Informal Assessment; *Interpersonal Competence; *Kindergarten Children; Personality Traits; Preschool Teachers; Primary Education; Student Characteristics; *Student Evaluation; *Teacher Attitudes
IDENTIFIERS *Canada; Circus Assessment Battery; Ontario

ABSTRACT

This study reported a number of differences between kindergarten children perceived by their teachers to be "thriving," "average," or "not as yet thriving." Subjects were 340 4- and 5-year-old children from 59 kindergarten classrooms. Results indicated that the three groups of children differed in a wide range of teacher-rated developmental characteristics such as social skills with children and adults, some temperamental traits, self-confidence, involvement in activities, and frequency of seeking adult help. In addition, subjects were found to differ in language and academic skills assessed on CIRCUS tests, self-control, test taking strategies, seeking adult help as rated by testers, and activity preferences as rated by parents. (Author/JA)

Characteristics of Kindergarten Children Perceived As "Thriving", "Average", or "Non-Thriving" by Their Teachers

Andrew J. Biemiller

University of Toronto

Running head: Thriving, Average, and Non-Thriving Kindergartners

Abstract

Presents results of a study of 340 4 and 5 year old kindergarten children from 59 classrooms in 3 different kinds of kindergarten programs--half-day, alternate full-day and full-day. Teachers selected 131 children (including 76 females) as "thriving" in terms of their goals, 119 children (51 females) as "average", and 90 (31 females) as "not as yet thriving." Teacher ratings indicated that compared to non-thrivers, thrivers were significantly more socially skilled with children and adults, were more willing to approach new situations, more persistent on tasks, and adapted better to change. Teachers also rated thrivers as very much more confident, and reported that they more frequently engaged in a wide range of activities. They sought adult help less frequently, and showed no differences in preferences for playing with peers. CIRCUS Test results indicated that thrivers had more advanced language and mathematics skills than non-thrivers, and could recognize more letters and numbers. Testers rated thrivers as using more effective test strategies, demonstrating more self control, and seeking less adult assistance. Parents reported that thrivers choose academic activities more frequently than non-thrivers. Parents reported no differences between groups in preferences for playing with peers and seeking adult help. Results are discussed in relation to other research on social competence and vulnerability, and in terms of research and practical implications.

Characteristics of Kindergarten Children Perceived as "Thriving", "Average", or "Non-Thriving" by Their Teachers

The purpose of this paper is to report a number of differences between kindergarten children perceived by their teachers to be "thriving", "average", or "not as yet thriving." The children and teachers studied were sampled from six school boards in Ontario, Canada, including both rural and urban districts and three different kinds of programs. The significance of teachers' perceptions of who thrives in kindergarten programs lies in the fact that kindergarten teachers are good predictors of children's future academic progress in school (DeHirsch, Jansky, & Langford, 1966; Jansky & DeHirsch, 1972; O'Bryan, 1976, pp. 50-55) and thus that characteristics perceived by teachers to distinguish thriving from non-thriving children may have considerable practical significance.

Simply classifying children as "thriving", "average", or "not-as-yet thriving" appears to be a very simple and perhaps crude approach to understanding teachers' perceptions of children. The fundamental point of this paper is that teachers in six different school districts, hundreds of miles apart, demonstrated surprising uniformity in characreristics they assigned to children they rated as "thriving" or otherwise. Some independent evidence in the form

of test performance, tester ratings, and some parent ratings also differentiated between thrivers and non-thrivers consistently across the six school districts. In short, this paper provides a description of some of the features which make up kindergarten teachers' perceptions of thriving or doing well in their programs.

Prescott has reported that children in day care who were perceived by their teachers to be "thriving in terms of your goals" differed substantially from children perceived as "not as yet thriving in terms of your goals" in a wide variety of behavioral characteristics rated by independent observers. (Prescott, 1973). Summarizing her findings, Prescott noted that "thrivers . . . (1) . . . get along well with other children . . . . (2) . . . enjoy activities which the teacher offers . . . . and (3) . . . can negotiate and make demands on adults and children." "Non-thrivers , on the other hand (1) . . . . received negative responses from adults and children; (2) . . . did not get along well with other children . . . . (3) . . . could not negotiate effectively with adults or children . . . . and (4) . . . differed from other children in energy level, size, coordination, and ability to make use of small muscle activity." "Average children (1) . . . can get along with other children . . . . (2) . . . do not require or demand much attention from adults . . . and (3) . . . do not necessarily negotiate or make demands on adults or children."

(Prescott, 1973, pp. 90-91).

Prescott also found interactions between thrive rating and type of day care center ("open" vs. "closed" referring to degree of child choice or control of time in program). In "open" centers, non-thrivers were observed to avoid tasks requiring problem solving and to reject other children in contrast to high involvement in tasks and social activities by thrivers. In closed centers non-thrivers experienced more frustration, aggression and adult interference, in contrast to friendly interactions with teachers and concentration on tasks by thrivers.

Prescott's descriptions of thrivers and non-thrivers parallel to some extent descriptions by Murphy and Moriarity (1976) of "Vulnerable" children (children who "fall apart" under stress); Garmezy, Nordstrom, and Ferrarese (in press) of children "at risk" for various types of psychotherapy; and Thomas, Chess, and Birch (1968) for "difficult children." In each case, less adaptive children are marked by a lack of social skills with children and adults, patterns of more intense response to frustration, change, or novelty, negative moods, and lack of confidence. Both Prescott and Thomas, et al., stress a reciprocal relationship between the environment and the child, with Prescott noting that "the clearest trend of the behavior data was the theme of unpleasant and less rewarding experience for non-thrivers" (1973, p. 22).

