

Glendale School Study Report

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I. Background

In 1998 Lori Pamplin came to Glendale School as the new principal. The school, which provided programs from kindergarten to grade six and also housed a preschool program, had an enrollment of approximately 150 students. Lori had a strong background in innovative teaching and staff development. She described herself as someone who used an inquiry approach to learning. As a new principal and the only administrator in this small elementary school, Lori had many questions relating to the nature of her role and what was expected of her.

As an educator she recognized the importance of building positive relationships with people and her initial focus was to get to know the students and make them feel at home in the school. She made a special point of creating a welcoming feeling in the school for students, parents, staff and visitors to the school. She placed a high priority on bringing staff members together, promoting open communication and creating a spirit of collaboration. It was also her goal to build bridges between the home and school and to invite parents to join the school as partners in the education of their children.

In 1999, when she was in her second year as principal, it was suggested by the Calgary Board of Education school system leaders that Glendale School become involved in the project involving the Galileo Educational Network Association (GENA). GENA was recognized for the work that had been done in promoting the use of technology to enhance learning and teaching. Glendale School with a few old Apple computers and extremely limited Internet access would not be described as a high-tech school.

Also that year, Susan Marinucci joined the staff after having a six-month professional development learning experience at Banded Peak School, which is located just outside the City of Calgary. The GENA staff had, in partnership with the school, developed a program with a strong emphasis on the use of technology to promote inquiry-based learning. The school had been established as a centre for professional development and opportunities were provided for teachers to be seconded to the school for a rich learning experience providing an opportunity to work with teaching colleagues with extensive experience in the use of inquiry and to benefit from the ongoing support and mentoring of the Galileo consultants. Susan had background experience in working with Galileo to implement inquiry-based learning experiences. Susan was a part-time grade five teacher. Lori, as the principal, embraced the opportunity to work with the GENA team in exploring a new approach to learning and teaching using inquiry-based learning and the appropriate use of technology as a foundation. Susan became the lead teacher in this work.

In September 2001, Glendale School consolidated with another nearby elementary school (Glenmeadows). At that time, Susan Marinucci was appointed assistant principal and the administrative team continued their work with GENA.

In April 2005, as the completion of the sixth year of the partnership between Glendale School and GENA was approaching, arrangements were made by GENA to have the author of this report undertake a review of the Glendale School inquiry-based learning initiative. Through the years Glendale School had been involved in a number of studies and had received a great deal of attention and recognition through special media

features and awards. Lori presented the GENA proposal to the staff. In response to the invitation from GENA to become involved in telling the story of the Glendale School experience with inquiry-based learning and the partnership with GENA, the staff expressed an interest in becoming involved in what was described as presenting a snapshot or condensed version of the Glendale School experience with a focus on the perspective of the student, the teacher and the parent.

It was agreed that the author would interview each teaching staff member and as many parents as possible. Students from grades one to six would also be interviewed in their classrooms and they would also be invited to share some personal written observations. Seventeen (one hour) interviews were conducted with the teaching staff members and eighteen (20 minute) interviews were conducted with the parents. The student interviews were conducted over a period of two days. The interview questions were made available in advance to provide an opportunity for the participants to give some thought to their responses prior to the interviews. The parent, student and staff interview questions are attached as appendices.

The interview questions are based on the following guiding questions for the study which were developed with the active involvement of the school and the GENA staff:

Guiding Questions

1. What does learning in Glendale School look like?
2. To what extent are teachers and students in Glendale School engaged in inquiry-based learning and teaching
3. What has been the impact of the Galileo Educational Network Association in promoting and facilitating inquiry-based learning in Glendale School?
4. What would be identified as challenges in the implementation of inquiry-based learning in Glendale School?
5. What would be identified as facilitators or factors, which have contributed to the successful implementation of inquiry-based learning in Glendale school?
6. How is technology being used in Glendale School to enhance learning and teaching?
7. How is the assessment of student learning in Glendale School used to enhance the learning experiences of the students?
8. How is collaboration and teamwork among students and staff in Glendale School promoted and facilitated?
9. What is being done to provide ongoing professional learning and to promote Glendale School as a learning community?
10. How are Glendale School staff members and students as a learning community celebrating and sharing with others their accomplishments through inquiry-based learning?

