FAST BREAK TO LEARNING SCHOOL BREAKFAST PROGRAM:

A Report of the Third Year Results, 2001–2002

Office of Educational Accountability
College of Education and Human Development

UNIVERSITY OF MINNESOTA

Fast Break to Learning School Breakfast Program: A Report of the Third Year Results, 2001–2002

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Chapter 1:
Introduction

The School Breakfast Program, administered by the Food and Nutrition Service of the U.S. Department of Agriculture (USDA), began in 1966 with the Child Nutrition Act, which attempted to provide breakfast primarily for low-income children. In 1975, the School Breakfast Program became permanently authorized and was made available to children nationwide.

All public and non-profit schools are eligible for the program, and any child who meets eligibility requirements may participate free of charge or at a reduced rate. Parents must apply to the school in order for their children to receive a free or reduced-price breakfast. To receive a reduced-price breakfast, a child's family income must fall below 185% of the federal poverty level. To receive a free breakfast, one's household income must fall below 130% of the federal poverty level. Schools participating in the School Breakfast Program receive financial support through federal funding, and must apply to their state education agency in order to institute a program (http://www.frac.org). Since its inception, the program has expanded to provide breakfast for millions of children nationwide.

The USDA requires that school breakfasts meet minimum nutritional standards. Meals must include one serving of milk, one serving of juice/fruit or vegetable, and two servings from the bread and/or meat groups (Dairy Council of Minnesota, 1993). Legislation also requires that participating schools provide free and reduced-price breakfasts to eligible students. Participating schools receive cash assistance from the USDA for each meal served that meets program requirements.

Aside from the basic requirements set by the USDA, states have the freedom to implement the program as they see fit in their schools. Even within the state, breakfast programs in Minnesota schools do not all look the same.

The Fast Break to Learning Initiative, a universally free breakfast program, was implemented in Minnesota in 1999. Although Minnesota schools have been serving school breakfast for nearly a decade, this was the beginning of the state's experiment with the "universally free" concept. The intent of the program was to offer breakfast at no charge to all students, not just low-income students. The reasoning behind offering breakfast to all students stems from the belief that a stigma exists for low-income students receiving free breakfast, and that offering breakfast to all students free of charge removes that stigma.

Prior to 2001–02, the program was designed as a grant program, and participating schools received two grant payments during the year to cover their costs of participating in the program. These payments were in addition to any federal or state assistance they were already receiving. The assistance was designed to reimburse schools for breakfasts served to students receiving reduced-price and full-price breakfast, since they were already being reimbursed for those students eligible for free

breakfast. Starting in 2001–02, the program was changed from a grant program to a reimbursement program; schools are now funded only for breakfasts that are served and reported.

Methodology

For the purpose of this study, schools were categorized as either Fastbreak schools or Control schools, depending on whether or not the school was participating in the Fast Break to Learning School Breakfast Program. A total of 500 schools met state eligibility requirements for the program in 2001–02. Of the schools that were eligible, 422 chose to participate in the program (Fastbreak schools), approximately 100 more schools than the previous year. The remaining 88 schools served breakfast to students, but not as part of the Fast Break to Learning School Breakfast Program. They offered breakfast to students on a fee-based system (Control schools). Two data sources were used for this study: mail surveys and data files.

Mail Surveys

The first mail survey had two forms, one that was designed for principals, and another for teachers. One copy of the principal survey and five copies of the teacher survey were mailed to schools. Principals were asked to fill out their survey and distribute the teacher surveys at their schools. No more than one teacher per grade was requested to complete the survey. These surveys were mailed by the Department of Children, Families & Learning to all of the schools that met the state eligibility requirements for the Fast Break to Learning Program in 2001 (88 Control, and 422 Fastbreak). Survey content included questions regarding participation in, administration of, perceived benefits of, and barriers to the School Breakfast Program. Data were collected via a mail survey from February to April 2002. Survey collection was closed for tabulation with 780 usable responses from teachers and 434 usable responses from principals. The School of Public Health, Division of Epidemiology at the University of Minnesota completed the data entry. The Office of Educational Accountability completed data analysis.

A second mail survey, consisting of two forms, was later sent to principals of participating schools inquiring specifically about health and discipline issues at their school. Approximately 60 schools participated in this survey. The summary data requested in these two forms were reported on three days each week, from April 16 through May 2, 2002. The surveys were mailed by the Department of Children, Families & Learning, and the Office of Educational Accountability at the University of Minnesota completed the data entry and analysis of these data.

Data Files

The second data source consisted of two large-scale data files. The first of these was the file containing *Minnesota Comprehensive Assessment* achievement data for Minnesota schools in 1998–99, 1999–00, 2000–01, and 2001–02. Third grade mathematics and reading scores and 5th grade mathematics, reading and writing scores were used for analysis. These data were provided by the Department of

Children, Families & Learning and were analyzed by the Office of Educational Accountability at the University of Minnesota.

The second data file used was a student enrollment file, providing enrollment and attendance data on Minnesota schools from 1998–02. This file was also provided by the Department of Children, Families & Learning and analyzed by the Office of Educational Accountability.

Finally, there was a data file that consisted of individual student level participation data. These data indicated how often individual students participated in the School Breakfast Program. The data were merged with achievement and attendance data to see if students who ate breakfast at school more often were also more successful academically and attended more regularly than students who did not participate in the program. These data were collected by the Department of Children, Families & Learning and were cleaned, merged and analyzed by the Office of Educational Accountability.

Purpose

The primary purpose of the School Breakfast Program is to provide a nutritious breakfast for low- income students who might otherwise not receive breakfast. With budgets tightening and educational accountability becoming more and more important, school breakfast programs are also being measured in terms of educational outcomes such as attendance and student achievement. Legislators are looking to get more out of programs being funded by the state, and the Fast Break to Learning School Breakfast Program is no exception.

There is a danger inherent in the decision to measure the effects of serving breakfast against educational outcomes: the potential to measure the success of the program based on only one or a few outcomes. Measuring the success of a program based on only one outcome variable (such as mathematics achievement or attendance) does not follow sound measurement or evaluation practice. Direct causation is difficult to prove in education because of the many factors that influence a student's educational experience. Many student outcomes, including those that are not academically based, ought to be considered to ensure an accurate portrayal of the breakfast program's success.

This report includes results related to program administration and implementation, student participation in the School Breakfast Program, student achievement, attendance, and health and disciplinary issues.

Chapter 2:
Program Administration

Although the School Breakfast Program is available statewide, its implementation and administration vary from one school to another. Aside from nutritional guidelines, there are very few restrictions placed on schools as to how they are to administer the program. For example, questions such as where and when students eat breakfast, and what else takes place during breakfast time is not determined at a federal or state level, but rather by local districts or schools. Because there can be great variation in how programs are designed, it is important to look not only at student outcomes, but also at *how* schools are administering and implementing the program, when determining if a school or district has a successful breakfast program.

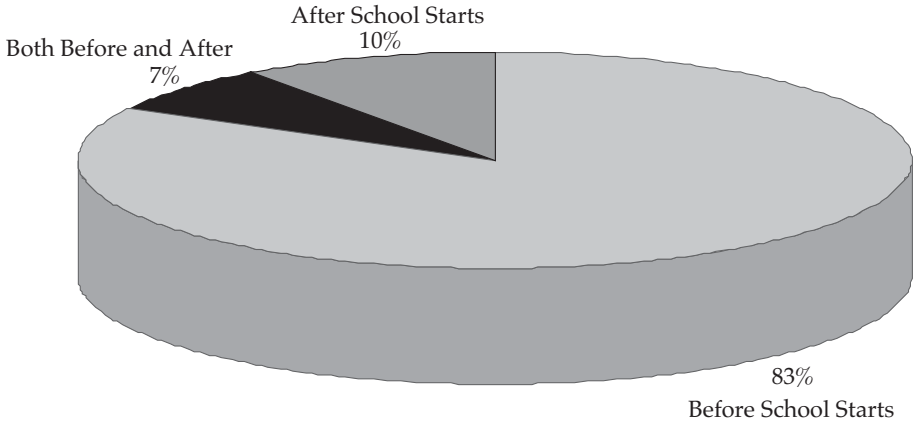
For the purpose of this study, program administration was determined through a mail survey sent to schools. The participants in this study were teachers and principals from schools that were eligible for the Fast Break to Learning School Breakfast Program. Approximately 500 schools in the state were eligible to participate in the program in 2001–02, of which roughly 85% chose to participate (Fastbreak schools). By choosing to participate, schools agreed to offer breakfast to *all* students free of charge. The remaining 15% of eligible schools served breakfast to students, but on a fee-based system (Control schools). Teachers and principals at all eligible schools were sent surveys to complete, stating whether or not they were participating in the universal free breakfast program.

Program Administration

Participants were asked a variety of questions relating to issues such as the timing and logistics of program coordination, their opinions on the barriers to program implementation, the ways in which the program was promoted to students and parents, and the benefits of the program.

The timing of breakfast in schools is often a difficult issue to resolve. While some educators believe that it takes away from instruction time if breakfast is served after the start of the school day, others argue that the only way to get full

Figure 1. When Schools Serve School Breakfast: 2001–02



participation, and in turn experience the positive results of the program, is to serve it during the regularly scheduled school day.

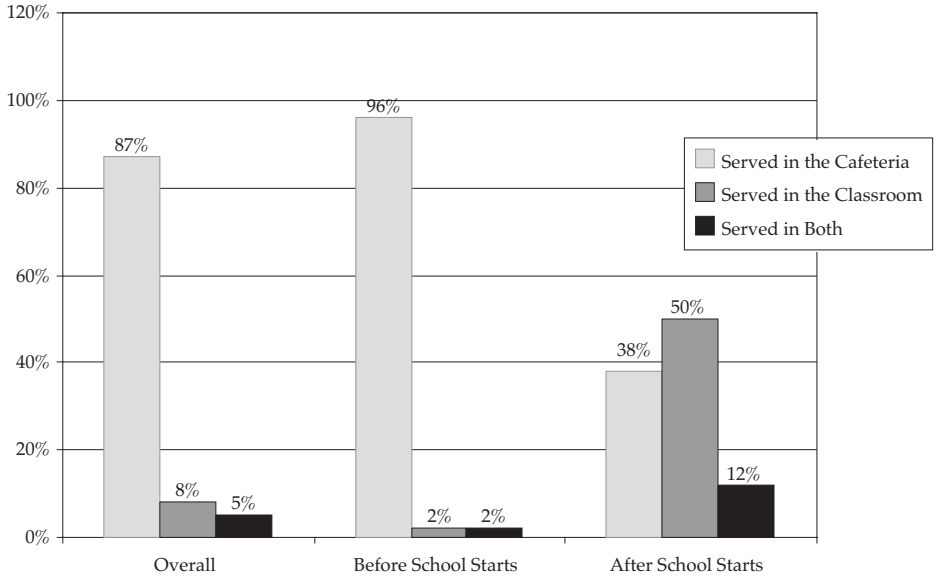
When Minnesota teachers were asked when breakfast was served at their school the majority (83%) reported it was served before school started (94% of Control schools, and 79% of Fastbreak schools). Seven percent reported that breakfast was served both before school started and after the start of the school day, and 10% reported that breakfast was only served after the start of the school day (Figure 1, p. 5).

Circumstances varied at schools reporting that breakfast was served both before school and after the start of the school day. At some of these schools, breakfast was officially served before school, but students who arrived at school late could eat breakfast after the start of the school day. At other schools, some students ate before school started and some ate after the start of the school day because the cafeteria could not accommodate all of the students before the school day officially began.

Since breakfast was being served before the start of the school day in most schools, it was not surprising that very few teachers or principals reported organized classroom activities taking place during breakfast. About 20% reported that attendance was taken while students ate breakfast, but other activities were even less frequently mentioned. At most schools breakfast was not considered a part of the official school day, and therefore, other than student socialization, schools did not typically attempt to engage students in academic, administrative, or extracurricular activities during the breakfast session.

The question of where breakfast should be served has also been an issue of frequent debate. Current research on the Maryland breakfast program claimed that serving breakfast in the classroom had a positive impact on student participation, attendance and achievement (Bernstein, L.S., et al., 2002). Even though the findings on the Maryland program were not statistically significant, researchers and educators do argue that *where* breakfast is served could be one of the most critical determinants of the success of a program.

Figure 2. Location of School Breakfast, by Time Served: 2001–02



When Minnesota teachers were asked where students ate breakfast at their school, the cafeteria was the most frequently mentioned location. As illustrated in Figure 2,

87% reported that they served breakfast in the cafeteria, whereas only 8% of schools served breakfast to students in the classroom. Five percent reported that breakfast was served both in the cafeteria and in the classroom. Although Fastbreak schools were slightly more inclined than Control schools to serve breakfast in the classroom, only 10% reported that breakfast was served in the classroom, compared to 2% of Control schools.

Since the start of the program, the majority of participating schools have chosen to serve breakfast in cafeteria/lunchroom. However, it is interesting to note that at schools where breakfast was served after the start of the school day, 50% served breakfast in the classroom, while in schools where breakfast was served before the start of the school day, only 2% reported serving breakfast in the classroom. This finding supports the idea that when breakfast is served after the start of the school day it seems to be more incorporated with regular school activities. It is often considered part of the daily routine, and therefore it is not uncommon for it to take place in the classroom.

Considering that the majority of respondents reported that students eat breakfast in the cafeteria, it is not surprising that most often the persons reported as supervising breakfast were aides (65%) or food service personnel (46%). However, in schools where breakfast was served in the classroom (whether they were Fastbreak or Control schools), teachers were most likely to be the ones supervising students. Teachers were also mentioned frequently in Fastbreak schools (40%) as those who supervised the breakfast session.

Although some would argue that it saves time to serve breakfast in the classroom, according to our results, the location and time at which breakfast was served did not make a difference in how long it took to serve the meal. On average, principals reported that the official breakfast period at their school was between 20–30 minutes, no matter when or where it was served.

Barriers

Respondents were asked what barriers existed to implementing the School Breakfast Program in their school. The most common response reported by principals was that additional supervisory staff was an issue (33%). One in four principals mentioned either bus schedules, lack of time before school, or decreased instructional time as barriers to implementation. The barrier to program implementation that was mentioned most often by teachers was a lack of time before school (24%). Overall, teachers were less likely than principals to mention barriers to program implementation.

