

**The Status and Nature of
Full-Day Kindergarten in Delaware**

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Executive Summary

Introduction. This is a report on phase I of an ongoing study of the status, nature and impact of full-day kindergarten (FDK) in Delaware's public school districts. Phase I examines the status and nature of FDK in Delaware. Phase II, planned for completion in spring 2004, will compare the educational impact of FDK and half-day kindergarten (HDK).

Existing research suggests that FDK benefits the learning of some children, especially those deemed academically "at-risk," but questions remain concerning the scope and duration of its impact.

Methods. The data sources for this study consist of 1) surveys and interviews of district administrators and teachers, and 2) analyses of documents, such as district websites, sample class schedules, and kindergarten report cards. The administrator and teacher surveys included questions about:

- the development of FDK programs
- program goal
- FDK class sizes, student characteristics, and placement procedures
- similarities and differences in HDK and FDK in the district

Status of FDK. Twelve of 15 school districts with kindergarten programs offer FDK classes. Two of these 12 districts currently offer FDK to all students. Two additional districts have announced plans to offer FDK to all of their students beginning in the 2004-05 school year. Approximately 23% (1640/7175) of public school kindergarten students in Delaware are in FDK in the 2003-04 school year (HJR 9 Taskforce, 2003).

FDK classroom populations vary from exclusively academically "at-risk" students to classrooms that reflect the general student population. In some cases, FDK classes include 1/4-1/3 "non-at-risk" students who are intended to serve as model learners. The definition of "at-risk" students, and the means of screening for these students, vary from district to district, and sometimes among schools within districts.

Nature of FDK. We examined four perspectives on the nature of FDK programs in Delaware: 1) program goals, 2) respondents' views of the similarities and differences in

their FDK and HDK programs, 3) FDK and HDK class schedules, and 4) learning objectives from report cards.

Respondents most frequently said that the primary goal of FDK is to address the achievement gap and/or to better prepare “at-risk” students for further learning. Respondents also commonly linked the goals of kindergarten to helping students meet the state English language arts (and less frequently the math) standards.

Surveys and interviews with staff from 9 districts, suggest that FDK programs are extensions of existing HDK programs, rather than significant reconceptualizations of the kindergarten curriculum.

Sample class schedules from HDK and FDK classrooms reflect the dominance of language and literacy activities in kindergarten classrooms. The FDK schedules better accommodate other core academic and special subjects, but additional data are needed to understand how these outlines are translated into classroom practices. The schedules and teachers’ descriptions of their classes illustrate how educational beliefs and practices can shape the nature of FDK classrooms.

Based on the report cards we examined, the amount and detail of instruction in English language arts, and/or the resolution at which student learning is assessed, exceed that in other subject areas.

Summary and Implications

- **FDK in Delaware is largely an extension of HDK, rather than a strategic reconceptualization**

As an adaptation of current practice, FDK may rely on more time rather than on additional appropriate instructional practices. Since the research literature is unclear about the characteristics that make FDK effective, policy makers and educators should proceed with modest expectations and open minds when adopting FDK programs. More studies of implementation are needed to examine what combinations of more time and different practices best meet the needs of all children.

- **Respondents frame the goals of FDK around the achievement gap, literacy instruction, and students deemed “at risk”.**

Our respondents’ views reflect widespread concerns in the educational community about the achievement of “at-risk” students. At the same time, nationally and in Delaware, there is strong interest in making FDK available to *all* students.

Policy Considerations

- What goals should guide the adoption and implementation of FDK?
- Should FDK be an extension, or a reinvention, of HDK?
- If a policy goal is to use FDK to reduce the achievement gap, what are the implications when FDK is for everyone?
- How can FDK incorporate the strengths of both “academic” and “developmental” approaches, while acknowledging their tensions?

Introduction

This is a report on phase I of an ongoing study of the status, nature and impact of full-day kindergarten (FDK) in Delaware's public school districts. Originally conceived as a single report, this study was subsequently divided into two phases. Phase I, reported here, examines the status and nature of FDK in Delaware. Phase II, planned for completion in spring 2004, will compare the educational impact of FDK and HDK. Progress on phase II is pending timely receipt of student achievement and demographic data from the Delaware Department of Education (DOE).

This report examines the current status and nature of FDK based on surveys and interviews with staff from districts that offer FDK, as well as on documents such as district websites, class schedules, and report cards. To place this study in a broader context, we will briefly summarize the research literature on the nature and impact of FDK. A more complete literature review is in Appendix A.

What Does the Research Say?

From 1960-1970 the average kindergarten consisted of a 2.5-3.0 hour day. Approximately 13% of all kindergarten schedules operated on a full day schedule (Truss, 2001). By 2003, over 60% of all kindergartners in the nation attended a full-day program, and fourteen states mandate that full-day kindergarten be offered for all students (ECS, 2003). Several factors appear to have contributed to this move to a longer kindergarten day:

- the demands of increased academic standards,
- calls for more developmentally appropriate practices,
- attempts to reduce special education placements and reduce grade retention,
- efforts to improve the achievement of children deemed to be academically "at risk,"
- an increase in the number of working mothers, and
- the view that FDK offers a higher quality experience than traditional daycare programs.

Does research lend support to the high expectations that are often placed upon FDK? Existing research suggests that FDK benefits the learning of some children, but questions about the scope and duration of its impact remain.

Most of the research on FDK examines its impact on student achievement and behavior. FDK appears to improve the performance of students identified as academically “at risk.” While in some studies “non-at-risk” students benefit from full-day kindergarten, the benefits do not appear to be as large as for “at-risk” students. FDK appears to have especially positive impacts on reading performance, while math performance does not seem to be significantly impacted. Evidence of impact is most often based on short-term measurements made during the kindergarten year. More research is needed to clarify the long-term impact of FDK on student performance (Clark, 2001).

Some studies have found that the largest portion of time in both HDK and FDK classrooms is spent in teacher-directed, large-group activities (Elicker & Mathur, 1997; Tatum, Donna Surges, 1999). However, the total time spent in teacher-directed activity was 16% less in FDK than in HDK (Elicker & Mathur, 1997). This suggests that more small group, individual, and/or student-centered activities may occur in FDK classrooms.

Unfortunately, studies of the impact of FDK often lack rich descriptions of the programs’ educational characteristics. Consequently, little is known about which characteristics of FDK programs result in benefits to student learning. Is it simply more time in school that is responsible for the effects of full-day kindergarten, or do specific curriculum and instructional practices produce the benefits?

Study Methods and Data Sources

This phase of the study examined the status and nature of FDK in Delaware’s public school districts.¹ The data sources for this study consist of 1) surveys and interviews of district administrators and teachers, and 2) analyses of documents, such as district websites, sample class schedules, and kindergarten report cards.

¹ Charter schools were not included in this study.

Surveys and Interviews

Requests to participate in the study were sent to superintendents in the 12 school districts that offer FDK. Based on contact recommendations from the superintendents, administrator surveys were distributed, typically to assistant superintendents and/or elementary curriculum supervisors. In some instances, we used the survey questions to interview respondents, and in others we followed-up survey responses with an interview. Representatives from 9 districts replied to the administrator survey. Participating districts and their representatives were assured that they would remain anonymous.

Based on administrators' recommendations we also contacted FDK teachers to request interviews. A number of the administrators who were former FDK teachers responded to the teacher survey. The administrator and teacher surveys included questions about:

- the development of FDK programs
- program goal
- FDK class sizes, student characteristics, and placement procedures
- similarities and differences in HDK and FDK in the district

The administrator and teacher surveys are in Appendix B.

Document Analysis

We examined documents that offered additional perspectives on the nature of FDK programs in Delaware. These included,

- *District websites.* District websites were searched for information about FDK programs, including program descriptions and goals.
- *Class schedules.* A sample of class schedules was collected from FDK and HDK teachers as evidence of the content and structure of a typical day in those kinds of classrooms.