11. What has been the impact on University of Calgary Master of Teaching students who have had field experiences in Glendale school, in regard to developing their knowledge and skills in inquiry-based learning and preparing them for the teaching profession?
12. How have the Master of Teaching students contributed to learning and teaching in Glendale School?
13. How is leadership in promoting and facilitating inquiry-based learning demonstrated in Glendale School?
14. Does the Glendale School learning community have the capacity to sustain the inquiry-based learning initiatives, which currently are in place and what recommendations for fostering sustainability and making enhancements should be considered?
15. In regard to inquiry-based learning in Glendale School, what is working, what is not working and what are the next steps?

The Information Gathering Process

- Discussions with the Galileo Educational Network Association team members who have been involved in working with the Glendale staff and students
- Discussions with the Glendale School principal and assistant principal
- Parent interviews
- Interviews of individual Glendale School teachers
- School visits and observations of learning and teaching
- Interviews of class groups of students
- Reviews of student papers describing their experiences as learners
- Reviews of relevant documents and artifacts
- Consideration of other sources of information

In preparing the Glendale School story and addressing the guiding questions, the focus of the author has been to present the comments of those who were interviewed on the basis of key themes. The feedback gathered through the interview process has been organized on the basis of key themes. In addition to sections of the report relating to the guiding questions, there are sections describing factors for sustainability of inquiry and sections highlighting commendations and recommendations. Readers of the report are encouraged to make reference to the documentation of the interviews and the rich data that was provided through the interviews. As a starting point, consideration will be given to a description of what learning looks like in Glendale School.

II. What Does Learning Look Like in Glendale School?

Teaching staff comments:

It is different than a traditional school - It was a typical school before Galileo was brought in. The staff members thought that it would help them to learn to use computers. As

soon as they were exposed to the whole idea of inquiry it all changed. The staff didn't know what they were getting into or that it would last this long. We thought it would be teaching the same way but using technology as a tool. In the past the learning was organized in units and subject areas. Now the learning is much more meaningful. In the past we would go on a field trip because it is a good thing to do. Now our field trips are connected and make sense. The traditional approach is for teachers to tell; in Glendale students discover.

It is a very busy, active, dynamic place - There often are guests and experts who come into the school to share information and interact with the students. Everyone is engaged in something. Students are everywhere and often it is noisy and messy. You hear talk about learning in the staff room and teachers are doing a lot of discussing and sharing. It is a busy place, students are learning all over the school and there's lots of action. It is fascinating as a teacher because there is a feeling that teachers and students are learning together. You see students in small groups, large groups, hallways and using computers in the library. Students are actively engaged in hands-on learning.

Learning is dynamic and student driven - Students are encouraged to explore topics of interest. The student learning is very interactive. They are part of teaching and learning and they decide where it is going. The students really want to be part of where they are going as learners.

Students and teachers are engaged in learning together - It may appear messy and chaotic at times but energy is focused. The day-to-day learning may look different than in other schools but what is happening is teachers and students are working together to explore structured questions through inquiries. They use experts and technology if appropriate. Regular assessment and feedback is used to help students understand where they can improve. Every classroom is different.

The students pose thoughtful questions - One example is the books we read about myths, fairy tales and legends. One of the students picked up something about mathematics and asked where did it come from and why do we need it. The students really wanted to know and together we learned why people use numbers. It is always changing, something different, never what you might expect. The ancient Egypt project was so different than what I expected because of the direction that was set by the students. The students are always questioning and challenging and they don't accept things at face value. They call you on things. It can be annoying, but questioning is a good quality.