The present study was a by-product of research I conducted

on the effects of half-day, alternate full-day, and full-day kindergarten programs (Biemiller, 1978). Prescott's design for studying program effects was adopted on the assumption that program differences would probably have more of an effect on "vulnerable" or "non-thriving" children than others, because the full-day kindergarten programs would involve greater stress. In reality, I found almost no main effects for program type, nor interactions with teacher's thrive ratings. However, I found large differences across all programs were associated with thrive ratings. These are reported in this paper. In effect, the different programs provided replications of the same treatment - categorization by teachers as thriving, average, or non-thriving.

Child Characteristics Studied. Four categories of developmental characteristics were studied in an attempt to maintain a "whole child" focus. These were (1) constitutional capacities; (2) skills; (3) emotional characteristics (including self processes); and (4) behavior. This categorization was based on analyses of longitudinal and social learning research by Mischel (1968, 1973) and Kohlberg, Lacrosse, and Ricks (1969) noting the stability of cognitive and skill variables across age and situations in contrast to the instability of behavior variables. Data on emotional functioning including temperament and self-confidence were based on characteristics cited by Prescott, Murphy, Thomas, et al., and Garmezy, as well as Bandura's (1977) emphasis on the role of self-process variables

in behavior. In the present study, only health was included under constitutional capacities.

Sample and Methods

Sample. Data is available for 340 children from 59 classes. These children attended three different kinds of kindergarten programs including junior (4 year old) and senior (5 year old) kindergarten children from rural half-day and rural alternate full-day programs; and senior kindergarten children from rural and urban full-day programs. All children attended Roman Catholic Separate Schools.[1]

School boards were selected on the basis of the types of programs they offered. All boards contacted agreed to participate in the study. Two boards were included for each type of program except for half-day programs, for which only one board was available.

Analysis of teacher's descriptions of their programs indicated that children in alternate full-day programs spent about 16 hours a week in school compared to half-day children who spent 12 hours a week. Full-day children spent about 33 hours a week in school. The content of half-day and alternate full-day programs was similar in terms of proportions of time spent in free play, teacher directed, teacher instruction, and other activities. Full-day children received an extra 8 hours a week of direct instruction, as well as additional time in teacher directed and physical education activities.

Teachers were identified by school board personnel and then

contacted directly and invited to participate in the study. Of 61 teachers approached, 59 agreed to participate.

Teachers were asked to nominate two children "whom you consider to be really thriving in your program;" two "who are developing in an average or typical way;" and two "whom you consider to be not yet thriving as well as hoped in your program." Letters were sent to the parents of these children requesting permission for the children to participate in the study. Although records were not kept on refusals, teachers reported that there were very few cases of refusal by parents.

Not all teachers felt able to identify two non-thrivers. Thus the final sample contained 131 thrivers; 119 average children and 90 non-thrivers. One hundred and eleven children were in junior kindergartens (kindergartens for 4 year old children). Because the study was conducted late in the school year, not all teachers were able to complete rating forms, reducing the sample for whom teacher rating data is available on various questionnaires. (N's are given with each questionnaire.)

The sex distribution of the children varied significantly by thrive-rating. Fifty-eight percent of children perceived to be thrivers were female, while 43% of average children were female and only 34% of non-thrivers were female. Overall, 46% of children in the sample were female.

Measures

1. Health. Health was assessed by days absent for illness. This information was obtained from school records and cross checked with parents to eliminate absences due to vacations, etc.

2. Social Skills. Social skills with peers and adults, in adult-led groups, and empathy were assessed with a 19 item social ability questionnaire filled out by teachers for each child. The first 12 items were based on Professor Mary Wright's teacher rating scale derived from White, Kaban, Marmor, and Shapiro's (1973) analysis of social competence. Individual items concern the frequency of success or failure in leading peers, gaining peer attention, using peers as resources, expressing affection to peers, and the same skills in relation to adults. Frequency was rated on a 5 point scale ranging from "never or less than once a month" to "several times a day". For purposes of reporting results in this study, responses were divided between "at least once a day" or more often and "at least once a week" or less often.

Professor Wright reports significant correlations between teacher ratings of nursery school children's skills with peers and observational records of the same skills ranging from .38 to .61 at two different periods. (note 1). However, she reports that correlations between teachers' ratings of the same children's skills

with adults and observational records were for the most part low and non-significant. Bolstad and Johnson (1977) studied the relationship between teacher categorizations of third grade children as "best behaved", "average behaved" and "least well-behaved", teacher ratings of behavior and observed behavior. They report that teacher ratings were corroborated by independent observers, particularly for attention to task and appropriateness of peer interaction. Kohn and Rosman (1972) report high levels of teacher agreement on behavioral ratings of 3 to 4 year old children, and substantial longitudinal correlations for such ratings over 6 month intervals.

The remaining 7 items on the social abilities questionnaire were developed by my research associate, Michael Rochford, and myself. These items concerned the child's abilities in adult-led groups (participation, answering questions, blurting out answers, listening to others, and adressing the group), as well as the child's awareness of and concern for others. These items were rated on a 5 point scale ranging from "never or almost never" to "very often". For purposes of reporting data, responses were divided between "often" or "very often" and "occasionally" or lower frequency alternatives.

No independent data is available for these group skills and empathy items regarding their validity. Thus their value at this point is strictly descriptive. In the present study, teachers were found to discriminate sharply between children perceived as "thriving" and children not perceived as "thriving", on the items.