Principals were asked more specifically what barriers exist (or would exist) if breakfast was served after school started rather than before. Eighty-two percent believed that there was or would be interference with instructional time. This was by far the barrier mentioned most frequently by respondents. Approximately one-third of principals reported that additional clean up time and effort was or would be a barrier. Only 27% thought that space limitations were or would be a concern, and only 21% reported

that teacher contractual issues might be a barrier if breakfast was served after school started. With the increased emphasis on academic achievement, the belief of many administrators that instructional time would be lost if breakfast were served after the start of the school day helps to explain why the majority of schools may choose to serve breakfast before school starts.

Promoting the Program

The method of promoting the School Breakfast Program varies from school to school, and even from teacher to teacher within the same school. The ways in which teachers, students and parents are informed about the program can greatly affect its success. To determine how information was disseminated, principals were asked how teachers were informed about the program. The majority reported that an announcement was made at a faculty meeting (83%). About 40% also mentioned district publications and school newsletters as a method used to inform teachers. Only 5% of principals reported that teachers were provided with no formal information about the program.

Principals most commonly said that parents were informed about the program through a school newsletter (83%). An additional 60% mentioned that a district publication other than the school newsletter went to parents discussing the details of the program. Students, on the other hand, were most likely to be informed about the program by the classroom teacher (75%). However, over half of the principals reported that they expected students to learn about the breakfast program from the school newsletter or from their parents.

When teachers were asked how they promoted the School Breakfast Program to students, the greatest number, about half, reported that it was promoted through discussions about the breakfast program in the health and nutrition curriculum. About one-third of teachers mentioned that they promoted the program through a classroom newsletter. However, overall, 25% of teachers reported that they did not promote the breakfast program to students at all.

Teachers were less likely to report that they promoted the program to parents than to students. About one-third reported that they tried to promote the program during parent/teacher conferences (33%) or through a classroom newsletter (28%). However, 41% said they did nothing to promote the program to parents. It is interesting that although teachers didn't do much to promote the School Breakfast Program to parents, overall, 58% reported that they thought parents were satisfied with the program.

Gap Analysis

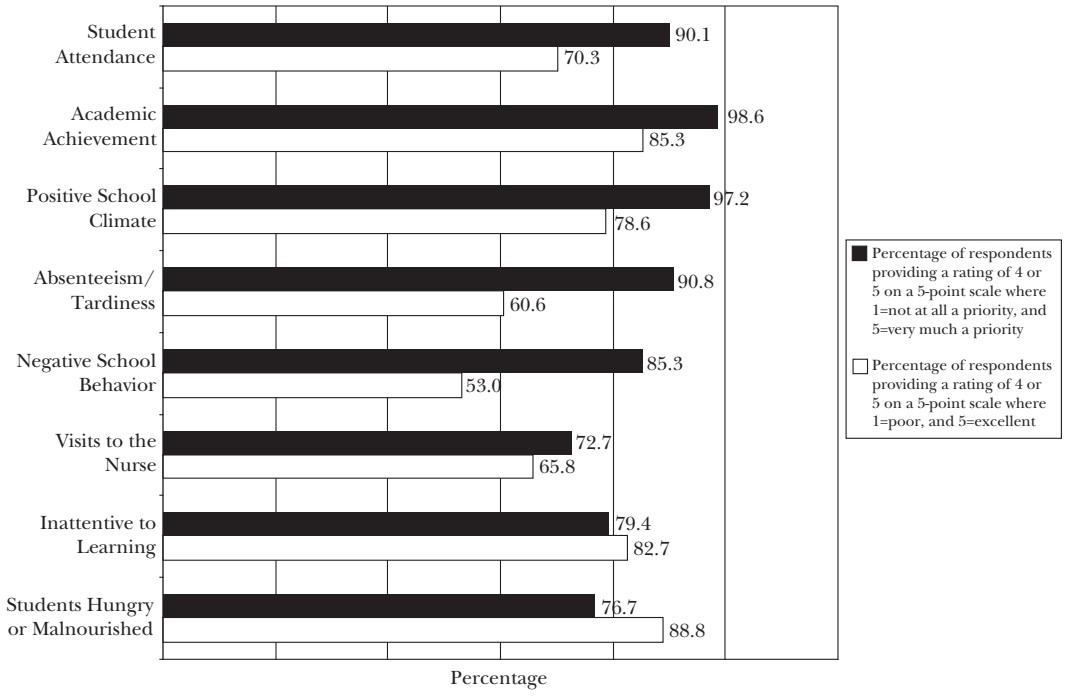
It is fairly clear that both administrators and teachers believe that the School Breakfast Program benefits their schools. The question that policymakers continue to ask is whether or not those benefits are worth the "costs" of the program. One way to answer that question is to see if the areas where the program is successful are areas that are important to school improvement. To help determine how the breakfast program is influencing school improvement efforts, respondents were asked first to

prioritize a variety of school improvement issues on a 5-point scale, where 1 = "Not at all a priority," and 5 = "Very much a priority." Then they were asked to rate how the School Breakfast Program positively contributed to school improvement efforts using a 5-point scale where 1 = "Poor," and 5 = "Excellent."

By examining the "gap" that exists between the proportion of respondents who felt that a given issue was a top priority (rating a 4 or 5 on the scale) and the proportion who felt that the program positively contributed in this area (rating 4 or 5 on the scale), it is possible to identify the areas where the program is truly beneficial. In other words, it is meaningful to know that teachers and principals think the breakfast program is successful in areas that are directly associated with or prioritized for student/school improvement, rather than in areas of little importance.

As illustrated in Figure 3, the areas that principals rated as the highest priorities for school improvement efforts were: (1) academic achievement, (2) positive school climate, (3) decreasing absenteeism/tardiness, and (4) student attendance. At least 90% of principals rated these issues 4 or 5 on the 5-point priority scale.

Figure 3. Gap Analysis of the Success of the School Breakfast Program: Principals' Responses



The areas in which principals rated the School Breakfast Program highest as a successful way of positively contributing to school improvement efforts were: (1) students hungry or malnourished (i.e., addressing the needs of such students), (2) academic achievement, (3) students inattentive to learning (i.e., helping to remedy sudent inattention), and (4) positive school climate. According to the analysis, school principals believe that the School Breakfast Program is most positively contributing

in the areas of academic achievement and positive school climate. These two areas were given high priority for school improvement, and the School Breakfast Program received high ratings because of its success in positively contributing to school improvement efforts.

Although principals also reported that the program positively contributed to the issues of student hunger and the problem of inattentiveness to learning, these issues were not rated as high on the priority list for school improvement efforts as academic achievement and positive school climate.

Teacher responses were very similar to those of principals.

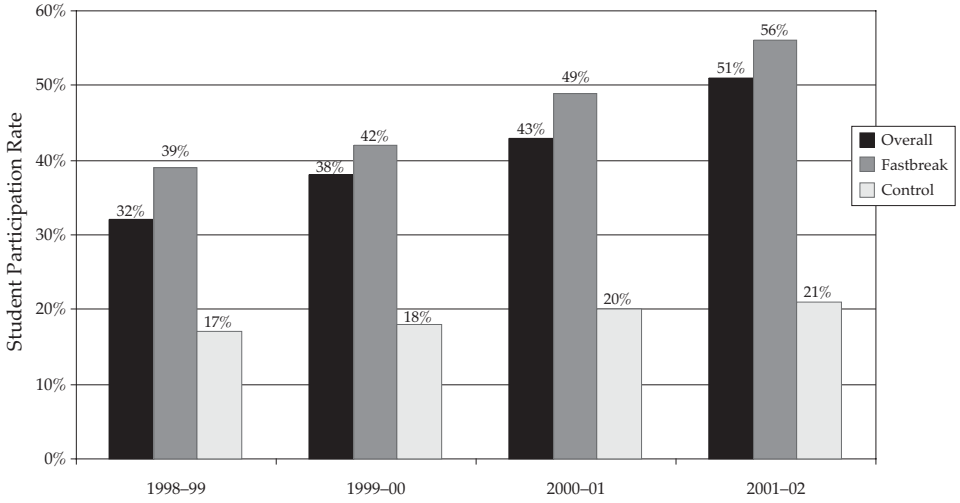
Chapter 3:
Participation

Participation rates in the School Breakfast Program are influenced by a number of factors. Rates can vary from one school to another within a district. They can also vary from one group of students to another within the same school. Program administration and implementation often have an effect on students' decisions to participate (or not to participate) in the school breakfast program.

Since the start of the Fast Break to Learning Breakfast Program, there has been a gradual but steady increase in the percentage of students participating in the program. Overall, participation increased from 43% in 2000–01 to 51% in 2001–02. Since the beginning of the program, participation has increased 19% (Figure 4).

In order to compare participation rates for students at Fastbreak schools versus Control schools, data from two groups of students were analyzed. Schools that have maintained the same classification for all four years in which the program has been in place were analyzed over that time period. Additionally, schools that were classified as Fastbreak and Control were compared regardless of their classification in previous years, in order to get a snapshot of where the program was in 2001–02.

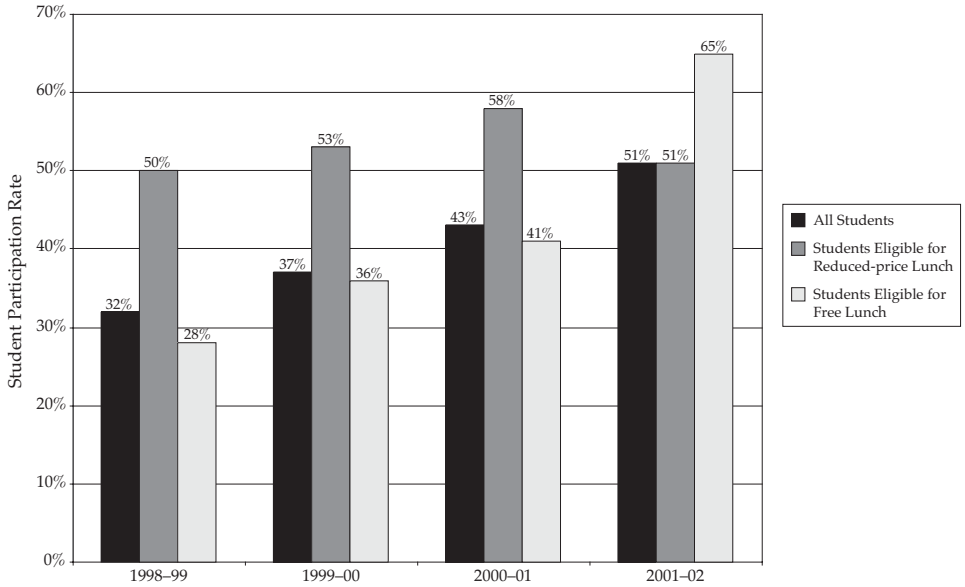
Figure 4. Student Participation in the School Breakfast Program in Fastbreak and Control Schools that have been in the Program from 1999–02



Overall participation rates in the breakfast program have increased nearly 20% since 1998–99. Schools that have been Fastbreak schools since the Fast Break to Learning initiative started have experienced greater gains in participation rates than have Control schools. Participation has increased by 17% at Fastbreak schools, compared to only 4% at Control schools (See Figure 4).

One of the arguments for providing universal free breakfast was that it might help to eliminate the stigma associated with free breakfast, and this in turn might encourage more students in need of breakfast (those students eligible for free lunch) to take advantage of the opportunity. In 2001–02, participation rates for students eligible for free lunch jumped to 65% from 41% the previous year, and have increased 37% since the program began in 1998–99. For the first time in four years, participation rates for students eligible for free lunch were greater than participation rates for students

Figure 5. Student Participation in the School Breakfast Program, by Student Eligibility: 1999–2002

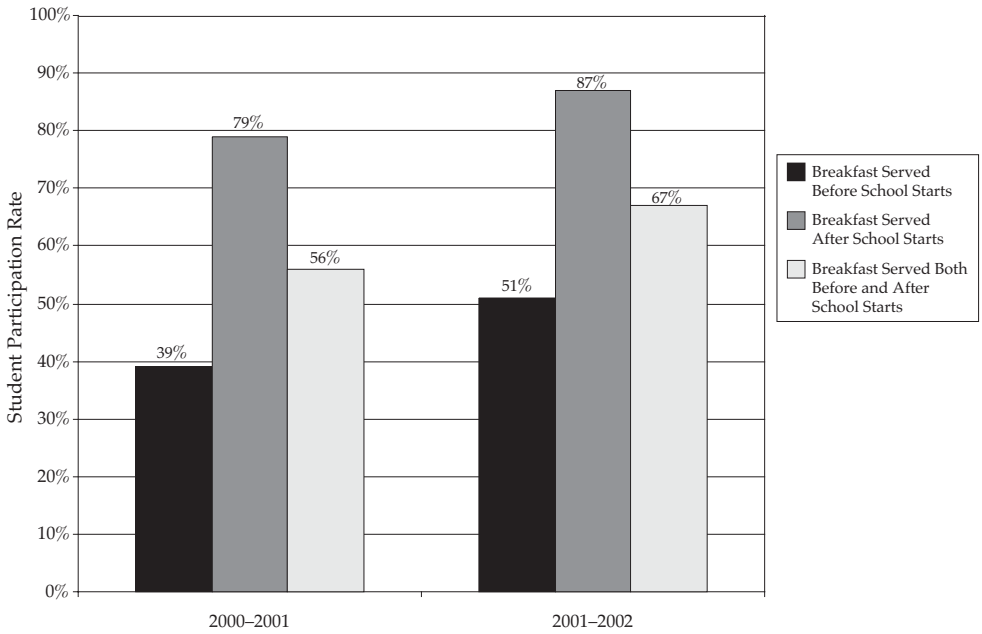


eligible for reduced-price lunch (65% compared to 51%). The increase for students eligible for free lunch was significantly larger than the increases in overall student participation (See Figure 5).

Overall, schools that served breakfast after the start of the school day had higher participation rates than schools that served breakfast before the start of the school day (87% compared to 51%). At schools where breakfast was served both before and after the start of the school day the average participation rate was 67%. No matter when schools served breakfast, there was an 8–10% increase in participation rates from 2000–01 to 2001–02 (see Figure 6).

The means by which teachers, parents, and students learn about the School Breakfast Program can also be an influencing factor in student participation rates. At some schools, students and parents were simply informed about the program and then invited to participate. This approach generally allowed students to determine whether

Figure 6. Student Participation in the School Breakfast Program, by When Breakfast is Served



or not they would participate. Other schools incorporated school breakfast into the day by deciding that classes would participate in the program. Students were not forced to participate, but entire classes went to the cafeteria or lunchroom together whether students intended to eat or not. With this approach, even though students had the final say as to whether or not they would eat breakfast, a decision was made at a classroom or school level that classes would include breakfast in their daily routine. These very different approaches to program administration have a great effect on the level of participation.

