

Readiness for Kindergarten



**A Study Conducted by the
Mayor's Commission for Children
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Readiness for Kindergarten*

Executive Summary

The city ordinance which established the Mayor's Commission for Children in 2004 challenged the Commission to "make sure every child starts school ready to learn." That challenge suggested a need to study school readiness in order to focus efforts and resources to help children get a good start in formal education.

The Mayor's Commission established a School Readiness Work Group (SRWG) and charged it with three tasks:

1. To select an instrument to measure school readiness in its various dimensions—academic, social, emotional, etc.
2. To recommend, and if approved, implement a process for use of the instrument in kindergarten classrooms in Greene County's schools in the fall of 2006.
3. To recommend, and if approved, implement a process for ongoing use of the instrument in order to trace progress in improving children's readiness for school.

Six school districts in Greene County, including the largest in Springfield, agreed to participate in the study. In addition, the districts covering Nixa, Ozark, and Branson were also added to the list, with Commission approval. A random sample of five kindergarten students was drawn from each of 191 kindergarten classrooms of these schools. Data were gathered regarding those students from their teachers and parents in October of 2006 (near the beginning of the 2006-07 school year) and again from their teachers in April of 2007 (near the end of the 2006-07 school year).

A wide variety of demographic and experiential data regarding these children was gathered and reported. Additionally, data were gathered as to the children's motor, language and concept development (reflected in DIAL-3 scores) and the children's social and emotional development (reflected in scores from the Devereux Early Childhood Assessment instrument). The goal was to determine which data best predicted school readiness.

Most schools in Missouri already use the DIAL-3 assessment instrument, and DIAL-3 composite scores were obtained from the children's kindergarten teachers.

The Devereux Early Childhood Assessment (DECA) instrument was used to assess overall social and emotional development ("Total Protective Factors" scores) and risk factors ("Behavioral Concerns" scores). The DECA was administered by both the children's kindergarten teachers and their parents.

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All of the information was analyzed to determine which data were most useful in predicting readiness for school. The most powerful predictors turned out to be, in this order:

- The teacher administered DECA Total Protective Factors scores,
- The DIAL-3 percentile scores,
- The teacher administered DECA Behavioral Concerns scores.

These three measurements, taken together, produced a robust capacity to predict school readiness. Taken together they show, to quote from the report, that “Children are not simply one-dimensional when it comes to preparedness for kindergarten. Social and emotional development are domains which are conceptually and empirically distinct from broad cognitive development....and...are at least as important as broad cognitive development in navigating successfully the demands and challenges of kindergarten.”

The report concludes with a series of recommendations to the Mayor’s Commission, and to parents, schools, and the community regarding ways to improve children’s readiness for school.

Introduction to the Study*

The Beginnings: One of the charges given by the Springfield City Council to the Mayor’s Commission for Children, when it was established in 2004, was to search for ways to improve the readiness of children in the community to enter school. City Council members recognized that a good K-12 education is one of the most significant factors in the life success of children, and that school readiness is one of the ingredients that makes for successful achievement in school.

It was apparent that finding a way to study and assess kindergarten readiness was essential to inform the community of promising ways to help children be prepared for their academic lives. Consequently, in the summer of 2005 the Commission established what came to be called the School Readiness Work Group (SRWG), a group representing several community partners (see the cover page of this report) and gave three charges to the group:

1. To select an instrument to measure school readiness in its various dimensions—academic, social, emotional, etc.
2. To recommend, and if approved, implement a process for use of the instrument in kindergarten classrooms in Greene County’s schools in the fall of 2006.
3. To recommend, and if approved, implement a process for ongoing use of the instrument in order to trace progress in improving children’s readiness for school.

* Funding for this project was provided by the Mayor’s Commission for Children, the partner agencies listed on the cover page, the participating school districts, the individual members of the School Readiness Work Group who contributed hundreds of hours of professional expertise, and a grant from the Substance Abuse and Mental Health Services Administration of the US Department of Health and Human Services, sponsor of the regional *Show Me Kids* project.

School Readiness: The SRWG searched the literature regarding school readiness. It adopted a definition which was guided by two main sources, *Getting Ready*, prepared by the 17-state School Readiness Indicators Initiative, and *11 Essential School Readiness Skill Sets*, by the Arlington Child Care Council. The definition includes five basic parameters:

1. *Physical well-being and motor development*, meaning that children will be physically healthy, immunized, growing well, and have developmentally appropriate gross and fine motor skills.
2. *Social and emotional development*, meaning that children will be developing emotional self-control and self-regulatory abilities and social skills necessary to interact positively and cooperatively with others.
3. *Approaches to learning*, meaning that children need to be curious and enthusiastic about learning, be flexible in their approach to problems, be able to rely upon a variety of problem solving strategies, and be able to persist at tasks.
4. *Language development*, meaning that children must be able to carry on conversations, listen and understand others, use language to express themselves, have a well-developed vocabulary, and some experience with written texts.
5. *Cognition and general knowledge*, meaning that children need to have experiences that provide them with knowledge of the objects, people, concepts and conventions of their world.

Of course children vary in their development in these five areas, but some reasonable capacity in each of them is important to success school.

Instruments to Measure School Readiness: Developing new measures of social and behavioral competencies is a complex process for which the SRWG did not have the resources to attempt. Members decided instead to utilize existing measurements to the extent possible, and supplement these with additional information to try to better understand kindergarten readiness.

A prior study conducted for the Mayor’s Commission for Children (see “Aggression in the Kindergarten Classroom,” www.mayorscommission.org) had convinced the Commission that social and emotional factors are more significant in school readiness than what might otherwise be thought. Therefore, the SRWG determined to pay particular attention to measuring those factors. To do so, the group chose to use the Devereux Early Childhood Assessment (DECA) which is designed especially to measure social and emotional skills, has good psychometric properties, and is easily administered by adults who know the children they are assessing.

The DECA is comprised of three subscales in the areas of attachment, self-control and initiative—all areas that are considered critical by experts in early childhood for good social and emotional development. Together, these three subscales make up the “Total Protective Factors” scale which is used in the analyses presented below. In addition, the DECA provides scores on a “Behavioral Concerns” scale, also used in the analyses presented below. The DECA has separate norms established for scores obtained from administration by a parent and for those obtained from administration by a teacher.

Most public schools in Missouri already use the DIAL-3 assessment instrument in order to inform school districts of their entering kindergarten students. The DIAL-3 composite score which was available to us combines subscores in the areas of motor, language and concept development. These are skills traditionally deemed important to readiness to enter school.

The SRWG decided to fulfill its first charge—“to select an instrument to measure school readiness in its various dimensions—academic, social, emotional, etc.” by using both the DECA and the DIAL-3.

The Research Strategy

Contact was made with all of the school districts in Greene County. The following districts (all but two in the county) agreed to participate:

Ash Grove	Republic	Strafford
Logan/Rogersville	Springfield	Willard

Three other school districts outside of Greene County expressed interest in being involved in the study, and with approval of the Mayor’s Commission for Children were added:

Branson
Nixa
Ozark

A random sample of five kindergarten students was drawn from each of the 191 kindergarten classrooms in these schools. Information obtained on the children from their teachers and parents or legal guardians was reported anonymously to the School Readiness Work Group.

Baseline Data: (gathered in October, 2006)

- Total Protective Factors scale from the DECA completed by K teacher
- Behavioral Concerns scale from the DECA completed by K teacher
- Total Protective Factors scale from the DECA completed by parent or guardian
- Behavioral Concerns scale from the DECA completed by parent or guardian
- A Student Demographics Form completed by K teacher
- A Teacher Demographics Form completed by K teacher
- A Parent/Guardian Demographics Form completed by parent or guardian
- DIAL-3 data from pre-K evaluation
- Teachers’ survey on kindergarten readiness

(Note 1: Both the DECA and DIAL-3 instruments are available commercially. Further information about DIAL-3 may be obtained from Pearson Assessments, and information about DECA may be obtained from Kaplan Company. The other instruments used in this study may be seen in Appendix 1.)

Follow-up Data: (gathered in late April, 2007)

- Evaluations of first year performance by kindergarten teachers
- Attendance
- Number of incident reports
- Evaluation for special educational services initiated (Yes/No)
- Child given an Individual Educational Plan (Yes/No)
- Receipt of any therapies, such as speech and language (Yes/No)
- Mental health referral recommended (Yes/No)

What the October, 2006, Data Show

Introduction to the Quantitative Data:

Note 2: In this section of the report the reader will find a number of endnote citations. By and large those endnotes are provided for the more statistically inclined readers, who are comfortable with probabilities, the concept of “statistical significance,” and the various statistical procedures utilized in the data analyses. One need not understand the endnotes in order to understand the report.

Survey forms were obtained for 780 children below the age of six years at the time of administration (October 2006). Teachers completed in whole or in part data forms for 665 children. Parents completed in whole or in part data forms for 591 children. Thus, there were circumstances in which data for some children were available from teachers, but not from parents, and some circumstances in which the reverse was true. Further, there were a few cases in which the data provided by teachers could not be matched to the data provided by parents. In addition, respondents could choose not to respond to every question asked. *Subsequently, the “n” reported in various analyses will differ, but will always be at or below 780.*

DIAL-3 scores were obtained for 499 children. Some districts, including Nixa and Rogersville, do not use the DIAL-3 as a screening tool for kindergarten.

The number of surveys returned by school districts is seen below in Figure 1:

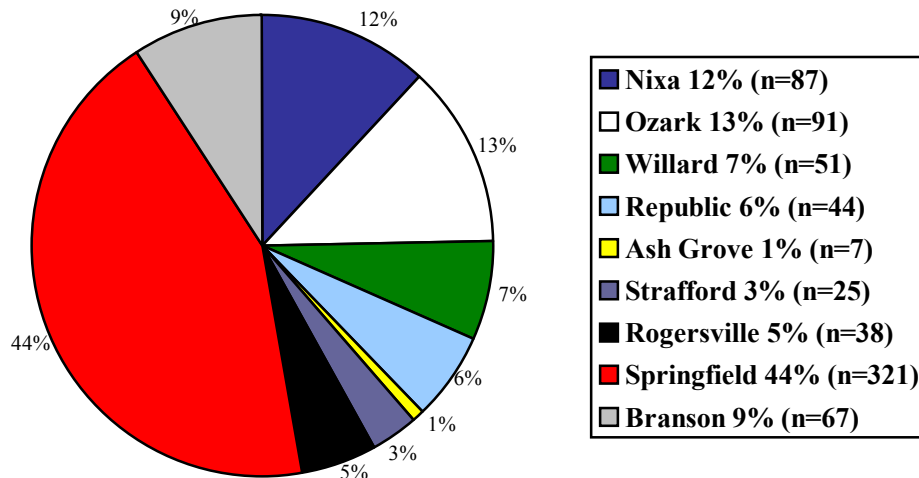


Figure 1: Returned Surveys by School District

Demographics:

Demographic information was collected for each participating child and parent.

Children

- Girls accounted for 51.4% of returned surveys; boys accounted for 48.6%.
- Regarding the racial / ethnic heritage, the overwhelming majority of children were identified as White, as seen below in Figure 2. “Other” responses included “White & Hispanic,” “Jewish” and “Middle Eastern.”