3. Language. The CIRCUS Say and Tell test (Educational Testing Service, 1974) was administered to all children in groups of three. This test has several components:

a. description: child is asked to describe a pencil and then two pennies. Score reflects number of features described.

b. functional language: child supplies words to pictures requiring correct syntax (e.g., plurals, tense, etc.). This test is based on Berko's (1958) study of children's syntax. Score reflects two points for correct items and one point for partially correct items. The maximum possible

score was 76.

c. narrative--total words: child is asked to tell a story about a complex picture of a circus. There is a three minute time limit. Score reflects total words.

d. narrative--total different words: score reflects total different words in child's story.

e. narrative--quality: score reflects use of organization, feelings, modifiers, and other characteristics. Maximum possible score is 12.

Educational Testing Services (1976) reports that their Say and Tell language measure appears to assess skills that are relatively independent of other measures in the CIRCUS battery. Alpha reliability ranges from .72 to .89 for the three scales. Teachers do not appear sensitive to the abilities surveyed. On the other hand, the vocabulary, grammatical skills, and general effectiveness of communication examined in Say and Tell reflect characteristics which Loban (1976) has found to be consistently associated with advanced oral language and writing performance throughout elementary and high school.

4. Mathematics. The CIRCUS How Much and How Many? (Educational Testing Services, 1974) test was administered to groups of three children. The score reflects total correct out of 42 items on various quantitative concepts (e.g., number names, counting, relative sizes etc.).

5. Letter and Number recognition. The CIRCUS Finding Letters and Numbers test (Educational Testing Service, 1974) was administered

to groups of three children. The letter score reflects the number correctly recognized (choice of three) when the examiner named a letter. Maximum possible was 15. Maximum possible on the number section was 5.

Educational Testing Service (1976) reports a 6 month longitudinal correlation for How Much and How Many? of .60 (n=1179). Teachers' ratings of quantitative skills correlated .55 with How Much and How Many and .39 with Finding Letters and Numbers. The alpha reliabilities are reported to be .87 and .86 respectively.

6. Strategies in Test Situation. Item 9, 12, and 13 on the CIRCUS Behavior Inventory (Educational Testing Service, 1974) filled out by the testers reflect the child's strategies in the test situation. Item 9 concerns keeping one's place on the tests, item 12 appearing to answer randomly, and item 13, weighing alternatives carefully. These were rated on a 3 point response scale ranging from "rarely or never" to "often or usually".

7. Temperament Questionnaire. This 64 item questionnaire for teachers was adopted directly from Thomas and Chess, (1977, pp. 239-247). It includes eight eight-item scales intended to assess temperamental traits including approach/withdrawal (to new situations); persistence; adaptability to new situations; activity level; distractability; mood; threshold of response to levels of stimulation; and intensity of reactions. All items are rated on a 7 point basis ranging from "hardly ever" to "almost always."

This scale was adapted by Professors Thomas and Chess and Dr. S. Korn from their temperament rating scale for use by parents. Items in the parent scale were derived from their longitudinal study of temperament (Thomas and Chess, 1977, Thomas, Chess, and Birch, 1968). Each item describes specific situations and responses indicative of a high or low level of the temperamental characteristic in question. Each item in the final parent scale was significantly correlated with the temperamental trait being measured as rated on the basis of a detailed parental interview. Their teacher scale, used here, contains largely the same items, adapted as necessary for classroom conditions.

8. Self Confidence Questionnaire. Three questions concerning willingness to try new skills; response to failure; and general approach to new situations were asked of teachers. Details will be given in the results section.

As with the parts of the Social Skills Questionnaire, the Self-Confidence Questionnaire was used for the first time in this study. Thus no independent reliability or validity information is available. For purposes of relating characteristics described in this questionnaire to teachers' thrive ratings of children, individual items are more useful than combining items as scales.

9. Self Control. Self control in the testing situation was rated by the research assistants giving the tests. At the time of testing, they were not informed of the children's thrive ratings. Self control items were taken from the CIRCUS Behavior Inventory (Educational Testing Service, 1974) and concerned engaging in

behaviors that were not permitted or inappropriate. These include items 4 "told answer out loud"; and 14, "spoke about unrelated events". Each item was rated on a 3 point response scale, ranging from "rarely or never" to "often or usually".

10. Behavior. The CIRCUS Activities Inventory (Educational Testing Service, 1974) was administered to both teachers and parents. This questionnaire describes a number of specific activities categorized as physical-motor, academic, role playing, and music/art. Ratings were obtained concerning:

a. frequency of engaging in specified activities;

b. preference for being alone vs. with peers in specified activities;

c. frequency of seeking adult help in specified activities.

Educational Testing Services reports alpha reliabilities of ranging from .83 to .90 for Activity Inventory items concerning activities, peers, and adult help. In the present paper, results are reported on a per item basis as differences associated with thrive categories varied from item to item.

In addition, two CIRCUS Behavior Inventory items rated by testers also concerned seeking adult help in the test situation.

Procedures. Teachers were contacted to arrange a convenient time for testing and interviewing. Testers were instructed not to learn children's thrive ratings until they had completed testing and rating of children. Children were tested in groups of three.

During lunch periods or after school, teachers were given the questionnaires and interviewed regarding their programs. In some cases, it was necessary to leave questionnaires with teachers to be mailed in later. In the afternoon or evening, children's parents were interviewed by telephone.

Analysis. Two methods of analysis were used. First, all measures were analyzed by analysis of variance to determine main effects for thrive, program, and sex categories as well as interactions. Second, measures involving categorical responses (social abilities, emotional responses, self confidence, CIRCUS Behavior Inventory items, and CIRCUS Activity Inventory items were also analyzed by Chi Square for thrive and program effects. In these cases, Chi Squares were carried out on the distribution of children by condition (thrive or program) and response category. In all cases, ANOVA and Chi Square analyses yielded identical results for main effects. In reporting categorical data, responses are generally combined into two categories by inspection (e.g. once a week or more vs. less than weekly) and then reported as percentages.