- *Report cards.* A sample of kindergarten report cards was examined to determine the distribution and number of learning goals in major subject areas.

Note on Interpretation

Classroom observations were beyond the scope of this study. Our analyses relied, instead, on what administrators, teachers, and documents said about FDK programs. Respondents' descriptions of FDK programs and classrooms practices, and district documents that reflect *prescribed* curriculums can offer rich and reliable information. But in the absence of classroom observations and other corroborating data, it is wise to be cautious when drawing conclusions about the *enacted* curriculums (i.e., what actually happens in classrooms) in the FDK programs we studied.

Status of FDK

What is FDK?

Nationally, and in Delaware, there is a wide range of program types. The terms “full-day kindergarten” (FDK), “all-day kindergarten” (ADK), “extended day,” and “wrap program” refer to a variety of programs in which students are in school for longer than in traditional half-day kindergarten (HDK). These terms are used inconsistently and variations in program design make it difficult determine what counts as FDK. In general, three alternatives to HDK exist in school districts in Delaware:

- “Full-day” or “all-day kindergarten” – students are in a single classroom for the entire elementary day. They may move to another room and/or see more than one teacher for “specials,” such as art and music.
- “Wrap” – students attend a half-day class in the morning, and an additional half-day class in the afternoon (i.e., back-to-back half-day classes)
- “Extended day” – students attend a morning half-day class, and then stay for supplemental activities, often in a different room and/or with a different teacher.

In this report, we include all of these variations under the term “full-day kindergarten” (FDK).

FDK Capacity in Delaware

Twelve of 15 Delaware school districts with kindergarten programs offer FDK. Two of these 12 districts currently offer FDK to all students. Two more districts have announced plans to offer FDK to all their students in 2004-05 (Table 1).

Table 1. Status of FDK programs in Delaware (adapted from information supplied by the Early Childhood Education Division, DOE).

FDK for all students	FDK for some students	No FDK
Smyrna, Laurel	Appoquinimink, Brandywine, Caesar Rodney, Capital, Christina, Indian River, Lake Forest, Milford, Red Clay, Woodbridge*	Cape Henlopen, Colonial, Seaford*

*plan to offer FDK to all students beginning 2004-05

Table 2 contains data from the October 30, 2003 Full-Day Kindergarten Subcommittee Report of the House Joint Resolution 9 Early Childhood Education Taskforce (HJR 9 Taskforce, 2003). According to these data, which exclude students in charter schools², approximately 23% (1640/7175) of public school kindergarten students in Delaware are in FDK in the 2003-04 school year.³

² All Delaware charter schools with kindergarten programs offer FDK for all students.

Table 2. Number of public school district students in full- and half-day kindergarten (adapted from HJR 9 Taskforce, 2003).

School district	Full-day	Half-day	% in FDK
Appoquinimink	30	342	8
Brandywine	217	368	37
Caesar Rodney	154	183	46
Cape Henlopen	0	265	0
Capital	136	324	30
Christina	180	1245	13
Colonial	0	617	0
Indian River	184	431	30
Lake Forest	60	184	25
Laurel	160	0	100
Milford	18	285	6
Red Clay	239	933	20
Seaford	0	250	0
Smyrna	233	0	100
Woodbridge	29	108	21
TOTAL	1640	5535	23

FDK Class Size & Student Placement

FDK and HDK class sizes were similar, with a range of 15-26 and an average of 20-22 students. FDK classroom populations vary from exclusively “at-risk” students to classrooms that reflect the general student population. In some cases, FDK classes include 1/4-1/3 non-at-risk students who are intended to serve as model learners.

District and school procedures to determine students’ eligibility for FDK arose to meet immediate needs and in many cases continue to evolve. The definition of an “at-risk” student, and the means of screening for these students, vary from district to district, and sometimes among schools within districts. Among the 9 districts we studied, criteria used to identify “at-risk” students for priority enrollment in FDK classes include:

- Diagnostic tests such as Developmental Indicators for the Assessment of Learning (DIAL). Cut-off scores on the screening instruments are established to determine FDK eligibility. Cut-off scores for FDK eligibility are influenced by educational criteria, as well as by the availability of staff and classroom space.
- Free/reduced lunch eligibility – used as an indicator of socioeconomic status.
- Students’ home address – used as an indicator of socioeconomic status.

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Programs that mix “model” students in classes with a majority of “at-risk” students typically use an enrollment lottery and tuition fee system for the “model” students. Analysis of more detailed FDK student demographic data is pending receipt of the data from the Department of Education. Information on students’ prior participation in Head Start or ECAP is not systematically collected by the State or school districts, and so is not available for analysis.

Cost of FDK

District administrators identified teacher and paraprofessional salaries as the most significant ongoing costs of their current FDK programs. Other costs included additional instructional materials used in the longer school day, professional development related to the additional materials, and expanded student placement screening.

Schools offering FDK use a combination of funding sources including Title 1, Title II, “extra time” state grant monies or private grant funds. School districts that admit “non-at-risk” students to FDK classes typically charge a fee for those students.

The HJR 9 Taskforce collected estimates from school districts of the cost to offer FDK for all students. The October 30, 2003 interim report estimates operating costs of \$16.2 million at the state level, and \$6.6 million at the local level. One-time capital expenditures are estimated to be \$19.3 million at the state level and \$12.9 million at the local (HJR 9 Taskforce, 2003).

Nature of FDK

In this section we offer four perspectives on the nature of FDK programs in Delaware: 1) program goals, 2) respondents’ views of the similarities and differences in their FDK and HDK programs, 3) FDK and HDK class schedules, and 4) learning objectives from report cards.

FDK Program Goals

We sought information about the nature of curriculum and instruction in FDK programs from interviews with district administrators and teachers, publicly available documents on district websites, and interviews with district administrators and teachers.

Administrator & teacher surveys/interviews. In surveys and interviews we asked school district administrators and FDK teachers to explain why their districts offer FDK, and to describe the goals of the programs. We received responses from 10 administrators and 1 FDK teacher from 9 districts that include urban, suburban and rural areas across the state. Table 3 summarizes their responses.

Table 3. The goals of FDK programs, based on responses from district administrators and teachers.

Goals of FDK	No. of respondents (n=11)
Close or narrow the achievement gap for low income and minority children	8
Teach literacy/language skills	7
Help students meet district and state Standards/Performance Indicators, and/or pass 3 rd grade DSTP	5
Provide extra time, support, and/or differentiated instruction for academically “at-risk” students	4
Teach math/numeracy skills	2
Social & behavioral development	2
Build school readiness skills	2
Build students’ confidence as learners	1
Enrich the curriculum with “special” subjects (e.g. art, music)	1

- *Achievement gap & “at-risk” students.* Respondents most frequently stated that the main goal of FDK is to address the achievement gap and/or to improve the performance of “at-risk” students. Examples of these replies include:
 - *“To provide an identified “at-risk” population with extra time and instruction to make significant gains in terms of academic performance.”*
 - *“To help at-risk children, have an opportunity for extra time in order to allow them to ‘catch-up’ with other children academically.”*

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- *"To provide additional educational time/experience for students most in need..."*
 - *"To provide extra support for students at risk for academic failure."*
 - *"To level the playing field for children living in poverty enabling them to reach levels of achievement on parity with their more affluent peers."*
 - *"Closing the achievement gap by the 3rd grade DSTP."*
 - *"Full day kindergarten gives students an opportunity to start the educational journey on more equitable terms."*
- *Language, math and the State Standards.* The second most common response was that FDK helps students meet the state English language arts (and less frequently the math) standards.
 - *"To address the standards in all content areas as broadly and deeply as possible, with an emphasis on literacy development."*
 - *"Early opportunities to develop literacy and numeracy along with social skills will enable all children to succeed."*
 - *"For students to master concepts of print and have phonemic awareness, develop language and communication skills and learn to problem solve. ... Through a well-balanced literature program students can have equity in the use and understanding of oral and written language."*
 - *"The major goal of the full-day kindergartens is to enable students to develop the math and literacy skills essential to their meeting kindergarten standards, better prepare them to accomplish the kindergarten performance indicators, and thus increase their ability to meet the standards when tested by DSTP."*

District websites. We examined the websites maintained by the 12 Delaware school districts that currently offer FDK. Four of the 12 websites contained no substantive information concerning the instructional nature of the districts' kindergarten programs. Three of websites included brief goal statements, names of commercial curriculum materials that are used, and/or examples of activities in kindergarten classes. The remaining four district websites include lists of kindergarten learning objectives in language arts, math, social studies and science. The number and scope of the learning objectives vary from district to district, although they generally reflect the Delaware State Performance Indicators for English language arts, math, science, and social studies.