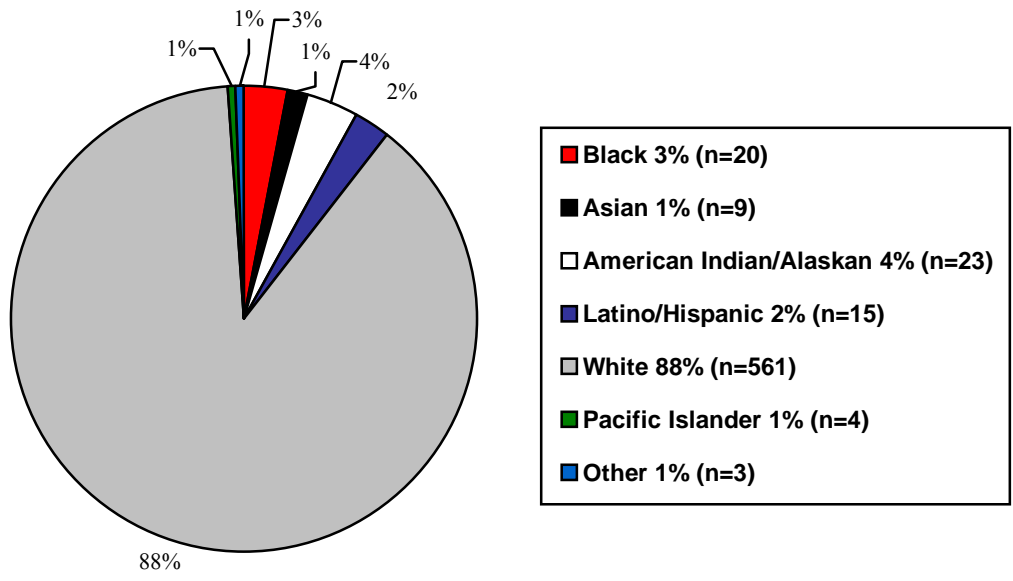


Figure 2: Students by Ethnicity

- The free/reduced lunch rate was 31.8% for the survey sample, as seen in Table 1. The survey rate was lower than that of the student population in general.

Table 1: Free/Reduced Lunch Rates for Survey Sample

	Frequency	Percent
Free/reduced lunch	208	31.8%
Regular lunch	446	68.2%
Total	654	100.0%

- Different districts have different overall rates, but overall, our samples displayed lower rates than those of the school districts. For example, the survey rate for Greene County school districts was 34.3%, compared to a 2006 overall rate of 38.9%. For school

districts in Christian County, the rate was 22.5%, compared to 30.5% overall in 2006 (see Figure 3).

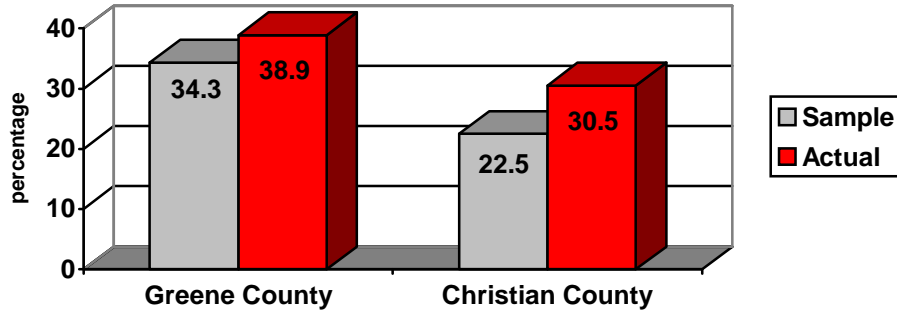


Figure 3: Free or Reduced Lunch Status: Survey Sample Versus Actual System Rates

- As seen in Figures 4 and 5, the most common preschool experience reported by parents was participation in Parents as Teachers (49.7%). More than one-third of children had participated in day care and/or full or part-time preschool. Fewer than 10% had been in Head Start or received special education or motor services. (More than one category could have been selected both for preschool participation and for participation in screenings and interventions.)

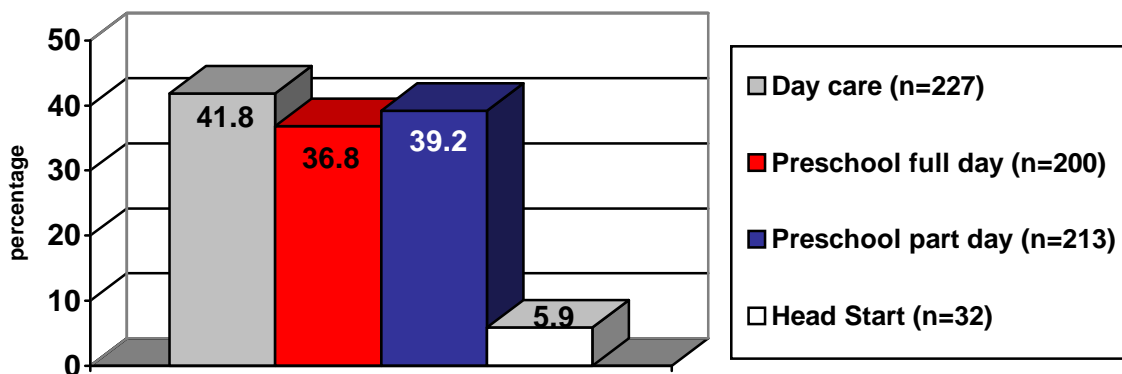


Figure 4: Preschool Participation

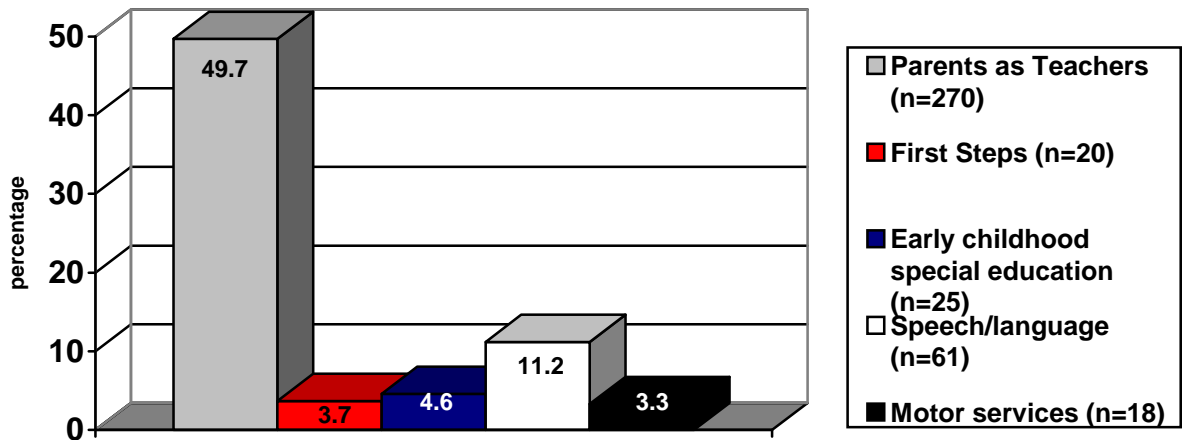


Figure 5: Participation in Screenings and Interventions

- Ten percent of parents reported that their children were born prematurely.
- A variety of health concerns was reported by parents, although the only concern reported with any substantial frequency was allergies (see Figure 6). “Other” responses included the following: ADHD; eczema; heart and lung condition; slow colonic transit disorder; cerebral palsy; cholesteatoma; conduct disorder, oppositional defiant disorder; cystic fibrosis; cystic kidney; emotional problems; heart murmur when born; holding bowel movements; medicine allergy; mild CP; possible sleep apnea; reactive airway; restrictive airway disease; and being tested for seizures.

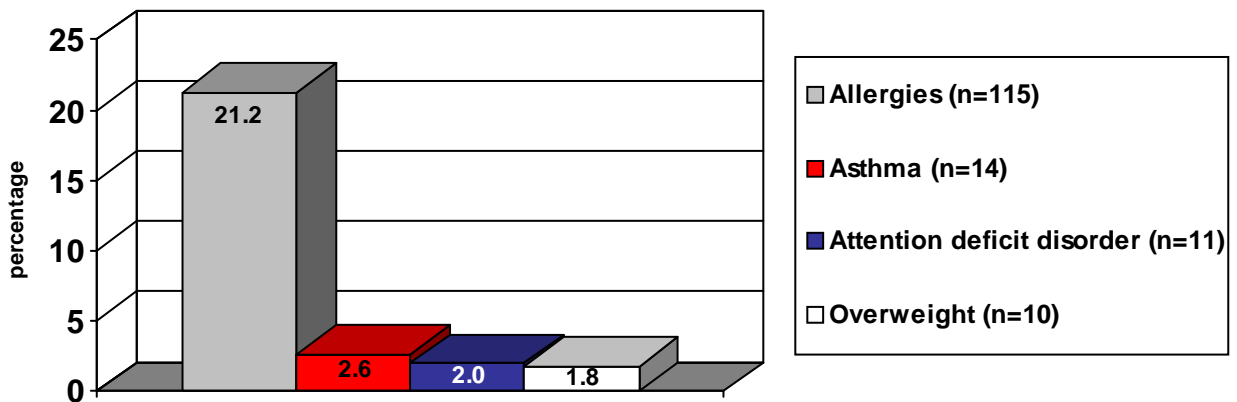


Figure 6: Top Health Concerns

Parents

Note 3: The “Parent/Guardian Demographics Form” was completed by grandparents as well as biological parents, foster parents, and adoptive parents. Grandparents comprised 3% of the respondents. Throughout this report, the term “parents” is used to include all of these respondents.

- 86.7% of the responding parents were female; 13.3% were male.
- As seen in Figure 7, the overwhelming number of respondents were biological parents:

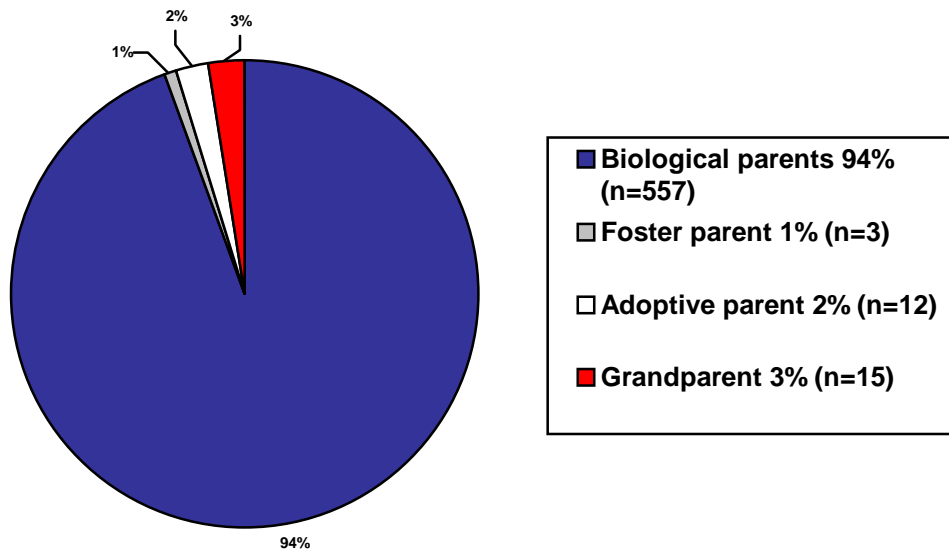


Figure 7: Respondent's Relationship to Child

- More than half (53.3%) of the parents were employed full-time; 20.6% were employed part-time; and 26.1% were not working outside the home.
- More than three-quarters (79.0%) of parents were married, as seen in Figure 8.