Results

Health

Non-thrivers averaged 12.6 days absent compared to 10.3 for average children and 10.0 for thrivers. The difference was not significant ($F(2,237) = 2.21$, $p > .11$) and in three of the six

programs, non-thrivers were absent less often than thrivers. Overall, it appears that non-thrivers do not differ from other children in health as measured by school attendance.

Skills and Strategies

Social Skills. Thrivers were perceived by teachers as more socially skilled on nearly all items concerning skills with peers. (Table 1). Differences were less marked in skills with adults. No significant interactions with programs were obtained.

Insert Table 1 about here

Interestingly, some of the largest differences in social skills concerned functioning in adult-led groups and showing empathy. (Table 2). No significant interactio- s with programs were obtained. For teachers, functioning well in adult-led groups appears to be almost a sine qua non for being rated a "thriver" or even an "average" child. The very small percentages of non-thrivers reported showing empathy may provide a clue to their generally lower social skills.

Insert Table 2 about here

Language Skills. Thrivers and non-thrivers differed significantly on measures of description and use of grammar. (Table 3). Range tests indicate that average children differed significantly from non-thrivers on one measure of description and use of grammar, and also differed

from thrivers on use of grammar. No significant differences were obtained between groups on measures of numbers of words used in telling a story, or on narration quality. No significant interactions with program replicates were obtained.

Insert Table 3 about here

Academic Skills. Thrivers, Average children, and Non-Thrivers all differed significantly from each other on the three measures of academic skills using the Schaffe range test. There was an interaction between thrive ratings and letter knowledge ($F_{10,302} = 20.10$, $p < .01$). This interaction reflected below average performance by 4 year old Non-Thrivers in half day programs, and above average performance by 5 year old Non-Thrivers in half day and urban full day programs. However, the rank order of Thrivers, Average children, and Non-Thrivers was maintained in all groups.

Insert Table 4 about here

Problem-Solving Strategies. Three tester-rated Behavior Inventory items related to problem solving strategies. Thrivers were more likely than others to "consider answers carefully," to keep their place on the test, and less likely to "answer randomly". (Table 5).

Insert Table 5 about here

Emotional and Self Characteristics

Temperament. Teacher ratings of temperamental traits clearly distinguished thrivers and average children from non-thrivers. The largest differences appear to concern reactions to new situations and the ability to stay with a task. Thrivers, Average children, and Non-Thrivers all differed significantly on four temperament scales -- Approaching new situations, according to the Scheffe range test, Persistence, Adaptability to new situations, and Distractibility. On two other scales, Activity level and Mood, Non-Thrivers differed significantly from the other groups. (Table 6). On only one scale, Persistence, was there an interaction with program replicates. This interaction reflected above average scores for half day Average children and 4 year old Non-Thrivers in alternate full day kindergartens. In no case did the rank order of scores by thrive rating vary.

Insert Table 6 about here

Self Confidence and Self Control. Teacher ratings of self confidence yielded some of the sharpest distinctions between Thrivers and Non-Thrivers. One item concerned children's typical reactions to failure. Five alternatives were given as shown in Table 7. While

the majority of thrivers and average children were expected to "try again," non-thrivers were expected to respond to failure or to approach the task with less confidence. An ANOVA on this measure indicates no interaction with program replicates.

Insert Table 7 about here

On two other self confidence ratings, concerning willingness to try tasks involving new skills and general approach to most situations, thrivers were perceived as markedly more confident than non-thrivers. Again, ANOVAs on these measures indicate no interaction with program replicates. (Table 8)

Insert Table 8 about here

Four tester-rated Behavior Inventory Items concerned the child's ability to follow instructions or control himself. More thrivers were able to avoid looking at other's work and inhibit answering out loud, engaging in irrelevant talk, and giving answers before instructions were complete. There were no interactions with program replicates. (Table 9)

Insert Table 9 about here

Behavior Variables

General Behavior Preferences. Teacher ratings of behavior preferences suggest more overall involvement by thrivers in all but

two activities rated. (Table 10) The fact thatthrivers are reported by teachers to engage less frequently in small motor activities that do not involve construction, and in playing the role of a child, suggests that this overall trend is not a simple "halo effect." Parents do not report the general trend towards higher involvement by thrivers but do concur with teachers in reporting significantly higher involvement by thrivers in small motor tasks involving construction and receptive language activities (e.g. listening to stories or records, looking at pictures, reading books), and significantly higher involvement by non-thrivers in small motor activities not involving construction (e.g., playing with small cars, pull toys, dolls, or toy animals). (Table 11).

Insert Tables 10 and 11 about here

Preferences for Being With Peers. Teachers report that more thrivers choose to play with peers in role playing activities. Otherwise, no significant differences by thrive rating were reported in percentages of children playing with other children were reported for any activity category by teachers or parents.

Seeking Adult Assistance. Teachers and testers reported that more non-thrivers seek adult assistance. Teachers report this for all activities except music/art and some role playing. (Table 12) Testers report that more non-thrivers asked for help (24% vs. 6% of thrivers and 12% of average children, Chi square, 4 d.f. = 18.9) and more indicated they didn't know answers to test items (50% vs. 37% of average children and 16% of thrivers, Chi square, 4 d.f. = 33.9). Parents reported no differences by

thrive rating on seeking adult assistance.

