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TEACHING AND LEARNING RESEARCH EXCHANGE

Herchmer Community School "Learning for All" Pilot Project

Action Research Report

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Introduction and School Background

The Purpose of the Study

Through a Successful Schools Project at Herchmer Community School, the staff became concerned about the academic achievement level of many of the school's at-risk students. As a result, the Learning Committee was formed to investigate effective approaches for increasing student achievement in the basic areas of language arts and mathematics.

The Learning Committee investigated alternative teaching and learning approaches and resources which teachers could use to help increase student achievement. A pilot project entitled "Learning for All" was initiated to study innovative strategies for instruction that would better suit the learning styles of the student population.

The purpose of the study was to examine whether or not the school-wide use of block scheduling of language arts and mathematics instruction would improve student achievement. The study also investigated whether or not instruction would improve if staff collaboration was increased through school teams to facilitate assessment, planning, and program delivery. The grouping of students on the basis of learning strengths and styles was another important component of the study.

The findings of this project may have far-reaching implications for the direction of education for at-risk students living in poverty.

School Background

Herchmer School was officially designated a Community School by Saskatchewan Education on September 1, 1981. This designation allowed for the hiring of a community coordinator and teacher associates through the use of an annual community school budget. In 1990, a nutrition worker was hired and a universal breakfast/snack program for all students was established. Since that time, the program has been refined by the provision of better kitchen facilities, which allows for the preparation of more nutritious snacks. To personalize this service and to encourage children to participate, the school instituted the practice of teachers eating the snacks provided alongside the children. Teachers are expected to set a good example for their students by eating the food provided, not picking and choosing favorite foods to the exclusion of others!

A pre-kindergarten was established in 1997 and a teacher and teacher associate were hired to coordinate and deliver the program. In 2002, a one-time grant from the Human Resources Development Corporation (HRDC) made it possible to institute a Family Literacy Project to support the children enrolled in the pre-kindergarten and kindergarten. With the aim of providing opportunities to promote family literacy, monthly family fun days were organized where parents participated in making learning materials to take home and use with their children to reinforce learning. In addition, monthly family trips to the library were arranged. Story time was provided, and both children and parents were encouraged

to sign out books. The grant also allowed the school to provide reading resources for all families in the community.

In the past school year, 240 students were enrolled in Herchmer Community School from Pre-Kindergarten to Grade 8. The students ranged in age from three to fourteen years. Of the students enrolled, 71% were of Aboriginal ancestry.

The school teaching staff included a principal, eleven classroom teachers, and four teacher associates, all employed on a full-time basis. Other staff, such as the vice-principal, teacher librarian, learning assistance teacher, speech language pathologist, and school counselor, had part-time assignments. The staff complement included four teachers and three teacher associates of Aboriginal ancestry.

The school is located in an inner city neighbourhood in Regina, Saskatchewan. Although there are exceptions, most students come from a low socio-economic background. Many families live in poverty and are dependent on social assistance. In addition, drugs, gangs, crime, and violence are no strangers to the neighbourhood. These conditions and their consequences are part of the background students bring to school. The negative effects of such an environment do not stop at the school door, and provide great challenges for the school staff striving to develop and cultivate the innate abilities that all children possess.

Risk Factors

In 2002, the school staff participated in two in-services that gave insights into providing successful educational opportunities for children in inner city neighbourhoods. One in-service focused on children at risk, while the other dealt with teaching children who live in poverty.

Risk factors refer to conditions and experiences that negatively affect a student's chance for academic success in school. As a result of the in-service sessions, the school staff identified thirteen risk factors that could affect their students. An inventory was developed to explore the impact that these risk factors had upon the student population. Students were then assessed individually by their classroom teachers based on teacher observations, school records, and, in some instances, information provided by parents.

When analyzed on the school basis, the data compiled revealed that several factors were perceived to have an impact on a significant portion of the student body. Fifty per cent of the students were identified as functioning below grade level, and 47.3% were seen as having learning difficulties. Inappropriate student behavior (38.8%) and poor attendance and lateness (37.2%) were additional contributing negative factors adversely affecting student opportunity to learn. Instability in the home was identified as a serious risk factor for 47.8% of the students.

The school was also seen as not adequately providing for student needs in some instances. While 26.5% of the students received the services of the learning assistance teacher, another 36.7% were seen as in need of this assistance. Another issue identified was in the area of special needs, where 22.3% of the

students were identified as needing hearing, speech, or language support that was not forthcoming at this time.

The results presented for students with ADHD (Attention Deficit Hyperactive Disorder) and FAS/FAE (Fetal Alcohol Syndrome/Fetal Alcohol Effects) requires further explanation. Inventory results indicated that 1.6% of the students (four in total) were clinically diagnosed with ADHD and 4.8% (twelve students) were disclosed by their parents as being FAS/FAE. There is good evidence that these risk factors are under-reported. In both cases, parental cooperation is required for identification. Many parents do not wish to have their children clinically assessed for ADHD. Also many parents are reluctant to disclose that alcohol may have been used in excess during pregnancy. In addition, there appears to be a reluctance on the part of Regina medical clinics to make a FAS/FAE diagnosis without this disclosure.

The school staff is in the position to observe accurately student behavior characteristic of both conditions. Their comments suggest that 10 –15% of the students exhibit behavior associated with ADHD, while around 10% of the students show characteristics typical of children with FAS/FAE.

All results from the Risk Factor Inventory are presented in Chart 1 on the following page.

Transient School Population

Student withdrawals and new students enrolling characterized the student attendance profile for Herchmer Community School. As data analysis revealed, this "turnstile" effect compromised the stability of the student population, and presented another major challenge to the instructional process.