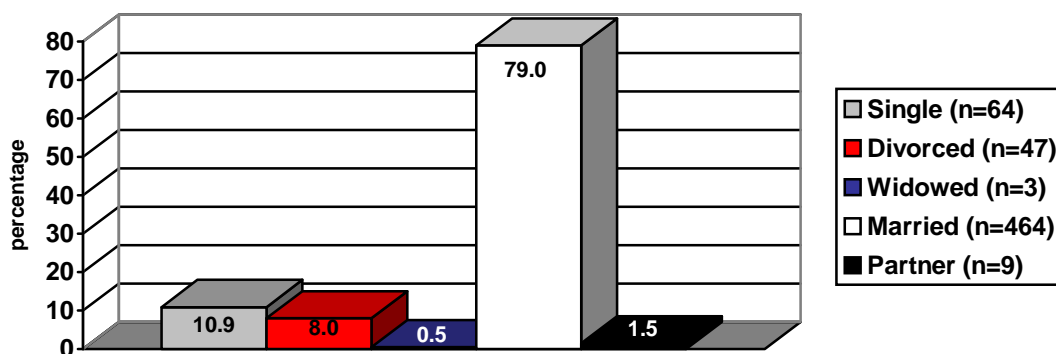


Figure 8: Marital Status

- Of the parents who responded to the survey, 96.8% had a high school diploma or above (see Figure 9). The proportional representativeness of the sample might be challenged by the high percentage of parents who had a Bachelor's degree or above (42.8%). According to the 2000 census, only 25.3% of adults in Greene County age 25 and over had a comparable educational level. However, although some parents were likely under age 25, not yet having achieved their ultimate level of formal education, parents of kindergarteners are likely to be in their 20s to early 40s, a group of younger adults with more formal education than even older adults. The true degree of discrepancy in education level from our sample to the greater population of parents is unknown.

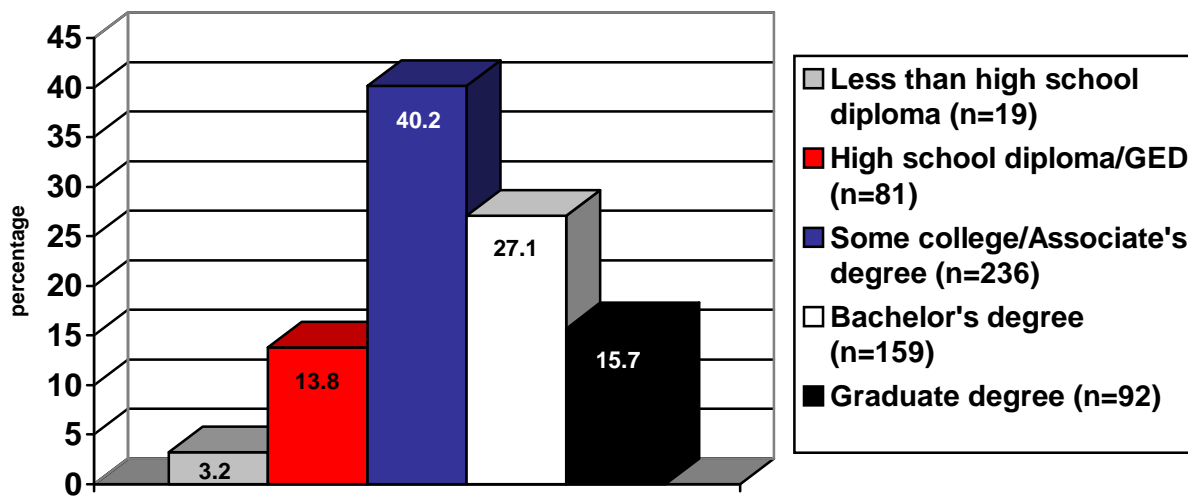


Figure 9: Highest Education Level of Anyone in Household

Parents' and Teachers' Evaluations of Children on DECA's Total Protective Factors Scale and Behavioral Concerns Scale:

Parents' evaluations of children

How do kindergarteners' parents rate their own children on the positive attributes measured by the Total Protective Factors scale of the DECA? How do the parents rate their children on the troubling behaviors measured by DECA's Behavioral Concerns scale?

Children's scores on the Total Protective Factors scale as completed by their parents averaged 83.33, as seen in Figure 10. These scores were statistically significantly higher than the expected values based upon the norm sample of the DECA (M = 81) by only a slight degree.¹ Fewer children were classified as "below average" by their parents in our sample compared to the norm sample (11.8% vs 16%).²

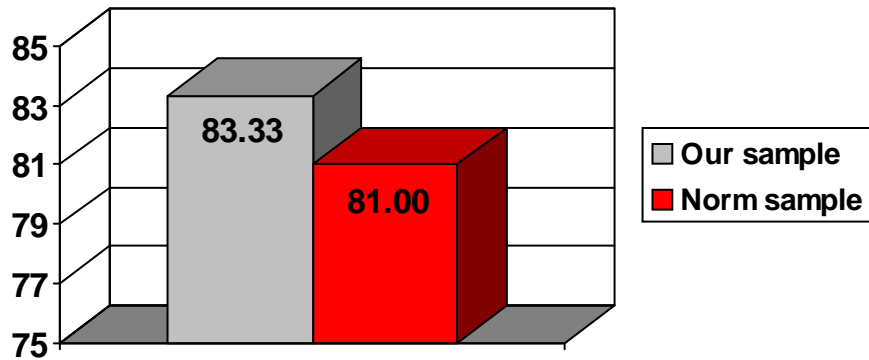


Figure 10: Total Protective Factors Scale Scores: Survey Sample Versus Norm Group

As seen in Figure 11, parents' ratings of their children on the Behavioral Concerns scale averaged 9.71. These scores were also statistically significantly higher than those expected based upon the norm sample average of 7.67, but not by much (two points out of a possible 42 points).³ Given the way these concerns are reported on the 10 items that make up this scale, parents reported that their children *on average* "rarely" (rather than "never" or "occasionally") exhibit troubling behaviors.

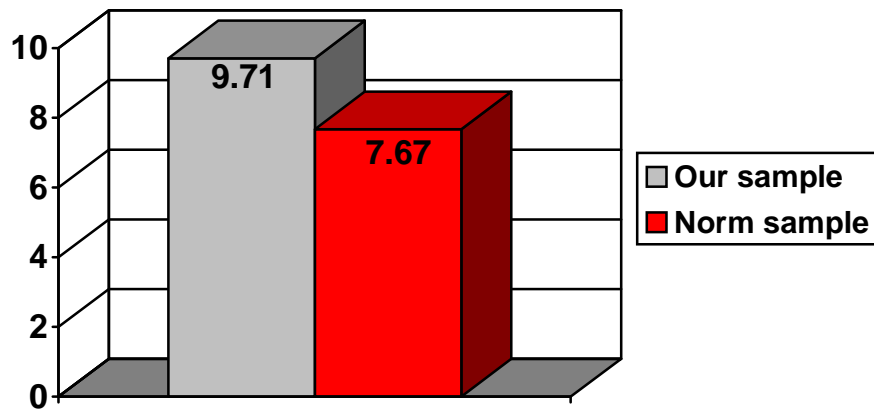


Figure 11: Behavioral Concerns Scale Scores: Survey Sample Versus Norm Group

Teachers' evaluations of children

What about children's scores on these two measures when the scales are administered by their kindergarten teachers? How do teachers evaluate the children?

Teachers’ ratings of the children in their classroom on the Total Protective Factors scale averaged 73.12, a value only slightly, but statistically significantly, higher than that of the norm group average of 71.5 (see Figure 12).⁴

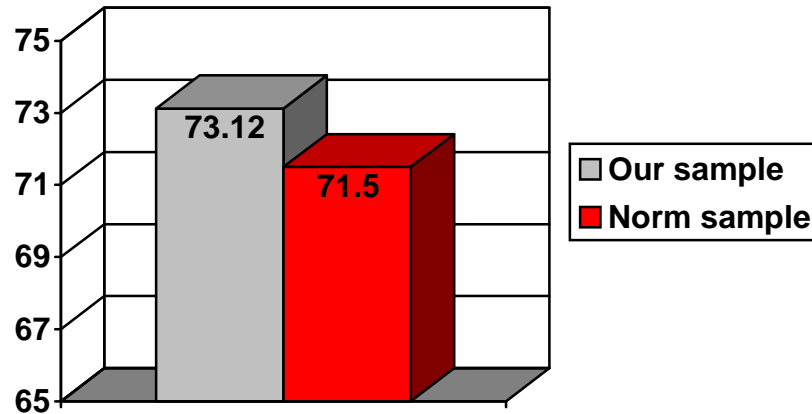


Figure 12: Total Protective Factors Scale Scores: Survey Sample Versus Norm Group

Tables 2, 3 and 4 display the percentage of children assigned the different ratings on each of the protective factor items by their teachers. These three tables differ in that the specific questions within each table are grouped under the three scales that make up the overall DECA Total Protective Factors scale—attachment, self control and initiative. The reader can infer from the tables something of the relative diversity of kindergarten children in classrooms across a number of behaviors. In addition, one can see in it some of the joys and challenges experienced by kindergarten teachers. Among the joys, 97% of the children were seen to at least occasionally “act in a way that made adults smile or show interest in her/him.” Among the challenges, nearly 18% of the kindergarteners never or rarely “handle frustration well.”

Table 2: Kindergarten Teachers’ Ratings of Kindergarteners’ Behaviors on Items of the DECA Total Protective Factors Scale: Attachment Items (Values Expressed in Percentages; n ≥ 724)

Item↓ Rating→	Never	Rarely	Occasionally	Frequently	Very Frequently
act in a way that made adults smile or show interest in her/him?	0.0 %	3.0 %	19.4 %	47.2 %	30.4 %
respond positively to adult comforting when upset?	0.1	3.3	17.9	52.3	26.3

Item↓ Rating→	Never	Rarely	Occasionally	Frequently	Very Frequently
show affection for familiar adults?	2.8	2.9	18.2	47.8	28.3
act happy or excited when parent / guardian returns?	3.2	1.8	11.7	46.7	36.6
ask adults to play with or read to him/her?	6.6	15.9	36	33.3	8.1
trust familiar adults and believe what they say?	0.5	1.5	11.0	58.7	28.3
seek help from children / adults when necessary?	0.8	4.1	18.5	58.9	17.7
show an interest in what children / adults are doing?	0.5	1.2	14.1	57.5	26.6

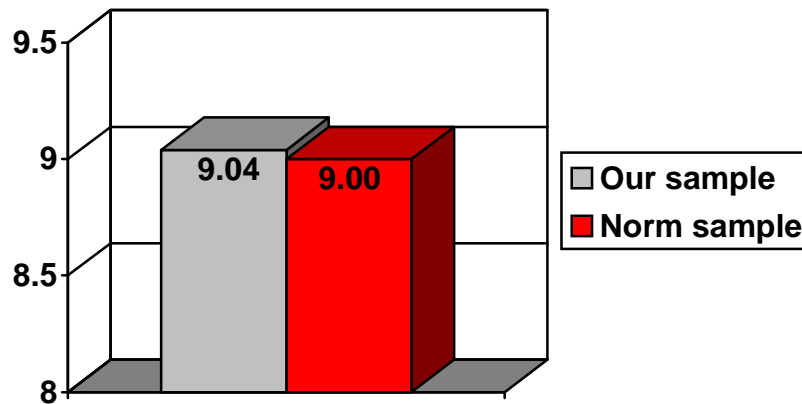
Table 3: Kindergarten Teachers' Ratings of Kindergarteners' Behaviors on Items of the DECA Total Protective Factors Scale: Self Control Items (Values Expressed in Percentages; n ≥ 724)