Insert Table 12 about here

Program Differences

Teacher perceptions of characteristics of thriving vs. non-thriving children were remarkable for their similarity across the six programs studied. For many variables, including most social skills, most temperamental traits, and ratings of self confidence no significant differences occurred across the six programs, nor were there differences between programs in the patterns of thrive ratings. Language and academic skills were lower for four year olds as might be expected, but again there was no interaction with thrive ratings, except for letter recognition which was significantly lower for four year old non-thrivers in half-day programs than for others. Some program differences were found for expressing affection to adults, willingness to address a group, concern for others' feelings, number of words used in stories, persistence and adaptability temperament ratings; self control in the testing situation, preferences for academic activities, and seeking adult help. These differences were unsystematic in the sense that no one program had consistently higher, lower, or more thrive-related characteristics.

Overall, the weight of the evidence is impressive that differences between thrivers, average children, and non-thrivers are consistent across kindergarten programs in several school boards and the age levels (4 and 5 years) studied.

Discussion

The main conclusion of this study is that children who are perceived by teachers as "thriving", "average", or "non-thriving" differ in a wide range of developmental characteristics rated by teachers including social skills with children and adults, some temperamental traits, self confidence, involvement in activities, and frequency of seeking adult help. In addition, they differ in language and academic skills assessed on CIRCUS tests; self control, test taking strategies, and seeking adult help as rated by testers; and a few activity preferences as rated by parents.

It is interesting to note also areas in which children do not differ by thrive rating. These include health as assessed by school attendance, use of peers and adults as resources, temperamental traits involving threshold of response to stimulation and intensity of reactions, involvement with peers in activities at school and at home, and seeking adult help at home.

These results must be viewed with some reservation insofar as they are based to a considerable extent on behavior ratings (including both the general thrive categories and the more

specific social skills, test strategy, temperament, self confidence, adult help and behavior preference measures). However, it is worth noting that independent observers (parents and testers) who were unaware of the teacher's thrive ratings did report some significant differences by thrive status, and differences by thrive status were found on standardized tests. In short, it seems reasonable to conclude that kindergarten children perceived as "thriving" by teachers do indeed differ in some ways from kindergarten children who are perceived as "not thriving".

While behavior ratings must be viewed with more than a little scepticism (see Mischel, 1968 & 1973), the findings reported here are on the whole consistent with patterns described by Prescott (1973), Murphy and Moriarity (1976), Garmezy et al., (in press), and Thomas and Chess (1977) in suggesting a combination of underlying temperamental traits, social skills, and possibly cognitive capacities which render children more or less able to cope effectively with their environments. In this discussion, I will note some of these parallels and their implications for working with children as well as some suggestions for further research.

Temperamental Differences. In this study, "thrivers" were characterized by greater willingness to approach new situations and to adapt to new situations, by more persistence and less distractibility on tasks; and by low activity levels. These characteristics appear to reflect the functioning of what Luria

describes as the functional unit of the brain that regulates tone, waking, and mental states and is involved with arousal, and selection of information to be attended to. (Luria, 1973, pp. 67-79.) The thriver's pattern is consistent with the syndrome described by Thomas, Chess, and Birch (1968) as an "easy child" (except for persistence, which they do not include in the syndrome), while the non-thriver's pattern is consistent with Thomas et al's., syndrome "slow-to-warm-up child", (again not including persistence and low distractibility). The correspondence between these patterns and academic and language performance parallels school performance findings cited by Thomas and Chess (1977, pp. 94-99). Adaptability to change and new situations has also been cited by Murphy and Moriarity as part of their "Coping I" variable (1976, pp. 115-120), which also includes a variety of skills for managing the environment.

The ability to concentrate and resist distraction has been emphasized by Garmezy et al., (in press), and Thomas and Chess (1977, pp. 100-101) as characterizing competent children who are unlikely to develop pathologies (Garmezy, et al.) and likely to do well at school (Thomas & Chess).

Social Skills. The importance of social skills with peers and adults for effective functioning in nursery school and kindergarten was identified in a survey of teachers by White and his colleagues (White & Watts, 1973, pp. 9-17) and confirmed in studies by Wright (1975). Garmezy et al., (in press) report

that reduced social competence is associated with increased vulnerability or risk for mental illness. Prescott emphasizes the inability of non-thrivers to deal constructively with social contacts (1973, p. 20 and p. 92). Rubin and Maioni (1976) reported correlations ranging from .43 to .68 between Piagetian measures of cognitive development and sociometric popularity in 4 year olds.

Self Confidence. Self confidence and a sense of control over events has long been emphasized as a crucial variable affecting many aspects of performance (Bandura, 1977; Murphy & Moriarity 1976, p. 119, pp. 288-290; Baumrind and Black, 1967). The very large thriver vs. non-thriver differences which emerged in rated self confidence suggest an interaction between temperamental traits which discrouage dealing with new or frustrating tasks, and possibly less mature capacities for focussing on tasks (both non-social and social) resulting in frequent failure experiences. Prescott emphasizes the experience of failure and frustration in her observations of day care non-thrivers (1973, pp. 20-21).

Research Implications. The present study is limited by its design (contrasting thriving, average, and non-thriving groups) and its methodology (emphasizing behavior ratings). While the design may have exaggerated the apparent existence of large skill differences associated with differences in temperament and self confidence, this association has been described by other researchers. Furthermore, Bolstad and Johnson's (1977) study of teacher ratings and observed behavior supports the validity of teacher observations

of both social skill and persistence-attention characteristics, and the types of differences reported here for thriving, average, and non-thriving children. If this combination of characteristics is correct, it has significant implications for practice in the care and education of young children which will be discussed in the next section. However, before developing educational and therapeutic interventions, more research is needed on the validity of the measures used in this study, and on their distribution and relationships. Direct observation of social skills (see Wright, 1980), and more objective assessment of temperamental, emotional, and self-confidence characteristics is needed. Once better measures are available, it will be possible to determine the distribution (rather than the extremes) of the characteristics described in this study and others referred to in this paper, and to examine the degree to which they covary when extreme categories of thrive status are not applied.