When school opened in 2002, 32 new students were initially enrolled. Over the school year, another 54 students arrived. These numbers reflect a change in school enrollment of 35.8% as the result of the arrival of students new to the school.

However, student withdrawals were also significant. Over the school year, 96 students ceased attending Herchmer School. This represents a 40% change in the student body.

Chart 2 presents a comparison on the monthly basis of student arrivals and withdrawals.

As the chart indicates, the composition of the school population changed month to month throughout the school year. Often students disappeared from the school register without any indication as to their destination school. Often students arrived with very little documentation regarding grade placement and other pertinent student information. In some instances, following up on new arrivals for school records from the sending school was a slow and difficult process. In many instances, there were gaps in attendance during the relocation process.

Student transience, coupled with poor attendance records, deprives the students involved of valuable contact time with the school learning environment and minimizes student opportunity for success. In designing an instructional program to increase academic achievement, the staff had to focus on making the most out of the time students were present in the classroom.

CHART 1: HERCHMER COMMUNITY SCHOOL
RISK FACTORS INVENTORY 2002-2003
PERCENTAGE OF K TO 8 STUDENTS IDENTIFIED IN EACH CATEGORY
N = 213

	Risk Factor	% Student Body
1.	Student has learning difficulties	47.3
2.	Student works with Learning Assistance Teacher	26.5
3.	Needs LAT time, but not enough time allotted	36.7
4.	Student behavior affects learning	38.8
5.	Student functions below grade level	50.0
6.	Student is clinically diagnosed ADHD*	1.6
7.	Parents disclosed student may be FAS/FAE**	4.8
8.	There is instability in student's home	47.8
9.	Student returned to regular classroom from Structured Learning Classroom (SLC)	1.0
10.	Attendance/lateness is an issue	37.3
11.	Student joined us during school year	18.0
12.	We have requested more psychological testing	9.6
13.	Special needs–hearing, speech and language	22.3

* ADHD - Attention Deficit Hyperactivity Disorder

** FAS/FAE - Fetal Alcohol Syndrome/Fetal Alcohol Effects

CHART 2: HERCHMER COMMUNITY SCHOOL
IN/OUT STUDENT COMPARISON ON THE MONTHLY BASIS
SCHOOL YEAR 2002-2003

	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	
Students In	32	15	7	4	1	1	4	7	7	8	0	(86)
Students Out	13	22	3	18	6	8	4	6	8	2	6	(96)
Net Gain/Loss	19	-7	4	-14	-5	-7	0	1	-1	6	-6	

Review of the Literature

In order to focus more clearly on those aspects of school restructuring that could be pertinent to the staff's desire and intention to improve student achievement in a Community School, the planning committee conducted a review of pertinent literature and related research. Selected information was then shared with the remainder of the staff and the school administration.

This review included an examination of what the literature has to say about block scheduling of basic skill subjects. As well, since team planning and team meetings were seen as integral parts of the process, the literature was examined for findings about successful staff collaboration and workable ways of providing for the team meetings necessary for planning and reflection.

In addition, since a research approach was required, this review examined what the literature had to say about the suitability of action research as the methodological approach for this study.

Block Scheduling, Instructional Teams, and Teacher Collaboration

The literature suggests that to improve student learning, schools will need structures and schedules that provide time for complex teaching and long-term relationships, conditions that give serious, ongoing assistance to the learner. While resetting the bells in an elementary school will not necessarily increase student achievement, Canady (2001) holds that the school schedule can be a major factor in determining how successfully teachers work with students between the bells. He asserts that elementary principals and their teaching staffs must focus on three major issues related to scheduling: providing quality time for teaching and learning, dealing with class size, and providing varying time for students who learn at different rates.

Creating context for powerful learning requires rethinking the school organization and how the time of teachers is used in schools. According to Hammond (1999), the following strategies hold promise:

- Approaches that reduce teacher isolation and allow teachers to work in teams, sharing planning time, and pursue connected agenda based on a set of common curriculum goals. Such approaches provide naturally occurring opportunities for daily learning among colleagues.
- Organizational changes that reduce fragmentation in teaching and other school services. These changes support the stronger relationships and deeper knowledge of learners that are essential to serious learning.
- Strategies that use time more productively by creating longer blocks of instructional time, which makes it possible to reduce teaching loads while increasing planning and learning time;

- Long-run strategies that direct resources toward knowledgeable teachers as the central investment of the school.

Block Scheduling as the Organizational Basis for Instruction

Block scheduling presents a way of structuring how time is used within a school day to facilitate instruction and reduce the student-teacher ratio during designated time periods. It also gives classroom teachers blocks of uninterrupted time to provide critical instruction.

Hopkins and Canady (1997) suggest that block scheduling makes it possible to provide, enhance, and improve efficient instruction for all students in large and small groups throughout the school year. As well, within the flexibility of block scheduling is the potential to create greater opportunities for teachers to collaborate in planning and exchanging ideas to provide stronger and more focused programs. Team teaching is often used in conjunction with block scheduling (Delany, Toburen, Hooton and Dozier, 1998).

Hopkins and Canady (1997) point to the success in elementary schools that have implemented the principles of block scheduling. They list the following results:

- Smaller class size during critical instructional periods in reading and mathematics;
- Less reliance on strict ability groupings;
- Less fragmentation of the school day due to better integration of support programs such as special education;
- More efficient and effective use of instructional staff;
- Significantly higher student engagement rates in learning activities;
- Increased test scores.

Delany, Toburen, Hooton, and Dozier (1998) reported similar results concerning block scheduling implementation in elementary schools in Georgia. Over a two year period, standardized reading and mathematics test scores rose significantly. In addition, teachers observed more on-task behavior and a reduction in the number and severity of student behavior problems. One school saw a 50% reduction in special education referrals. Delany, Toburen, Hooton, and Dozier also found evidence that block scheduling programs resulted in more individualized reading instruction and greater opportunities for community volunteers to work with mini-classes.