The websites do not contain detailed descriptions of, or rationales for, the districts' kindergarten programs. Further, the websites do not address the nature, purposes, or goals of FDK as an alternative to HDK.

Summary: District administrators and teachers referred repeatedly, and often passionately, to the role of FDK in closing the achievement gap experienced by minority and low income children, especially with regard to the state standards in English language arts. In contrast, school district websites offer little or no detailed information concerning nature of either HDK or FDK programs.

Similarities and Differences in FDK & HDK

Surveys and interviews with staff from 9 districts, suggest that FDK programs are extensions of existing HDK programs, rather than significant reconceptualizations of the kindergarten curriculum. For example,

- *“The full-day kindergartens use the same curricula as the half-day kindergartens... During the second half of the day, activities reinforce the regular curricula.”*
- *“The full day program allows more time for exploration of materials and concepts.”*
- *“The curriculum is similar but taught more thoroughly.”*

On the other hand, the respondents identified the following differences in FDK and HDK:

- More small group and/or one-on-one instruction:
 - *[In HDK] “teachers focused on the middle level ability with no time for individualization.”*
 - *“The full-day program provides opportunities for the teacher to teach small group instructional reading lessons on a daily basis. With the paraprofessional working on planned instructional activities, the teacher can pull at least four different reading groups in the morning to work with students on specific skills and strategies.”*
 - *“The additional time allows teachers to provide grouping situations to address more specific learning needs and/or provide enrichment for those students who are ready.”*
- An increase in the variety of subjects and activities:
 - *Students split into smaller groups and do “specials” (i.e., special subjects, such as art and music) in the afternoon.*

- *“Writing happened everyday in FDK. In HDK, it may be once or twice a week.”*
 - *“The additional time also allows for the integration of other subject matter in a more in-depth manner. For example, students are allowed to explore science concepts at a deeper level.”*
 - *“In a half day program science and social studies were routinely neglected except for holiday activities.”*
 - *“My kids get a play time every day. Half-day teachers say they don’t have time. A kindergarten child needs time to play.”*
 - *“An all day program affords time for skills based learning and the hands-on application of those skills. There is now time for social skills development, not just academic programming.”*
- Supplemental instructional materials. Several districts reported adding commercial curriculum materials to the FDK program. These include,
 - *Boost Up and Brain Gym®* – programs that integrate kinesthetic and cognitive development, and
 - *Breakthrough to Literacy™* –reading instruction.
 - More time to go in-depth, elaborate and/or reinforce topics and skills:
 - *“Full day allows time for reinforcement and remediation that needs to take place immediately rather than a day later.”*
 - *“The full day program allows more time for exploration of materials and concepts.”*

Summary. The respondents described FDK as an extension of HDK. “There’s more time,” was a common remark. But they also said that a longer school day allows teachers to be more flexible in what and how they teach. Most believed that FDK teachers are better able to include additional variety of subjects and activities, and/or to allow students to explore particular topics in more depth. They also saw more opportunities in FDK classrooms for small group or one-on-one instruction, which allows learning to be better adjusted to students’ individual needs. Several of them remarked that teachers need the assistance of well qualified paraprofessionals to cope with the added demands of small group and one-on-one instruction.

Comparisons of Class Schedules for FDK and HDK

Daily class schedules offer another view of the nature of FDK programs. Table 4 shows two schedules for a “typical” day in two FDK classrooms, and Table 5 contains

schedules for two HDK classrooms. The schedules in Table 4 were provided by a veteran FDK teacher, and by a former FDK teacher who is now an elementary supervisor. Both schedules illustrate the central place language and literacy activities hold, including journaling, writers workshops, and shared and independent reading. Both also include math, science, and/or social studies; special subjects such as music, art, or computers; thematic learning centers; and rest times and/or indoor or outdoor play.

Table 4. FDK Daily Classroom Schedules.

FDK Classroom A

Time	Activities
8:10-8:45	self-help skills, journaling, center/free choices, pledge
8:45-9:15	opening circle time: morning message, song, and calendar
9:15-9:30	shared reading
9:30-9:45	predictable chart (“Building Blocks”) or 15 minute outside play break if needed
9:45-10:10	introduce learning groups: language arts, sciences, math, social/emotional concepts, and motor skills, social studies (rotate 3 times if in small group)
10:10-10:55	specials –different each day (computer, art, music, P.E., library)
10:55-11:30	continue learning groups
11:30-12:00	lunch
12:40-1:10	recess
1:10-1:25	read aloud
1:25-2:15	math/science
2:15-2:40	pack up, snack, and play
2:40-3:00	read daily news, share time, review day
3:00-3:10	dismissal

FDK Classroom B

<i>Time</i>	Activities
8:55-9:20	literacy centers: listen to stories, letter/sound games, read, write in journals
9:20-9:35	calendar activities
9:35-9:50	morning message, shared writing
9:50-9:55	phonemic awareness transition
9:55-10:10	letter recognition and/or phonetics
10:10-11:00	writer’s workshop
11:00-11:30	recess
11:30-11:50	shared reading (fluency, sight vocabulary)
11:50-12:20	lunch
12:25-12:45	rest/quiet time/independent reading
12:45-1:10	read aloud-comprehension
1:10-1:55	centers-thematic with literacy options
2:00-2:45	specials
2:50-3:20	math with centers
3:30-3:40	closing-circle debriefing

Table 5. HDK Daily Classroom Schedules

HDK Classroom A

Time	Activities
8:45-9:00	independent reading
9:00-9:05	Pledge of Allegiance/announcements
9:10-9:55	Whole Class Instruction
9:10	calendar
9:20-9:30	shared writing
9:30-9:40	phonological awareness/Language activity
9:40-9:55	shared reading or rereading of Big Book
9:55-10:35	center time/class projects (includes provision for independent reading)
10:35-10:40	clean up/Transit time
10:40-10:55	math activities or independent writing
10:55-11:15	teacher read-aloud
11:15-11:30	prepare for dismissal, songs, work play, dismissal

HDK Classroom B

Time	Activities
8:10	arrival, independent activities
8:30	group: calendar, shared writing, and shared reading
8:50	writers workshop
9:20	language arts: teacher read aloud, language activity
9:40	centers: manipulatives, art, math, library, blocks, listening, housekeeping and computer
10:15	clean-up and independent reading
10:20	music: songs and finger plays, star activity
10:45	large motor activity
10:55	prepare for dismissal

Distinctions between the FDK schedules reflect instructional philosophies that the respondents discussed in interviews. The respondents' perspectives highlight a few of the alternative instructional beliefs and practices that shape the nature of FDK programs.