Implications for Practice. Should such research support the related patterns of skill and emotional development described in this study, serious attention should be given to our methods of dealing with the development of social skills and temperament in schools. While both of these areas have long been described as important goal areas in kindergarten and early childhood education, the large individual differences found in this study suggest that much remains to be done. It seems highly likely that differences observed in social skills are related to individual differences in temperament and self-confidence. Paradoxically, despite the importance educators of young children assign to "emotional development", little is really known about temperament

and its role in classroom functioning; and less is known about how, in classroom settings, to help children cope with their own temperamental patterns. More work has been done on the development of self-confidence and self-esteem in classroom settings, although much of this work is more applicable at older ages. At present, the relationship between cognitive and language development, temperament, and self-process variables at the 4 to 6 age level is very poorly understood.

The implications of emotional differences, which probably include a substantial constitutional component (see Thomas and Chess, 1977), need to be brought to teachers' attention. These implications particularly include considering how to manage different children's capacities to handle new situations and tasks, and how to help children become more aware of their reactions to situations and able to control their own reactions.

Notes

This study was funded under contract by the Ministry of Education, Ontario . (Biemiller, 1978)

The study could not have been completed without the assistance and guidance of many people including the teachers, parents, and children who participated in the study; officials of the Brant County, Bruce/Grey County, Lambton County, London and Middlesex County, Ottawa, and York Region R.C.S.S.B.'s

(including especially Sister Valerie and Mary Taylor of the London Middlesex Board, and Dr. R. Dixon, Director of the Brant County Board); my research associate Michael Rochford and assistants, Marnie Binder, Karen Connolly, Katherine Grier, Naomi Houston, Ellen Lustig, Debora Poole, and Molly Shainfarber; and Barbara Brodie typist. Dr. Mary Wright of the University of Western Ontario and Frances Biemiller, Ann Jaffary, and Margery DeRoux of the Laboratory School University of Toronto helped in development of rating scales.

[1]The choice of Roman Catholic Separate Schools was dictated by the fact that most of the children in Ontario attending alternate full-day and full-day kindergartens were in separate schools. (Under Canadian law, Roman Catholic Separate schools are publicly supported.)

Table 1

Percentages of Children Demonstrating Social Skills
With Peers and Adults "Daily" or "Several Times a Day"
By Thrive Rating
(source: teacher)

	Thrive Rating				
Social Skill	Thriver	Average	Non-Thriver	Chi Square[a]	Sig. Level
(number of children)	(103	(94)	(70)		
Peers					
leads peers	73%	51%	17%	97.8	.01
fails to lead peers	5%	5%	29%	34.1	.01
gains peer attention	86%	77%	57%	37.3	.01
fails to gain peer attention	2%	2%	17%	28.4	.01
uses peer as resource	56%	57%	46%	13.7	ns
fails to use peer as resource	2%	3%	20%	32.4	.01
expresses affection to peers	75%	59%	41%	23.5	.01
Adults					
gains adult attention	90%	78%	61%	30.7	.01
uses adult as resource	71%	66%	59%	13.9	ns
fails to use adult as resource	3%	1%	7%	13.2	ns
expresses affection to adult	68%	62%	51%	15.5	.05

a. Chi squares based on distribution of children by 3 thrive and 5 response categories. Eight degrees of freedom.

Table 2

Percentages of Children Demonstrating Social Skills in Adult-Led Groups or Showing Empathy "Often" or "Usually" by Thrive Rating

(source: teacher)

	Thrive Rating				
	Thriver	Average	Non-Thriver	Chi Square[a]	Sig. level
(number of children)	(103)	(94)	(70)		
Adult-led Groups					
participates in group activity	97%	88%	48%	90.7	.01
answers questions	94%	84%	53%	78.1	.01
blurts out answers	16%	18%	20%	6.6	ns
listens to other children	91%	86%	56%	63.6	.01
addresses whole group	88%	72%	45%	51.6	.01
Empathy					
aware of impact on others	75%	46%	18%	73.5	.01
concerned with others' feelings	81%	69%	35%	45.6	.01

a. See note a, table 1

Table 3

Mean Scores on the CIRCUS Productive Language Test by Thrive Rating

(Standard deviations in parentheses)

	Thrive Rating				
	Thrivers	Average	Non-Thrivers	F[a]	Sig. level
number of children	131	119	90		
description--prompted	6.1(1.0)	5.9(1.1)	5.4(1.3)	9.41	.01
description--not prompted	3.8(1.5)	3.5(1.3)	3.1(1.6)	8.04	.01
use of grammar	59.5(8.4)	55.4(8.4)	50.2(9.8)	29.66	.01
narration--total words	74.7(46.8)	67.4(40.3)	58.7(39.6)	-	ns
narration--different words	38.3(18.1)	35.3(17.9)	30.6(18.9)	-	ns
narration--quality	5.4(1.9)	5.0(2.1)	4.6(1.9)	-	ns

a. F tests with 2 and 302 degrees of freedom as part of a 3 way ANOVA with thrive rating, program, and sex as treatments. Range tests (Scheffé) based on .05 level of significance.