The issue of class size has been a matter of discussion and research for several decades. Indeed, a body of research has shown the benefits of a class size of 15 students (to one teacher), particularly in the primary grades. Predictably, advocating wholesale reduction of elementary class size would face considerable political controversy because of the cost implications. However, Canady and Rettig (2001) argue that student achievement, not homeroom class size, should be the issue of concern. Based on this notion, they suggest that the benefits of smaller classes can be achieved through block scheduling and varying the size of instructional groups on the basis of what is being taught and to whom.

INSTRUCTIONAL TEAMS AND COLLABORATION

As Jenkins, Queen, and Algozzine (2002) point out, block scheduling in itself is only one element of the restructuring process. It is evident in the literature that successful block scheduling programs at the elementary school level include considerable emphasis on instructional teams and collaboration among teachers and administrators. While the structure and role of instructional teams varied according to school program, planning, assessing, sharing, and reflecting were central activities.

Teaching is generally regarded as an "isolated" profession. Traditionally, most teachers plan, teach, and reflect upon their teaching by themselves. Implementation of instructional teams and collaborative approaches requires that teachers and administrators rethink the "teachers individually in their closed-door classrooms" model that is the norm in most elementary schools. Movement from one teacher/one classroom to team teaching is a major element of the school organizational and curriculum reform that is now strongly advocated in the literature. However, as Bergen (1994) points out, building the team approach is not an easy task. Team teaching requires major changes in professional attitudes and skill levels, as well as a building of trust among professionals who have traditionally controlled what happened in their own classroom and ignored what was happening in other classrooms.

The first essential ingredient for effective teamwork is that team members agree on their common mission and on their commitment to work together to reach team goals. In teaming, open communication is crucial and conscious efforts to build trust are often necessary. Knowing the part each team member is to play in team-lead instruction is vitally important to ensure that all team members can be productively involved. It should be emphasized that school administrators need to be part of the team building activities as well. Administrators' knowledge of what teams need to be effective will be enhanced by their involvement; therefore, their support for the team will be based on firsthand knowledge.

It has long been established that given a problem-solving task that is new to all concerned, some groups accomplish a great deal more than others. Although a variety of explanations may be given as to why this is so, Rosenholtz (1989) advanced the notion that when collaborative norms under-gird achievement-oriented groups, they bring new ideas, fresh ways of looking at things, and a stock of collective knowledge that is more fruitful than one person working alone. Team teaching, an organizational arrangement in which two or more teachers share responsibility for the instruction of a particular group of students, may also influence the extent of their helping behavior. Team teaching has been found to be a vehicle for greater instructional interaction, as teachers discuss each other's ideas about students, grouping arrangements, the curriculum, and classroom management. Unlike isolated settings, work arrangements and communications in team teaching related directly to the nature of instruction: teachers held greater decision-making rights, collaborated more with principals about those decisions, and markedly increased their own exchange of advice and assistance.

It must be emphasized that teacher willingness to work together in solving instructional problems is not a "given" in all school situations. According to Rosenholtz (1989), teachers, who are armed with a greater sense of certainty about instructional competence, a shared sense of school purpose, and the trust and value accorded them by principals, are more likely to share their expertise with others and seek out their advice.

Teacher Collaboration and Team Meetings

The major challenge facing the establishment of a collaborative school environment is one of time: time for joint planning and reflection. Teachers need time to discuss and reflect upon teaching with other professionals. There are many areas for discussion and reflection: classroom management, lesson effectiveness, application of theory, and personal reactions (Fuchs and Moore, 1988).

Rosenholtz (1989) identifies "teacher collaboration" as one of the supporting pillars of school effectiveness at the elementary school level. Tallman and van Dusen (1994) emphasize the need for structured planning time for teachers if collaboration is to be successful and benefit instruction and student learning. Furthermore, teachers who planned as a team benefited the most from consultation. If the benefit of block scheduling is to be maximized, scheduled planning time for the instructional teams appears to be, not only a desirable feature, but a very necessary component.

According to Boles and Troen (1992), team teaching is a revitalizing process and schools should take a close look at the steps necessary for implementation. They found that team teaching eliminated the teacher isolation that they saw as a serious issue in the improvement of instruction and student achievement. In their observations, they found that teachers took risks with the curriculum and felt accountable to other team members. Lessons were livelier; teacher excitement was contagious; parents and their children were more enthusiastic about school.

Action Research as a Means of Investigation

Schools, by their very nature, generally provide a "contaminated" and complex research environment. That is, it is often difficult to account for all of the variables that may come into play and possibly influence the outcomes in a research study. Even if it were possible to account for all factors that may come into play, controlling for a complexity of variables, while manipulating others, is a formidable task.

Conventional research has developed certain principles to guide its conduct. These principles are appropriate for certain types of research, but they can limit and actually inhibit effective change processes. On the other hand, what has become known as "action research" consists of a family of research approaches which focuses on both action and research outcomes at the same time. Therefore, it has some components that resemble the work of consultative or change agencies, and some which resemble field research (Dick, 1993).

Action research tends to be:

- **Cyclic** (similar steps tend to recur in similar sequence);
- **Participative** (the subjects are involved as partners in the research process);
- **Qualitative** (it deals more with language than with numbers); and
- **Reflective** (critical reflection upon the process and outcomes are important parts of each cycle).

To achieve action, action research must be responsive in order to respond to the emerging needs of the situation. This requires action research to be flexible in a way that some research methods cannot be (Dick, 1993).