Item↓ Rating→	Never	Rarely	Occasionally	Frequently	Very Frequently
listen to or respect others?	0.3	6.8	22.5	41.1	29.3
control her/his anger?	0.7	5.1	17.7	44.4	32.1
handle frustration well?	2.6	15.1	31.9	40.6	9.8
show patience?	2.1	11.9	29.4	41.9	14.8
share with other children?	1.2	4.3	24.7	51.0	18.8
accept another choice when her/his first choice was unavailable?	0.3	6.5	27.6	53.2	12.5
cooperate with others?	0.4	4.7	21.9	52.9	20.1
calm herself / himself down when upset?	2.1	7.9	41.9	39.1	9.0

**Table 4: Kindergarten Teachers' Ratings of Kindergarteners' Behaviors on Items of the DECA Total Protective Factors Scale: Initiative Items
(Values Expressed in Percentages; n ≥ 724)**

Item ↓ Rating →	Never	Rarely	Occasionally	Frequently	Very Frequently
do things for himself/herself?	0.4	3.6	18.4	47.0	30.6
choose to do a task that was challenging for her/him?	3.2	16.0	37.0	32.2	11.7
participate actively in make-believe play with others (dress-up, etc.)?	2.5	7.0	26.0	41.9	22.7
keep trying when unsuccessful (act persistent)?	3.2	15.3	36.2	36.8	8.5
try different ways to solve a problem?	3.8	19.8	41.7	27.0	7.7
try or ask to try new things or activities?	4.3	15.3	36.3	32.5	11.6
start or organize play with other children?	2.7	14.0	31.4	39.2	12.7
focus his/her attention or concentrate on a task or activity?	1.9	9.6	25.3	46.3	16.8
say positive things about the future (act optimistic)?	4.1	10.7	30.8	41.4	12.9
ask other children to play with him/her?	0.7	6.6	24.7	51.9	16.2
make decisions for himself / herself?	1.2	4.5	25.6	53.8	14.9

On the Behavioral Concerns scale, teachers' ratings of the children averaged 9.04, a number identical to the norm group average of 9.00 (see Figure 13).⁵ As noted above, there are 10 items that make up this scale, so teachers are reporting that their children *average* just below "rarely" on these items.



**Figure 13: Behavioral Concerns Scale Scores:
Survey Sample Versus Norm Group**

Table 5 displays the percentage of children assigned the different ratings on each of the behavioral concerns items. As before, the reader can infer from it something of the relative diversity of kindergarten children in classrooms across a number of behaviors. Also, as before, one can identify some of the joys and challenges experienced by kindergarten teachers. A joy is that fewer than 2% of kindergarten children were reported to frequently or very frequently “use obscene gestures or offensive language.” But a challenge is that almost 32% were found to frequently or very frequently “get easily distracted.” We encourage the reader to recognize, too, that low numbers do not always convey only tiny problems—when over 10% of children occasionally or more frequently “destroy or damage property” and when 7.6% of them frequently or very frequently “fight with other children,” kindergarten teachers are busy keeping a lid on things in their classrooms.

Table 5: Kindergarten Teachers’ Ratings of Kindergarteners’ Behaviors on Items of the DECA Behavioral Concerns Scale (Values Expressed in Percentages; n ≥ 724)

Item ↓ Rating →	Never	Rarely	Occasionally	Frequently	Very Frequently
fail to show joy or gladness at a happy occasion?	53.2 %	31.9 %	7.7 %	5.2 %	1.9 %
touch children / adults inappropriately?	71.5	16.0	8.2	3.2	1.1
have temper tantrums?	63.0	18.1	11.7	5.1	2.1
have no reaction to children / adults?	57.9	29.1	9.7	3.0	0.3
use obscene gestures or	85.5	8.4	4.5	1.5	0.1

Item↓ Rating→	Never	Rarely	Occasionally	Frequently	Very Frequently
offensive language?					
destroy or damage property?	73.2	16.2	7.2	2.5	1.0
have a short attention span (difficulty concentrating)?	17.5	30.9	24.7	17.2	9.8
fight with other children?	36.3	35.2	20.9	5.7	1.9
become upset or cry easily?	25.8	36.0	23.4	11.7	3.2
get easily distracted?	11.0	30.0	26.1	21.0	11.9

Comparing parents' and teachers' evaluations of children

Notice that parents evaluate their children higher on the Total Protective Factors scale than do teachers (averages of 83.33 and 73.12, respectively) and that parents report their children slightly higher than do teachers on the Behavioral Concerns scale (averages of 9.71 and 9.04, respectively). Although statistically significant differences are found on both scales,⁶ such differences are to be expected as parents and teachers see the same children in quite different contexts. Such differences were also found among the norm groups.⁷

How similar are parents and teachers as they evaluate the children *relative to other children* on the Total Protective Factors scale and on the Behavioral Concerns scale? Is a child who is evaluated as above average by a parent also likely to be rated as above average by a teacher? Or is a child who is related as average by a parent likely be rated below average by a teacher?⁸

Based upon the Total Protective Factor scores of those children who had been evaluated by both a parent and teacher, there was similarity in the ratings, but not perfect agreement.⁹ For example, when children are assessed as “below average” or as “average or above average,” according to the DECA norms, parents and teachers agree on 82.9% of these classifications. But they disagree on 17.1% of the classifications, about one out of six children.¹⁰

The relationship between parents' and teachers' ratings on the Behavioral Concerns scale showed both similarities and differences.¹¹ In part, this was because so many children (26%) were rated as below average (a positive judgment) by their teachers on the Behavioral Concerns scale.

As noted before, parents and teachers see the same children in different settings reacting to the different opportunities and challenges those settings present. Thus, we might not expect to see strong relationships between a child's behavior in one type of setting and her behavior in another type of setting. That said, while there is some tendency to rate the same children similarly by these different raters, parents and teachers sometimes evaluate the same children's behavior differently.

The Relationship of Selected Background Characteristics with DECA's Total Protective Factors Scores and Behavioral Concerns Scores:

Children enter kindergarten with a whole host of experiences that may play a role in the development of their personal assets or their behavioral challenges. Children grow up in one-parent households or two-parent households; they are raised by parents who have not graduated from high school or by those who have college degrees; they are stricken with some significant health threat or arrive at the school door healthy; they have had the experience of preschool or they have not. How are these characteristics associated with protective factors and behavioral concerns?

Free and reduced lunch, and parents' educational level

Whether or not a child receives free or reduced lunch at school is a very rough proxy of the socioeconomic status of the family. We have information regarding the free or reduced lunch status on 654 of the children in our sample: 208 of those children (31.8%) were reported to have received free or reduced lunch and 446 (68.2%) were reported to have received regular lunch. Whether reported by parents or by teachers, Total Protective Factors scores were lower and Behavioral Concerns scores were higher for those children who received free or reduced lunch to statistically significant degrees.¹² However, there was found to be considerable overlap of the scores on both scales among children who did and did not receive free or reduced lunch.

A parent's educational level is also a very rough proxy of the socioeconomic status of the family and may also communicate something of the nature of the parent and child interaction. Is this related to the DECA evaluations? Well, yes and no. Parents were asked to indicate the highest level of education attained by anyone in the household (we will use the term "educational level" for simplicity). Whether evaluated by parents or by teachers, Total Protective Factor scores were positively related to educational level to a statistically significant degree; that is, children with the highest protective factor scores tended to come from families which included a more highly educated adult. Further, Behavioral Concerns scores were negatively related to educational level to a statistically significant degree; thus, children with the highest behavioral concerns scores tended to come from families in which adults had the least formal educational. However, neither of these tendencies was particularly strong.¹³ Many great kids come from the most educated families; many great kids come from the least educated families.

Single adult vs. two adult household

Under the heading of “marital status,” parents were asked to indicate if they were single, divorced, married, widowed or had a partner. Combining the statuses of “married” and “partner” into a two adult household category and combining “single,” “divorced” and “widowed” into a one adult household category (moderately defensible assumptions for this analysis), it was found that higher Total Protective Factors scores and lower Behavioral Concerns scores were associated to a statistically significant degree with two adult households.¹⁴ Overlap in the scores was found among the different household arrangements.

Health concerns

Parents were requested to indicate if their children have any of a number of specific health conditions: attention deficit disorder, allergies, cancer, diabetes, epilepsy or seizures, high blood pressure or migraines, or if they were overweight. There were 591 parental responses to these questions. With the exception of allergies—which 19.5% of respondents indicated their children had—very few of these health conditions were reported (between 0% and only 2.6% of parents reported that their children had any of the other health conditions). However, attention deficit disorder (selected by only 11 respondents) was associated with lower Total Protective Factors scores (evaluated by both parents and teachers) and higher Behavioral Concerns scores (evaluated by both parents and teachers).¹⁵ Again, overlap in the scores between the two groups was observed.

In addition to these findings, a comparison between children reported to have been premature and those reported to not have been premature found that there were no significant differences on the Total Protective Factors scores administered by either parents or teachers nor on the Behavioral Concerns scores administered by parents or teachers.

Preschool experience

Parents were asked to indicate if their children participated in part-day or full-day preschool programs. Higher Total Protective Factors scores (whether assessed by parents or teachers) and lower Behavioral Concerns scores (as assessed by parents but not as assessed by teachers) were associated with preschool attendance to statistically significant degrees.¹⁶ As before, there was much overlap in the scores between the two groups.

Special services

Parents were asked to indicate if their children had received special services such as early childhood special education, speech / language services or motor (OT / PT) services. In general, children who had received such services were reported to have lower Total

Protective Factors scores and higher Behavioral Concerns scores.¹⁷ Again, there was a good deal of overlap in scores between the groups.

The DIAL-3 Developmental Screening Test:

Most of the children in our study were administered the DIAL-3 developmental screening test, a test routinely given to entering kindergarteners in many school districts in the southwest Missouri region. The DIAL-3 has subtests in the following five areas: motor, concepts, language, self-help development and social development.¹⁸ We had access to only the percentile scores on the DIAL-3 Composite which combines only the three areas of motor, concepts and language subtests.

The average DIAL-3 percentile score for those 499 children whose scores were reported was 71.69, a value considerably above an expected percentile score of 50.¹⁹ The value is so high in part because many children for whom we had scores had extremely high values.²⁰ It is high in part because the average for the school systems we used is above 50. For example, in Springfield for 2006-2007 the average DIAL-3 percentile score was 60.77. And it is high in part probably because children who had reached their sixth birthday at the time the DECA was administered were not included in the analyses as the DECA was not normed using that age group. Regardless of the reasons for the unusually skewed distribution of DIAL-3 scores favoring higher percentiles, teachers' evaluations of these same children on the Total Protective Factors scale and the Behavioral Concerns scale were much closer to the norm sample used to develop these scales.

Teachers' Evaluations of Readiness to Enter Kindergarten:

Teachers were asked to evaluate "how ready was this child to enter Kindergarten?" for each of the children in their sample. "Not Prepared," "Prepared," "Well Prepared" and "Not sure" were the alternatives given. Figure 14 displays the results of this question.