Table 4

Mean Scores on CIRCUS How Much and How Many?

and Finding Letters and Numbers

Tests by Thrive Rating

(standard deviations in parentheses) *

	Thrive Rating				
	Thrivers	Average	Non-Thrivers	F[a]	Sig. level
number of children	131	119	90		
How Much and How Many	35.8(3.5)	33.4(5.2)	29.2(6.6)	56.21	.01
Letters	14.4(1.6)	13.4(2.5)	10.7(4.3)	54.33	.01
Numbers	4.1(.8)	3.7(1.0)	3.1(1.1)	29.50	.01

a. See note a, table 3.

Table 5

Ratings of Strategies on Tests

(source: testers)

	Thrive Rating				
	Thrivers	Average	Non-Thrivers	Chi Square[a]	Sig. Level
number of children	131	119	90		
BI #13 considered carefully (% usually)	72%	66%	39%	32.3	.01
BI #9 kept place (% usually)	95%	80%	60%	43.7	.01
BI #12 marked randomly (% rarely)	80%	61%	40%	40.5	.01

a. Chi Squares calculated by thrive categories (3 levels) and response categories (3 levels) on actual distribution of children. 4 d.f.

Table 6

Mean Temperament Ratings by Thrive Rating

(standard deviations in parentheses)

(source: teacher)

Temperament Scale (In order of Thrive effect)	Thrive Rating (Mean temperament ratings on a 7 point scale ranging from hardly ever to almost always)				
	Thriver	Average	Non-Thriver	F[a]	Sig. level
number of children	87	80	61		
Approaches New Situations	5.5(1.0)	4.7(1.1)	3.5(1.3)	47.9	.01
Persistent	5.1(.3)	4.5(.8)	3.3(1.0)	98.4	.01
Adaptable to New Situations	5.6(.9)	5.1(1.0)	4.2(1.3)	32.2	.01
Low Activity Level	4.8(.9)	4.5(1.1)	3.7(1.4)	18.9	.01
Not Distractible	4.2(.6)	3.8(.7)	3.2(.7)	46.3	.01
Positive Mood	5.7(.8)	5.5(.8)	4.8(.9)	20.2	.01
Low Threshold of Response	4.0(.7)	3.9(.8)	3.6(.9)	2.8	ns
Highly Intense Reactions	4.0(1.0)	3.9(.9)	4.0(1.3)	0.7	ns

a. F ratios were computed with 2 and 160 d.f. dif. as part of a 3 way ANOVA with thrive rating, program, and sex as treatments. Scheffé range test at .05 level.

Table 7

Typical Patterns of REsponse to Failure

by Thrive Rating

(source: teacher)

Thrive Rating	N	Very negative: May throw a tantrum, unlikely to try again	Negative: self confidence lower the next time approaches the task	No Reaction: doesn't seem to care, may or may not try again	Positive: not upset, but somewhat more determined to succeed next time	Very Positive very determined and confident next time
Thrivers	86(100%)	0%	11%	4%	59%	27%
Average	78(100%)	14%	8%	23%	65%	3%
Non-Thrivers	55(100%)	2%	27%	47%	22%	2%

Chi Square = 81.2 with 8 d.f. $p < .01$. Chi square based on numbers of children.

Table 8

Percentages of Children With Positive
Self Confidence Characteristics by Thrive Rating
(source: teacher)

Self Confidence Characteristic	Thrive Rating: Thrivers	Average	Non-Thrivers	Chi Square[a]	Sig. level
number of children	87	80	55		
General approach to situation: (percent "often or always confident")	85%	50%	13%	102.6	.01
Willing to try new skills: (percent "fairly often or nearly always")	95%	74%	40%	85.9	.01

a. Chi squares based on distribution of children by 3 thrive and 5 response categories. 8 dif.

Table 9

Percentage of Children "Occasionally or Often"
Engaging in Behavior They Were Asked to Inhibit.
(Source: testers)

	Thrive Rating				
	Thrivers	Average	Non-Thrivers	Chi Square[a]	Sig. level
number of children	130	119	90		
BI #5 Looked at other children's answers	41%	63%	70%	24.2	.01
BI #4 Told answer out loud	18%	27%	38%	13.2	.01
BI #14 Spoke about unrelated events	10%	16%	29%	16.6	.01
BI #7 Marked answer before instructed	13%	23%	30%	31.0	.01

a. Chi squares based on distribution of children by 3 thrive categories and 3 response categories. 4 degrees of freedom.

Table 10

Teacher Ratings of Engagement in Activities "Often" or "Almost Always" by Thrive Rating

	Thrive Rating				
	Thrivers	Average	Non-Thrivers	Chi Square[a]	Sig. level
number of cases	100	91	68		
Physical-Motor					
large motor equipment	81%	69%	62%	16.3	.01
large motor no equipment	76%	74%	66%	-	ns
small motor construction	79%	65%	50%	20.7	.01
small motor no construction	49%	65%	78%	15.8	.01
Academic					
receptive language	85%	70%	28%	67.7	.01
productive language	81%	43%	17%	118.1	.01
numbers	73%	46%	10%	79.0	.01
physical world, science	35%	34%	25%	-	ns
Role-Playing					
parental role	53%	47%	34%	16.3	.01
vocational role	39%	26%	13%	39.5	.01
child role	14%	17%	27%	-	ns
fantasy role	31%	23%	27%	-	ns
Art/Music					
producing music	69%	52%	22%	45.1	.01
listening music	84%	76%	59%	42.0	.01
art	84%	76%	59%	28.3	.01

a. Chi squares based on distribution of children by three thrive categories and four response categories. 6 degrees of freedom.