McNiff (1996) suggested that action research is a real-world way of evaluating educational practices. It encourages educational practitioners to take control of their own work and to understand it better through the process of self-reflection. Adopting an action research approach will help them to clarify their ideas and apply them in a more conscious way. Through this process, teachers can improve what they are doing and provide a better service for people they are supporting.

Action research provides teachers with a systematic process to reflect, consider options, implement and evaluate potential solutions. According to Schmuck (1997), action research is valuable as a form of inquiry because it is

- **Practical** (practical improvements are the focus);
- **Participative** (teachers, administrators, teacher assistants, students and parents can all be involved in meaningful ways);
- **Empowering** (all participants can contribute to and benefit from the process);
- **Interpretive** (meaning is constructed using participants' multiple realities in the situation);
- **Tentative** (there are not always right or wrong answers; rather, there are possible solutions based on multiple viewpoints); and
- **Critical** (participants look critically at specific problems and act as self-critical change agents).

For the above reasons, action research was selected as the preferred method of investigation in the Herchmer Project.

Methodology

The Action Research Questions

Basically two major questions were examined in this action research study.

The first question asked if school wide use of block scheduling of language arts and mathematics would improve student achievement in these basic areas.

The second question investigated whether or not increased staff collaboration through school teams to facilitate assessment, planning, and program delivery would improve the quality of instruction.

Collection of Data

The first question was primarily ***quantitative*** in nature. Comparison of student pre- and post- test results in both language arts and in mathematics was the basis for answering this question.

The second question was primarily ***qualitative*** in nature. Teacher comments and observations were collected on a structured open-ended teacher questionnaire that focused on teacher response to block scheduling, team teaching, team meetings and teacher collaboration. Teachers were also asked for their perceptions of students' response to the program. These data were examined against the backdrop of what the research and literature has to say about the role of teacher collaboration in the improvement of instruction.

Organization of Homeroom Classrooms

In the school year 2002-2003, there were two half-day groups for Pre-Kindergarten students and for Kindergarten students. Grade 1 to 8 students were organized into nine classrooms. Those homerooms were as follows:

- A Grade 1 Classroom,
- A Grade 2 Classroom,
- A mixed Grade 1 and 2 Classroom,
- Two mixed Grade 3 and 4 Classrooms,
- A mixed Grade 3, 4, and 5 Classroom,
- A mixed Grade 5 and 6 Classroom,
- A mixed Grade 6 and 7 Classroom,
- A mixed Grade 7 and 8 Classroom.

A homeroom teacher was responsible for each of the nine classrooms.

Block Scheduling Organization and Format

As identified in the literature, block scheduling is a way of structuring how time is used within a school day to facilitate instruction and reduce the student-teacher ratio during designated time periods. It also gives classroom teachers blocks of uninterrupted time to provide critical instruction.

In Herchmer Community School, the master timetable was designed to allow for blocks of designated classrooms (at the primary, intermediate and senior levels) to be scheduled for language arts and mathematics for an hour period each day of the timetable during the same time period. Block scheduling was given priority status, and other subjects and programs were planned around the language arts and mathematics programs. Assemblies, visitations, and school events were not scheduled during block scheduling periods.

The school was organized into four teams for instruction. With the exception of Team 1, students were placed in instructional groups based on language arts grade scores and mathematics grade scores as determined in preliminary testing.

Team 1

Team 1 consisted of the students in Pre-Kindergarten and Kindergarten classrooms. There were both morning and afternoon programs.

- Two full-time teachers and the speech pathologist were assigned to this team. The speech pathologist worked three hours a week with students in both the morning and afternoon programs.
- These students did not participate in the study as such, but the teachers were teamed for planning and instruction and were provided with scheduled team meeting time.
- This program focused on the Family Literacy Project, as described earlier, speech, and screening of sight and hearing difficulties.

Teams 2, 3, and 4

- **Team 2** consisted of students from the Grade 1, Grade 2, and Grade 1 and 2 classrooms.
- **Team 3** consisted of the students from the two Grade 3 and 4 classrooms and the Grade 3, 4, and 5 classroom.
- **Team 4** consisted of the students from the Grade 5 and 6 classroom, the Grade 6 and 7 classroom, and the Grade 7 and 8 classroom.
- Within their teams, students were assigned to one of four instructional groups based on their initial language arts and mathematics grade level scores. Grade placement was not a factor in the instructional group assignment. That is, an instructional group could have students from two or more grades assigned to it.

- Four teachers were assigned to each of teams 2, 3, and 4 – the three homeroom teachers and a Language Assistance Teacher and/or a combination of Teacher Librarian, Itinerant and Speech and Language Pathologist. In total, 14 teachers were involved with the students from nine classrooms.
- The groups varied in size based on the language arts or mathematics achievement levels of the students assigned. Students needing the most remedial instruction were in the smallest group.
- Language arts for teams 2 and 3 was scheduled for a one-hour block each morning, while mathematics was scheduled for a one-hour block each afternoon.
- For team 4, both language arts and mathematics were scheduled for all four instructional groups for one-hour blocks each morning.

Selection of Students for Groups

All students enrolled in Grade 1 to 8 were tested in language arts and mathematics early in the first term to establish baseline data. The Word Recognition Skills Test (Grades 1-2), BADER Reading and Language Inventory, 1983 (Grades 3-8), and the BADER Arithmetic Test, 1983 (Grades 1-8) were administered to establish the entry grade level for each student. These instruments would be used to retest at specific intervals to measure student progress during the school year.

Student results in these tests were used to decide initial team group placement for instruction.

Students who arrived during the school year were tested soon after enrollment and then placed in groups based on the initial test results.

For the purpose of the study, student pre-test scores in language arts and in mathematics and their post-test scores would be compared to measure student academic growth.