When respondents were asked how student participation was determined at their school, about 60% reported that there was no standard set for participating in the program. Rather, those schools left participation up to the individual student. About one-third of the schools reported that participation was determined by a school-wide policy set by the administration and school board; in about 7% of the schools, respondents reported that participation was determined by a school-wide policy with input from faculty.

Participation rates were highest at schools where participation was determined by a school-wide policy with teacher input (72%). In schools where there was a school-wide policy determined by administration and school board, participation rates averaged 57%. And in schools where there was no set policy, participation rates averaged 45%. These findings are consistent with interview results from last year's study, which suggested that whether or not the School Breakfast Program was adopted as a school-wide policy greatly affected participation rates. Principals argued that this was much more influential than where or when breakfast was served. Schools that chose to incorporate the program into the school day (whether they served breakfast before or after the official start of the day) showed greater success than schools that merely "offered" the program.

When teachers were asked about factors that might influence students not to participate in the program, the factor reported to have the strongest influence was "they eat breakfast at home." On a 5-point scale where 1 = "Not at all an influence" and 5 = "A strong influence," the average rating was 3.99. No other factor received a rating higher than 2.9.

Chapter 4:
Achievement

Although it is important to consider a number of student outcomes when determining the success of the School Breakfast Program, whether the program affects student achievement is the primary question that is asked year after year by educators and policymakers. In this study, student achievement was measured by 3rd and 5th grade test scores on the *Minnesota Comprehensive Assessment (MCA)* in reading, mathematics, and writing (5th grade only). This is the 3rd year of the report; therefore, the differences between the 1998–99 school year (baseline) and 2001–02 school year were the focus of analyses. This year, in addition to school level achievement data, student level data were also analyzed to determine whether there was a correlation between student participation in the program and individual academic achievement.

Analyses were run for schools that have had the Fastbreak or Control classification since the program began in 1998–99, and for the group of schools classified as Fastbreak and Control for 2001–02 no matter what their previous classification. In order to compare more similar groups of students, achievement data for Title I schools were also analyzed. A file containing data for Title I schools was provided by the Department of Children, Families & Learning. Within this file, schools were classified according to the percentage of the student population that was eligible for free or reduced-price meals. Schools with 30% or more students eligible were chosen for the data set. All Control schools in the file were included, and for each Control school, a Fastbreak school with a similar percentage of eligible students was selected.

This year's report does not include a comparison with No Breakfast schools as it did in the first two years of the study because the number of schools participating in the School Breakfast Program has increased to the point that valid comparisons cannot be made: the demographic makeup of non-participating schools is too different from that of participating schools.

The descriptive data in the tables in this chapter represent raw means and percentages, which have not been adjusted to reflect differences in student demographics (such as the percentage of low-income students) in Fastbreak and Control schools. However, the statistical significance tests did control for differences in the percentages of students with LEP, students in special education, students eligible for free or reduced-price lunch, and students classed as "new to district" (having enrolled after January 1, 2001). In other words, while the descriptive data shown in the tables are unadjusted, the statistical significance tests referred to in the text did take into account differences in the student composition of the various schools.

Third Grade Achievement

Schools in the Program from 1999–2002

Tables 1 and 2 show achievement scores for students in schools that maintained the same classification for four years in the program. On average, students at Control schools scored higher in mathematics and reading than students at Fastbreak schools. The gains for Control school students were greater than for Fastbreak school students in reading, but Fastbreak school students experienced greater gains than Control school students in third grade mathematics achievement over the four-year period (see Tables 1 and 2). While achievement for students at Fastbreak schools remained consistent or improved from 2001 to 2002, achievement for students at Control schools leveled off or declined during their fourth year in the program.

Table 1
3rd Grade Math Achievement at Schools with The Same Program Classification from 1999 to 2002

	Overall (N=178)	Fastbreak (N=139)	Control (N=39)
Average Score: 2001–02	1431	1419	1475
Average Score: 2000–01	1435	1420	1490
Average Score 1999–00	1442	1400	1461
Average Score: 1998–99	1396	1377	1445
Gain from 1998–99 to 2001–02	35	42	30
% at or above Level II: 2001–02	84%	83%	90%
% at or above Level II: 2000–01	84%	82%	91%
% at or above Level II: 1999–00	85%	80%	89%
% at or above Level II: 1998–99	80%	77%	88%
Gain % at or above Level II: from 1998–99 to 2001–02	4	6	2
% at or above Level III: 2001–02	38%	36%	46%
% at or above Level III: 2000–01	42%	39%	51%
% at or above Level III: 1999–00	40%	33%	43%
% at or above Level III: 1998–99	32%	29%	39%
Gain % at or above Level III: from 1998–99 to 2001–02	6	7	7

Table 2
3rd Grade Reading Achievement at Schools
with The Same Program Classification from 1999 to 2002

	Overall (N=178)	Fastbreak (N=139)	Control (N=39)
Average Score: 2001–02	1430	1414	1483
Average Score: 2000–01	1427	1411	1486
Average Score: 1999–00	1422	1378	1442
Average Score: 1998–99	1367	1353	1406
Gain from 1998-99 to 2001–02	63	61	77
% at or above Level II: 2001–02	75%	72%	85%
% at or above Level II: 2000–01	74%	72%	84%
% at or above Level II: 1999–00	76%	67%	80%
% at or above Level II: 1998–99	68%	64%	77%
Gain % at or above Level II: from 1998–99 to 2001–02	7	8	8
% at or above Level III: 2001–02	37%	35%	48%
% at or above Level III: 2000–01	37%	34%	48%
% at or above Level III: 1999–00	37%	30%	40%
% at or above Level III: 1998–99**	30%	28%	34%
Gain % at or above Level III: from 1998–99 to 2001–02**	7	7	14

** Significant differences exist between Fastbreak and Control ($p \leq .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students.

Annual Achievement for Fastbreak and Control Schools

Tables 3 and 4 (pp. 18–19) show annual 3rd grade achievement in mathematics and reading for schools in the state overall compared to schools classified as either Fastbreak or Control each year from 1998–99 to 2001–02. Three averages are provided; (1) the average for the state overall, (2) the average for students at schools classified as Fastbreak schools for each year, and (3) the average for students at schools classified as Control schools for each year. While average scores were higher for students in Control schools in both mathematics and reading, the Fastbreak school mean surpassed the 1420 threshold (the mean achievement target for Title I schools in Minnesota)[1] for the first time since the study began in 1998–99.

[1] The 1420 achievement threshold has been used in Minnesota for the past several years for Adequate Yearly Progress (AYP) purposes. We anticipate that, with the new legislation in the *No Child Left Behind* Act, this will continue to be an important benchmark in measuring student achievement.

Table 3
Annual 3rd Grade Math Achievement at Schools Classified as Fastbreak and Control

	State	Fastbreak (N= 296)	Control (N= 54)
Average Score: 2001–02	1487	1449	1475
Average Score: 2000–01	1463	1419	1481
Average Score: 1999–00	1442	1422	1472
Average Score: 1998–99	1420	1376	1442
Gain from 1998–99 to 2001–02	67	73	33
% at or above Level II: 2001–02	91%	87%	90%
% at or above Level II: 2000–01	87%	82%	90%
% at or above Level II: 1999–00	86%	84%	90%
% at or above Level II: 1998–99	83%	76%	87%
Gain % at or above Level II: from 1998–99 to 2001–02	8	11	3
% at or above Level III: 2001–02	48%	41%	46%
% at or above Level III: 2000–01	47%	39%	50%
% at or above Level III: 1999–00	40%	38%	43%
% at or above Level III: 1998–99	35%	29%	39%
Gain % at or above Level III: from 1998–99 to 2001–02	13	12	7

Overall, achievement scores in mathematics improved by 24 points from 2000–01 to 2001–02, and 67 points since the first year of the study. The increase was even greater for Fastbreak schools, where students increased average math scores by 30 points over one year and 73 points since the study began in 1998. The percentage of students who scored at or above Level II and at or above Level III in mathematics continued to increase at Fastbreak schools, but leveled off or decreased at Control schools (see Table 3).

Table 4
Annual 3rd Grade Reading Achievement at Schools Classified as Fastbreak and Control

	State	Fastbreak (N= 296)	Control (N= 55)
Average Score: 2001–02	1487	1446	1474
Average Score: 2000–01	1453	1408	1473
Average Score: 1999–00	1423	1407	1447
Average Score: 1998–99	1391	1351	1406
Gain from 1998-99 to 2001–02	96	95	68
% at or above Level II: 2001–02	84%	78%	83%
% at or above Level II: 2000–01	79%	71%	83%
% at or above Level II: 1999–00	76%	74%	80%
% at or above Level II: 1998–99	73%	64%	76%
Gain % at or above Level II: from 1998–99 to 2001–02	11	14	7
% at or above Level III: 2001–02	49%	41%	47%
% at or above Level III: 2000–01	42%	34%	46%
% at or above Level III: 1999–00	37%	34%	41%
% at or above Level III: 1998–99	33%	27%	35%
Gain % at or above Level III: from 1998–99 to 2001–02	16	14	12

Overall, in 3rd grade reading, average scores increased by 34 points from 2000–01 to 2001–02, and by 96 points since 1998–99. Fastbreak schools improved average scores by 38 points and 95 points respectively during these time periods. Control schools, on the other hand, only improved average reading scores by one point and 68 points respectively during the same time periods. Much like the math achievement, increases in the percentage of students scoring at or above Level II or at or above Level III in reading continued to rise for Fastbreak schools, but leveled off for Control schools (see Table 4).

Title I Schools

The data contained in Tables 5 and 6 are results for Title I schools in the state overall and Fastbreak and Control schools with the Title I classification that have 30% or more of their student population eligible for free or reduced-price lunch. Average third grade math achievement at Title I Fastbreak schools was higher than at Control schools in 2001–02. Gains over the four year period were also higher, although not statistically significant (Table 5).

Table 5
Annual 3rd Grade Math Achievement
for Title I Schools

	All Title I Schools	Fastbreak (N= 125)	Control (N= 134)
Average Score: 2001–02	1487	1458	1456
Average Score: 2000–01	1463	1460	1472
Average Score: 1999–00	1442	1442	1442
Average Score: 1998–99	1422	1429	1428
Gain from 1998–99 to 2001–02	65	29	28
% at or above Level II: 2001–02	91%	88%	88%
% at or above Level II: 2000–01	87%	88%	88%
% at or above Level II: 1999–00	86%	86%	87%
% at or above Level II: 1998–99	83%	85%	85%
Gain % at or above Level II: from 1998–99 to 2001–02	8	3	3
% at or above Level III: 2001–02	48%	42%	42%
% at or above Level III: 2000–01	47%	46%	49%
% at or above Level III: 1999–00	40%	40%	39%
% at or above Level III: 1998–99	36%	36%	37%
Gain % at or above Level III: from 1998–99 to 2001–02	12	6	5

As shown in Table 6, overall achievement in 3rd grade reading was not quite as high at Title I Fastbreak schools as it was at Control schools. However, the differences were minor, and in some cases there was no difference in the achievement level.

Table 6
Annual 3rd Grade Reading Achievement for Title I Schools

	All Title I Schools	Fastbreak (N= 125)	Control (N= 136)
Average Score: 2001–02	1487	1454	1457
Average Score: 2000–01	1453	1451	1464
Average Score: 1999–00**	1422	1421	1425
Average Score: 1998–99	1393	1396	1393
Gain from 1998–99 to 2001–02	94	58	64
% at or above Level II: 2001–02	84%	80%	81%
% at or above Level II: 2000–01	79%	80%	81%
% at or above Level II: 1999–00**	76%	77%	77%
% at or above Level II: 1998–99	73%	74%	74%
Gain % at or above Level II: from 1998–99 to 2001–02	11	6	7
% at or above Level III: 2001–02	49%	42%	42%
% at or above Level III: 2000–01	42%	41%	44%
% at or above Level III: 1999–00**	37%	36%	37%
% at or above Level III: 1998–99	33%	34%	33%
Gain % at or above Level III: from 1998–99 to 2001–02	16	6	5

** Significant differences exist between Fastbreak and Control ($p < .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students.

Fifth Grade Achievement

Schools in the Program from 1999–2002

Tables 7, 8, and 9 show 5th grade achievement for students at schools with the same classification for four years. Overall, means at Control schools were higher than at Fastbreak schools in math, reading and writing. However, it is worth noting that 5th grade achievement at these schools surpassed the 1420 threshold in all three learning areas for both Fastbreak and Control schools.

Table 7
5th Grade Math Achievement at Schools with The Same Program Classification from 1999 to 2002

	Overall (N=259)	Fastbreak (N=217)	Control (N=42)
Average Score: 2001–02**	1452	1450	1457
Average Score: 2000–01**	1443	1439	1459
Average Score: 1999–00	1431	1385	1443
Average Score: 1998–99	1368	1361	1398
Gain from 1998-99 to 2001–02**	84	89	59
% at or above Level II: 2001–02**	84%	84%	85%
% at or above Level II: 2000–01	83%	82%	86%
% at or above Level II: 1999–00	81%	73%	85%
% at or above Level II: 1998–99	71%	66%	81%
Gain % at or above Level II: from 1998–99 to 2001–02	13	18	4
% at or above Level III: 2001–02**	42%	41%	44%
% at or above Level III: 2000–01**	41%	40%	44%
% at or above Level III: 1999–00	38%	30%	39%
% at or above Level III: 1998–99	26%	24%	33%
Gain % at or above Level III: from 1998–99 to 2001–02	16	17	11

** Significant differences exist between Fastbreak and Control ($p \leq .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students.

In 5th grade math and reading, Fastbreak schools continued to make gains in achievement, while student achievement at Control schools leveled off or decreased. Over the four year period, means at Fastbreak schools gained more than those at Control schools. In mathematics, gains for students at Fastbreak schools were significantly higher than at Control schools (see Table 7). The means at Fastbreak schools increased by 89 points, compared to 59 points at Control schools. In reading, the gains were also greater at Fastbreak schools, but not significantly so; 96 points compared to 83 (see Table 8).

As illustrated in Tables 7 and 8, the gain in the percentage of students at or above Level II and at or above Level III was greater at Fastbreak schools than at Control schools in both math and reading.