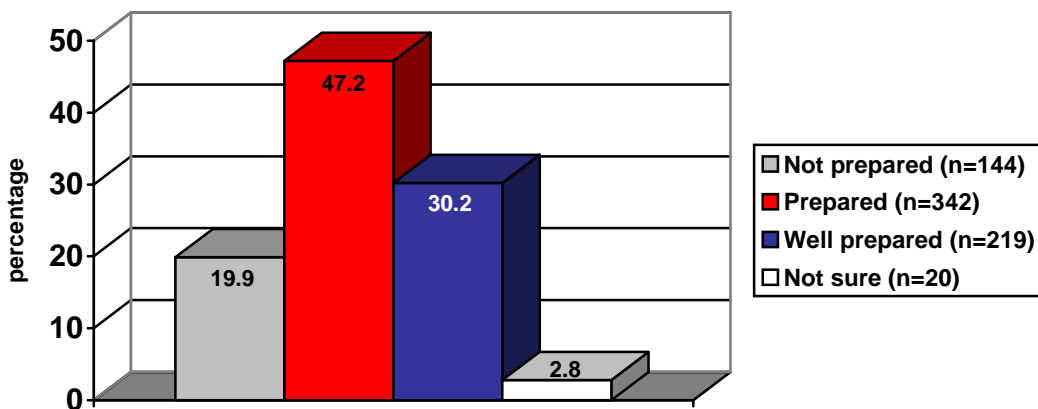


Figure 14: Teacher's Evaluations of Students' Readiness to Enter Kindergarten

The value of 19.9% for “not prepared” combined with 2.8% for “not sure” compares well with the value of 25% of Missouri’s eligible children not ready to enter kindergarten, as reported in 2004 in “Ready or Not, Here We Grow! Cultivating Successful Learners: Tracking School Readiness.” This report can be found at http://demos.learfield.com/ready4/School_Readiness_brochure051304.pdf .

Correlates of teachers’ evaluations of readiness to enter kindergarten

In so many respects, kindergarten teachers are the experts on whether the children under their care are really ready to be in kindergarten. This is, in fact, the reason why we asked this single question in such a straightforward way. But what are the factors in the child’s makeup or in his or background that are related to this way of measuring kindergarten readiness?

A way to approach this question is through the use of correlations between teachers’ evaluations on kindergarten readiness and other variables that might be considered as theoretically interesting. If high DIAL-3 scores, for example, are associated with kindergarten readiness, our correlations should be positive and statistically significant. If low Behavioral Concerns scores are associated with kindergarten readiness, our correlations should be negative and statistically significant. If kindergarten readiness is not related to children’s Total Protective Factors scores, the variables will not be correlated.

The following seven variables were considered as the most promising potential correlates of the teachers’ evaluations of kindergarten readiness:

- parent administered Total Protective Factors scale,
- parent administered Behavioral Concerns scale (expected to be negatively correlated),
- teacher administered Total Protective Factors scale,
- teacher administered Behavioral Concerns scale (expected to be negatively correlated),
- DIAL-3 percentile,
- free or reduced lunch status (expected to be negatively correlated),
- parents’ educational level.

As seen in Figure 15 below, it was found that each of these variables was statistically significantly related to teachers’ evaluations of kindergarten readiness in the expected ways.²¹ Thus higher scores on the Total Protective Factors scores (whether scales were administered by parents or teachers), higher DIAL-3 percentiles and higher educational level of parents were all associated with higher evaluations of readiness to enter kindergarten. Higher Behavioral Concerns scores (whether scales were administered by parents or teachers) and receiving free or reduced lunches were associated with lower evaluations of readiness to enter kindergarten.

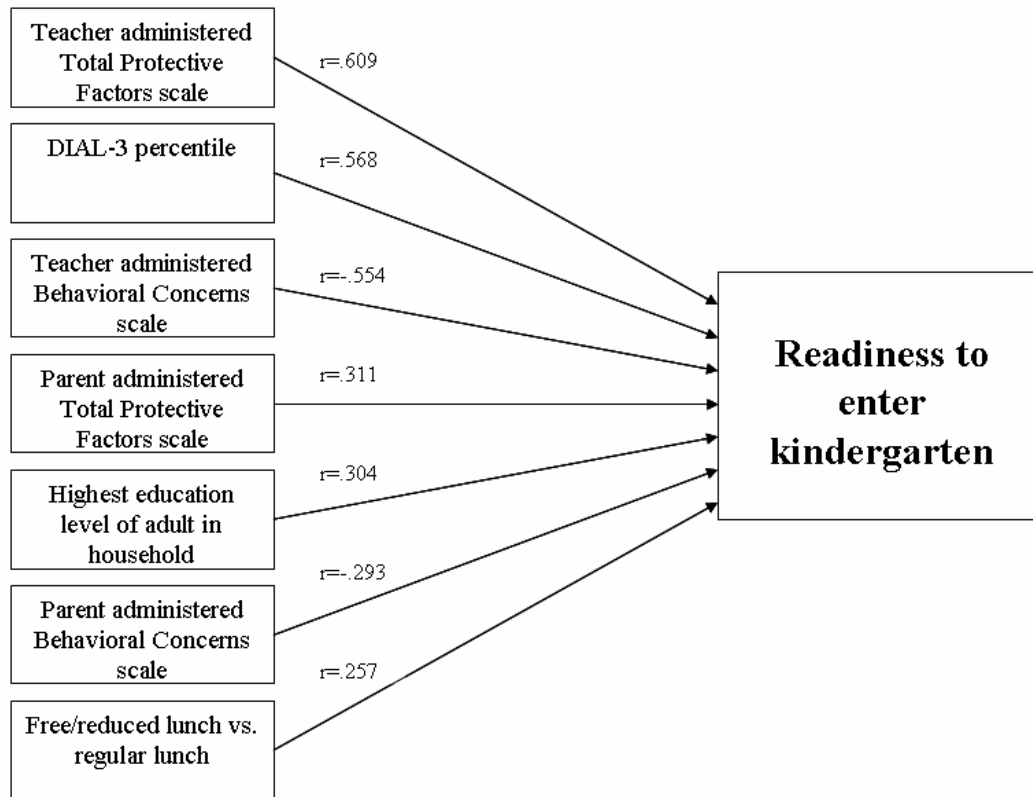


Figure 15: Theoretically Interesting Correlates as Predictors of Readiness to Enter Kindergarten

The relationships, while statistically significant, are not perfect, and there are some children who have good Total Protective Factor scores and come from families in which the parents are highly educated who are not judged to be ready to enter kindergarten. But such cases go against the trends found here.

Sorting out the most significant correlates of readiness to enter kindergarten

Now that we know that there are a number of significant correlates to kindergarten readiness, how does one identify the *most* important correlates of the bunch?

The variables shown in Figure 15 that were most strongly related to ratings of kindergarten readiness were the teacher administered DECA Total Protective Factors scale, the DIAL-3 percentile and the teacher administered DECA Behavioral Concerns scale. That teachers' positive ratings are well correlated with kindergarten readiness may not be surprising given that it is the same person, the teacher, evaluating the child on the two subtests of the DECA *and* on readiness to enter kindergarten, and given that social and emotional capabilities and behavioral problems are likely to affect kindergarten functioning. That the DIAL-3 percentile scores are well correlated may not be surprising as this is an instrument intended to assess learning potential of young children. All three

of these measures are considered to be correlated with kindergarten readiness to a degree that is considered large. The other four variables would be considered to be correlated with kindergarten readiness to only a medium degree.²²

There is another step to go in determining the most significant correlates of those that we have used with teachers' ratings of readiness to enter kindergarten. That is because there are many significant correlations among the group of correlates themselves. It is best to try to evaluate which of the correlates are the best in terms of adding *unique* statistical understanding to the question of what predicts kindergarten readiness.

There is a statistical technique, known as "stepwise multiple regression," which enables us to sort out which of the several variables are most predictive of kindergarten readiness.²³ When that procedure is conducted, we find that only three of the correlates emerge as uniquely important. As seen in Figure 16, those variables are:

- teacher administered DECA Total Protective Factors,
- DIAL-3 percentile,
- teacher administered DECA Behavioral Concerns.

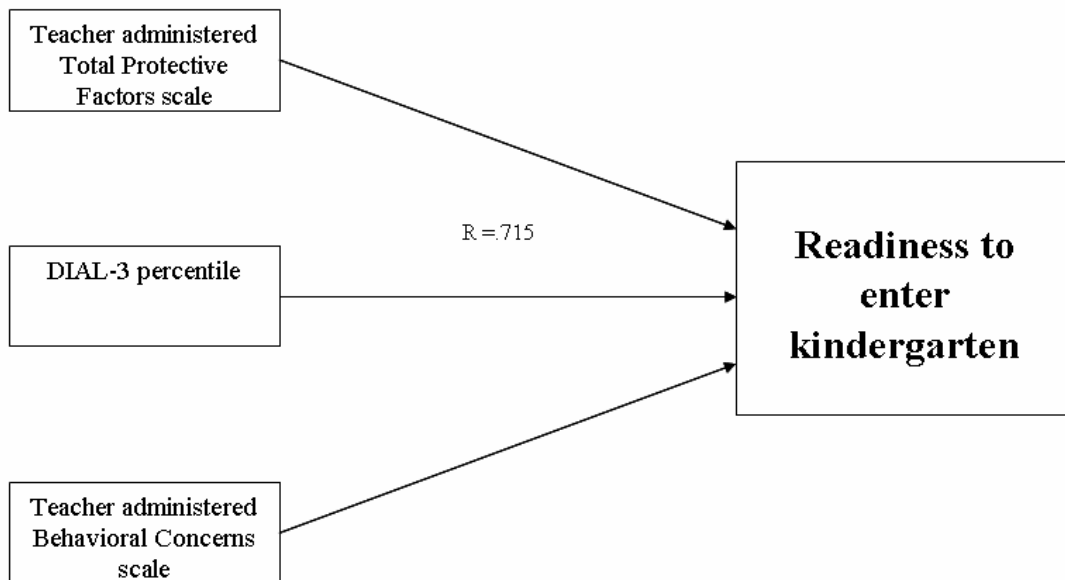


Figure 16: Theoretically Interesting Correlates as Unique Predictors of Readiness to Enter Kindergarten

How does one interpret this list? In a couple of ways. First, those three variables are sufficient to uniquely predict kindergarten readiness among the seven variables originally considered. The other four variables no longer shown are “buried” by their correlations with our three best predictor variables. Another way of saying this is that those other four variables are statistically unimportant once our three predictor variables are used. The result of this is that we have conceptually simplified our understanding of the important predictors of kindergarten readiness.

Second, these three measures differ systematically in their ability to predict kindergarten readiness. The strongest predictor was the teacher administered DECA Total Protective Factors scale. The next strongest predictor was the DIAL-3 percentile. The next strongest predictor was the teacher administered DECA Behavioral Concerns scale.

One can get a sense of the relationships between these variables and teachers’ ratings of kindergarten readiness from Table 6, which displays the average scores of those children identified as not prepared, prepared and well prepared by their teachers.

Table 6: Average Total Protective Factors Scores, Average DIAL-3 Percentiles and Average Behavioral Concerns Scores Obtained by Kindergarten Children in Relation to Classifications of Readiness

Teachers’ evaluations of readiness to enter kindergarten → Predictor ↓	Not Prepared	Prepared	Well Prepared
Teacher administered DECA Total Protective Factors score	57.73	72.23	82.66
DIAL-3 Percentile	50.54	71.97	89.79
Teacher administered DECA Behavioral Concerns score	14.57	8.99	5.44

Third, from a statistical perspective, the strength of the relationships between these measures and kindergarten readiness is huge.²⁴ Statisticians would consider such a finding very impressive.

So, What Does It Mean?

If we make a few defensible assumptions, we can generate some defensible conclusions given the findings that have just been presented. First, assume that the DECA's subscales—the Total Protective Factors scale and the Behavioral Concerns scale—are fair measures of a child's social/emotional functioning. Second, assume that the DIAL-3 is a fair measure of a child's motor, language and conceptual development.