Provision of Scheduled Team Meetings

The literature suggests that block scheduling created greater opportunities for teachers to collaborate in planning and exchanging ideas to promote stronger and more focused instructional programs. In order to facilitate and formalize an opportunity for collaboration, team meetings were scheduled to provide time for teachers to plan together, to discuss instructional materials and teaching strategies, and to share ideas, experiences, and insights.

The school was organized on the basis of a five-day timetable. Each team had a team meeting scheduled on the afternoon of alternate Day 5's. For example Team 1 and Team 2 would meet this Day 5, while Team 3 and Team 4 would meet on the next Day 5. These team meetings would be scheduled for one hour between 1:15 to 2:15 P.M. and 2:30 to 3:30 P.M.

The teachers involved would be released from classroom responsibilities during the scheduled team meeting time. Alternative programming was provided for the students normally assigned to the teachers involved in the team meeting. The itinerant teacher and three teacher associates provided a program of cultural activities to the classrooms normally involved with the team teachers.

On those weeks when no Day 5 time was provided, team members met for a scheduled team meeting on their own time, generally before class in the morning or at noon hour.

Provision of team meeting time was in addition to scheduled teacher preparation time.

Results and Conclusions

Student Achievement in Language Arts and Mathematics

In this summary of student achievement, scores are reported on a team basis and reflect student growth over the year as measured from baseline data collected in September, 2002, or at the time a student entered the school. No comparisons are made on the basis of grade level placement of the students.

Language Arts Findings

Team 2 Results (Grades 1, 2, and 1&2)

September 2002:

- Of 42 students in total, 7 students were at the readiness level and 24 were at the beginner level language arts.
- All of the remaining 11 students scored at the Grade 1 level. The range of scores was from readiness to Grade 1.

June 2003:

- Of the remaining 41 students tested in June, the mean average language arts level was grade 1.84.
- The range of scores was beginner 5 to Grade 3.
- Twelve students improved by two or more grades, while 25 students improved between 1 and 1.9 language arts grade levels. This growth constitutes 90% of the students in team 2.
- While four students were still at the beginner level, they were at the latter stage of this level.

Team 3 Results (Grades 3&4, 3&4, and 3, 4,&5)

September 2002:

- Of 55 students in total, 17 students tested at the beginner level in language arts.
- Of the remaining 38 students, the mean average language arts level was grade 2.87. Scores ranged from beginning level to Grade 5.

June 2003:

- Of the 55 students tested in June, three were still at a beginning level. The remaining 14 students who tested at the beginning level showed 1 to 3 years growth in language arts.
- The mean average grade level was 4.29.
- The average gain per student was 1.42 grade levels.
- The range of scores was beginner level to Grade 8.
- Forty students (73%) of the students improved by two or more grades. Of this total, 15 students demonstrated three years of growth, three students demonstrated four years of growth, and one student demonstrated five years of growth.
- One student regressed below the entry level in September.

TEAM 4 RESULTS (GRADES 5&6, 6&7 AND 7&8)

September 2002:

- Of 71 students in total, eight students were at the beginner levels in language arts.
- Of the remaining 63 students, the mean average level was grade 3.9. Scores ranged from beginning level to Grade 7.

June 2003:

- Of the remaining 66 students tested in June, the mean average language arts level was grade 6.21.
- The average gain per student was 2.31 grade levels.
- The range of scores was Grade 4 to Grade 10.
- Thirty-nine students (60% of the student group) improved by more than two grade levels.
- No students regressed below the September entry grade level.
- Of particular note were the eight students at the beginner level in September, 2002. The range of growth was from 4 to 6 years. Five students scored at the Grade 6 level, two at the Grade 5 level and one at the Grade 4 level.

LANGUAGE ARTS ANALYSIS AND INTERPRETATION

Examination of the findings revealed that all three teams showed strong growth in language arts over the school term. While the program provided the necessary remedial instruction, it is evident enrichment occurred as well. Not only did the mean average language arts scores increase noticeably, the wider range of individual scores suggested that the program was of benefit to students of varying skill levels.

The positive results in Team 2 predict a brighter future for these Grade 1 & 2 students than that experienced by their predecessors. Although no definitive comparisons were made on the student grade level basis, it is reasonable to suggest that many more of these students are at grade level or better than in past years. This gives them a good start in their school career and an increased chance of success over the long run.

If one looks at the pattern shown by the September 2002 initial testing, it is evident that students were falling farther behind grade level the longer they were in school. This may not have been the case had these students had the benefit of the present block scheduling program over their past school years.

However, there was a silver lining for the older grades found in the results of this program. Examination of Team 3 and Team 4's results showed that the intervention provided by this program literally turned around the pattern demonstrated by the September 2002 student scores. In Team 3 (Grades 3&4, 3&4, and 3, 4&5), it was noted that 73% of the students improved by at least two or more grade levels, and the mean grade level increased from 2.87 to 4.29. Data for Team 4 (Grades 5&6, 6&7 and 7&8) showed some remarkable findings. It is instructive to draw attention to the regrettable fact that eight students scored at the beginner level in September 2002. However, these students made remarkable progress in that five students scored at the Grade 6 level, two at the Grade 5 level, and one at the Grade 4 level.

Given the above findings and analysis, it is reasonable to conclude that the block scheduling program designed for this community school functioned very well in the area of language arts in its first year of operation.

MATHEMATICS FINDINGS

TEAM 2 RESULTS (GRADES 1, 2 AND 1&2)

September 2002:
- Of 43 students in total, the mean average mathematics grade level was 1.89.
- Scores ranged from Grade 1 to Grade 3 with 10 students scoring at the Grade 1 entry level.