Table 8
5th Grade Reading Achievement at Schools with The Same Program Classification from 1999 to 2002

	Overall (N=259)	Fastbreak (N=217)	Control (N=42)
Average Score: 2001–02	1496	1490	1521
Average Score: 2000–01	1490	1482	1520
Average Score: 1999-00	1451	1403	1465
Average Score: 1998–99	1403	1394	1438
Gain from 1998-99 to 2001–02	93	96	83
% at or above Level II: 2001–02	84%	83%	87%
% at or above Level II: 2000–01	83%	82%	88%
% at or above Level II: 1999–00	80%	72%	83%
% at or above Level II: 1998–99	71%	67%	82%
Gain % at or above Level II: from 1998–99 to 2001–02	13	16	5
% at or above Level III: 2001–02	53%	52%	59%
% at or above Level III: 2000–01	52%	51%	58%
% at or above Level III: 1999–00	44%	36%	46%
% at or above Level III: 1998–99	34%	30%	42%
Gain % at or above Level III: from 1998–99 to 2001–02	19	22	17

In 5th grade writing, gains in average scores from 1999 to 2002 were the same for all groups (127 points). However, the gains in the percentage of students at or above Level II or at or above Level III were once again greater at Fastbreak schools than at Control schools (see Table 9).

Table 9
5th Grade Writing Achievement at Schools with The Same Program Classification from 1999 to 2002

	Overall (N=259)	Fastbreak (N=217)	Control (N=42)
Average Score: 2001–02	1554	1548	1576
Average Score: 2000–01	1469	1466	1480
Average Score: 1999–00	1417	1383	1419
Average Score: 1998–99	1427	1421	1449
Gain from 1998-99 to 2001–02	127	127	127
% at or above Level II: 2001–02	95%	94%	95%
% at or above Level II: 2000–01	94%	94%	95%
% at or above Level II: 1999–00	90%	87%	90%
% at or above Level II: 1998–99	91%	90%	94%
Gain % at or above Level II: from 1998–99 to 2001–02	4	4	1
% at or above Level III: 2001–02	58%	57%	61%
% at or above Level III: 2000–01	46%	46%	47%
% at or above Level III: 1999–00	36%	31%	37%
% at or above Level III: 1998–99	36%	34%	42%
Gain % at or above Level III: from 1998–99 to 2001–02	22	23	19

Annual Achievement for Fastbreak and Control Schools

Tables 10, 11, and 12 show achievement scores for 5th graders in mathematics, reading and writing for schools in the state overall compared to schools classified as either Fastbreak or Control each year from 1998–99 to 2001–02. Overall student achievement in grade five improved with even greater gains than in grade three. As illustrated in Tables 10 and 11, average grade five math and reading scores improved by approximately 50 points from 2001 to 2002 for students in Fastbreak schools as well as students overall. Student achievement at Control schools however remained relatively constant during this time frame. As with the 3rd grade results, the percentage of students scoring at or above Level II or at above Level III increased overall and at Fastbreak schools, but leveled off for Control schools (see Tables 10 and 11).

Table 10
Annual 5th Grade Math Achievement at
Schools Classified as Fastbreak and Control

	Overall	Fastbreak (N= 271)	Control (N= 50)
Average Score: 2001–02**	1503	1456	1465
Average Score: 2000–01	1454	1410	1465
Average Score: 1999–00	1431	1415	1434
Average Score: 1998–99	1380	1331	1397
Gain from 1998–99 to 2001–02	123	125	68
% at or above Level II: 2001–02	90%	85%	86%
% at or above Level II: 2000–01	84%	78%	87%
% at or above Level II: 1999–00	81%	79%	83%
% at or above Level II: 1998–99	75%	65%	80%
Gain % at or above Level II: from 1998–99 to 2001–02	15	20	6
% at or above Level III: 2001–02	53%	43%	45%
% at or above Level III: 2000–01	43%	34%	45%
% at or above Level III: 1999–00	38%	35%	38%
% at or above Level III: 1998–99	30%	23%	32%
Gain % at or above Level III: from 1998–99 to 2001–02	23	20	13

** Significant differences exist between Fastbreak and Control schools ($p \leq .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students. More detail on the significance tests can be found in Appendix B.

Table 11
Annual 5th Grade Reading Achievement at Schools Classified as Fastbreak and Control

	Overall	Fastbreak (N= 271)	Control (N=50)
Average Score: 2001–02	1553	1498	1526
Average Score: 2000–01	1501	1447	1521
Average Score: 1999–00	1450	1431	1460
Average Score: 1998–99	1412	1361	1433
Gain from 1998–99 to 2001–02	141	137	93
% at or above Level II: 2001–02	90%	84%	87%
% at or above Level II: 2000–01	84%	77%	88%
% at or above Level II: 1999–00	80%	76%	82%
% at or above Level II: 1998–99	76%	66%	80%
Gain % at or above Level II: from 1998–99 to 2001–02	14	18	7
% at or above Level III: 2001–02	64%	54%	59%
% at or above Level III: 2000–01	54%	44%	58%
% at or above Level III: 1999–00	44%	41%	45%
% at or above Level III: 1998–99	37%	29%	41%
Gain % at or above Level III: from 1998–99 to 2001–02	27	25	18

As illustrated in Table 12, average 5th grade writing scores increased by 131 points overall from 2000–01 to 2001–02. Increases at Fastbreak and Control schools were slightly lower, but still around 100 point gains. Overall, the average writing scores for 5th grade increased 178 points from 1999 to 2002.

The percentage of students scoring at or above Level II and at or above Level III also increased across the board.

Table 12
Annual 5th Grade Writing Achievement at Schools Classified as Fastbreak and Control

	Overall	Fastbreak (N= 281)	Control (N= 53)
Average Score: 2001–02	1613	1553	1580
Average Score: 2000–01	1482	1450	1487
Average Score: 1999–00	1417	1401	1410
Average Score: 1998–99	1435	1422	1450
Gain from 1998–99 to 2001–02	178	131	130
% at or above Level II: 2001–02	97%	95%	96%
% at or above Level II: 2000–01	95%	93%	95%
% at or above Level II: 1999–00	90%	89%	91%
% at or above Level II: 1998–99	92%	91%	94%
Gain % at or above Level II: from 1998–99 to 2001–02	5	4	2
% at or above Level III: 2001–02	66%	58%	62%
% at or above Level III: 2000–01	48%	43%	49%
% at or above Level III: 1999–00	36%	34%	38%
% at or above Level III: 1998–99	39%	37%	40%
Gain % at or above Level III: from 1998–99 to 2001–02	27	21	22

Title I Schools

Overall, 5th grade achievement at Title I Fastbreak schools was not quite as high as student achievement at Title I Control schools. However, the gains over the four year period were higher for Fastbreak school students than for Control school students in all areas. The gains were particularly higher in reading and mathematics (Tables 13 and 14).

Table 13
Annual 5th Grade Math Achievement
for Title I Schools

	All Title I Schools	Fastbreak (N= 113)	Control (N= 125)
Average Score: 2001–02	1503	1464	1466
Average Score: 2000–01	1454	1455	1465
Average Score: 1999–00	1431	1430	1439
Average Score: 1998–99	1379	1375	1397
Gain from 1998–99 to 2001–02	124	89	69
% at or above Level II: 2001–02	90%	87%	87%
% at or above Level II: 2000–01	84%	85%	86%
% at or above Level II: 1999–00	81%	82%	84%
% at or above Level II: 1998–99	75%	75%	80%
Gain % at or above Level II: from 1998–99 to 2001–02	15	12	7
% at or above Level III: 2001–02	53%	45%	45%
% at or above Level III: 2000–01	43%	43%	45%
% at or above Level III: 1999–00	38%	37%	39%
% at or above Level III: 1998–99	30%	29%	31%
Gain % at or above Level III: from 1998–99 to 2001–02	23	16	14

Table 14
Annual 5th Grade Reading Achievement for Title I Schools

	All Title I Schools	Fastbreak (N= 113)	Control (N= 125)
Average Score: 2001–02	1553	1510	1518
Average Score: 2000–01	1501	1501	1520
Average Score: 1999–00	1451	1453	1465
Average Score: 1998–99	1413	1410	1432
Gain from 1998–99 to 2001–02	140	100	86
% at or above Level II: 2001–02	90%	86%	87%
% at or above Level II: 2000–01	84%	85%	88%
% at or above Level II: 1999–00	80%	81%	83%
% at or above Level II: 1998–99	76%	76%	80%
Gain % at or above Level II: from 1998–99 to 2001–02	14	10	7
% at or above Level III: 2001–02	64%	56%	58%
% at or above Level III: 2000–01	54%	54%	58%
% at or above Level III: 1999–00	44%	44%	46%
% at or above Level III: 1998–99	37%	36%	41%
Gain % at or above Level III: from 1998–99 to 2001–02	27	20	17

Table 15
Annual 5th Grade Writing Achievement
for Title I Schools

	All Title I Schools	Fastbreak (N= 113)	Control (N= 125)
Average Score: 2001–02	1613	1559	1569
Average Score: 2000–01	1483	1475	1480
Average Score: 1999–00	1417	1411	1421
Average Score: 1998–99	1436	1431	1444
Gain from 1998–99 to 2001–02	177	128	125
% at or above Level II: 2001–02	97%	95%	96%
% at or above Level II: 2000–01	95%	95%	95%
% at or above Level II: 1999–00	90%	89%	89%
% at or above Level II: 1998–99	92%	92%	93%
Gain % at or above Level II: from 1998–99 to 2001–02	5	3	3
% at or above Level III: 2001–02	66%	59%	60%
% at or above Level III: 2000–01	49%	47%	47%
% at or above Level III: 1999–00	36%	35%	36%
% at or above Level III: 1998–99	39%	38%	39%
Gain % at or above Level III: from 1998–99 to 2001–02	27	21	21

Student Level Achievement and Participation

Student level breakfast participation data were collected by a number of schools for this year's study. It is important to note that schools provided these data on a voluntary basis. Therefore, the schools from which we received data were not necessarily representative of all schools. The data collected included the number of days that students ate school breakfast throughout the 2001–02 school year. These data were merged with attendance data and with 3rd and 5th grade achievement data to determine if individual student achievement or attendance was affected by participation in the Fast Break to Learning School Breakfast Program.

Data gathered for educational research purposes are frequently structured in a hierarchical fashion. Multilevel modeling is an appropriate methodological approach in these circumstances because it takes advantage of the data structure. In other words, when data are naturally nested; for example students within classrooms, or

schools within school districts; it is often illuminating to take account of the variability associated at each level of nesting. For example, there is variability between pupils, but also between classes, and researchers may draw the wrong conclusions if either of these sources of variability is ignored.

Several models were examined, using different dependent variables, such as participation, attendance and achievement. In each model, we investigated the extent to which student level demographic information could explain the variation in these dependent student-level measures. Fastbreak schools reported, on average, higher participation rates than did their Control school counterparts. However, when analyzing student level participation as a dependent variable, we found that after controlling for student demographics, no statistically significant difference in participation rates between Fastbreak and Control schools existed.

One explanation for this discrepancy is the way in which schools were selected to be a part of the analysis. Not only did schools voluntarily participate and provide data, but the schools that provided data had to use a particular kind of tracking and recording software to track breakfast participation in order to be included. This implies a certain level of existing student participation at the school, because without that existing level of student participation, it would be unlikely that a school would keep such a tracking system in place.

We then investigated numerous models in which academic achievement, such as 5th grade math achievement, served as the outcome measure. We examined these achievement measures with and without controlling for students' prior achievement level. After statistically controlling for individual student demographic characteristics and prior 3rd grade achievement levels, the average scores from students in Fastbreak schools were lower than average achievement scores of students in Control schools; however, these differences were not statistically significant. (For details of findings, see Appendix E, p. 73.)

Overall, gains in achievement were higher for students in Fastbreak schools than for students in Control schools. However, these students started from a lower level of achievement, with more room for improvement. Neither the differences at the school level nor at the individual student level were statistically significant.

In summary, Fastbreak students finished 5th grade, on average, at lower levels of achievement than Control school students. However, when the analysis controlled for 3rd grade prior achievement scores, as well as the demographic variables, the differences between Fastbreak and Control schools disappeared. That is, supposing that one analyzed results for two students, one in a Fastbreak school and one in a Control school, who started at the same 3rd grade achievement level, one would expect to see that both students had reached similar achievement levels in both math and reading by the end of 5th grade.

Conclusions

In instituting universal free breakfast programs, the assumption was that such programs would lead to improved student participation, which in turn would

lead to improved academic outcomes such as higher achievement. Throughout the three years of this study, we have found higher participation rates among the Fastbreak schools than among Control schools. Furthermore, achievement scores have been rising in Fastbreak schools over the same period. In 2002, the average scale score for the Fastbreak schools was above 1420 (the mean target for Title I schools in Minnesota). However, we found little evidence to support the conclusion that achievement was improving *more* rapidly in Fastbreak schools than in other schools with similar demographic composition. It should be noted that the schools to which we compared Fastbreak schools were serving school breakfast, but not on a universal free basis.

For instance, Tables 1 and 2 (pp. 16 and 17) showed no significant differences in gains favoring Fastbreak schools for 3rd grade math or reading. The only significant difference was a greater gain in the percentage of students scoring at or above Level III in reading for Control schools. Tables 5 and 6 (pp. 20 and 21) showed no significant differences in gains between Fastbreak Title I schools and Control Title I schools in mathematics, and showed significant results for reading only in 3rd grade. In Tables 7 through 9 (pp. 22–24), Fastbreak schools made greater gains in mean 5th grade achievement and in the percentage of students scoring at or above Level II and Level III for both reading and math. The gap between Fastbreak and Control schools may be closing. Nevertheless, there was only one significant difference between the Fastbreak and Control school gains: a greater gain in mean mathematics scale scores for Fastbreak schools.

Our hierarchical linear model analyses led to similar conclusions. In the analysis of 5th grade mathematics and reading scores, even controlling for prior achievement and demographic variables, the nonsignificant treatment effect would suggest that demographically similar students starting at the same level of 3rd grade achievement would reach the same level of 5th grade achievement two years later in either a Fastbreak or Control school. However, due to the sampling procedure, these findings may not be representative of the population of Fastbreak and Control schools. In short, in our comparison of schools that were serving breakfast on a universal free basis (Fastbreak) with schools that were serving breakfast on a sliding scale payment basis (Control), there was little evidence to suggest that the Fastbreak students were making greater gains in academic achievement. These achievement findings are consistent with those reported in a recent national study, which randomly assigned schools to treatment and control conditions (Bernstein, L.S., et al. 2002).