Table 11

Parent Ratings of Engaging in Activities Often or Almost Always by Thrive Rating

	Thrive Rating				
	Thrivers	Average	Non-Thrivers	Chi Square	Sig. level[a]
number of cases	124	114	82		
Physical Motor					
large motor, equipment	94%	90%	99%	-	ns
large motor, no equipment	88%	77%	84%	-	ns
small motor, construction	78%	57%	51%	20.8	.00
small motor, no construction	67%	66%	82%	12.9	.05
Academic					
receptive language	92%	81%	77%	14.2	.03
productive language	70%	60%	61%	-	ns
numbers	66%	40%	54%	17.7	.01
physical world, science	58%	55%	56%	-	ns
Role-Playing					
parental role	56%	50%	55%	-	ns
vocational role	37%	37%	35%	-	ns
child role	24%	24%	27%	-	ns
fantasy role	34%	38%	37%	-	ns
Art/Music					
producing music	74%	62%	67%	-	ns
listening to music	71%	58%	55%	-	ns
art	87%	78%	73%	-	ns

a. See note a on table 10.

Table 12

Teacher Ratings of Children "Often" or "Almost Always" Seeking Adult Assistance by Activity and Thrive Rating

	Thrive Rating				
	Thrivers	Average	Non-Thrivers	Chi Square[a]	Sig. level
number of children	100	91	68		
Physical-Motor					
large motor, equipment					
large motor, no equipment					
small motor, construction	4%	12%	25%	17.2	.01
small motor, no construction	2%	4%	18%	23.6	.01
Academic					
receptive language	0%	7%	28%	42.8	.01
productive language	0%	3%	9%	12.8	.05
numbers	9%	12%	19%	12.4	.05
physical world, science	7%	18%	32%	24.5	.01
Role Playing					
parental role	7%	11%	35%	32.3	.01
vocational	6%	9%	28%	20.7	.01
child role	0%	2%	6%	-	ns
fantasy role	1%	0%	5%	-	ns
Music/Art					
producing music	0%	0%	5%	-	ns
listening to music	0%	1%	6%	-	ns
art	8%	10%	10%	-	ns

a. See note a, table 10.

References

Bandura, A. Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 1977, 84, 191-215

Baumrind, D., & Black, A.E. Socialization practices associated with dimensions of competence in preschool boys and girls. Child Development, 1967, 38, 291-327.

Berko, T. The child's learning of English morphology. Word, 1958, 14, 150-177.

Biemiller, A. Kindergarten programmes: Effects of regular half-day, alternate full-day, and daily full-day programmes. Ontario: Ministry of Education, 1978. (Available from Research and Development Branch, Ontario Ministry of Education, Queen's Park, Toronto.)

Bolstad, C.D.; & Johnson, S.M. The relationship between teachers' assessment of students and students' actual behavior in the classroom. Child Development, 1977, 48, 570-578.

DeHirsch, K., Jansky, J.J., & Langford, W.S. Predicting reading failure. New York: Harper and Row, 1966.

Educational Testing Service. CIRCUS Tests. Distributed by Addison Wesley, Inc. Boston, 1974.

Garmezy, N., Masten, A., Nordstrom, L., & Ferrarese, M. The nature of competence in normal and deviant children. In M.W. Kent, & J.E. Rolf (Eds.) The primary prevention of psychopathology: Promoting social competence and coping in children (Vol. 3). Hanover, New Hampshire. University Press of New England. in press, 1980.

Jansky, J. J. & DeHirsch, K. Preventing reading failure. New York: Harper and Row, 1972.

Kohlberg, L., LaCrosse, D., & Ricks, D. The predictability of adult mental health from childhood behavior. In B. Wolman (Ed.) Handbook of child psychotherapy. New York: Wiley, 1971.

Kohn, M.; & Rosman, B.L. A social competence scale and symptom checklist for the preschool child: factor dimensions, their cross-instrument generality, and longitudinal persistence. Developmental Psychology, 1972, 6, 430-444.

Luria, A. R. The working brain. New York: Basic Books, 1973.

Mischel, W. Personality and assessment. New York: Wiley, 1968.

Mischel, W. Toward a cognitive social learning reconceptualization of personality. Psychological review, 1973, 80, 252-283.

Murphy, L. B., & Moriarity, A. E. Vulnerability, coping, and growth from infancy to adolescence. New Haven: Yale University Press, 1976.

O'Bryan, K. G. The Windsor early identification project. Toronto: Ontario Institute for Studies in Education, 1976.

Prescott, G. Who thrives in group day care? Pasadena, Calif.: Pacific Oaks College, 1973.

Rubin, K. H., & Maioni, T. L. Play preference and its relationship to egocentrism, popularity, and classification skills in preschoolers. Merrill-Palmer Quarterly, 1975, 21, 171-179.

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

Thomas, A., Chess, S., & Birch, H. Temperament and behavior disorders in children. New York: New York University Press, 1968.

White, B. L.; Kaban, B.; Marmor, J.; & Shapiro, B. The development of competence. In B. White; & J.C. Watts (Eds.) Experience and Environment, Vol. 1. Englewood Cliffs, N.J.: Prentice Hall, 1973, pp. 39-67.

White, B.L.; & Watts, J.C. Experience and environment, Vol. 1 Englewood Cliffs, N.J.: Prentice Hall, 1973.

Wright, M. J. Competence in preschool children: II Two years in the laboratory school. London, Ontario, Canada: Department of Psychology, University of Western Ontario. Research Bulletin, #348, 1975.

Wright, M. J. Measuring the social competence of preschool children. Canadian Journal of Behavioural Science, 1980, 12, 17-32.