Our **first conclusion** is this: Children are multidimensional, and a single dimension such as “mature—immature” is simply insufficient to capture their complexities. Social / emotional development is something different than sophistication in motor, language and conceptual realms.²⁵ This means that some children will “have it all” as they show capabilities across the board. On the other hand, some children will be lagging behind their age mates when it comes to all of these characteristics. And most of our children will be most accurately thought of as bundling together various strengths and weaknesses in their school readiness profiles.

Our **second conclusion** is that the social and emotional characteristics of a child are *at least* as important to kindergarten readiness as that child's motor, language and conceptual skills. This may surprise some readers, given the historical emphases on cognitive and linguistic readiness and on academic achievement even in the lowest grades.

Recall that many children—perhaps as many as 20%—are judged by their teachers as not yet ready to enter kindergarten at the beginning of the school year. Our **third conclusion** is that the reasons for this lack of readiness often include immature social skills and poor emotional makeup. Of course, one of the goals of kindergarten should be to prepare children for the rigors of first grade, and that preparation should include honing social and emotional skills. But for children to optimally benefit from the experiences they will have in kindergarten, they should come to the enterprise at the top of their game.

Our **fourth conclusion** has a “ready or not, here we come” ring to it. It is that, because children come to kindergarten with such widely differing profiles, the kindergarten settings and key players must be flexible and talented, and must prepare themselves to receive those at their door. Kindergarten readiness means not only children being ready for school. Kindergarten readiness also means that schools must be ready for the children.

What Was Learned from the Teacher Survey on Kindergarten Readiness

Most of the questions asked of the teachers were designed to provide quantitative data. A few questions were open-ended, designed to give the teachers greater leeway in expressing their views and ideas. Surveys were distributed to over 191 teachers and 131 responded, for a response rate of 69%.

The survey consisted of both closed- and open-ended questions. For the open-ended questions, two members of the research team reviewed and coded each individual response. The two sets of responses were compared, and a high level of agreement was found to exist between the two.

A summary of the survey results is reported below.

How many kindergarten students are in your classroom? Teachers reported an average of 20 students per class. Responses ranged from a low of 12 to a high of 26.

Approximately what percentage of your students this year were not ready to enter kindergarten and meet its challenges successfully? The average response was 24.7%. In the teachers' opinions, a quarter of their students were not prepared to enter school. Responses ranged from a low of 0% to a high of 90%.

What might be done by parents to better prepare children to enter kindergarten? This open-ended question, as well as the two subsequent questions, allowed teachers to give more than one response. Tables for this question, as well as the two subsequent questions, list all responses provided by 5% or more of the teachers. More than 350 responses were recorded for this question. As seen in Table 7, teachers reported that the most important things parents could do to prepare their children for school was to read to them and teach them basic academic skills needed for school. Many teachers were quite specific in their recommendations on skills, which were broken into several categories, including basic academic skills, self-help skills, social and emotional skills, and group skills. Teachers also felt that exposure to other children in group settings, through pre-school or other activities, provided good school preparation. A full listing of responses may be found in Appendix 2.

**Table 7: Open-ended responses to the question:
“What might be done by parents to better prepare children to enter kindergarten?”**

Response	Number of times recorded
Read to child on a regular basis.	65
Teach basic academic skills such as letter recognition, writing name, counting, and recognition of colors and shapes	52
Expose child to others in a group setting through pre-school, play groups, Sunday school, library programs or other activities.	44
Teach self-help skills such as shoe tying, bathroom hygiene, and blowing nose.	25
Spend time with children so they feel loved.	25
Develop social and emotional skills such as sharing, anger management, learning to separate from parent, independence, listening skills, and manners.	21
Talk to child. Listen to child.	17
Teach group skills such as following directions, standing in line, sitting still, and taking turns.	15
Limit television and video games.	13

Response	Number of times recorded
Engage child in activities that involve school supplies such as scissors, crayons, and glue.	12
Discipline child and be consistent in doing so. Teach respect for others and for authority.	12
Attend meetings and screenings at school, and work with the child on areas that need improvement.	8
If needed, wait until child is more mature before starting school.	8
Participate in Parents as Teachers.	7
Take child to library or other places for educational opportunities.	7
Teach child responsibility.	7

What might be done by your school district to better prepare children to enter kindergarten? There were 180 responses to this question, approximately half the number of responses given for the previous question. As seen in Table 8, there were only seven responses given by 5% or more of teachers. The most frequent response was a need for more preschool or early childhood programs. Eleven teachers reported that their districts were already doing a good job of school preparation. A full listing of responses may be found in Appendix 2.

**Table 8: Open-ended responses to the question:
“What might be done by your school district to better prepare children to enter kindergarten?”**

Response	Number of times recorded
More preschool and early childhood programs, regardless of child’s family income.	45
Inform parents of kindergarten expectations through information sheets, newsletters, or workshops.	20
Offer a transition kindergarten program for students who are not ready to enter school.	20
Improve kindergarten screening process.	13
My district already does a good job.	11
Change cutoff date so that children are older when they enter school. Dates suggested included July 1, June 1, April 1, and March 1.	7
Kindergarten curriculum is too demanding. Make it more developmentally appropriate. Lower expectations.	7

What might be done by your community to better prepare children to enter kindergarten? The last in a series of three open-ended questions yielded 173 responses. As seen in Table 9, teachers reported that the most important contributions the community could make would be classes and

materials for families, and free or affordable preschool programs. However, the top responses to this question were only given by 11 teachers, far fewer than the most frequent responses to the previous two open-ended questions. A full listing of responses may be found in Appendix 2.

**Table 9: Open-ended responses to the teachers’ survey question:
“What might be done by your community to better prepare children to enter kindergarten?”**

Response	Number of times recorded
Classes and materials for students and parents on kindergarten expectations and school readiness.	11
Free or affordable preschool programs.	11
Parenting classes such as Love & Logic or FAST.	10
Adjust preschool curriculum and activities so that children will be better prepared to enter kindergarten.	9
Create awareness of kindergarten expectations.	9
Expand the public library/library programs.	8
Parents as Teachers.	7
Public awareness of the existence and benefits of early childhood programs.	7

How many years have you been teaching? Respondents had been teaching for an average of 13.2 years. Responses ranged from a low of one year (reported by 11 teachers) to a high of 36 years (reported by one teacher).

How many years teaching kindergarten? The average number of years teaching kindergarten was 8.5. Responses ranged from a low of one year (reported by 19 teachers) to a high of 30 years (reported by one teacher).

Space was provided at the end of the survey for additional comments. Thirty-seven such responses were given. A complete listing may be found in Appendix 2.

What the April, 2007, Data Show

We obtained teacher evaluations of 625 kindergarteners in April from the second wave of the study (please see School Readiness End of Year Outcomes form in Appendix 1.). We were able to match all but two of these records to those obtained in October, 2006.

In the follow-up survey, we once again requested teachers’ evaluations of kindergarten readiness, but we did so with a question designed with slightly different phrasing than was asked before. Teachers were asked to use a rating of “strongly disagree” to “strongly agree” in conjunction with this statement: “At the beginning of the school year this child was ready to enter kindergarten.”

As before, a stepwise multiple regression was performed with the same seven variables employed previously (the October data of teacher- and parent-administered DECA Total Protective Factors and Behavioral Concerns scales, DIAL-3, free / reduced lunch and highest educational level of a parent in the household) used to predict this *follow-up* evaluation of readiness at the beginning of the school year (please see pp 46-47 of this report).

As before, the meaningful predictors were these three in this order:

- teacher administered DECA Total Protective Factors,
- DIAL-3 percentile,
- teacher administered DECA Behavioral Concerns.²⁶

Although the multiple correlation was not *as* strong as that found in the first wave ($R = .574$ vs. $R = .715$), it is still strong, and it reflects that the previous findings are robust over the course of the school year and over changes in the way the readiness question was asked.

We were also interested in kindergarteners' adjustment to the school experience. In the follow-up survey, this was measured by teachers' ratings of "strongly disagree" to "strongly agree" with the statement, "This child adjusted well to the structure & demands of the classroom."

We again used our seven variables collected at the beginning of the school year in the first wave of the study to predict this measure of adjustment. In this case, the meaningful predictors were these three in this order:

- teacher administered DECA Behavioral Concerns,
- DIAL-3,
- parent administered DECA Total Protective Factors.²⁷

We conclude that measures of social and emotional development at the beginning of the school year rate up with DIAL-3 scores to predict adjustment to the challenges of kindergarten.

An attempt to predict this measure of adjustment with data collected at the *same* time (rather than collected earlier in the school year) with the information found in the follow-up survey listed under Item 10 yielded these meaningful predictors in this order:

- Personal and social development rating,
- Writing skills,
- Ability to form mutual, long-lasting relationships with peers,
- Ability to experience a range of feelings & express them using appropriate words & actions.²⁸

Again, social and emotional development rate among the most important correlates of kindergarten adjustment.

Finally, a factor analysis was performed on the six scales found in Item 10 of the follow-up survey (see p. 2 of the “School Readiness End of Year Outcomes” in Appendix 1). A factor analysis is a statistical technique designed to uncover the underlying dimensions which support differences obtained on variables—in this case, differences among the ratings given by teachers of children’s skills in the seven areas noted. (For example, if a “halo effect” was operating on the part of teachers, the factor analysis would uncover one single factor underlying the seven ratings.) What was found was two factors—one relating to social and emotional development (corresponding clearly with the last four measures in Item 10) and one relating to the traditional academic skills of reading, writing and arithmetic.²⁹

Summary Comments on the October and April Data

1. There is remarkable congruence between the results of the data gathered near the beginning of the school year, and those gathered near the end of the school year. The end-of-year data add little to what was learned at the beginning of the school year. Therefore, the SRWG does not anticipate a need in the future to replicate the end-of-year work.
2. It is reasonable to conclude from these findings that children are not simply one-dimensional when it comes to preparedness for kindergarten. Social and emotional development are domains which are conceptually and empirically distinct from broad cognitive development, although the various forms of development are related in complex ways. And social and emotional development are at least as important as broad cognitive development in navigating successfully the demands and challenges of kindergarten.
3. The reader is reminded of cautions given earlier in this report. There is reason to believe (such as the unusually high percentage of parents holding college degrees, and the under-representation of sample students in free and reduced lunch programs) that selective processes were at work which skewed the sample of respondents so as to represent a higher than normal socio-economic level. Study results should be interpreted with that in mind.

Responses to the Specific Charges Given to the School Readiness Work Group with Recommendations

As said at the beginning of this report, The Mayor’s Commission for Children charged the SRWG to accomplish three things. Those charges are repeated here, along with the brief recommendations of the Committee:

1. To select an instrument to measure school readiness in its various dimensions—academic, social, emotional, etc.

The Committee recommends that the DIAL-3 scale and the Devereux Early Childhood Assessment (DECA) together provide a reliable assessment of readiness to enter kindergarten.

2. To recommend, and if approved, implement a process for use of the instrument in kindergarten classrooms in Greene County Schools in the fall of 2006.

This report demonstrates that the Committee completed this charge.

3. To recommend, and if approved, implement a process for ongoing use of the instrument in order to trace progress in improving children's readiness for school.