- ***FDK classroom A: Thematic instruction.*** This teacher is a long-time FDK teacher who set up her district's FDK program. She described kindergarten as a time for children to "[learn] to love school," and to gain "confidence" and "independence" as learners. She wants her children to learn to make choices about their learning without always being told what to do and when to do it. She favors thematic approaches that interweave literacy and subject matter learning. She believes that children learn to read and write without isolating the development of basic literacy skills from broader thematic topics. "I haven't taught a letter, but by January they know letters," she told us. She resists what she views as the increasing emphasis on "academic" approaches in early grades. She believes the move toward skills-based instruction and the increasingly prominent role of testing in even young students' lives reduces the richness of learning and makes school a threatening and stressful place.
- ***FDK classroom B: Literacy skills.*** This teacher is a former FDK teacher who is now a district supervisor. She views kindergarten as the time for children to master letter names and sounds, phonemes, and other basic literacy skills. She also believes students must learn to apply these skills as writers. She described herself as a long-time advocate of phonics who is also committed to giving students more opportunities to write. As a supervisor, she supports a systematic approach to phonics instruction, and is committed to increasing students' opportunities to learn through writing. Her goal is for all children, including those who may be academically "at-risk," to reach the district literacy benchmark for entrance to first grade. In her classroom schedule, nearly every period of the day is directly related to literacy. These activities include skills-based activities in phonemics and phonetics, as well as open-ended, creative activities such as writers workshop, in which children use pictures and writing to respond to topics presented by the teacher. In her commitment to teaching basic skills, she did not wish to abandon the creative traditions of kindergarten. "Kids need

dramatic play, sand and blocks, [but] you have to find way to do those things that incorporate writing.”

- ***HDK Schedules: Literacy skills.*** The HDK schedules (Table 5) reflect classrooms that are strongly focused on literacy education. They both include learning centers, which typically offer a variety of topics and activities for students to pursue individually or in small groups. Math and music appear in each schedule, but in contrast to the FDK schedules, neither mentions science or social studies. These and other subjects can be integrated with reading and writing activities, but compared to the FDK schedules; the absence of these subjects is notable.

Summary: Although the sample schedules should not be viewed as representative of all FDK programs in Delaware, they do point to important philosophies, choices, and dilemmas that characterize FDK programs. The schedules demonstrate the central place of language instruction in these kindergarten classrooms. The FDK schedules better accommodate additional core academic and special subjects, but we need classroom observation data to understand how these plans are translated into actual practice. In light of commentary from the FDK teachers, the schedules also illustrate how different educational beliefs and practices can shape the nature of FDK classrooms. Distinctions and overlaps between thematic and skills-based instruction, and between academic and developmental models, are revealed in the views of FDK teachers and administrators.

Learning Objectives from Report Cards

Report cards contain a select subset of the many learning objectives that are pursued in classrooms. Although report cards certainly do not capture all the kinds of learning that occur in classrooms, they presumably do reflect goals that are highly valued in an educational program and that strongly influence the instruction students receive. In this sense, the content of a report card represents important elements of a prescribed curriculum and indirectly reflects some of what actually happens in classrooms.

We examined kindergarten report cards from 7 Delaware school districts with FDK to determine the categories of assessment and the number of items that were scored under each category. While report cards varied from district to district, within each district the same report card was used for HDK and FDK. Table 6 shows the major categories of learning objectives and the number of items in each category.

Table 6. Categories of learning objectives and the number of items in each category on report cards from 7 Delaware school districts.

School District	English language arts	Math	Science	Social Studies	Other*
A	102	62	0	0	14
B	97	10	2	2	19
C	25	22	0	0	0
D	22	6	1	6	2
F	17	12	2	2	23
E	14	4	3	3	0
G	10	6	0	0	4
Average	41	17	1.1	1.9	8.9

*This combines social/work habits, personal growth, general readiness, and motor skills.

While the format and content of report cards often differ markedly, English language arts has the most items in every case. The scope of individual items in different categories also varies substantially. For example, the report cards from districts A and B list as distinct, scored outcomes students' abilities to identify upper and lower case letters, as well as letter sounds. In our analysis, this counts as $26 \times 3 = 78$ distinct items in English language arts. In other cases, report cards list several language/literacy skills that are separately reported. Items under science and social studies, when they appear, are typically stated very broadly and so provide less resolution as indicators of student learning.

Summary: Since the report cards we examined are used for both HDK and FDK, they reflect kindergarten curriculums in general, rather than FDK in particular. Based on the report cards we examined, the amount and detail of instruction in English language arts, and/or the resolution at which student learning is assessed, appear to exceed that in other

subject areas. The number of English language arts and math items on report cards roughly reflects the scope of these categories in the kindergarten Performance Indicators, while science and social studies outcomes are under-represented on report cards. Similarly, most of the respondents stressed that teaching reading and writing is a central goal of their FDK programs.

Summary and Implications

- **FDK in Delaware is largely an extension of HDK, rather than a strategic reconceptualization**

As an adaptation of current practice, FDK may rely on more time rather than on additional appropriate instructional practices. Since the research literature is unclear about the characteristics that make FDK effective, policy makers and educators should proceed with modest expectations and open minds when adopting FDK programs. More studies of implementation are needed to examine what combinations of extra time and different practices best meet the needs of *all* children.

- **Respondents frame the goals of FDK around the achievement gap, literacy instruction, and the needs of students deemed “at risk”.**

Our respondents’ views reflect widespread concerns in the educational community about the achievement of “at-risk” students. At the same time, nationally and in Delaware, there is strong interest in making FDK available to *all* students.

Policy Considerations

- What goals should guide the adoption and implementation of FDK?
- Should FDK be an extension, or a reinvention, of HDK?
- If a policy goal is to use FDK to reduce the achievement gap, what are the implications when FDK is for everyone?
- How can FDK incorporate the strengths of both “academic” and “developmental” approaches, while acknowledging their tensions?

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Appendix A: FDK Literature Review

The Move to FDK

In 1993, approximately 45% of all kindergarten programs used a full-day schedule (Elicker & Mathur, 1997). By 2003, 60% of kindergartners attended full-day kindergarten (FDK) (Education Commission of the States, 2003). Several factors contributed to the adoption of a longer kindergarten day.

First, the move to full-day kindergarten (FDK) programs is related to curriculum issues (Rothenberg, 1984). The curriculum kindergarten teachers are expected to implement has become increasingly skill-oriented and academic, necessitating longer periods for instruction (Truss, 2001). Many educators think that an extended day provides teachers with more opportunities for one on one contact with students (Puleo, 1988). Advocates of FDK argue that extending the kindergarten curriculum over the course of a full school day also allows for greater use of developmentally appropriate practices (Truss, 2001). Developmentally appropriate practices are those, which are appropriate not only for a child's age, but also appropriate in light of their individual development. For example, a longer kindergarten day allows children more opportunities for extended play with educational materials. Allowing students to remain in the same class for the entire day reduces the number of transitions children have to make (Education Week, 2003).

Second, FDK has been implemented with the intention of reducing special education placements and grade retentions (Puleo, 1988). Additionally, FDK has been used to provide children from disadvantaged backgrounds, such as low socioeconomic (SES) or Non English Proficient (NEP) households with compensatory education services (Housdan, 1992).

The trend to adopt FDK can be traced to changes in family structure. Over the past two decades there has been an increase in the number of working mothers (Rothenberg, 1984). FDK provides an attractive alternative to paying for daycare (Clark & Kirk, 2000; Hildebrand, 1997; Puleo, 1988; Education Week, 2003). Finally, many

parents believe that FDK often provides children with a higher quality of care than traditional daycare programs (Truss, 2001).

Nature and Limitations of Research on FDK and HDK

Currently there is a considerable amount of research concerning the efficacy of FDK. However, there are several limitations in the literature base. First, the literature contains unclear and inconsistent definitions of FDK and half-day kindergarten (HDK). Greer-Smith (1990) offered one of the few concrete, although broad, definitions of HDK and FDK, noting that, "A full-day kindergarten class is between five and seven hours each day. A half-day kindergarten class consists of three hours and twenty minutes, on the average" (Greer-Smith, 1990, p. 6). This broad definition, however, fails to define FDK and HDK on a level that allows generalization across research designs.