Learning is motivating, challenging, and fun for the students. - Learning is motivating and challenging for the students and the teachers by making connections to the real world and exploring important topics of interest. What is most important about inquiry is making it as real as possible by talking to experts, bringing in guest speakers, supplementing the experience with the arts and doing everything you can to make the learning richer. The students are excited and they love to learn.

Parents are very involved in the education of their children - Even neighbours come to the celebration of learning because they hear about what the students are doing.

All students including those with special needs are given opportunities to be involved in meaningful learning activities - In this school there are 70 students with individualized

program plans. Very rarely is there a goal about engagement in the individualized program plans because all students including those with special needs generally are engaged as learners. There are high expectations and the results are good. Students with special needs are integrated very well. Students are compassionate and understanding of others with different levels of ability and those with special needs.

The school has a welcoming atmosphere - New kids to the school don't feel new for very long.

It is different because inquiry is in the whole school - Learning is across the curriculum. There is ongoing conversation and the students are engaged in learning and making meaning of the world in which they live.

Students and teachers enjoy being in the school - I enjoy teaching here. It is very exciting and it is like a new career. Teachers are learners and they love being engaged along with the students; for example, learning about Egyptian culture along with the students and making connections together.

A passion for teaching through inquiry - I love teaching this way and if you're passionate about something the students pick up on it. I have seen how invigorating this type of teaching is. People feel it is a lot of work but it is worth it. We put pressure on ourselves to do an even better inquiry next time. No matter where I go as a teacher I will use inquiry. I have heard teachers in commenting about inquiry in our school say they could never go back. The old way of teaching would be boring. I love the excitement and energy inquiry creates. I find inquiry very motivating and exciting because you're not doing the same thing all the time. It is not necessarily more work; it is different. It is invigorating. There is no question I want to keep doing inquiry and I believe there is no other way. The way I teach has been changed forever. If I went to another school and everyone was doing something else it would be difficult to be an isolated island doing it, but I still would try to use inquiry.

The importance of administrative support - We can do it if we have the ongoing support of the administrative team. We are concerned about the loss of our administrators. If we do not have someone who is supportive of what we're doing, it will not be sustainable. Lori and Susan have been very good as an administrative team. If there is a new administrative team, the administrators must have a good understanding of inquiry and be very supportive of inquiry otherwise it will be a big struggle. It is important that the whole staff continue to work together on developing a better understanding of what inquiry is and that the staff members continue to support each other.

The need for adequate resources - We do need adequate resources for it to be sustainable.

Incorporating skill development - I don't do inquiry all of the time; I still do skill development, but that is part of inquiry.

Demands on teachers - I'm not really sure. Philosophically I agree with inquiry, but it is demanding and wearing. In this school there are a lot of extra activities and responsibilities that go along with inquiry. I need more time to get better at using intelligence online and to connect what I'm doing to the curriculum. I do back off from

time to time for a breather from doing things like maintaining the web page. It takes a lot of time and energy.

Learning through inquiry is purposeful - Kindergarten has had an inquiry focus but field trips and centres were often done in a disconnected manner. It doesn't have the same impact and meaning. There is a place and meaning for everything you do through inquiry.

The importance of a school-wide commitment to inquiry - We are able to maintain our focus on inquiry in the school because it is school wide and everyone is committed to it. I've heard of teachers who leave and find it hard to do it alone in another school. You need a willing supportive climate and staff members who have a common understanding and a shared commitment.

Students' comments:

Grade One

- I like how you learn in this school.
- I like how you get to learn doing different things.
- I like to learn from robotics. We get to do things like robotics that even grade seven students can't do.
- The teachers are so nice and they're really good teachers.
- The students are very good to each other and there are no bullies.
- You make lots of friends in this school.
- We learn by acting things out. We learn by doing celebrations of learning.
- My favorite learning moment was mummifying a mummy and showing our parents a show.
- My favorite learning moment was making the canoptic jars and the sarcophagus.
- My favorite learning moment was learning that there are extinct animals. What if the paleontologists are wrong?
- Right now we are learning about extinction. Have you heard about the tiger with the pouch?
- We learn in groups and we help each other learn.
- My favorite learning moment was learning about dinosaurs and I learned about robots too. We are learning about extinction and we are trying to find out why they went extinct. I liked building our sarcophagus.
- We e-mailed archaeologists and asked them how a robot could help them

Grade Two

- The principal is nice to kids.
- I feel happy here.
- Students and teachers are kind to each other here.
- I like the robotics.
- When I came to Glendale school everybody was so nice and they came up to me and introduced themselves.
- We learn by using the computers and doing a Google to look up information.