June 2003:
- Of 46 students tested in June, the mean average mathematics grade level was 2.92.
- The average gain per student was 1.03 grade levels.
- The range of scores was from grade 2 to grade 4.3.
- Thirty-one students (67% of the student group) gained one year or more. Of this total, 16 students improved by two or more grade levels.
- Twelve students made gains of less than one grade level in mathematics, while three students regressed below their September entry grade level.

TEAM 3 RESULTS (GRADE 3&4, 3&4 AND 3, 4&5)

September 2002:
- Of 55 students in total, the mean average grade level was 3.04.
- The range of scores was from grade 1.5 to grade 4.3.

June 2003:
- Of the 55 students tested in June, the mean average grade score was 4.22.
- The average gain per student was 1.18 grade levels.
- The range of scores was from grade 2.4 to grade 6.3.
- Thirty-two students (58% of the student group) gained one year or more. Of this total, 14 students improved by two or more grade levels.
- Eighteen students made gains of less than one grade in mathematics, while five students regressed below their September entry level.

TEAM 4 RESULTS (GRADES 5&6, 6&7 AND 7&8)

September 2002:
- Of 68 students in total, the mean average grade score was 4.74.
- The range of scores was from grade 2.5 to grade 7.0.

June 2003:
- Of the 60 students tested in June, the mean average score was 5.51.
- The average gain per student was .77 grade levels.
- The range of scores was from grade 3.8 to grade 10.0.
- Twenty-six students (43%) gained one or more years. Of this total, four students improved by two or more years.
- Twenty-three students made gains of less than one year in mathematics, while 11 students regressed below their September entry level. Two of these students regressed one year or more.

MATHEMATICS ANALYSIS AND INTERPRETATION

Examination of the findings for Team 2 (Grades 1, 2, and 1&2) revealed strong growth in mathematics over the school term. It should be noted that the mean average grade level was 2.92. This approximated the expected grade level score for students at the end of Grade 2 and an above average grade level score for students in Grade 1.

However, some anomalies appeared to exist in the distribution of student scores. While 16 students improved in mathematics by two or more grade levels, 12 students made gains of less than one year, and three students regressed. These data suggested that there were basically two clusters of students where one group appeared to do very well and the other did not.

A similar set of results were found for Team 3 (Grades 3&4, 3&4 & 3,4&5). The mean average grade score (4.22) and the average gain per student (1.18) suggested good progress over the year. Once again, however, the data revealed two clusters of students: 14 students who improved by two or more grade levels and 18 students who improved by less than one grade level in mathematics. Five students regressed below their September entry level.

Examination of the findings for Team 4 (Grades 5&6, 6&7 and 7&8) revealed a mean average grade score of 5.51 and an average gain per student of .77 grade levels. Only 26 students (43%) gained one or more years, only four of these students gained two or more years. Eleven students regressed below the September 2002 entry level.

The mathematics results, particularly at the Team 4 level, do not present the clear picture of growth as found in language arts. Several explanations may be possible.

There was staff concern expressed about the validity of the BADER ARITHMETIC TEST. At the primary level, grade level performance was determined by a very limited set of questions. One error could determine a grade level assignment. The scope of the test was narrow and problematic at the senior level. In Middle Years Curricula, many notions are introduced that conceptually do not rely on mastery of basic mathematical skills. This test focused fundamentally on those skills.

It was also possible that staff energy and priorities were more focused in the area of language arts where growth is more incremental and sequential. As well, it may have been too ambitious to focus on two basic skills areas for the purpose of this study. Finally, in the absence of data from previous years, there was no real basis for determining student achievement against a background of the past results.

These results do provide information vital in planning follow-up strategies and programs in the area of mathematics.

Summary, Analysis and Interpretation of Teacher Questionnaire Data

The survey completed by teachers during June 2003 was entitled *Herchmer School Stirling McDowell Grant Project Teacher Survey.* The survey was constructed by members of the school staff and focused on the format of the program. Five broad questions were constructed. Some questions had several parts. Teacher responses for each question and its parts, if applicable, were collated by an independent writer commissioned by the school administration. These data were then summarized in terms of "recurring themes" for each question and its sub parts. Analysis and interpretation followed, using a format referenced on research findings about block scheduling and Rosencrantz's (1989) analysis of the role of teacher collaboration in effective schools.

For the purpose of this summary, the teacher responses were divided into two parts. The first part included those questionnaire items that focused on the block scheduling program and its successes. The following items were included in part one:

- Teacher feedback on block scheduling, team approach to teaching, and regular team meetings;
- Teacher comments on the successes of the program with (a) students, (b) teachers and (c) community; and
- Teacher comments on areas of concern and how these concerns could be addressed.

In part two, a summary of teacher observations on student response to the program was presented.

Analysis and interpretation will follow each of the above designated parts.

Summary of Teacher Questionnaire Data (Part One)

Teacher Feedback on Block Scheduling, Team Approach to Teaching and Team Meetings.

Block Scheduling: Block scheduling was viewed by the staff as working very well. Very positive descriptors like "yes!", "great!", "super!" and "I loved it!" were found among the teacher responses. As a group, teachers appeared to like the longer periods for basic skills teaching and their scheduling at the same time each day. Both teachers and staff were seen as benefiting from this consistency and routine. This perception was summarized by one staff member's observation that kids and teachers work well when routine is in place. Another commented that students looked forward to coming to groups. As well, making mathematics and language arts a timetable priority helped the scheduling of other events, assemblies, and visits by guests.

There were several comments about block scheduling keeping teachers on track and guaranteeing that instructional time was used for the purpose intended. This was seen as a strong and positive component of block scheduling. One staff member commented that it (block scheduling) built structure into their lives where sometimes

there is confusion. Another staff member suggested that teachers felt the onus to make sure they were teaching the area that they were supposed to!