A second weakness in the early literature base is closely related to the first: studies do not describe, in sufficient detail, what happens in full- and half-day classrooms. It is unclear whether the FDK curriculums are simply elongated versions of the half-day curriculums or if the FDK programs have reinvented the HDK curriculums. Kilgore, in her 2002 study, argues that a distinction between allocated time and engaged time should be made when evaluating kindergarten curriculums. Without a clear understanding of what occurs within FDK and HDK classrooms, it is difficult to determine what specific characteristics of the FDK programs impact student achievement.

Third, many of the studies employ research designs that do not include matched comparison groups, pre- and posttest measures, or longitudinal tracking. Studies that do follow students longitudinally often fail to discuss what other interventions could confound findings. For example, as Cryan et al. (1992) notes, many students who are enrolled in HDK also attend some sort of daycare the other half of their day, which may or may not provide an academic curriculum or activities that are similar to that of FDK. This confounding variable is not explored adequately in the current research.

Finally, many of the studies consider only students who have been enrolled continuously in a school district for the duration of the study. Since many of the students

who are targeted as “at-risk” are in a highly mobile population, studies often fail to gather data on a significant section of the at-risk population (Knapp & Shields, 1990).

Achievement and Behavioral Impact

Meta-Analyses

Several researchers have completed meta-analyses of the research concerning FDK. Such analyses provide us with an overview of trends in the research. It is clear from these meta-analyses that researchers have sought to address four main questions concerning FDK. The most frequently asked question examines the impact of FDK on students’ behavior and academic performance. Related to the impact question, is the question of whether FDK has a differential impact across different student groups. Third, many of the more recent studies have sought to address the question of how long the impact of FDK lasts. Finally, the question that is least explored, asks what aspects of the FDK program are responsible for the positive impacts found.

According to an Educational Resources Information Center (ERIC) Digest completed by Patricia Clark (2001), studies in the 1970s and 1980s on FDK yielded ambiguous results due to weak research designs. However, Clark asserts, in the 1990s researchers began to employ more rigorous designs that led to more consistent results. Beginning in the 1990s, researchers documented that children identified as “at-risk” can benefit from FDK (Housdon & Kim, 1992); Karweit, 1992; Puleo, 1988). Some studies have indicate that FDK may have positive academic effects for some children who are not identified as “at-risk” (Cryan et al., 1992; Elicker & Mathur, 1997, Fusaro, 1997; Hough & Byrde, 1996 ; Koopmans, 1991). In regards to social and behavioral effects, full-day kindergartners are rated, on average, higher than their HDK peers on measures of classroom behavior (Cryan et al., 1992). Studies investigating teacher and parent attitudes indicate that teachers of FDK and parents with children enrolled in FDK are generally satisfied with FDK. They cite the slower pace of a longer school day as a major strength of the FDK structure (Hough & Byrde, 1996; Elicker & Mathur, 1997; Housdan & Kam, 1992; Towers, 1991). Also, researchers have found that the largest portion of time during the school day is spent in teacher-directed, large-group activities

(Elicker & Mathur, 1997; Morrow, Strickland & Woo, 1998). However, the total time spent in teacher-directed activity was found to be 16% less in FDK than in HDK classrooms (Elicker & Mathur, 1997).

Fusaro (1997) examined 23 studies in his meta-analysis of the FDK research. He performed a test of significance that revealed that students in FDK evidence greater achievement than those in HDK. Furthermore, he found that FDK accounts for 59%-62% of the variance in outcome measures. He cautions that these results should be viewed with some skepticism, since studies that resulted in no effect are less likely to be published and could not be included in his analysis.

Individual Research Studies

A large proportion of the studies on FDK examine the impact of full-day versus half-day schedules on student achievement and behavior. These studies utilize several methods of measuring achievement and behavior. Group administered standardized tests are the most common achievement measure, and the Hahnemann Elementary School Behavior Rating Scale as the most common behavior measure. These studies vary considerably in their scope and rigor. This review presents the largest and most rigorous studies first, and concludes with a chronological presentation of the smaller and less rigorous studies.

Studies of Larger Scope

Bridges-Cline, Hoffler-Riddick and Gross (2002), described the results of a longitudinal study of two cohorts of full- and half-day kindergartners in Montgomery County, Maryland. Research in progress will follow a third cohort enrolled in kindergarten in the 2002-2003 school year. The first cohort contained 8,748 students who were enrolled in kindergarten during the 2000-2001 school year. The second cohort involved 8,827 students enrolled in kindergarten during the 2001-2002 school year. Students who participated in all testing sessions (fall, winter and spring), who received less than 15 hours of special education services, and who were absent less than one month during the kindergarten year, were included in the sample.

The results of this study are significant to the discussion of the nature of FDK programs because the researchers evaluate the success of a curriculum designed to teach foundation reading skills. The FDK program in Montgomery County is the result of systematic and comprehensive effort to develop a uniform FDK program across the school district.

The researchers found that FDK had the greatest benefit for students from low socioeconomic (SES) households or non-English proficient (NEP) households. Furthermore, researchers found that these students benefited the most from a combination of Head Start and FDK. Interestingly, for Asian Americans who did not attend Head Start, FDK seemed to have a negative impact on their performance. The study also found that students who participated in Head Start and were enrolled in HDK fell behind their non-Head Start peers. This finding raises the issue of the importance of building successive interventions to maintain the effects of previous interventions for “at-risk” student populations.

Employing a strong research design, the Montgomery study, provides clear information of how students were selected, and about the demographics of the sample population. Montgomery County has worked to establish a uniform kindergarten curriculum, which provides insight into the nature of their kindergarten programs. The study relies on assessment measures aligned with the kindergarten curriculum, which strengthens the validity of the measures. However, the study lacks a clear definition of the nature of the FDK and HDK programs.

In a widely cited study, Cryan et al. (1992) evaluated the FDK programs in Ohio school districts, both retrospectively and longitudinally. The retrospective portion of the study involved 27 school districts that offered FDK between 1982 and 1984. Student cumulative folders were reviewed for information concerning grade retention, provision of special education services, provision of remedial education services and performance on any of thirteen standardized tests.

The longitudinal portion of the study involved two cohorts. The first cohort began kindergarten in 1986 and included 120 classes in 27 school districts. The second cohort began kindergarten in 1987 and included 132 classes in 32 school districts.

School districts in the study were matched with demographically similar schools in the same county. Students were scored using a number of measures.

Both studies found that students participating in FDK had fewer grade retentions and lower incidences of Chapter 1 placements. The studies also found that age of entry plays an important role in kindergarten success, with younger students achieving less than older students on measures at the end of kindergarten and at the end of first grade.

The Hahnemann Elementary School Behavior Rating Scale revealed that full-day kindergartners scored significantly better on behaviors associated with success in the classroom, such as: originality, independent learning, involvement in classroom activities, and productivity with peers. Furthermore, on measures of behaviors that interfere with scholastic success, such as: intellectual dependency, failure anxiety, unreflectiveness, holding back, and blaming, full-day kindergartners also received more favorable scores than their half-day peers. Teachers rated the girls' behavior in both the full- and half-day classrooms more positively than the boys'. Teachers rated the younger students' behavior in both the full- and half-day classrooms more negatively than their older peers.

Cryan et al. (1992) employed a strong research design. The study used multiple methods for assessing student achievement and behavior. Unfortunately, like many of the studies available, the study lacked a clear description of what actually occurred in the FDK and HDK classrooms. Finally, the longitudinal study failed to address intervening factors that might have fostered or deterred continued academic and/or behavioral development.