- My most memorable moment at Glendale School was when the Hawks helicopter came to our school. It was cool and the helicopter was big. It had a huge spotlight and it was black-and-white.
- Another favorite time at Glendale is robotics. My partner and me made a really cool truck and we called it the rocket. We programmed it to go forward, stop and then go back.
- I think Glendale is special because the teachers are so cool and I really like the experiments we do.
- My favorite thing was making houseboats. My houseboat was made out of canvas and wood.
- We use computers a lot to get information and learn about different things.

Grade Three

- There are lots of good activities for learning
- The teachers are very good and they are lots of fun.
- The teachers teach strategies on how to learn.
- I like how we do inquiry in this school.
- We have fun activities and we are able to explore new things.
- We learn by having lots of interesting activities.
- We have conversations in class about important things.
- We really get involved in our learning.
- We learn from reading and watching educational movies.
- We learn from field trips.
- We learn from exploring and by observing like the rainbow trout and the duck egg. We learn from exploring important questions.
- My favorite activity this year was life cycles. I loved doing it because it helped me learn the stages of fish. Life cycles are biological time and our inquiry this year was about time.

Grade Three/Four

- We like all the visitors we have at the school. It is good to have guests and parents who come to talk to us about what they know as experts.
- Glendale is a good school because the teachers make me understand better; we are one of the only schools that have robotics; we are probably the only school that has an outdoor classroom.
- We like how we learn in this school by doing special things and understanding better.
- Glendale is a good school because we enjoy being here and learning with our teachers because they are friendly and encouraging. I think this is a safe school because you can get things on your test wrong
- I like the student teachers because I like learning in new ways.
- My favorite activity this year was robotics. I enjoyed working with my group. They taught me a lot. I also enjoyed learning about the different parts of the robot. I like robotics so much because you can learn so much from it. I learned it takes more than two days to complete your robot. We made a disaster to test our robot. It got into our inquiry because we thought of different disasters, which are moments, frozen in time and we thought of something that could help out.

- My favorite activity is raising trout. We feed them six times a day. We also do pH. pH is something that shows how clean the water is. I learned that eggs hatch out as alevin. We are taking care of duck eggs now. This fits in our time inquiry because it's about biological time.

Grade Four

- We learn life skills in Glendale School.
- We learn things in fun ways.
- We learn a lot by doing inquiries.
- We have lots of opportunities to learn by using computers.
- I've been in Glendale school since kindergarten. I think Glendale is a good school because the teachers are nice and they teach stuff that you have to use in everyday life. The teachers are very nice and we all like them.
- At the beginning of the school year our inquiry was sport heroes. We found some information on our sport hero and we also drew a picture. At our celebration of learning we went around the circle saying what attributes we represented (e.g. brave). Then we did a PowerPoint. After the PowerPoint we took our parents to different stations (goal setting, drawing sport heroes, benchmarks). We took our parents to the gym and picked some parents out of the audience to play a cooperative silent game and gave the winners a medal.
- The best moment of the two inquiries I have done was when I was standing in front of all of the parents at the celebration of learning. I was smiling and then I started speaking and when I finished everyone started clapping. I was so proud of myself.
- My favorite activity that each class does every year would be robotics. It is fun because you can work with other students and instead of building a box tower and taping them together, you build a robot and you learn to make things strong and stable. We do have lots of fun, but we definitely learn things too.