Team Approach to Teaching: The vast majority of staff comments indicated a strong preference for the team approach. As one staff member commented, "Given the diverse needs of students in each classroom, it makes sense to plan together!" Another suggested that it is easier to plan when you have other people to bounce your ideas off. Others commented about the team approach fitting the student needs very well and about four heads being better than one!

A recurring theme in staff comments centered on "sharing". One staff member commented that successes and concerns are not normally shared with other practitioners. Now they do it openly and regularly with team members. Sharing was seen as fostering encouragement and a sense of comradeship. Staff appeared to value the sharing of ideas and resources. Staff also referred to the advantages of sharing comments about student behavior and abilities as they related to instruction. A few staff felt that there could have been even more sharing. In summary, the staff saw themselves as learning from each other.

Regular Team Meetings: There was virtually staff consensus that team meetings were necessary and beneficial. Some staff members commented that the team meetings were essential in keeping them on track and helped people new to the grade level. Others saw team meetings as a time for feedback, for sharing experiences, ideas, and feelings and for planning – an excellent opportunity to touch base and to communicate. One staff member observed that it was much superior to meet with the team all together rather than through memos or individually. The meetings made sure they were all on the same page.

The staff valued the alternate Day 5 team meetings. Some commented that they needed to make sure they got the full hour scheduled. Others felt a need for more organization, focus and goal orientation in some team meetings.

Teacher Feedback on the Successes of the Program with Students, Teachers and Community

Successes of the Program with Students: The major recurring theme in staff comments focused on the observation that the majority of the students demonstrated significant growth in the areas of language arts and mathematics. Another recurring theme showed a perception that students were comfortable in their groups because they were working at their skill level with peers who were similar to them in need. Consistency of groups was seen as encouraging sense of belonging, rapport and trust. Staff viewed students as increasing in self-confidence and as showing pride in their accomplishments, no matter what level they were at.

Students were seen as benefiting from variation in size of learning groups. Students received more individual attention and instruction was at their instructional level. Also, additional reinforcement activities were seen as available.

In summation, the staff saw the program as having very positive effects on students both academically and socially.

Successes of the Program with Staff: The recurring theme in staff comments focused on collegiality, team planning, opportunities to share and support from peers. The staff team approach was seen as a success. Several staff members observed that there was good communication between staff working with groups.

Team meetings provided a venue for sharing and planning and an opportunity to become a team player. One staff member commented that teachers had an opportunity to learn the group skills that they expected students to learn and use!

Some staff members reflected that the team members got to know each other better because they had to work together with students from different classes. As well, one staff commented that team members became more trusting, honest and caring with each other and with their students.

Successes of the Program with the Community: There were fewer staff comments in this part of the survey and some questioned whether there was any community response. However, the majority of comments focused on the recognition on the part of parents of the academic and social growth in their children. Some staff saw the parents as supportive of grouping. Others observed that the parents have become more involved with the school. Also, some parents were seen as becoming more aware of reading as a developmental process requiring skills that build on one another. There was reference made to the community council providing funding for needed materials.

Teacher Comments on Areas of Concern and How These Concerns Could Be Addressed

Areas of Concern: The main staff concerns focused on the issues of time, support, instructional groups and team dynamics.

Some staff members commented that there still was not enough planning time for the teaching teams. As well, more instructional time was necessary for them to do what needs to be done for their students. Students were seen as having the potential and ability necessary, but facing so many obstacles to overcome in order to be successful.

There were concerns expressed that more support from special services was desirable. Part of the concern here was that support staff was not replaced when absent for groups and therefore groups had to be cancelled. Also, some staff members found it difficult to find age appropriate material for older students functioning well below grade level.

Some staff members commented that some groups were larger than intended, particularly those groups functioning well below grade level. Others suggested that sometimes students were placed in groups before the appropriate testing was completed. As well, a few teacher comments focused on student behavioral problems and the students who were not independent workers. One comment expressed frustration that students who were taught all year at their ability level still had to face year end mathematics testing at grade level. Another comment expressed concern about programs available to students moving on to high school.

While it is evident that the staff was overwhelmingly supportive of the teaching team concept, there were concerns in this area. Some staff commented on the need for all team members to be committed and involved and to work together as a team. Others suggested that team members needed similar objectives and there needed to be organization within the team so all knew what the role was. Timelines to turn in marks and testing results were seen as necessary by some staff.

Addressing Concerns: While some staff comments suggested that more support staff should be hired and substitutes should be brought in when support staff was away, the majority of comments focused on using present resources and arrangements more efficiently.

Some staff members suggested that better communication among team members and more collaboration would make the teams function better. In this regard, it was advocated that early in the new school term, team planning meetings be held that focused on the year at large and the roles of team members. It was also suggested by some that team members should be held accountable for their actions. As well, suggestions were made that there was a need for team members to continue to track individual student progress in a meaningful way, so that instructional planning could be based on identified needs. A related issue was identified, namely, the responsibility of the team to develop cooperatively, with guidance from the administration, reporting forms, procedures, and timelines. One comment suggested the need to give time to developing learning packages for students functioning below grade level.

Several staff member comments focused on the role of teacher associates and parent helpers. Teacher associates were viewed as a valuable resource, but they needed specific training for program expectations. Having more teacher associates was seen as desirable. Several suggestions were made to involve parents as helpers within the classroom, particularly where there were large groups. One staff member suggested that assistance could be offered through computer technology, and a computer lab classroom would be desirable.

Analysis and Interpretation of Teacher Questionnaire Data (Part One)

The Teacher Questionnaire provided teachers with an opportunity to reflect on block scheduling, teacher teams, and team meetings and to assess the total program's successes and shortfalls. Teachers commented on the impact of the program on themselves and on their clients, namely their students and parents. They were asked to suggest how the program could be improved.