A report issued by the Ohio State Department of Education (1992) detailed a study examining full-, half-, and alternate-day kindergarten (ADK) programs. The study was composed of two parts. The first part, completed in the summer of 1986, involved a retrospective analysis of 8,290 student records. In the fall of 1986, researchers began the second part of the study, a prospective longitudinal study of two groups of 6,000 students. The study used the Metropolitan Achievement Tests (MAT), the Hahnemann Elementary School Behavior Scale and a parent questionnaire as measurement instruments. The purpose of the study was to examine the relationship of preschool attendance, gender and age to behavior and academic performance.

The researchers found that children who attend preschool have a greater chance of increased academic achievement in kindergarten (Ohio State Department, 1992). From the results of their study the researchers developed typologies of the kind of students who have the greatest and least academic success in kindergarten. A girl who attended preschool, turned five before January, and attended FDK was the most likely to succeed in kindergarten. A boy, younger than his peers, who attended HDK and did not attend preschool was the most likely to fail. Researchers concluded that the positive effects of FDK attendance extend through second grade. Concerning classroom behaviors, as rated on the Hahnemann Scale, researchers concluded that students in both FDK cohorts scored significantly higher than their half-day peers on measures of independence, approach to the teacher, involvement in classroom activities, productivity with peers and reflectiveness and scored lower on measures of intellectual dependence, failure anxiety, holding back or withdraw and blaming .

In a limited analysis into the nature of the kindergarten program, the researchers found that HDK teachers spend less time in administrative activities and more time circulating the classroom and leading large groups. Full-day kindergartners spent more time in free play (Ohio State Department, 1992).

The Ohio study employed multiple methods for assessing student achievement and behavior. Unfortunately, similar to many other studies, it lacked a clear definition of FDK and HDK and rich descriptions of what actually occurred in the FDK and HDK classrooms. It also failed to consider the intervening factors might have fostered or deterred academic and/or behavioral development in the children over the period of the study.

In a similarly comprehensive study, the Evansville-Vanderburgh School Corporation (1983) completed a two-part FDK evaluation in 1979 and 1983. The results were reported in a school district report, as well as in an *ERS Spectrum* journal article authored by Humphrey (1983). The 1983 portion of the evaluation included two cohorts, each with of a treatment group of FDK students who attended four pilot schools, and a comparison group of randomly sampled HDK students from four schools that matched the FDK schools on the basis of socioeconomic status. Several measures were used to assess student progress including: Cognitive Skills Index scores on the Test of Cognitive

Skills, teacher, student and parent questionnaires, attendance records, and report card marks (Humphrey, 1983; Evansville, 1983).

Kindergarten-year pre- and posttests of academic achievement suggest that the FDK group made more progress than the HDK group (Evansville, 1983). Additionally, both full-day cohorts scored significantly higher on the vocabulary subtests of the Gates-MacGinitie Reading Tests as measured in April of their first grade year. Furthermore, California Achievement Test Scores for the FDK group as measured in April of their kindergarten year were higher (Evansville, 1983). Half-day kindergartners, however, scored better on the Handwriting Evaluation-Cursive. Supporting Cryan et al.(1992), Humphrey and the Evansville School District found that half-day kindergartners were more likely to be retained than their FDK peers.

Longitudinally, FDK students continued to achieve at higher levels during their first grade year. Even in third grade, FDK students scored higher on the Gate-MacGinitie Reading Test. By fifth grade however, differences between FDK and HDK students' achievement were no longer statistically significant (Evansville, 1983).

Finally, results of the teacher and parent surveys revealed that parents and teachers believed that FDK had many benefits for students. Teachers believed the advantages of FDK included more time for formal instruction, music and art, reinforcement of skills, one-on-one interactions, and adult-child relationships building. Teachers also felt that students in FDK benefited from the provision of a good noon meal, the opportunity for participation in primary school programs and the chance to travel to and from school with older siblings (Evansville, 1983). However, the teachers also reported that large class size, increased workload and additional administrative tasks, such as taking lunch count, were disadvantages of FDK (Evansville, 1983).

Ninety-two percent of FDK parents reported that they preferred FDK to HDK. Fifty-three percent of HDK parents indicated they would have selected FDK if given the choice (Evansville, 1983).

Studies of Smaller Scope

Hildebrand (2001) evaluated the impact on student behavior and academic achievement of the FDK, HDK, and ADK schedules used to deliver a common

curriculum. The quasi-experimental study included 47 students enrolled in FDK, 44 students enrolled in HDK, and 56 students enrolled in ADK. A multitude of measures were used to assess student impact and teacher practice.

Interestingly, Hildebrand found that parental practices have a greater impact than the kindergarten schedule. Hildebrand makes four assertions about parental practices and student academic achievement based on her findings. First, families with more books in their homes tend to spend more time reading and less time watching television. Second, in families where the father did not like to read, there were usually fewer books and more time was spent watching television. Third, children were more likely to see their parents reading if they read newspapers or magazines on a regular basis. Finally, the level of education attained by mothers was directly related to the number of books in the house and amount of time spent reading.

Hildebrand also found that children in HDK scored significantly higher on factors that facilitate learning: originality, independent learning, and productivity with peers. Full-day kindergartners also scored better on factors that indicate ability to cope with academic expectations: blaming, ability to approach teacher, attentiveness and academic expectations (Hildebrand, 2001). However, Hildebrand found that while students in FDK outperformed their HDK and ADK peers in reading, there was not a significant difference in their math and writing scores.

Previous to her 2001 study, Hildebrand (1997) completed a study comparing the impact of FDK, HDK, and ADK. Hildebrand found that full-day kindergartners scored higher in reading, but that there was not a significant difference in math and writing scores of full- and half-day kindergartners. Her findings regarding little difference between full- and half-day kindergartners scores on the math subtest mirror those of Koopmans (1991), who found no statistically significant difference between the math application scores of full- and half-day students. Hildebrand also found that there was not a significant difference in reading achievement between FDK and ADK programs. This finding is in contrast to that of Gullo (1996) who found no significant difference in achievement scores of half- and alternate-day kindergartners, but a significant difference between full-day kindergartners and both alternate- and half-day kindergartners.

In both of Hildebrand's studies, a major strength was her use of pre- and posttest measures. Unfortunately, Hildebrand did not follow either group of students longitudinally. While Hildebrand did study classrooms in which the same curriculum is used, her reports do not describe in detail the curriculum or how it changes as implemented in a full- versus half-day classroom.

Tatum (1999) published a study concerning the FDK program implemented in the Indianapolis Public School District. The study was constructed in response to a legislative proposal to make FDK available to all students. The Peabody Picture Vocabulary Test-Revised (PPVT-R), an individually, rather than group, administered instrument, was used as an achievement measure. The PPVT-R was administered to 440 kindergartners at the beginning of the 1997 fall semester and at again at the end of the spring semester. In the sample, 43% of the students were in full-day Title I classrooms, 36% of the students were in general full-day classrooms, and 21% of the students were in general half-day classrooms.

According to the PPVT-R results, all students in the general education classrooms entered at approximately the same performance level. By the end of the year, full-day students had made considerably more progress than their half-day peers, gaining on average 14 points versus the average half-day point gain of eight. The Title I students entered FDK more than 2.5 standard deviations below their non-Title I peers, as measured by the PPVT-R. By the end of the year the PPVT-R score for Title I students was reduced to slightly more than one standard deviation below non-Title I students. Finally, while girls in the Title I class entered school approximately six points behind their male Title I counterparts, they finished the year six points above their Title I male peers (Tatum, 1999). This finding is interesting, since Cryan (1992) did not find a gender difference in academic performance.

A strength of Tatum's study is the use of an individually administered measure as both a pre and post test measure. Using a pre- and posttest measure made it possible for the researchers to look for academic achievement at the end of the kindergarten year, and for growth over the kindergarten year. Unfortunately, once, again, the researchers failed to define what they considered FDK and HDK or what actually occurred within the programs.