The Committee recommends the following:

- *That on even-numbered years the Mayor's Commission establish a new School Readiness Work Group or contract with a reliable local research agency to replicate the essential elements of the study reported here. Those essential elements needed to trace changes in children's readiness for school are the DIAL-3 Composite scores of entering kindergarten students, the teacher administered DECA Total Protective Factors scale and the teacher administered DECA Behavioral Concerns scale.³⁰*
- *That the DIAL-3 and DECA mean scores found in the present study be considered the benchmark scores, to be used in determining biennially whether progress is being made in the effort to improve the readiness of children to enter school.*
- *That the findings regarding school readiness be reported to the community in the Community Focus Report Card. The limitations of the present study growing out of the question of the representativeness of the sample must be kept in mind. Realistically, changes in school readiness will require a long time period, as reliable trend lines emerge.*

Other Recommendations

Recommendations for parents

1. Regarding Social and Emotional Readiness
 - Spend time with your children every day, talking with them, listening to them. Find reasons to smile at your children.
 - Look for ways to help your children feel good about themselves.

- Give responsibilities to children commensurate with their abilities. Help them learn how to do things for themselves.
- Give your children opportunities to interact with other children, and help them to learn how to interact in constructive ways.
- Establish limits and rules for your children, and help them learn to abide by them. Discipline them in constructive ways when necessary, and always be consistent.
- Help make your children’s lives structured, stable, and predictable.
- Help your children experience many aspects of the world around them—nature, other people including people who may not be exactly like you, the community you live in. Give them a chance to travel, if possible.
- Limit videogames, television and other media; monitor and guide choices in these areas.
- Don’t hesitate to take advantage of the many community resources and programs available to parents, such as Parents as Teachers.

2. Traditional Academic Skills

- Teach them to recognize the letters of the alphabet, colors and shapes, and to count.
- Read to your children.
- Keep reading materials for your children easily available in your home
- Take your child to the library, the zoo, the Discovery Center, and other places for educational opportunities.
- Keep your children as healthy and well-nourished as possible.

Recommendations for schools

1. Find and create opportunities to initiate or strengthen preschool and/or early childhood programs, with the goal of providing such programs in all school districts of the county.
2. While well prepared kindergarten students come from all segments of the community, children in the lower socio-economic classes are disproportionately represented among those who are not well prepared.

Seek ways to understand better and work more effectively with these parents and children.

3. Be wary of too much emphasis on academic development in kindergarten. Ensure that the expectations of the kindergarten year are developmentally appropriate.
4. Seek ways to increase kindergarten emphasis on social/emotional preparation for future education, without sacrificing necessary academic preparation.
5. Keep classes as small as possible.

Recommendations for communities

1. Support the schools in their efforts to initiate or strengthen preschool and/or early childhood programs.
2. This report focuses on the readiness of children for school. The other element of the equation is the schools' readiness for the children sent to them by the community. The children of the future will be increasingly diverse, and—given current economic trends—a larger and larger proportion will come from economically disadvantaged families. The community needs to support the schools as they prepare for the students who will enroll.
3. Find opportunities for collaborative activities/relationships between individual schools and other organizations, i.e. businesses, churches, neighborhood organizations, city departments, service clubs, etc.
4. Recognize that school readiness is in significant part the result of socio-cultural conditions of the larger community. Conditions such as poverty, family mobility, the prevalence of drug (including alcohol) abuse, the programming of much of the media, the shortage of child care which is high quality and affordable, etc. Seek ways to effect change at this macro level.
5. Heed the studies by the Federal Reserve Bank of Minneapolis (not reported here) which found that investment of dollars in early childhood produces extraordinary economic gain for the whole community, larger in fact than more common strategies for economic development. These data and conclusions may be found at the web site of the Federal Reserve Bank of Minneapolis,
<http://www.minneapolisfed.org/research/studies/earlychild/>

Endnotes

1. Sample M = 83.33 (S = 10.61, n = 543). Norm sample M = 81 (cf. LeBuffe, P.A. and Naglieri, J.A. (1999). *Devereux Early Childhood Assessment: User's guide*. Lewisville, NC: Kaplan Press. Appendix A). $t(542) = 5.125, p = .000$.
2. LeBuffe & Naglieri (Ibid., Appendix A) appear to operationally define “below average” as a score that is greater than or equal to one standard deviation below the norm sample mean of 81, here, a value of 70. By doing so, 16% of the norm group is identified as below average. In our sample 11.8% of children obtained scores of 70 or below vs. 16% for the norm group.
3. Sample M = 9.71 (S = 4.12, n = 558). Norm sample M [interpolated] = 7.67 (cf. Ibid., Appendix A). $t(557) = 11.685, p = .000$.
4. Sample M = 73.12 (S = 15.83, n = 665). Norm sample M = [interpolated from table] = 71.5 (cf. Ibid., Appendix A). $t(664) = 2.635, p = .009$.
5. Sample M = 9.04 (S = 6.10, n = 705). Norm sample M = 9 (cf. Ibid., Appendix A). $t(704) = 0.185, p = .853$.
6. On the Total Protective Factors scale, $t(456) = 14.509, p = .000$. On the Behavioral Concerns scale, $t(495) = 3.546, p = .000$.
7. LeBuffe, P.A. and Naglieri, J.A. (1999). *Devereux Early Childhood Assessment: Technical manual*. Lewisville, NC: Kaplan Press.
8. The closest answer to this question is provided by a statistic known as a correlation (“r”) that, here, measures the relative degree of similarity between the ratings of parents and teachers as they evaluate the same children. If, on average, individual children are rated as equally high, moderate or low by *both* parents and teachers, r will be close to the value 1. On the other hand, if children who are rated as moderate by one rater are rated as high or low by another rater, r will be close to the value 0.
9. $r = .373, p = .000, n = 457$.
10. In the table below, $\chi^2(1) = 13.27, p = .000$.

Number of Children Designated as “Below Average” or as “Average or Above Average”
Based Upon Parents’ and Teachers’ Administrations of the DECA Total Protective
Factors Scale; n = 457)

	Below Average (parents’ ratings)	Average or Above Average (parents’ ratings)	Total
Below Average (teachers’ ratings)	14	45	59
Average or Above Average (teachers’ ratings)	33	365	398
Total	47	410	457

11. $r = .378, p = .000, n = 496$.
12. Each $|t|(df \geq 442) \geq 3.452, p \leq .001$.
13. $-.234 \leq r \leq .223, p < .000, n \geq 493$.

14. Each $|t|(df \geq 492) \geq 2.721, p \leq .007$.
15. Each $|t|(df \geq 494) \geq 3.943, p = .000$.
16. Each $|t|(df \geq 494) \geq 1.986, p \leq .048$ for the parents' and teachers' administered Total Protective Factors scores and for the parents' administered Behavioral Concerns scores.
17. Each $|t|(df \geq 494) \geq 2.001, p \leq .046$.
18. <http://ags.pearsonassessments.com/assessments/technical/dial.asp>
19. Sample M = 71.69 (S = 25.51).
20. For example, 60 of the 499 children (12.02%) were reported to have had percentile scores of 99, 85 children (17.03%) were reported to have had percentile scores of 98 or 99, and 170 children (more than 33.33%) were reported to have had percentile scores of 90 or above. It would be expected that such scores would have been found for only 1%, 2%, and 10% of the children, respectively.
21. This table displays correlates of teachers' evaluations of kindergarten readiness (excluding the category of "not sure; too early to tell"):

Correlate	Correlation	n =	p =
Parent administered Total Protective Factors scale	r = .311	484	.000
Parent administered Behavioral Concerns scale	r = -.293	496	.000
Teacher administered Total Protective Factor scale	r = .609	643	.000
Teacher administered Behavioral Concerns scale	r = -.554	680	.000
DIAL-3 percentile	r = .568	479	.000
Free / reduced lunch vs. regular lunch	$r_{pb} = .257$	634	.000
Highest educational level of adult in household	r = .304	523	.000

22. One can interpret the absolute value of correlations (r) "by using *conventional definitions* of 'small' ($|r| = .10$), 'medium' ($|r| = .30$) or 'large' ($|r| = .50$) effects" (Cascio, W.F. and Aguinis, H. (2005). *Applied psychology in human resource management, 6th edition*. Upper Saddle River, NJ: Pearson Prentice Hall., p. 161, emphasis added). Thus, all of these seven correlations in the above table appear to come close to demonstrating medium-level associations or better.
23. The stepwise multiple regression is obtained by a method in which a number of "predictor" variables are evaluated in terms of their usefulness as predictors of a single "outcome" variable. In the situation here, the correlates included in the above table are considered the predictor variables and teachers' evaluations of children's readiness to enter kindergarten is the outcome variable. The value of this procedure is that if two predictor variables are correlated with one another and each is correlated with the outcome variable, we *need* only one of the predictor variables to help us understand the pattern. The procedure also yields a statistic, "R," which is comparable to the well-known bivariate correlation, "r," an indicator of the strength of the relationships among the variables.

When a stepwise multiple regression was conducted using the variables in the above table as predictors and teachers' ratings of readiness to enter kindergarten as the outcome variable (excluding the category of "not sure; too early to tell"), we get the following results: First, only three of the predictor variables predict uniquely—the teacher administered Total Protective Factors scale, the DIAL-3 and the teacher administered Behavioral Concerns scale. Second, specific values of R are these:

- R = .587 with teacher administered Total Protective Factors only;
 - R = .696 with DIAL-3 percentile included with the above;
 - R = .715 with teacher administered Behavioral Concerns rating included with both above.
24. The multiple correlation—R = .715 at its strongest—is arguably huge when considering the conventional definition of $|r| = .50$ as “large.” Statistically, Total Protective Factors, the DIAL-3 and Behavioral Concerns are said to account for fully half of the variability in kindergarten readiness scores. The other half of that variability would presumably be accounted for by factors unexplored in this analysis.
25. Indeed, teacher administered Total Protective Factors score and DIAL-3 percentile correlate only moderately in this study with $r = .338$, $p = .000$, $n = 479$.
26. R = .574.
27. R = .583.
28. R = .771.
29. A varimax rotation was used to simplify the initial factor structure.
30. Overall, for the entire sample, the Means, Standard Deviations and Ns for the major data are these:

	Teacher-administered Total Protective Factors score	DIAL-3 percentiles	Teacher-administered Behavioral Concerns score
Mean	73.12	71.69	9.04
Standard Deviation	15.83	25.51	6.10
N	665	499	705

APPENDIX 1

Questionnaires

STUDENT DEMOGRAPHICS FORM

Fill in the boxes with the appropriate information for each student

1. Teacher Last Name										
----------------------	--	--	--	--	--	--	--	--	--	--

DO NOT STAPLE
FORMS.