Chapter 5:
Attendance

Research has shown that attendance is one of the factors that affects a student's academic success. If a student does not attend classes regularly it is unlikely that academic success will be achieved. Overall, attendance rates in Minnesota elementary schools are high, leaving little room for substantial increases in most schools. Average attendance rates for the state in 2001–02 for grades 1–6 were 96% overall, as well as for students at Fastbreak and Control schools.

Table 1 shows average attendance rates from 1999–02 for schools overall, and for those classified as either Fastbreak or Control schools.

Table 16
Average Attendance Rates: Grades 1–6
from 1999 to 2002

	Total	Fastbreak	Control
Total attendance rate: 2001–02	.96	.96	.96
Total attendance rate: 2000–01	.96	.96	.96
Total attendance rate: 1999–00	.96	.95	.96
Total attendance rate: 1998–99	.95	.95	.94
Gain in attendance rate from 1999–02	.01	.01	.02
"Reduced" attendance rate: 2001–02	.96	.96	.96
"Reduced" attendance rate: 2000–01	.96	.96	.96
"Reduced" attendance rate: 1999–00	.96	.96	.96
"Reduced" attendance rate: 1998–99	.95	.96	.95
Gain in "reduced" attendance rate from 1999–02	.01	.00	.01
"Free" attendance rate: 2001–02	.95	.95	.95
"Free" attendance rate: 2000–01	.95	.95	.95
"Free" attendance rate: 1999–00	.94	.94	.95
"Free" attendance rate: 1998–99	.94	.94	.93
Gain in "free" attendance rate from 1999–02	.01	.01	.02

As shown in the table, the overall average attendance rates remained the same as 2000–01. Rates were 96% for Fastbreak and Control groups, as well as overall. This is

a 1% increase for Fastbreak schools and a 2% increase for Control schools since 1998–99. The average attendance rate for students eligible for reduced-price lunch was also 96%, and for students eligible for free lunch this percentage was 95%—the same as the previous year. These rates represent a 1% increase since 1998–99. Although students in the Fastbreak schools may have lower achievement levels than students in Control schools, the difference is not attributable to lower attendance rates.

We also examined student level attendance rates between Fastbreak and Control schools. Positively, attendance rates in Fastbreak schools were found to be no different than attendance rates in Control schools after controlling for student-level demographics. However, as already mentioned, attendance rates among elementary school students is fairly high across the board. While those attendance rates are less than 100%, realistically, there may not be much room for improvement as a result of serving breakfast on a universal free basis.

Chapter 5:
Health and Discipline

There are many studies that attempt to link school breakfast and student behavior, discipline, and health. As a supplement to our research, starting with last year's Fast Break to Learning School Breakfast Study, we began looking at data relating to health and discipline to see what impact the School Breakfast Program had on health and discipline issues in schools. Baseline data were collected in the Spring and Fall of 2001 and reported in last year's report. The data discussed in this report were collected in the Spring of 2002. Schools had been participating in the Fast Break to Learning School Breakfast Program for one academic year when these data were collected.

Methodology

Participating schools in this research were eligible for the Fast Break to Learning Breakfast Program in 2000–01, but participated for the first time in 2001–02. Surveys were mailed to principals of participating schools approximately two weeks prior to the scheduled start of reporting. The survey was comprised of a health section and a discipline section. The responsibility for gathering the necessary information fell on different school personnel, depending on the school. In most instances, the school nurse recorded tallies on the health survey, while the assistant principal or office assistant tracked and recorded disciplinary information.

The data requested on these two forms were reported on three days a week from April 16 to May 2, 2002, for a total of nine school days. The format of the health survey was a 4 x 2 (illness by time of day) contingency table layout. The recorder was asked to mark the appropriate category for the reason for a student's visit to the nurse's office. The categories provided included: contagious (chicken pox, head lice, impetigo, pink eye, etc); injuries (abrasions, cuts, skeletal injuries, bloody nose, head injuries, etc.); minor illness (stomach aches, headaches, reporting "not feeling good"); and acute illness (asthma attack, vomiting, complaints of earache, cough, sore throat, elevated temperature, etc.). In addition to recording the reason for the visit, recorders also tracked whether the visit was in the morning or the afternoon. Visits were totaled so that a daily morning and a daily afternoon count were provided for each visit category.

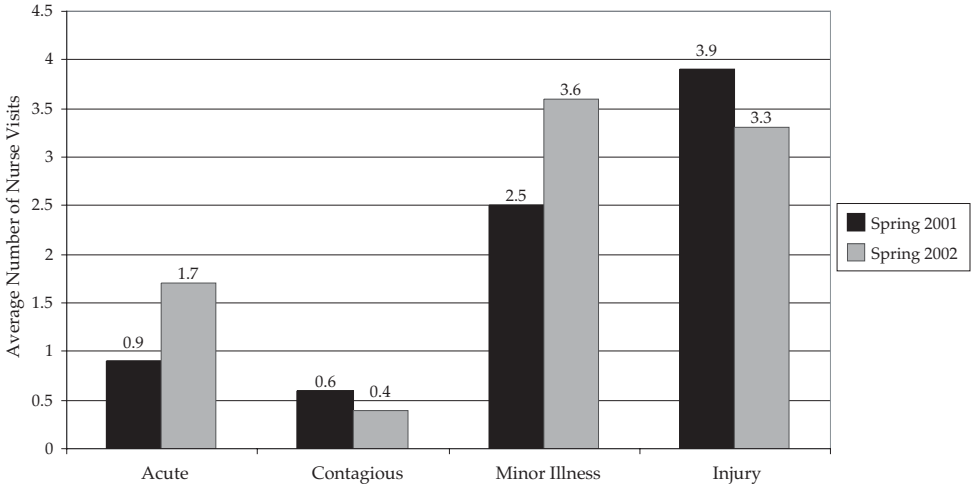
The format for the disciplinary survey closely paralleled that of the health survey. A 5 x 2 contingency table was provided to principals, in which the rows represented the location at which disciplinary problems occurred, and the columns represented the time of day (morning or afternoon). The study identified the following locations for potential disciplinary problems: classroom (including library and specialists' classrooms); playground; hallway/cafeteria; school bus; and other. As with the health records, disciplinary visits were totaled in order to get a daily morning and daily afternoon count for each disciplinary category.

Surveys were completed and returned by participants at 63 schools. The data were entered and analyzed by the Office of Educational Accountability.

Results

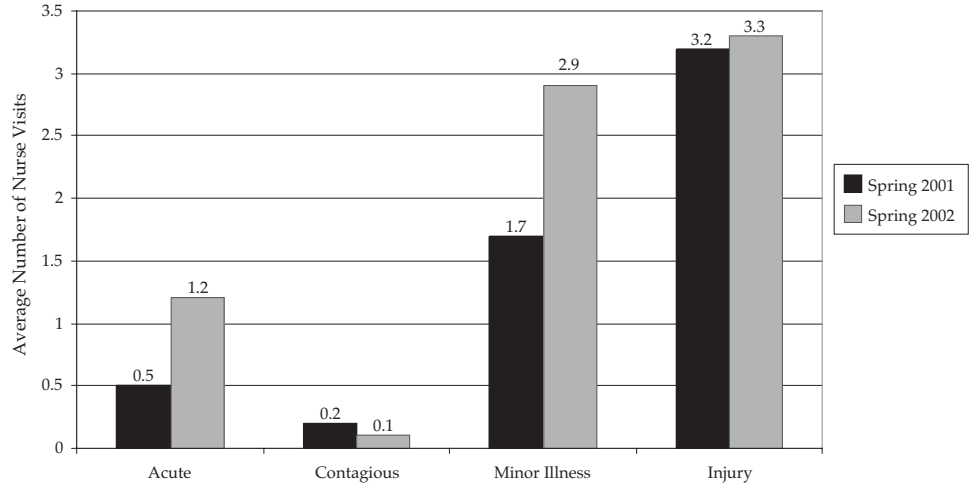
Overall, the average number of nurse visits in the morning was 8.9. This was an increase from the 7.9 average in Spring 2001. Minor illness, followed closely by injuries, was the most frequently reported reason for visiting the nurse in the morning (Figure 7). The average number of visits due to minor illness increased from 2.5 to 3.6 from 2001 to 2002.

Figure 7: Average Number of Daily Nurse Visits (Morning)



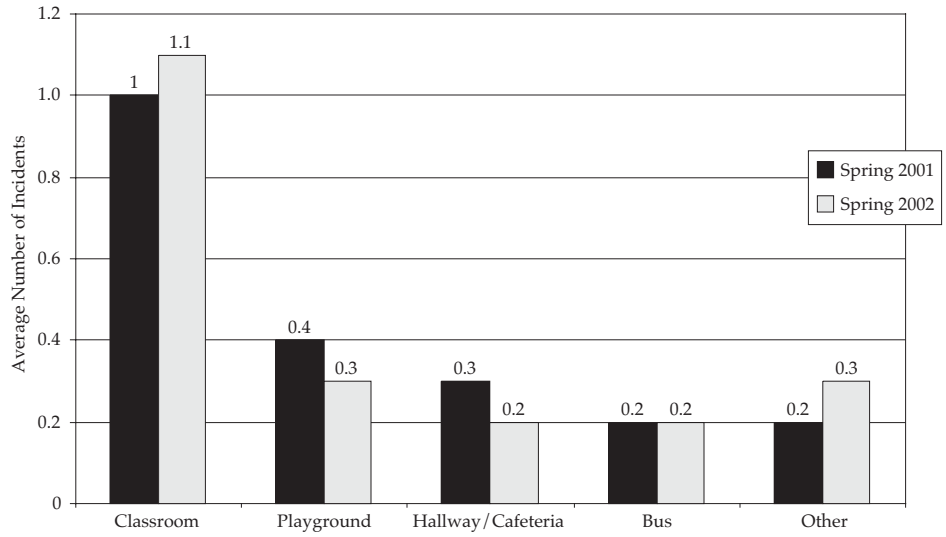
Afternoon nurse visits averaged 5.6 in Spring 2001, but increased to 7.5 in Spring 2002. However, these differences were not statistically significant. The category most commonly reported as a reason for a nurse visit in the afternoon was injury (Figure 8). The average number of afternoon visits for this reason was 3.3, a small change from Spring 2001.

Figure 8: Average Number of Daily Nurse Visits (Afternoon)



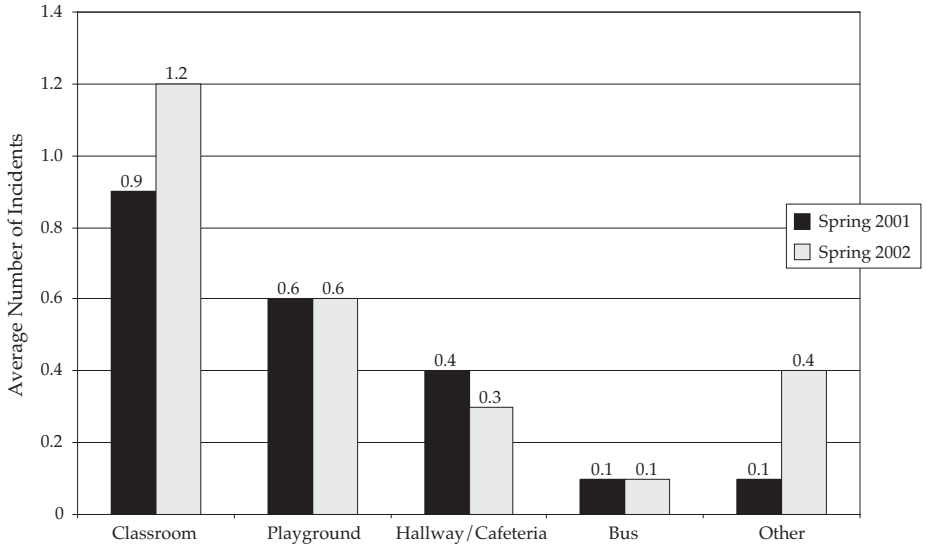
The average number of disciplinary incidents occurring in the morning remained about the same: 2.1, as compared to 2.0 in 2001. The greatest number of morning disciplinary incidents were classroom infractions (Figure 9).

Figure 9: Average Number of Daily Disciplinary Incidents (Morning)



Afternoon disciplinary incidents increased from 2.1 to 2.6 from 2001 to 2002. Similar to the morning results, the greatest number of afternoon disciplinary incidents were classroom infractions, followed by playground and hallway incidents (Figure 10). For a complete breakdown of percentages of nurse visits and disciplinary incidents, see Appendix C.

Figure 10: Average Number of Daily Disciplinary Incidents (Afternoon)



Although the average number of nurse and office visits increased overall from 2001 to 2002, the differences were not statistically significant. One possible explanation for the rise in numbers is increased awareness and reporting. The differences in numbers reported could also occur because data reporters were not always the same from year to year. The results of the study do not confirm whether or not the School Breakfast Program has an effect on health and discipline concerns for schools.

It is also worth noting that when teachers and principals were asked to rate the importance of the number of nurse visits to their school improvement efforts, it was rated as one of the lesser priorities.

Chapter 6:
Conclusions and Recommendations

The Fast Break to Learning School Breakfast Program has been in place in Minnesota since 1999. Although Minnesota schools were serving breakfast to students before this program started, it was the initiation of this particular program that allowed schools to offer school breakfast to all students on a universally free basis. In this report on the third year results, schools were divided into two groups: schools that participated in the Fast Break to Learning Program, offering breakfast to all students free of charge (Fastbreak schools) and schools that were eligible for the program, but provided breakfast to students on a sliding fee scale (Control schools). Data were collected through mail surveys and large scale data files. These data were used to evaluate the administration of the program, student participation in the program, and the effect of the program on student achievement, attendance, and health and discipline issues.

When analyzing the study's findings, it is important to compare the student population at Fastbreak schools with the population at Control schools. Although there are some similarities between the groups, there are also some key differences. For example, approximately one-third of the Fastbreak schools are located in the cities of Minneapolis or St. Paul, whereas less than 5% of the Control schools are in urban locations. Control schools are much more likely than Fastbreak schools to be located in the suburbs.