Wang and Whitcomb (1999) completed an evaluation of the Irving Independent School District's FDK program. The study consisted of four parts, each designed to evaluate the program's progress towards one of four stated goals, including increasing non-English Proficient students' achievement. A stratified random sampling strategy was employed to ensure that each school in the study was proportionately represented. Students who were not continuously enrolled in the district during the duration of the study were not included in the sample. Unfortunately, this means that the results are not generalizable to the most mobile component of the "at-risk" population. The IPT Oral Language Assessment in both English and Spanish, the Concepts and Reasoning section of the Woodcock-McGrew Werder Mini-battery of Achievement (with 35 items translated into Spanish), an observation survey of early literacy achievement, a social/emotional development checklist, and an Observation Survey of early Literacy Achievement were used as measures of student achievement.

The results of the study indicate that both English and Spanish speaking individuals in FDK made greater gains in their oral language development as measured in their native language, compared to their half-day counterparts. English speaking students enrolled in FDK scored significantly higher on the composite literacy score than their English speaking HDK peers. There was not a statistically significant difference however, in the literacy composite scores of Spanish speaking students in FDK verses HDK programs. The social/emotional development of both English speaking and Spanish speaking students was greater for full-day kindergartners than half-day kindergartners (Wang & Whitcomb, 1999).

The use of measures in both English and Spanish is a strength of this study. However, the study fails to clearly define what constitutes FDK and HDK and to document the enacted curriculum in the full-and half-day classrooms.

Elicker and Mathur (1997) reported the findings of a two-year study on FDK. Four FDK classrooms and eight HDK classrooms, involving a total of 179 students were included. While in many studies, only "at-risk" students are assigned to FDK classrooms, a significant strength of this study is that students were randomly invited to participate in FDK. Students with disabilities (such as learning disabilities or mental retardation) were not included in the sample population. Family demographics, DIAL-R,

Early Childhood Classroom Observation System, teacher interviews, parent surveys, kindergarten report cards and first grade reading readiness scores were used as measures to determine the impact of FDK. Another significant strength of this study is that the researchers not only measured student outcomes, but also evaluated variables related to teaching practices. Teachers were matched in terms of educational level, experience and teaching philosophy.

Elicker and Mathur (1997) found, similar to the Ohio State Department of Education (1992) study, that children in FDK spent less time in teacher-directed large groups. The researchers also found that students from FDK classrooms had higher first grade readiness ratings and more positive attitudes. Perhaps most interesting is the researchers' assertion, based upon their observations, that the benefits of FDK increase when a second year of a FDK program is implemented.

The use of classroom observations and the analysis of teacher education levels and teaching philosophies are strengths of this research because they begin to broach the issue of the nature of the full- and half-day programs being implemented. However, a discussion of curriculum differences is still absent from their research, as is an operational definition of FDK and HDK. The researchers' use of parent surveys begins to address questions concerning how parental attitudes impact academic performance, but falls short of addressing how parental beliefs and behaviors influence kindergarten performance.

Hough and Byrde (1996) evaluated the nature of kindergarten programs and their impact on student achievement. The study was a quasi-experimental design with the sample stratified by geographic location, school size, student norm-referenced test data and SES. Observations, kindergarten student focus groups, teacher focus groups, parent focus groups, criterion-referenced measures, survey questionnaires and student norm-referenced achievement tests were used to assess the curriculum and student achievement. Based on these measures, the researchers judged that the content of the curriculum in full- and half-day classes was similar, but that instructional practices used to implement the curriculum differed greatly.

Results of this study indicate that the FDK students received more individual and small group instruction, were exposed to a greater variety of activities, and had higher

attendance rates. Full-day kindergartners outperformed their half-day peers on the Early School Assessment norm-referenced achievement test. FDK students outperformed their HDK counterparts in eight of nine language arts criteria. In math however, full-day students outperformed their HDK peers on only two of thirteen criteria. This finding is similar to those found by Koopmans (1999) and Hildebrand (2001).

Considering parent and teacher attitudes, Hough and Byrde (1999) found that 98% of the parents and teachers favored FDK. Both parents and teachers indicated that they believe FDK leads to improved learning and socialization skills. However, parents indicated that they preferred to have the choice as to whether or not their child would attend FDK.

Koopmans (1991) describes a three-year longitudinal study of two cohorts of students in FDK programs in New Jersey. In this study, the first cohort began first grade in 1987 and the second cohort began first grade in 1988. School Achievement Test Measures were used as the outcome measures.

Comparable to the findings presented by Humphrey (1983) and the Evansville School District (1983), Koopmans found that the 1987 cohort of FDK students had significantly higher scores on word attack and vocabulary subtests through the end of first grade. The full-day kindergartners in the second, 1988, cohort had significantly higher scores on the same subtests, with their advantage lasting through the end of second grade. While the full-day kindergartners in the first cohort, scored higher than their half-day counterparts through second grade, the difference was not significant. Koopmans (1991) found that FDK students had a significant readiness advantage, as measured by standardized test scores, compared to HDK students.

Regarding math computation, full-day kindergartners were not found to exhibit a clear advantage. Only full-day kindergartners in the second, 1988, cohort were found to exhibit an advantage in math computation. Scores on all mathematics computation tests remained steady, while all other mathematics test scores decreased over time (Koopmans, 1991).

Koopmans (1991) study had several limitations. A fundamental flaw in the research design is the lack of description of any of the methods for sampling participants or the demographic characteristics of the sample. Second, like many other studies,

Koopmans failed to define FDK and HDK or to describe what occurred in the classrooms.

Nature of FDK Programs

The majority of studies concerning FDK measure its impact on student achievement and behavior. Few researchers have studied the similarities and differences in full- and half-day classrooms or attempted to specifically relate programmatic characteristics to effects on student learning. Given the data indicating that FDK seems to hold academic and behavior benefits for at least the “at-risk” population, it seems crucial to understand what aspects of FDK programs might account for these benefits. Is more time in school responsible for the effects of FDK or are there specific curriculum and instructional practices that produce the benefits of FDK?

Rothenberg (1984) found that FDK programs should utilize developmentally appropriate practices, including: integrate learning with prior knowledge, involve children in first hand experiences, emphasize language development, work with parents to share information about their child, offer a balance of small group, large group and individual instruction, assess students' progress through close teacher observation and develop children's social skills. FDK, Rothenberg asserts, results in social skills benefits in the primary grades. This is supported by Cryan et al. (1992), but contradicted by Hildebrand's (2001) findings that half-day kindergartners were more likely to have better developed social skills.

Housdan (1992), with a specific focus on developmentally appropriate practices, completed a summary of the research on FDK. Housdan made five assertions concerning the full-day research. First, "a developmentally appropriate program focuses on activities that are age appropriate and involve interaction with objects, other children and adults" (p. 2). Second, Housdan claims that children from low socioeconomic households or educationally disadvantaged backgrounds benefit academically and socially from a developmentally appropriate FDK. Housdan also asserts that teachers prefer and parents react favorably to the full-day schedule. According to Housdan, FDK costs can be offset by state aid for full-day students, decreased transportation costs, and increased

enrollment. Related to funding issues, Housdan asserts that FDK may reduce costs for remediation and special education, and therefore in the long-term, actually reduce education cost.

Puleo (1988) completed a review of the literature on the impact of FDK. Directly addressing the question of why FDK is advantageous, Puleo noted that when FDK is simply an extension of the HDK, the positive impact of FDK is negated. Puleo also noted that a class reduction of seven students has a greater positive effect than extending the length of the school day. Full-day kindergartners have more time for application and reinforcement of instructional activities.

Research into the academic and behavioral impacts of FDK demonstrates that FDK can have a positive impact on “at-risk” students. Some researchers indicate that this positive impact might extend to the general school population. It is not clear what aspects of the FDK classroom are responsible for these positive effects. In order to implement the most effective FDK program, researchers need to determine what aspects of FDK are crucial in producing the benefits of the full-day schedule. While some researchers have begun the process of analyzing what occurs in the FDK classrooms, it is clear that more research is needed.