Staff member comments on block scheduling closely mirrored the successes outlined by Hopkins and Canady (1977) and others as presented earlier in the literature review. The school program achieved small class size during critical instructional periods in reading (language arts) and mathematics. There was less fragmentation of the school day. Staff reported that there was more efficient and effective use of instructional time and higher student engagement rates in learning activities. Greater student achievement was reported.

The major stated purpose of this study was to find out if block scheduling, as developed for Herchmer Community School, made a positive difference in student achievement. As reported earlier, end of year results gave evidence of increased achievement test scores, primarily in the area of language arts. While student achievement growth pointed to successful implementation of the program and its potential to foster student success, these results were by no means the only positive findings revealed by this study.

In her exhaustive research study, Rosenholtz (1989) identified the nature of teacher collaboration as a major variable in differentiating successful elementary schools from unsuccessful ones. Successful schools are distinguishable from unsuccessful ones by the frequency and extent to which teachers discuss

instructional practice, collaboratively design materials, share instructional materials and ideas, and seek and offer feedback to one another related to instructional planning and problem-solving. In collaborative settings, Rosenholtz found that the impetus for sharing and cooperation emanated from teachers' daily patterns of goal-directed activity. Because these teachers believed that instructional success was possible to achieve, they imputed a meaning to "sharing" that involved communal efforts to bring about such learning.

As well, based on Rosenholtz's findings, team teaching made a significant difference in teachers' willingness to collaborate. Whether two or more teachers delegated subject matter within a team, or together shared teaching responsibilities, they negotiated instruction for students, made work-related decisions, faced common teaching problems and, if the team was to survive, solved them with mutual help.

Analysis of teacher comments about instructional teams and team meetings indicated that this staff embraced the concept of staff collaboration. Parallels to Rosenholtz's components of collaboration in successful elementary schools were readily identifiable from teacher comments. Furthermore, any concerns expressed by staff members about instructional team and team meetings focused on improvement of the process, not on criticism of block scheduling, instructional team, and team meetings.

Words of caution are necessary, however. Success is not a destination; it is a process. If a school is to become successful, it must continue to grow–to become even better. If this growth is to be nurtured, teachers must continue to have time for sustained collaborative reflection on school practice, conditions and events. None of this is to say that collaboration time alone can assure success. How time is used is crucial, but making it or finding it is vitally necessary.

Summary of Teacher Questionnaire Data (Part Two)

Teacher Observations on Student Response to the Program

While student perceptions are valuable and insightful, no survey or questionnaire was administered to students to find out their response to the block scheduling program that they were experiencing. That decision was made because of time constraints and the lack of a suitable survey instrument. In absence of direct student response, the teachers involved in the program were asked to comment on student reaction and think in terms of observed student behavior that supported their inferences. In effect, teachers were asked to be participant-observers who were focusing on other participants.

The recurring theme throughout staff comments was the perception that most students liked and enjoyed groups and the program. Staff commented that the students came willingly to their groups wanting to participate. Students were seen as responding positively to regular routine and expectations because they were working at their instructional level and experiencing success, not frustration. Staff members also commented that students enjoyed their learning activities and their

work habits and behavior were generally good. As one staff member observed: "Work was getting some smiles on faces and fun was had along with learning!"

Analysis and Interpretation of Teacher Questionnaire Data (Part Two)

Teacher perceptions of student response to the block scheduling program and the instructional process presented a positive picture of the school environment from the student perspective. Brophy (1987) observed that student academic success depends to no small extent on a classroom atmosphere of encouragement, optimism and promise. He also cautioned that each is necessary for the other, but neither can be pushed to extremes without unwittingly negating the other. Rosenholtz (1989) found that teachers in successful schools saw few limitations to student growth given appropriate classroom instruction.

The vast majority of teacher comments recorded in this study expressed optimism that all students had the potential for academic growth. What was needed were learning tasks at the appropriate level of difficulty, properly paced instruction, and individual assistance to needy students. Despite the host of risk factors identified earlier, these were not presented as limitations on a student ability to learn given appropriate instruction and a positive learning environment. Reference to student background as impediments to academic success was virtually non-existent in teacher comments on student response to the program.

Implications and Recommendations

Based on the findings of this study, it is reasonable to conclude that the block scheduling program developed for Herchmer Community School met its goal of improved student achievement at least in part during its first year of implementation. However, of even greater significance for the future, there was strong evidence that an instructional culture is developing in the school around a strong collaborative approach to the instructional process and problem solving. If this culture is nurtured and supported, there is good reason to believe, based on the more recent school effects literature, that the students and their future academic success will be the prime beneficiaries.

It would be a mistake to consider this program without acknowledging the other school programs aimed at facilitating young children's readiness for school and supporting at-risk children once they are in school. All programs must be coordinated so that the end result is a school environment that expects all students to be successful learners and provides the expertise and support to achieve this goal.

Based on the purpose of this study and the subsequent findings, the following recommendations are offered to enhance and improve the delivery of the block scheduling program designed for Herchmer Community School:

- That the school continue to timetable planning time for instructional teams, and where possible, increase the amount of time scheduled;
- That the school examine in depth cooperative learning as an instructional strategy to facilitate student learning;
- That the school consider using a student self report instrument to measure student perception of the school learning environment;
- That the school examine in depth practical applications of the role of student learning styles in planning instruction;
- That the school use a unit pretest as a basis for math groupings as opposed to a general math test to more accurately assess the level of understanding prior to grouping;
- That the school examine their reporting practices to parents and provide more specific information regarding skills necessary to succeed and sequential steps to learning;
- That the school continue to provide release time for teams to meet using school wide weekly integration groups;
- That the school continue to seek instructional supports and an increase Learning Assistance and Speech and Language time to meet student needs.

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