Along with the differences in schools' locations we notice other important differences: for example, the percentage of students eligible for free or reduced-price lunch. The vast majority of Control schools report that between 30–49% of their student body is eligible for free or reduced-price lunch. At about 40% of the Fastbreak schools, however, 50–100% of the students are eligible for free or reduced-price lunch. Another 50% of Fastbreak schools reported that 30–49% of their students were eligible for free or reduced-price meals. A slightly higher percentage of students are new to the district in Fastbreak schools than in Control schools. On the other hand, the populations of special education and LEP students were fairly similar for Fastbreak and Control schools. (For complete demographic data see Appendix A, pp. 49–50).

It is not surprising that there are some similarities between the groups, since Control schools were eligible to participate in the program, but chose not to. However, it is worth noting the significant differences in the percentage of students eligible for free or reduced-price meals, and the schools' metro locations versus suburban locations.

Because there were significant differences in the percentage of students eligible for free or reduced-price meals, and in the distribution of schools in metro locations, as opposed to suburban locations, a second grouping of Fastbreak and Control schools was created from the list of Title I schools in order to better ensure similar

populations. Our argument for running these extra analyses was statistically based. That is, to gauge whether there exist significant differences in academic achievement between Fastbreak and Control schools, it is important to control for school demographic composition. One method of controlling for these differences is to compare schools with pre-existing, similar demographic characteristics. Thus, the decision was made to compare Title I schools that were grouped according to their participation or non-participation in the Fast Break to Learning program.

The analyses on these newly formed groups provided no new insights on the effectiveness of universal free breakfast as a factor in raising student achievement. Our findings paralleled the original analyses using the first categorization of Fastbreak and Control schools. Differences that exist in average third grade math achievement favor Fastbreak schools in 2001–02. Furthermore, gains over the four year period also favor Fastbreak schools. However, these differences were not statistically significant. When examining average third grade reading scores, the Control schools' average scores were slightly better than Fastbreak schools' scores. Again, these differences were not significant.

This was the first year in which we tracked individual students and their corresponding achievement scores from third grade in 1999–00 to fifth grade in 2001–02. Using hierarchical linear modeling, which takes advantage of the natural nesting of students within schools, we were able to carry out analyses at the student level. We posited that examining data at this level might uncover differences not apparent at the aggregated school level.

We looked at a number of different outcome measures including attendance, participation, and achievement. Overall, our findings were very similar to the school level analyses. After controlling for individuals' prior achievement and personal demographic composition, differences observed in 5th grade math and reading scores between Fastbreak and Control schools were not significant. That is, students having similar demographic characteristics and starting at the same third grade achievement level would attain the same 5th grade achievement level. Students whose initial achievement levels were higher ended with higher achievement levels. While these student level findings were somewhat disappointing, it is our contention that in light of the No Child Left Behind Act (NLCB), in which students will be subjected to yearly assessments, future analyses can exploit the nesting structure of data as well as repeated observations of individual students. Hierarchical linear modeling offers a way of appropriately exploring student level data.

Key Findings

Program Administration

Teachers and principals were asked about the administration of the School Breakfast Program via mail surveys. Their responses were similar to those reported in the second year results. The majority of respondents reported that breakfast was served before the start of the school day (83%) and that it was served in the cafeteria/lunchroom (87%). However, of those schools that served breakfast after the start of the school day, half reported it was served in the classroom. The results also showed that the

average amount of time it took to serve breakfast was the same (20 –30 minutes), no matter where or when the meal was served.

When asked about possible barriers to implementing the program, the most common response by principals was the need for additional supervisory staff (33%). The barrier mentioned most often by teachers, however, was the lack of time before school starts (24%). When principals were asked specifically what barriers would exist if breakfast were served after the start of the school day, 82% reported that it would interfere with instructional time. If principals perceive a risk to classroom instruction this may help to explain why such a small percentage of schools are choosing to serve breakfast after the start of the school day.

In order to analyze the perceived effectiveness of the program, principals and teachers were asked to prioritize a list of school improvement efforts and then rate the effectiveness of the breakfast program in addressing each of these efforts. The responses were very similar for the two groups. The areas that principals rated as the highest priorities for school improvement efforts were: (1) academic achievement, (2) positive school climate, (3) absenteeism/tardiness, and (4) student attendance. At least 90% of principals rated these issues a 4 or 5 on a 5-point priority scale where 1= not at all a priority, and 5= very much a priority.

The areas in which principals rated the School Breakfast Program highest for its contributions to school improvement efforts were: (1) "Students hungry or malnourished" (i.e., addressing the needs of such students), (2) "Academic achievement," (3) "Inattentive to learning" (i.e., helping to remedy student inattention), and (4) "Positive school climate." According to the analysis, school principals believe that the School Breakfast Program is most positively contributing in the areas of academic achievement and positive school climate. These two areas were given high priority, and the School Breakfast Program received high ratings because of its success in positively contributing to school improvement efforts (see Chapter 2).

Participation

Student participation in the program is critical in order to achieve results. Participation rates in the Fast Break to Learning Breakfast Program have experienced a continual increase since the beginning of the program in 1998–99. Results show that there have been greater gains in participation at Fastbreak schools than at Control schools. On average, Fastbreak schools have nearly three times greater participation rates than do Control schools. The subgroup of students eligible for free lunch has also shown significant increases in participation since the beginning of the program: participation rates for students eligible for free lunch have increased 37% since the beginning of the program, compared to a 19% increase for students overall. One could infer that the students in greatest need (those eligible for free lunch) of the program are participating at an increased rate the longer the program is in place.

Although a limited number of schools served breakfast after the start of the school day, those that did reported higher student participation rates than schools where breakfast was served before school started. Another factor that seemed to influence

participation was program implementation. At schools where participation was determined by a school wide policy with faculty input, higher student participation was reported. These findings echo those of last year, where participation rates were higher in schools that adopted the program as part of the school culture as opposed to simply viewing it as an available option for students. In other words, when teachers and staff are involved in the implementation and openly support the program students are more likely to participate.

Achievement

Overall, achievement scores on 3rd and 5th grade *Minnesota Comprehensive Assessments (MCAs)* have shown gradual improvement from year to year. In 2001–02, average mathematics and reading scores for students at Fastbreak schools surpassed the 1420 threshold, the state's expectation used for school adequate yearly progress evaluation, for the first time since the study began in 1998-99. Over 50% of Fastbreak schools reported average scores in mathematics and reading of 1420 or above. As benchmarks in academic achievement become more important, finding ways to improve student achievement to reach these expectations will become more of a focus for schools. However, we found little evidence that achievement was improving more rapidly in Fastbreak schools than in schools serving breakfast on a non-universal basis.

Student level data were also analyzed to determine if achievement gains appeared more significant at the individual student level compared to the school level data. After controlling for the students' prior achievement, no significant results were found. That is, students in Fastbreak and Control schools who started at the same initial 3rd grade achievement level reached about the same 5th grade achievement level two years later. As in the school level analyses, Control schools were serving breakfast, but on a non-universal basis. In finding little evidence for greater gains in universal free breakfast schools, our findings parallel those of a national study that used random assignment to treatment and control schools (Bernstein, L.S., et al., 2002).

There is an apparent discrepancy between the results from analysis of school level and student level achievement, and principals' perceptions of student academic achievement. Improved academic achievement was one of the areas in which principals rated the Fast Break to Learning Breakfast Program highest. Improved academic achievement was also mentioned numerous times during principal and teacher interviews in the second year study. There may be less of a discrepancy than first appears, however. Principals may be evaluating student academic achievement as reflected in classroom performance, rather than student performance on the annually administered *Minnesota Comprehensive Assessments*. Furthermore, much of our evaluation was based on whether learning gains in Fastbreak schools exceeded the gains in Control schools, not simply on whether there were learning gains in Fastbreak schools. Principals have little means of comparing gains in their schools to those in other schools, so their comments may simply reflect the fact that they perceived achievement to be improving in their Fastbreak schools, as indeed it was. Therefore, it is worth recognizing that even though significantly greater gains in student achievement among Fastbreak as compared to Control schools were seldom found, there is a belief among teachers and principals that student achievement is positively affected by a students' participation in the School Breakfast Program.

Attendance

Attendance rates in elementary schools remain high. The average attendance rate in 2001–02 was 96%, identical to the previous year. Although differences are evident in achievement and participation for Fastbreak and Control schools, there were no differences in the attendance rates of these two groups.

Health and Discipline

Overall, the average number of nurse visits reported increased from 2001 to 2002. Minor illness was the most frequently reported reason for visiting the nurse. Disciplinary incidents were also slightly higher in 2002 than they were in 2001. The greatest percentage of disciplinary infractions took place in the classroom. These results mirror the findings of a national study (Bernstein, L.S. et al., 2002).

Recommendations

The following recommendations are based on some recurring themes. First, it is obvious that overall, principals and teachers have a very supportive attitude toward the School Breakfast Program. They report their belief that the benefits of the program outweigh any difficulties in implementation or administration. Second, participation rates have been consistently higher at schools providing breakfast on the universally free model (Fastbreak schools) than at schools implementing a sliding fee scale for school breakfast (Control schools). Finally, higher participation rates are reported when schools serve breakfast in the classroom and/or after the start of the school day.

Recommendation 1:
Focus the program on schools that are implementing the program well and have high participation rates.

In order to most efficiently utilize funds, school eligibility for participating in the Fast Break to Learning School Breakfast Program should be based on the percentage of students at the school who are eligible for free or reduced-price lunch, and the participation record of the school. In other words, at schools where the program is working successfully it should be continued, but at schools where very few students are participating the program should not be offered. Since the federal school food program reimburses schools for breakfasts served to students who are eligible for free and reduced-price meals, limiting the program should not hurt those students who really need the assistance, no matter what other programs the state has in place.

Recommendation 2:
Encourage schools to make the breakfast program a school-wide policy.

Studies have shown that schools that serve breakfast in the classroom or after the start of the school day experience higher participation rates. Since there is little likelihood that either of these implementations will be widely adopted in Minnesota, we suggest an alternative to help increase participation. Results from the last two years suggest that schools that adopt the Fast Break to Learning Breakfast Program as a school-wide

policy experience higher student participation than schools that leave participation up to individual students. We recommend that schools that remain in the program should be encouraged to approach it as a school-wide policy, and make it a part of the school day. This would include things like classes eating together, teachers eating with their students, teachers and staff discussing the benefits of eating breakfast with the students, and encouraging students to eat if they believe they have not eaten at home.

Recommendation 3:
Provide schools with a blueprint of best practices.

As we did last year, we recommend that the Department of Children, Families & Learning provide schools with some best practice examples for successfully implementing the breakfast program. Schools participating in the program have many other programs and issues to deal with regularly, and would welcome some assistance in program implementation. We recommend a brochure or pamphlet that details a plan for implementation, and perhaps an informational session to better explain the program and allow school personnel to ask questions. Since there is no statewide system of implementation in place, suggestions about what other schools have tried and found successful may make the program more efficient for all schools.

Recommendation 4:
Provide the breakfast program to high school students.

Given the findings of the last several years, an argument could be made that the School Breakfast Program is a program that would be even more beneficial at the high school level than the elementary level. Research has shown that attendance is a crucial factor in student success. Attendance rates in elementary schools are already high, but high school attendance rates might benefit from a breakfast program. The research on the stigma associated with eating school breakfast also seems to be more related to students of high school age. The concept of a universally free breakfast might be a better fit for this age group.

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Appendix A:
Demographics

Table A.1 3rd Grade Demographics (2001–02)

		Fastbreak		Control	
		Percentage of Schools	Percentage of 3rd Graders	Percentage of Schools	Percentage of 3rd Graders
TOTAL		N=408	N=17,622	N=69	N=3,977
STRATA	Mpls/St. Paul	26	30	02	01
	TC Suburbs	19	16	19	26
	Outstate 2000+	31	21	31	31
	Outstate 2000-	48	34	48	42
LEP	0%	48	37	48	41
	1-9%	22	20	22	23
	10-100%	30	43	30	35
SPECIAL ED	0-9%	22	27	22	17
	10-19%	76	71	76	80
	20-100%	2	2	2	2
F/R LUNCH	0-19%	—	01	—	—
	20-29%	15	13	15	15
	30-49%	00	49	70	75
	50-100%	15	38	15	11
NEW TO DISTRICT	0-9%	07	12	07	06
	10-19%	54	34	54	45
	20-100%	39	54	39	50

Note: LEP=Limited English Proficiency; Special Ed=Special Education; F/R Lunch=eligible for free or reduced-price lunch; New to District=enrolled since 1/1/01.

Table A.2 5th Grade Demographics (2001–02)

		Fastbreak		Control	
		Percentage of Schools	Percentage of 5th Graders	Percentage of Schools	Percentage of 5th Graders
TOTAL		N=365	N=16,889	N=68	N=4,579
STRATA	Mpls/St. Paul	28	31	04	03
	TC Suburbs	12	17	21	26
	Outstate 2000+	19	19	30	39
	Outstate 2000-	41	33	45	33
LEP	0%	48	38	46	36
	1-9%	16	19	25	27
	10-100%	35	43	29	37
SPECIAL ED	0-9%	21	23	23	17
	10-19%	74	75	75	81
	20-100%	5	2	2	2
F/R LUNCH	0-19%	01	01	—	—
	20-29%	10	13	12	10
	30-49%	48	48	71	79
	50-100%	41	38	17	11
NEW TO DISTRICT	0-9%	14	13	08	06
	10-19%	34	34	53	45
	20-100%	52	53	40	49

Note: LEP=Limited English Proficiency; Special Ed=Special Education; F/R Lunch=eligible for free or reduced-price lunch; New to District=enrolled since 1/1/01.

Appendix B: Achievement

The achievement data in the following five tables show the statistical significance of achievement data after controlling for demographic variables: percentages of students with limited English proficiency, students in special education, student eligibility for free or reduced-price lunch, and new students. The tables include results for adjusted effect sizes. The adjusted effect size is a variation of d equal to the difference between adjusted group means, divided by the square root of the mean square within. The adjusted means are the estimated marginal means after controlling for demographic variables. The mean square within is from the analysis in which the demographic variables were controlled for. The F-test is a comparison of differences between Fastbreak and Control schools.

Tables B.1 and B.2 contain data from 3rd grade mathematics and reading assessments. Tables B.3, B.4, and B.5 contain data from 5th grade mathematics, reading, and writing assessments.