2. DESE District Code							
-----------------------	--	--	--	--	--	--	--

3. DESE Building Code				
-----------------------	--	--	--	--

4. District Student ID#										
-------------------------	--	--	--	--	--	--	--	--	--	--

5. Student Date of Birth	M	M	D	D	Y	Y

6. Today's Date	M	M	D	D	Y	Y

Circle the appropriate response

7. Student Gender	1. Male	2. Female
-------------------	---------	-----------

8. Lunch Status	1. Free/Reduced	2. Reg. Priced
-----------------	-----------------	----------------

9. How ready was this child to enter Kindergarten?	
1. Not Prepared	2. Prepared
3. Well Prepared	4. Not Sure

10. Site
1. Ash Grove
2. Branson
3. Nixa
4. Ozark
5. Republic
6. Rogersville
7. Springfield
8. Strafford
9. Willard

FILL IN PERCENTILE

11. Dial 3 Percentile		
-----------------------	--	--

TEACHER DEMOGRAPHICS FORM

STUDENT ID # _____
Student DOB: _____
Student Gender: _____ Male _____ Female
Teacher Name: _____
School Name: _____

SITE:

- 11 Willard
- 12 Republic
- 13 Ash Grove
- 14 Strafford
- 17 Springfield
- 22 Nixa
- 23 Ozark
- 54 Branson
- 85 Aurora
- 86 Monet

TEACHER SURVEY ON KINDERGARTEN READINESS

1. How many Kindergarten students are in your classroom? _____

2. Approximately what percentage of your students this year were not ready to enter kindergarten and meet its challenges successfully? _____ %

3. What might be done to better prepare children to enter kindergarten...
 - a) By parents? _____

 - b) By your school district? _____

 - c) By your community? _____

4. How many years have you been teaching? _____
How many years teaching kindergarten? _____

5. In what county do you teach? _____

6. If you have other comments, please write them in the lines below.

PARENT/GUARDIAN DEMOGRAPHICS FORM

Student ID # _____ Date _____ Your Zip Code _____

Was your child premature? (Birth weight less than 5.5 lbs & born before 38 weeks)

Yes No Unknown

Does your child have any chronic physical health concerns? (Mark all that apply)

ADHD, ADD Autism, Asperger's, Pervasive Developmental Disorder
 Allergies Cancer
 Cerebral Palsy Diabetes
 Epilepsy/Seizures Migraines
 Other (Please list: _____)

What is your child's racial/ethnic heritage? (Mark all that apply)

African American
 Asian
 Latino/Hispanic
 Native American Indian or Alaskan
 Pacific Islander
 White
 Other

What services have been provided to your child? (Mark all that apply)

Day Care
 Preschool-Full day
 Preschool-Part day
 Head Start
 Parents as Teachers
 First Steps
 Early Childhood Special Education

What is the highest level of education attained by anyone in your household?

Less Than High School Diploma
 High School Diploma/GED
 Some College, No Degree
 Associates Degree
 Bachelor's Degree or Above

Are you the...?

Biological Parent
 Foster Parent
 Adoptive Parent
 Grandparent
 Other

Are you...?

Male
 Female

What is your marital status?

Single
 Married
 Divorced
 Widowed
 Live with a partner

Do you work . . . Full time Part time Not working outside the home

SCHOOL READINESS END OF YEAR OUTCOMES

1.) Student ID #

Please write-in the numbers & fill-in the bubbles.

--	--	--	--	--	--	--	--	--	--	--

0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	9

2.) Is this child still in your classroom? Y
 N

3.) Was the child withdrawn from school? Y
 N

3a.) If so, when? Sept.-Oct. Nov.-Jan. Feb.-present

3b.) If so, why?

4.) Attendance

Days Absent		Days Tardy	
1	<input type="radio"/>	1	<input type="radio"/>
2	<input type="radio"/>	2	<input type="radio"/>
3	<input type="radio"/>	3	<input type="radio"/>
4	<input type="radio"/>	4	<input type="radio"/>
5	<input type="radio"/>	5	<input type="radio"/>
6	<input type="radio"/>	6	<input type="radio"/>
7	<input type="radio"/>	7	<input type="radio"/>
8	<input type="radio"/>	8	<input type="radio"/>
9	<input type="radio"/>	9	<input type="radio"/>
10+	<input type="radio"/>	10+	<input type="radio"/>

5.) Number of Discipline Referrals

	ISS	OSS	Referral to Office	Notes Home (regarding behavior management)	
1	<input type="radio"/>	1	<input type="radio"/>	1	<input type="radio"/>
2	<input type="radio"/>	2	<input type="radio"/>	2	<input type="radio"/>
3	<input type="radio"/>	3	<input type="radio"/>	3	<input type="radio"/>
4	<input type="radio"/>	4	<input type="radio"/>	4	<input type="radio"/>
5	<input type="radio"/>	5	<input type="radio"/>	5	<input type="radio"/>
6	<input type="radio"/>	6	<input type="radio"/>	6	<input type="radio"/>
7	<input type="radio"/>	7	<input type="radio"/>	7	<input type="radio"/>
8	<input type="radio"/>	8	<input type="radio"/>	8	<input type="radio"/>
9	<input type="radio"/>	9	<input type="radio"/>	9	<input type="radio"/>
10+	<input type="radio"/>	10+	<input type="radio"/>	10+	<input type="radio"/>

6.) Referred for further educational intervention? Y N

7.) Had Special Services:

- Speech & Language Y N
 Physical Therapy Y N
 Occupational Therapy Y N
 Alternative Intervention Strategies Y N
 Other _____

8.) Plans for Next Year

- Recommended for Retention? Y N
 Will be Retained? Y N
 Recommended for Promotion to 1st Grade? Y N

9.) How often does this student exhibit emotional/ behavioral problems or challenging behaviors?

- | Never | Rarely | Occasionally | Frequently | Very Frequently |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

10.) Please rate the student's overall skill in the following areas:

	Well Below Basic	Below Basic	Basic	Proficient	Advanced
Reading/Communication Arts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Math	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal & Social Development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to use independent thought & action to meet needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to form mutual, long-lasting relationships with peers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to experience a range of feelings & express them using appropriate words & actions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate your degree of agreement with the following statements:

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
11.) At the beginning of the year, was this child ready to begin Kindergarten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.) This student adjusted well to the structure and demands of the classroom.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX 2

Teachers' Responses to Open-Ended Questions

What might be done to better prepare children to enter kindergarten <i>by parents</i>?	Number of times recorded
Read to child on a regular basis.	65
Teach basic academic skills such as letter recognition, writing name, counting, and recognition of colors and shapes	52
Expose child to others in a group setting through pre-school, play groups, Sunday school, library programs or other activities.	44
Teach self-help skills such as shoe tying, bathroom hygiene, and blowing nose.	25
Spend time with children so they feel loved.	25
Develop social and emotional skills such as sharing, anger management, learning to separate from parent, independence, listening skills, and manners.	21
Talk to child. Listen to child.	17
Teach group skills such as following directions, standing in line, sitting still, and taking turns.	15
Limit television and video games.	13
Engage child in activities that involve school supplies such as scissors, crayons, and glue.	12
Discipline child and be consistent in doing so. Teach respect for others and for authority.	12
Attend meetings and screenings at school, and work with the child on areas that need improvement.	8
If needed, wait until child is more mature before starting school.	8
Participate in Parents as Teachers.	7
Take child to library or other places for educational opportunities.	7
Teach child responsibility.	7
Teach motor skills.	5
Make sure you as a parent are aware of kindergarten expectations.	5
Establish rules, routines, and structure, such as eating meals together.	4
Show child that learning is important.	4
Be a good role model.	2
Spend time outdoors.	2
Teach values.	2
Teach to clean up.	1
Wonder Years	1
Do not leave child in day care too long.	1

What might be done to better prepare children to enter kindergarten <i>by your school district?</i>	Number of times recorded
More preschool and early childhood programs, regardless of child's family income.	45
Inform parents of kindergarten expectations through information sheets, newsletters, or workshops.	20
Offer a transition kindergarten program for students who are not ready to enter school.	20
Improve kindergarten screening process.	13
My district already does a good job.	11
Change cutoff date so that children are older when they enter school. Dates suggested included July 1, June 1, April 1, and March 1.	7
Kindergarten curriculum is too demanding. Make it more developmentally appropriate. Lower expectations.	7
Allow time in school for unstructured play, social and emotional growth, character education, and developmental rather than academic activities.	6
Smaller class size.	6
Increase number of children attending the Wonder Years program.	5
Educate parents about preschool options.	3
Include kindergarten teachers in screening and initial assessment.	3
Offer a special pre-kindergarten class for children who have never been in preschool.	2
Mandatory preschool.	2
Hire more Parents as Teachers educators.	2
Emphasize the necessity and importance of preschool.	2
Require minimum screening score to start kindergarten.	2
Align preschool curriculum with public schools so children will be better prepared for school.	2
Bring back special education programs.	2
Expedite process of providing services to at-risk students.	2
Offer free books to children aged 0-5.	2
A "kindergarten plus half" program for children not ready to move to 1 st grade from kindergarten.	1
Aids in classrooms.	1
Do not worry about academics at pre-school age.	1
Eliminate unfairness of 3-4 disruptive students.	1
Encourage family involvement.	1
Have pre-schools focus more on academics.	1
Identify and recommend retention if necessary.	1
Offer after school programs.	1
Offer more real life experiences through field trips.	1
Offer pre-school screenings.	1
Offer remedial services at non-Title I schools.	1

What might be done to better prepare children to enter kindergarten <i>by your school district?</i>	Number of times recorded
Provide smoother transition for students w/IEP's.	1
Stop using ELS to test children.	1
Teach children to love learning.	1
Test children below the 10 th percentile.	1
Understand that children develop at different rates.	1

What might be done to better prepare children to enter kindergarten <i>by your community?</i>	Number of times recorded
Classes and materials for students and parents on kindergarten expectations and school readiness.	11
Free or affordable preschool programs.	11
Parenting classes such as Love & Logic or FAST.	10
Adjust preschool curriculum and activities so that children will be better prepared to enter kindergarten.	9
Create awareness of kindergarten expectations.	9
Expand the public library/library programs.	8
Parents as Teachers.	7
Public awareness of the existence and benefits of early childhood programs.	7
Community is already active and supportive.	6
Support educational programs and goals. Fund schools.	6
Provide variety of educational opportunities and activities for children.	5
Volunteer help for teachers and students.	5
Accessible, affordable family activities.	4
Support young and single-parent families.	4
Socialization activities.	3
Assist impoverished families and at-risk children.	2
Big Brothers/Sisters.	2
Community events to showcase importance of education.	2
Community partnerships w/education.	2
Have quality child care available for single parents.	2
Head Start.	2
Increase public awareness of parental resources available.	2
Place higher importance on the school district.	2
Provide classroom space.	2
SPARC classes.	2
Transportation for pre-school and other support services.	2
Tutoring.	2
Change cutoff date for beginning school.	1

What might be done to better prepare children to enter kindergarten <i>by your community?</i>	Number of times recorded
Classes for parents on dealing with children from split families.	1
Community events involving learning.	1
Community partnerships with education.	1
Daycares staffed by educated individuals.	1
Educate parents about preschool programs.	1
Educational play groups at churches.	1
Emphasis on parent accountability.	1
Emphasize importance of PTA.	1
Emphasize parent responsibility.	1
Encourage parents to be involved w/schools.	1
Events to raise money for the public schools.	1
Expose students to a variety of environments.	1
Form a group to see how the community can “share” in raising children.	1
Funding for Wonder Years and other preschool programs.	1
Health care for children.	1
Help for teachers.	1
Help make it possible for parents to stay home with their children.	1
Let parents know it is okay for child to wait a year before starting kindergarten.	1
Lower class sizes.	1
Mandatory Head Start.	1
Mandatory Parents as Teachers.	1
Mandatory Wonder Years.	1
Parents and teachers working together to shape a responsible student.	1
Pass bonds to reduce class size in Title I areas.	1
Pre-natal classes.	1
Preschool scholarships.	1
Promote healthy lifestyles.	1
Provide family activities.	1
Provide parent’s night out.	1
Provide parents with a list of reading materials for themselves and their children.	1
PTA.	1
Reading clubs where adult volunteers provide literacy and math skills with children at a “parents night out” by zip code (monthly rotation).	1
Recreation center.	1
Role models for students.	1
Setting good values and morals.	1
Support district with summer school, technology classroom needs.	1
Support special programs like those for children not ready to enter kindergarten.	1
Teacher support - funding, grants, supplies for low-income students.	1

What might be done to better prepare children to enter kindergarten <i>by your community?</i>	Number of times recorded
Tutoring.	1
Value good parenting.	1
Vote and tax dollars.	1
Welcome Wagon.	1
Wonder Years.	1