Reports Related to FDK in Delaware

Kilgore (2002) completed an Executive Position Paper at the University of Delaware on the state of FDK, ADK, and HDK in the Caesar Rodney School District in Delaware. At the time of her study, only students who were deemed to be “at-risk” according to screenings were eligible for FDK. The screening involved several steps. First, students were screened using the Revised Denver Prescreening Developmental Questionnaire. Any students, who were flagged as “at-risk” by this screening, were further screened using the Developmental Indicators for the Assessment of Learning (DIAL). Any student with a DIAL score less than the 50th percentile rank was then eligible for FDK. Ultimately, parents of students eligible for FDK made the decision as to whether or not to enroll their children in the full-day program. Within each FDK class,

five slots were held for enrolling students deemed to be role models based on their pre-screening scores. Students were selected for these role-model slots using a lottery design.

Kilgore studied 53 students enrolled in the district for six consecutive years. The comparison group for the study was composed of randomly selected students enrolled in HDK programs. Report card grades, attendance rates, tests scores and the Metropolitan Readiness Test were used as measures of student performance (Kilgore, 2002).

Results of the study indicated that students in FDK experience double the amount of language arts growth as their half-day counterparts. Furthermore, while full-day kindergartners began kindergarten below their half-day peers on pre-assessment measures, they performed at the same level as their half-day peers by the end of the kindergarten year. Consistent with studies by Koopmans (1992) and Hough and Byrde's (1996), FDK was found to have a smaller impact on math than on language arts. Longitudinally, when students were sampled in third and fifth grade, half-day kindergartners showed higher achievement scores, although the difference was not statistically significant. Similar to Humphrey's (1983) findings, Kilgore did not find a significant difference in attendance patterns for full- and half-day kindergartners.

Appendix A References

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Appendix B: Survey Instruments

Dear Colleague:

The University of Delaware Education Research & Development Center is conducting a study of full-day kindergarten programs for the Delaware State Board of Education. The goal of the study is to describe the nature of full-day programs in the state, and to identify promising approaches.

To learn more about the full-day program in your district, staff from the Education Research & Development Center would like to visit you to ask the following questions. We are sharing these questions with you in advance of our visit to make you aware of the kinds of information we are collecting. Our conversation with you should take no more than 30-45 minutes. Our questions are wide-ranging, so you may not be able to answer them all. If this is the case, we will ask you to refer us to someone in your district who may have the information. We greatly appreciate your assistance and look forward to speaking with you.

Sincerely,

Barbara Shepperson (shepperson@quattro.oet.udel.edu; 831-4074)

Steve Fifield (fifield@udel.edu; 831-4437)

Delaware Education Research and Development Center

FULL-DAY KINDERGARTEN IN DELAWARE ADMINISTRATOR SURVEY

Nature of full-day program

1. When did your district first offer full-day kindergarten?
2. Why does your district offer a full-day program?
3. How many schools in your district currently (03-04) offer full day kindergarten?
4. How many full day classes does your district currently offer?
5. In general, what is the nature and amount of the additional costs of full-day kindergarten?

6. How are the additional costs met?
7. In the long run, does your district seek to offer full-day kindergarten to: some at-risk students? All at-risk students? All at-risk and some non-at-risk students? All students?
8. What are the major educational goals of your full-day kindergarten program? Which of these is/are most important?
9. What are major similarities and/or differences in the curriculum in full-day and half-day programs in your district?
10. How was the curriculum for your full-day curriculum developed? Was the half-day program used as a starting point, or did the planning for full-day instruction “start from scratch”?
11. How has the full-day curriculum changed since the program began?

Students

12. How many students are enrolled in full-day kindergarten this year (03-04)?
13. What is the average class size in full-day classes? In half-day classes?
14. How are students placed in full-day classes?
 - What screening instruments are used? If you use DIAL, what is the cutoff score or percentile for full-day eligibility?
 - How many model students are included in full-day classes, if any?
15. Approximately what percent of the full-day eligible students does your district currently have the capacity to place in full-day classes?

16. What percent of students in full-day classes:

- are considered academically at-risk?
- participated in Head Start?
- participated in ECAP?

Teachers

17. What credentials are required for full-day kindergarten teachers in your district? In what way, if any, do these requirements differ from those for half-day kindergarten teachers?

18. Briefly describe the nature of professional development activities for full-day kindergarten teachers.

- Are these required or voluntary activities?
- Is professional development focused on specific curriculum materials?
- Do these activities differ from those for half-day teachers? If so, how?

19. Describe the role, if any, of paraprofessionals in your full-day classrooms.

- Are they in all full-day classrooms? For part or all of the day?

Parents

20. How does your district invite parents to be involved in their child's full-day kindergarten experiences?

21. Does the district collect feedback and/or satisfaction data from parents with children in full-day kindergarten? If so, how has feedback from parents influenced the nature of the program?

FULL-DAY KINDERGARTEN IN DELAWARE TEACHER INTERVIEW

Pre-interview explanation:

The University of Delaware Education Research & Development Center is conducting a study of full-day kindergarten programs for the Delaware State Board of Education. The goal of the study is to describe the nature of full-day programs in the state, and to identify promising approaches. We are especially interested in the variety of approaches that characterize full day kindergarten programs in Delaware. So it will be helpful to learn about aspects of your program that you think stand out from others, as well as aspects that are more typical. You will remain anonymous, you can choose not to answer any question, and you can at any time choose not to participate in the study.

1. What goals are emphasized in your full-day kindergarten program?
 - Which of these is/are most important?
2. Note: Go to Teacher Survey, # 1 (daily class schedule)
 - What important day-to-day variations and/or additional activities are not represented in this schedule of a “typical” day?
3. Note: Go to Teacher Survey, # 2 (commercial curriculum materials)
4. Note: Go to Teacher Survey, # 3 (teacher-directed vs. child-initiated)
5. Note: Go to Teacher Survey, # 4 (frequency of activities)
 - Are there important activities that you do that are missing from this list? (Ask respondent to add these to the table.)
6. Are there required professional development activities for full-day kindergarten teachers?
 2. Is professional development focused on specific curriculum materials?
 3. Do these activities differ from those for half-day teachers?

7. What are important similarities and differences between the full-day and half-day programs in your school district?
8. How was the full-day curriculum developed? Was the half-day program used as a starting point?
9. What are the advantages and disadvantages of the full-day kindergarten for:
 - students
 - teachers
 - parents

2. What commercial curriculum materials do you use most often in a typical week?

Name of Materials	Subject/Activity

3. Use a check mark to indicate the amount of time spent in the following activities during a typical day in your full-day kindergarten classroom.

Teacher-Directed Activities	typically does not occur	less than 10 min	10-30 min	30 min - 1 hr	1-2 hrs	2-3 hrs	more than 3 hrs
Large group – students active							
Large group – students listening							
Small group activity							
Individual work							
Learning centers							
Child-initiated Activities							
Free play – indoors							
Free play – outdoors							
Learning centers							
Cooperative learning							
Individual creative activity							

4. Use a check mark to indicate how frequently each of the following activities occurs in your full day program. Add other activities if they are missing.

Activity	Several times/day	Once a day	1-3/week	1-3/month	Several times year	Never
Encouraging children to communicate						
Using language to develop reasoning skills						
Informal use of language (e.g., “share time”)						
Formal writing						
Informal writing						
Teacher reading to children						
Children reading alone or to each other in small groups (e.g., “lap reading”)						
Fine motor activities						
Art						
Music/movement						
Blocks						
Sand/water						
Dramatic play						
Nature/science						
Math/numbers						
Use of TV, video, computer						
Promoting acceptance of diversity						
Other:						
Other:						
Other:						
Other:						
Other:						