Table B.1 3rd Grade Mathematics

	Adjusted Means				Adjusted Effect Sizes		
	Fastbreak	Control	Mean square within	Mean square between	Fastbreak/ Control	f-value	Significance
Gain in Mean Score	30.717	47.154	5,221.56	9,261.081	.227	1.774	.184
Gain in % at or above Level II	3.556	5.700	85.61	157.475	.232	1.839	.176
Gain in % at or above Level III	5.601	9.379	182.21	491.620	.280	2.698	.102

Table B.2 3rd Grade Reading

	Adjusted Means				Adjusted Effect Sizes		
	Fastbreak	Control	Mean square within	Mean square between	Fastbreak/ Control	f-value	Significance
Gain in Mean Score	65.280	76.327	10,589.01	4,127.799	.107	.390	.533
Gain in % at or above Level II	6.691	8.641	138.68	130.055	.166	.938	.334
Gain in % at or above Level III	8.477	12.337	157.77	512.842	.307	3.251	.072

Table B.3 5th Grade Mathematics

Adjusted Means					Adjusted Effect Sizes		
	Fastbreak	Control	Mean square within	Mean square between	Fastbreak/ Control	f-value	Significance
Gain in Mean Score	90.075	41.149	11,412.74	82,623.503	-.458	7.240	.008 *
Gain in % at or above Level II	12.175	7.589	141.36	717.157	-.386	5.073	.025 *
Gain in % at or above Level III	15.115	11.007	171.19	578.143	-.312	3.377	.067

Table B.4 5th Grade Reading

Adjusted Means					Adjusted Effect Sizes		
	Fastbreak	Control	Mean square within	Mean square between	Fastbreak/ Control	f-value	Significance
Gain in Mean Score	97.792	55.419	11,660.07	64,423.504	-.392	5.525	.020 *
Gain in % at or above Level II	10.310	8.669	111.33	91.410	-.156	.821	.366
Gain in % at or above Level III	18.642	13.916	146.09	764.233	-.391	5.231	.023 *

Table B.5 5th Grade Writing

Adjusted Means					Adjusted Effect Sizes		
	Fastbreak	Control	Mean square within	Mean square between	Fastbreak/ Control	f-value	Significance
Gain in Mean Score	128.329	129.983	11,521.92	96.524	.015	.008	.927
Gain in % at or above Level II	3.436	5.357	104.43	127.652	.188	1.222	.270
Gain in % at or above Level III	19.972	22.419	288.18	214.843	.144	.746	.389

*Significant differences exist between Fastbreak and Control ($p < .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students.

Appendix C:
Health and Discipline Survey Results

Table C.1 Survey Results: Descriptive Statistics (2001–02)

Appendix D:
School Breakfast Program Survey Forms

School Breakfast Program
Teacher Survey

1. What grade(s) do you teach?

1☐ first 2☐ second 3☐ third 4☐ fourth 5☐ fifth 6☐ sixth
7☐ other *(please specify)* _____ 30

2. What is the student enrollment in your school?

1☐ under 100 students
2☐ 100 – 249 students
3☐ 250 – 499 students
4☐ 500 – 749 students
5☐ 750 students or more 31

3. How do the majority of your students in your school get to school?
(please check only one)

1☐ bus
2☐ walk
3☐ ride from parent/guardian
4☐ other *(please specify)*_____ 32

4. Is nutrition education included in the elementary curriculum at your school?

1☐ yes 2☐ no 3☐ do not know 33

5. If yes, does the instruction include the benefits of eating breakfast?

1☐ yes 2☐ no 3☐ do not know 34

6. When does your school serve breakfast to students?

1☐ before school starts
2☐ after the start of the school day
3☐ both *(please describe*) _____ 35

7. Where do students eat breakfast at your school?

1☐ in the lunchroom/cafeteria
2☐ in the classroom
3☐ both *(please describe)* _____ 36

8. Who usually supervises students during the breakfast period at your school?
(please check all that apply)

1☐ teacher(s)
2☐ aide
3☐ administrator
4☐ food service personnel
5☐ other (*please specify*) _____ 37

9. What else takes place while students are eating breakfast?
(please check all that apply)

1☐ teachers take attendance
2☐ school and classroom information is announced
3☐ teachers explain the day's schedule
4☐ students have a formal group discussion (example: current events)
5☐ a book is read aloud by a teacher or administrator
6☐ students do homework
7☐ teachers return student assignments
8☐ other *(please specify)* _____ 42

10. Please indicate to what extent the following issues are a priority of your school improvement plan/efforts.
(please circle one number per line)

		Very much a priority				Not at all a priority
a)	student attendance	5	4	3	2	1
b)	student academic achievement	5	4	3	2	1
c)	positive school climate	5	4	3	2	1
d)	absenteeism/tardiness	5	4	3	2	1
e)	negative student behavior	5	4	3	2	1
f)	visits to the nurse's office (due to headaches, stomach aches, or tiredness)	5	4	3	2	1
g)	students inattentive to learning	5	4	3	2	1
h)	students coming to school hungry or malnourished	5	4	3	2	1

11. How well does the School Breakfast Program succeed in positively contributing

to your school improvement efforts in the following areas?
(please circle one number per line)

		excellent				poor
a)	student attendance	5	4	3	2	1
b)	student academic achievement	5	4	3	2	1
c)	positive school climate	5	4	3	2	1
d)	absenteeism/tardiness	5	4	3	2	1
e)	negative student behavior	5	4	3	2	1
f)	visits to the nurse's office (due to headaches, stomach aches, or tiredness)	5	4	3	2	1
g)	student attentiveness to learning	5	4	3	2	1
h)	students coming to school hungry or malnourished	5	4	3	2	1

12. Some schools have reported the following difficulties or barriers in implementing the School Breakfast Program. Please indicate which of the following barriers existed in your school during school year 2001–02. *(please check all that apply)*

1☐ lack of flexibility with bus schedules
2☐ lack of time before the school day
3☐ time taken away from the instructional day
4☐ lack of parent support
5☐ perception that school breakfast is only for free and reduced-price students
6☐ additional supervisory staff needed while students eat breakfast
7☐ additional custodian services needed
8☐ cafeteria space limitations
9☐ students perception that eating school breakfast as not socially acceptable

13. What other barriers to implementation existed at your school?

_____

_____

14. How is student participation in the School Breakfast Program determined at your school?
(please check only one)

1☐ a school-wide policy set by administration/school board only
2☐ a school-wide policy with input from faculty
3☐ individual teachers who decide if their class participates
4☐ no standard set for student participation; it is left up to individual students [75]

15. To what extent do you think the following factors influence students to <u>NOT</u> participate in

the School Breakfast Program? *(please circle one number per line)*

		not an influence				a strong influence
a)	they get to school too late	1	2	3	4	5
b)	they eat breakfast at home	1	2	3	4	5
c)	they don't like the food that is offered	1	2	3	4	5
d)	there is a negative social stigma	1	2	3	4	5
e)	their friends don't eat breakfast at school	1	2	3	4	5

f) other *(please specify)* _____

16. What do you do to promote the School Breakfast Program to <u>students</u> in your school? *(please check all that apply)*

1☐ include information in the classroom newsletter
2☐ include discussions about the breakfast program in health/nutrition lessons
3☐ eat breakfast with my students
4☐ other (*please specify*) _____
5☐ I do nothing to promote the program to students 81

17. What do you do personally to inform parents about the program? *(please check all that apply)*

1☐ include information in the classroom newsletter
2☐ talk to parents at parent/teacher conferences
3☐ other *(please specify)* _____ 86
4☐ I do nothing to inform parents about the program personally

18. Based on feedback you have heard, how satisfied do you think parents are with the School Breakfast Program? *(please check only one)*

1☐ not at all satisfied
2☐ somewhat satisfied
3☐ very satisfied
4☐ I have not heard any feedback from parents regarding the School Breakfast Program 90

19. Any additional comments or concerns regarding the School Breakfast Program:

Thank you for taking the time to complete this questionnaire.

Please return this survey by May 15, in the envelope provided to:

Minnesota Department of Children, Families & Learning
Food and Nutrition Service
1500 Highway 36 West
Roseville, MN 55113-4266

School Breakfast Program
Teacher Survey

1. What grade(s) do you teach?

1☐ first 2☐ second 3☐ third 4☐ fourth 5☐ fifth 6☐ sixth
7☐ other *(please specify)* _____ 30

2. What is the student enrollment in your school?

1☐ under 100 students
2☐ 100 – 249 students
3☐ 250 – 499 students
4☐ 500 – 749 students
5☐ 750 students or more 31

3. How do the majority of your students in your school get to school?
(please check only one)

1☐ bus
2☐ walk
3☐ ride from parent/guardian
4☐ other *(please specify)*_____ 32

4. Is nutrition education included in the elementary curriculum at your school?

1☐ yes 2☐ no 3☐ do not know 33

5. If yes, does the instruction include the benefits of eating breakfast?

1☐ yes 2☐ no 3☐ do not know 34

6. When does your school serve breakfast to students?

1☐ before school starts
2☐ after the start of the school day
3☐ both *(please describe*) _____ 35

7. Where do students eat breakfast at your school?

1☐ in the lunchroom/cafeteria
2☐ in the classroom
3☐ both *(please describe)* _____ 36

8. Who usually supervises students during the breakfast period at your school?
(please check all that apply)

1☐ teacher(s)
2☐ aide
3☐ administrator
4☐ food service personnel
5☐ other (*please specify*) _____ 37

9. What else takes place while students are eating breakfast?
(please check all that apply)

1☐ teachers take attendance
2☐ school and classroom information is announced
3☐ teachers explain the day's schedule
4☐ students have a formal group discussion (example: current events)
5☐ a book is read aloud by a teacher or administrator
6☐ students do homework
7☐ teachers return student assignments
8☐ other *(please specify)* _____ 42

10. Please indicate to what extent the following issues are a priority of your school improvement plan/efforts. *(please circle one number per line)*

		Very much a priority				Not at all a priority
a)	student attendance	5	4	3	2	1
b)	student academic achievement	5	4	3	2	1
c)	positive school climate	5	4	3	2	1
d)	absenteeism/tardiness	5	4	3	2	1
e)	negative student behavior	5	4	3	2	1
f)	visits to the nurse's office (due to headaches, stomach aches, or tiredness)	5	4	3	2	1
g)	students inattentive to learning	5	4	3	2	1
h)	students coming to school hungry or malnourished	5	4	3	2	1

11. How well does the School Breakfast Program succeed in positively contributing to your school improvement efforts in the following areas?
(please circle one number per line)

		excellent				poor
a)	student attendance	5	4	3	2	1
b)	student academic achievement	5	4	3	2	1
c)	positive school climate	5	4	3	2	1
d)	absenteeism/tardiness	5	4	3	2	1
e)	negative student behavior	5	4	3	2	1
f)	visits to the nurse's office (due to headaches, stomach aches, or tiredness)	5	4	3	2	1
g)	student attentiveness to learning	5	4	3	2	1
h)	students coming to school hungry or malnourished	5	4	3	2	1

12. Some schools have reported the following difficulties or barriers in implementing the School Breakfast Program. Please indicate which of the following barriers existed in your school during school year 2001-02. *(please check all that apply)*

1☐ lack of flexibility with bus schedules
2☐ lack of time before the school day
3☐ time taken away from the instructional day
4☐ lack of parent support
5☐ perception that school breakfast is only for free and reduced-price students
6☐ additional supervisory staff needed while students eat breakfast
7☐ additional custodian services needed
8☐ cafeteria space limitations
9☐ students perception that eating school breakfast as not socially acceptable

13. What other barriers to implementation existed at your school?

_____

_____

14. How is student participation in the School Breakfast Program determined at your school? *(please check only one)*

1☐ a school-wide policy set by administration/school board only
2☐ a school-wide policy with input from faculty
3☐ individual teachers who decide if their class participates
4☐ no standard set for student participation; it is left up to individual students [75]

15. To what extent do you think the following factors influence students to <u>NOT</u> participate in the School Breakfast Program? *(please circle one number per line)*

	not an influence				a strong influence
a) they get to school too late	1	2	3	4	5
b) they eat breakfast at home	1	2	3	4	5
c) they don't like the food that is offered	1	2	3	4	5
d) there is a negative social stigma	1	2	3	4	5
e) their friends don't eat breakfast at school	1	2	3	4	5

f) other *(please specify)* _____

16. What do you do to promote the School Breakfast Program to <u>students</u> in your school?
(please check all that apply)

1☐ include information in the classroom newsletter
2☐ include discussions about the breakfast program in health/nutrition lessons
3☐ eat breakfast with my students
4☐ other (*please specify*) _____
5☐ I do nothing to promote the program to students 81

17. What do you do personally to inform parents about the program?
(please check all that apply)

1☐ include information in the classroom newsletter
2☐ talk to parents at parent/teacher conferences
3☐ other *(please specify)* _____ 86
4☐ I do nothing to inform parents about the program personally

18. Based on feedback you have heard, how satisfied do you think parents are with the School Breakfast Program? *(please check only one)*

1☐ not at all satisfied
2☐ somewhat satisfied
3☐ very satisfied
4☐ I have not heard any feedback from parents regarding the School Breakfast Program 90

19. Any additional comments or concerns regarding the School Breakfast Program:

Thank you for taking the time to complete this questionnaire.

Please return this survey by May 15, in the envelope provided to:

Minnesota Department of Children, Families & Learning
Food and Nutrition Service
1500 Highway 36 West
Roseville, MN 55113-4266

50
58
66
76

School Breakfast Program
Principal Survey

Please print or type.

Principal Name _____
Last First Middle Initial
Telephone (____)_____ Fax (____)_____ E-mail _____

Name of person completing survey _____
Last First
Telephone (____)_____ Fax (____)_____ E-Mail _____

This survey pertains to the 2001–02 school year at the school identified on the cover label. Please answer the questions as they apply to this school only.

1. **On average, what time does the last bus arrive in the morning at this school?** ___ : ___ AM [30]

2. **What is the official start-time of the school day?** ___ : ___ AM [34]

3. **Does your school serve breakfast to kindergartners?**
   - 1☐ no
   - 2☐ yes, we serve to all kindergarten classes
   - 3☐ yes, we serve to some kindergarten classes *(please specify)* _____ [38]

4. **Does your school charge any students for breakfast?**
   - 1☐ no
   - 2☐ yes **If yes, which students are charged?** *(please specify)* _____ [39]

5. **In total, how long does the official breakfast period last at your school?**
   - 1☐ less than 10 minutes
   - 2☐ 10-20 minutes
   - 3☐ 20-30 minutes
   - 4☐ more than 30 minutes [40]

6. **Who usually supervises students during the breakfast period at your school?** *(please check all that apply)*
   - 1☐ teacher(s)
   - 2☐ aide
   - 3☐ administrator
   - 4☐ food service personnel
   - 5☐ other (*please specify*) _____ [41]

7. **Is nutrition education included in the elementary curriculum at your school?**
   - 1☐ yes
   - 2☐ no
   - 3☐ do not know [46]

8. If yes, does the instruction include the benefits of eating breakfast?

1☐ yes 2☐ no 3☐ do not know 47

9. What else takes place while students are eating breakfast? *(please check all that apply)*

1☐ teachers take attendance
2☐ school and classroom information is announced
3☐ teachers explain the day's schedule
4☐ students have a formal group discussion (example: current events)
5☐ a book is read aloud by a teacher or administrator
6☐ students do homework
7☐ teachers return student assignments
8☐ other *(please specify)* _____ 48

10. During the breakfast period, what other activities are available in other areas of the school for students who choose not to eat? *(please check all that apply)*

1☐ play outside on playground
2☐ play in gym
3☐ read in library
4☐ go to classroom
5☐ other *(please specify)* _____ 56
6☐ no other activities are available to students during the breakfast period

11. How were <u>teachers</u> formally informed about the School Breakfast Program at your school? *(please check all that apply)*

1☐ announcement at a faculty meeting
2☐ district publication
3☐ school newsletter
4☐ promotional flyer
5☐ other *(please specify)* _____ 62
6☐ no formal information was formally provided

12. How were <u>parents</u> formally informed about the School Breakfast Program at your school? *(please check all that apply)*

1☐ discussed at parent/teacher conferences
2☐ district publication
3☐ school newsletter
4☐ promotional flyer
5☐ other *(please specify)* _____ 68
6☐ no formal information was formally provided

13. How were <u>students</u> formally informed about the School Breakfast Program at your school? *(please check all that apply)*

1☐ announcement by classroom teacher
2☐ school newsletter
3☐ community newspaper
4☐ parent's informed students
5☐ food service personnel made presentations in classes
6☐ posters around the school
7☐ promotional flyer sent home with students
8☐ other *(please specify)* _____ 74
9☐ no formal information was formally provided

14. How is student participation in the School Breakfast Program determined at your school? *(please check only one)*

1☐ a school-wide policy set by administration/school board only
2☐a school-wide policy with input from faculty
3☐individual teachers who decide if their class participates
4☐no standard set for student participation; it is left up to individual students [83]

15. Please indicate to what extent the following issues are a priority of your school improvement plan/efforts. *(please circle one number per line)*

	Very much a priority				Not at all a priority
student attendance	5	4	3	2	1
student academic achievement	5	4	3	2	1
positive school climate	5	4	3	2	1
absenteeism/tardiness	5	4	3	2	1
negative student behavior	5	4	3	2	1
visits to the nurse's office (due to headaches, stomach aches, or tiredness)	5	4	3	2	1
students inattentive to learning	5	4	3	2	1
students coming to school hungry or malnourished	5	4	3	2	1

16. How well does the School Breakfast Program succeed in positively contributing to your school improvement efforts in the following areas? *(please circle one number per line)*

	excellent				poor
student attendance	5	4	3	2	1
student academic achievement	5	4	3	2	1
positive school climate	5	4	3	2	1
absenteeism/tardiness	5	4	3	2	1
negative student behavior	5	4	3	2	1
visits to the nurse's office (due to headaches, stomach aches, or tiredness)	5	4	3	2	1
student attentiveness to learning	5	4	3	2	1
students coming to school hungry or malnourished	5	4	3	2	1

17. Some schools have reported the following difficulties or barriers in implementing the School

Breakfast Program. Please indicate which of the following barriers existed in your school during school year 2001-02. *(please check all that apply)*

1☐ lack of flexibility with bus schedules
2☐ lack of time before the school day
3☐ time taken away from the instructional day
4☐ lack of parent support
5☐ perception that school breakfast is only for free and reduced-price students
6☐ additional supervisory staff needed while students eat breakfast
7☐ additional custodian services needed
8☐ cafeteria space limitations
9☐ students perception that eating school breakfast as not socially acceptable 100

18. What other barriers to implementation existed at your school?

_____

_____

19. If breakfast is/would be served after the start of the school day, what are/could be barriers to implementation? *(please check all that apply)*

1☐ interference with instructional time
2☐ space limitations
3☐ teacher contract issues
4☐ additional cleanup
5☐ other (describe) _____ 109

20. Any additional comments or concerns regarding the School Breakfast Program:

Thank you for taking the time to complete this questionnaire!

Please do not remove the cover page that has a label with the school name. The name of the school is needed for data entry. Only aggregate data will be reported from the study.

Please return this survey by April 30, in the envelope provided to:

Minnesota Department of Children, Families & Learning
Food and Nutrition Service
1500 Highway 36 West
Roseville, MN 55113-4266

84

92

School Breakfast Program
Principal Survey

Please print or type.

Principal Name _____
Last First Middle Initial
Telephone (____)_____Fax(____)_____E-mail _____

Name of person completing survey _____
Last First
Telephone (____)_____Fax (____)_____ E-Mail _____

This survey pertains to the 2001-02 school year at the school identified on the cover label. Please answer the questions as they apply to this school only.

1. **On average, what time does the last bus arrive in the morning at this school?** ___ : ___ AM [30]

2. **What is the official start-time of the school day?** ___ : ___ AM [34]

3. **Does your school serve breakfast to kindergartners?**
   - 1☐ no
   - 2☐ yes, we serve to all kindergarten classes
   - 3☐ yes, we serve to some kindergarten classes *(please specify)* _____ [38]

4. **Does your school charge any students for breakfast?**
   - 1☐ no
   - 2☐ yes **If yes, which students are charged?** *(please specify)* _____ [39]

5. **In total, how long does the official breakfast period last at your school?**
   - 1☐ less than 10 minutes
   - 2☐ 10-20 minutes
   - 3☐ 20-30 minutes
   - 4☐ more than 30 minutes [40]

6. **Who usually supervises students during the breakfast period at your school?** *(please check all that apply)*
   - 1☐ teacher(s)
   - 2☐ aide
   - 3☐ administrator
   - 4☐ food service personnel
   - 5☐ other (*please specify*) _____ [41]

7. Is nutrition education included in the elementary curriculum at your school?

1☐ yes 2☐ no 3☐ do not know 46

8. If yes, does the instruction include the benefits of eating breakfast?

1☐ yes 2☐ no 3☐ do not know 47

9. What else takes place while students are eating breakfast? *(please check all that apply)*

1☐ teachers take attendance
2☐ school and classroom information is announced
3☐ teachers explain the day's schedule
4☐ students have a formal group discussion (example: current events)
5☐ a book is read aloud by a teacher or administrator
6☐ students do homework
7☐ teachers return student assignments
8☐ other *(please specify)* _____ 48

10. During the breakfast period, what other activities are available in other areas of the school for students who choose not to eat? *(please check all that apply)*

1☐ play outside on playground
2☐ play in gym
3☐ read in library
4☐ go to classroom
5☐ other *(please specify)* _____ 56
6☐ no other activities are available to students during the breakfast period

11. How were <u>teachers</u> formally informed about the School Breakfast Program at your school? *(please check all that apply)*

1☐ announcement at a faculty meeting
2☐ district publication
3☐ school newsletter
4☐ promotional flyer
5☐ other *(please specify)* _____ 62
6☐ no formal information was formally provided

12. How were <u>parents</u> formally informed about the School Breakfast Program at your school? *(please check all that apply)*

1☐ discussed at parent/teacher conferences
2☐ district publication
3☐ school newsletter
4☐ promotional flyer
5☐ other *(please specify)* _____ 68
6☐ no formal information was formally provided

13. How were <u>students</u> formally informed about the School Breakfast Program at your school? *(please check all that apply)*

1☐ announcement by classroom teacher
2☐ school newsletter
3☐ community newspaper
4☐ parents informed students
5☐ food service personnel made presentations in classes
6☐ posters around the school
7☐ promotional flyer sent home with students
8☐ other *(please specify)* _____ 74
9☐ no formal information was formally provided

14. How is student participation in the School Breakfast Program determined at your school? *(please check only one)*

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2☐ a school-wide policy with input from faculty
3☐ individual teachers who decide if their class participates
4☐ no standard set for student participation; it is left up to individual students 83

15. Please indicate to what extent the following issues are a priority of your school improvement plan/efforts. *(please circle one number per line)*

		Very much a priority				Not at all a priority
a)	student attendance	5	4	3	2	1
b)	student academic achievement	5	4	3	2	1
c)	positive school climate	5	4	3	2	1
d)	absenteeism/tardiness	5	4	3	2	1
e)	negative student behavior	5	4	3	2	1
f)	visits to the nurse's office (due to headaches, stomach aches, or tiredness)	5	4	3	2	1
g)	students inattentive to learning	5	4	3	2	1
h)	students coming to school hungry or malnourished	5	4	3	2	1

16. How well does the School Breakfast Program succeed in positively contributing to your school improvement efforts in the following areas? *(please circle one number per line)*

		excellent				poor
a)	student attendance	5	4	3	2	1
b)	student academic achievement	5	4	3	2	1
c)	positive school climate	5	4	3	2	1
d)	absenteeism/tardiness	5	4	3	2	1
e)	negative student behavior	5	4	3	2	1
f)	visits to the nurse's office (due to headaches, stomach aches, or tiredness)	5	4	3	2	1
g)	student attentiveness to learning	5	4	3	2	1
h)	students coming to school hungry or malnourished	5	4	3	2	1

17. Some schools have reported the following difficulties or barriers in implementing the School Breakfast Program. Please indicate which of the following barriers existed in your school during school year 2001-02. *(please check all that apply)*

1☐ lack of flexibility with bus schedules
2☐ lack of time before the school day
3☐ time taken away from the instructional day
4☐ lack of parent support
5☐ perception that school breakfast is only for free and reduced-price students
6☐ additional supervisory staff needed while students eat breakfast
7☐ additional custodian services needed
8☐ cafeteria space limitations
9☐ students perception that eating school breakfast as not socially acceptable 100

18. What other barriers to implementation existed at your school?

_____

_____

19. If breakfast is/would be served after the start of the school day, what are/could be barriers to implementation? *(please check all that apply)*

1☐ interference with instructional time
2☐ space limitations
3☐ teacher contract issues
4☐ additional cleanup
5☐ other (describe) _____ 109

20. Any additional comments or concerns regarding the School Breakfast Program:

Thank you for taking the time to complete this questionnaire!

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Roseville, MN 55113-4266

84

92

Appendix E:
Hierarchical Linear Modeling of Individual Student Data

Table E.1 Individual Student Participation Regressed on their Free/Reduced-price Lunch and LEP Status. The Level 2 Intercept was Predicted using Schools' Fastbreak Status.

Fixed Effect	Coefficients	S.E.	T-ratio	Approx. d.f.	p-value
Intercept	0.330	0.032	10.342	39	0.000
Fastbreak Status	0.034	0.056	0.600	39	0.551
Free/Reduced	0.153	0.022	7.055	40	0.000
LEP	-0.066	0.025	-2.670	40	0.011

Table E.2 Individual Student Attendance Regressed on their Free/Reduced-price Lunch, LEP, Special Ed., and Mobility Status. The Level 2 Intercept was Predicted using Schools' Fastbreak Status.

Fixed Effect	Coefficients	S.E.	T-ratio	Approx. d.f.	p-value
Intercept	0.964	0.001	770.953	39	0.000
Fastbreak Status	-0.005	0.004	-1.381	39	0.175
Free/Reduced	-0.009	0.002	-5.562	40	0.000
LEP	0.012	0.003	3.798	40	0.001
Special Ed.	-0.008	0.002	-4.016	40	0.000
Mobility	-0.010	0.003	-3.066	40	0.003

Table E.3 Individual Student 5th Grade Math Scores Regressed on their Free/Reduced-price Lunch, LEP, Special Ed., and Mobility Status. The Level 2 Intercept was Predicted using Schools' Fastbreak Status.

Fixed Effect	Coefficients	S.E.	T-ratio	Approx. d.f.	p-value
Intercept	1484.996	10.104	146.966	39	0.000
Fastbeak Status	-55.252	34.419	-1.605	39	0.116
Free/Reduced	-114.519	9.282	-12.338	40	0.000
LEP	-116.610	15.084	-7.731	40	0.000
Special Ed.	-180.021	12.964	-13.886	40	0.000
Mobility	-73.535	16.941	-4.341	40	0.000

Table E.4 Individual Student 5th Grade Math Scores Regressed on their 3rd Grade Math Scores, Free/Reduced-price Lunch, LEP, Special Ed., and Mobility Status. The Level 2 Intercept was Predicted using Schools' Fastbreak Status.

Fixed Effect	Coefficients	S.E.	T-ratio	Approx. d.f.	p-value
Intercept	1,484.084	5.956	249.185	39	0.000
Fastbeak Status	-12.811	15.895	-.806	39	0.425
MScale3	0.650	0.016	40.908	40	0.000
Free/Reduced	-34.479	4.983	-6.919	40	0.000
LEP	-24.141	11.246	-2.147	40	0.038
Special Ed.	-56.356	10.406	-5.416	40	0.000
Mobility	-34.083	12.798	-2.663	40	0.008

Table E.5 Individual Student 5th Grade Reading Scores Regressed on their Free/Reduced-price Lunch, LEP, and Special Ed. Status. The Level 2 Intercept was Predicted using Schools' Fastbreak Status.

Fixed Effect	Coefficients	S.E.	T-ratio	Approx. d.f.	p-value
Intercept	1,527.774	11.169	136.786	39	0.000
Fastbeak Status	-48.664	15.016	-3.241	39	0.003
Free/Reduced	-136.176	11.899	-11.444	40	0.000
LEP	-160.367	13.019	-12.318	40	0.000
Special Ed.	-198.838	13.617	-14.602	40	0.000

Table E.6 Individual Student 5th Grade Reading Scores Regressed on their 3rd Grade Reading Scores, Free/Reduced-price Lunch, LEP, and Special Ed. Status. The Level 2 Intercept was Predicted using Schools' Fastbreak Status.

Fixed Effect	Coefficients	S.E.	T-ratio	Approx. d.f.	p-value
Intercept	1,525.642	5.036	302.948	39	0.000
Fastbeak Status	-18.912	15.093	-1.253	39	0.218
RScale3	0.824	0.019	43.323	40	0.000
Free/Reduced	-26.806	6.251	-4.288	40	0.000
LEP	-36.225	9.016	-4.018	40	0.000
Special Ed.	-32.317	8.412	-3.842	40	0.000