Grade Five

- It is much more of a free school. In my old school we only used computers when it was computer class time. In this school you actually get to use computers when you need them.
- We don't learn from textbooks, we learn from our experiences like field trips.
- We get to go further into things like the Frankenstein movie. We read a book, did a lot of information gathering and then we turned it into a movie.
- In this school students are given a chance, you're trusted and your teachers believe in you.
- I like how we are challenged everyday to go deeper into things.
- Our assignments are a lot of fun. We have a variety of learning activities and there is a purpose for everything we do because it relates to what is happening in the world.
- Our teachers are kind and understanding; they trust us; they are patient and they encourage us.
- Our teachers don't say this is what you have to do. They set guidelines and they let our imagination take us as we explore new ideas. We learn through inquiries. We take something small and we turn it into something big.

- We do a lot of learning based on what is going on in the world e.g. Tsunami.
- Our distillation learning experience is an example of how we learn by demonstration and experimentation.
- We learn to use robotics to solve practical problems.
- We use technology as a tool and we make use of all the resources that are available. I like to explore and search for answers.
- We use computers and the Internet to search for information and to answer the questions we have raised.
- We learn a lot from our discussions when we find out what information others have discovered and we hear about their ideas.

Grade Six

- The teachers are great, they're nice and friendly and they explain things very well.
- We get to do things in Glendale that students at other schools don't do.
- The teachers are always available to give you extra help if you're having trouble.
- I like learning robotics and the celebration of learning. We have more choices at Glendale and we don't have to keep on working on worksheets.
- This is my first year at Glendale. My memorable moment was the first day of school because everyone was so nice.
- Instead of learning from textbooks we get to do interesting, exciting stuff.
- The administrative team is very nice and they let us do a lot of interesting things in this school.
- It was fun to be involved in the musicals like Fiddler on the Roof.
- We like the celebration of learning. (Almost all)
- Field trips are very good because they help you connect your learning.
- Learning in this school is very individualized; you can choose the areas you want to explore.
- There are lots of hands-on activities, which really help students learn.
- The learning activities are based on what is going on in the world.
- The teachers get you started on an inquiry and you go to the computers to do research and you get to pick your own topic like ancient Greece. You are not just handed the information.
- Instead of textbooks and worksheets, you use other resources to learn.

Parent Responses:

What Causes You to Believe That Glendale Is a Very Good School?

The sense of community in the school - The smallness and sense of community; it is a good community and everyone works together, like a family; it is very supportive and friendly.

A climate of respect - I like the respectful manner of teachers and administration and how they interact with the students.

Students enjoy being in the school - The kids come home and talk about school very positively. The students feel that learning is fun; they are really enthusiastic as learners they get exposed to a lot and it is fun for them. The kids love to learn and they have learned so much.

The focus on inquiry - The staff has worked hard to develop inquiry. I like how they encourage kids to think and ask questions. The students love robotics. The students learn how to ask questions and to develop their critical minds

The school is a happy place - Lots of laughter, happy staff

The Web site -The web site is very informative and well done.

Strong parental support for the school - Parents are very supportive of what takes place in the school. The parents are very supportive of inquiry and were involved in fundraising to bring Galileo into the school

The students are involved in meaningful learning activities - The involvement of the grade five class in making a movie based on the Hobbit was instrumental in bringing the two schools together at the time of amalgamation. It is a great place for learning. They are doing exciting things in Glendale School. Our son is learning and he is having fun and there is not so much emphasis on avoiding getting it wrong here. Students can pursue their areas of interest.

A welcoming atmosphere - Parents are always made to feel welcome. The children are made to feel welcome and they feel safe in the school.

The special education learning experiences - The inclusion of special needs is very good. There are no segregated classes. Everyone is treated equally. The special-needs students are incorporated into the learning and teachers help the students all respect each other.

Small class sizes - We appreciate the small class sizes.

A strong sense of working together - The administration and teachers work as a team and it rubs off on the students.

A strong sense of pride in the school - Parents are happy and proud of the school

Students are pushed to achieve more.

An active and vibrant climate for learning - There is always activity in the school like students working in the hallway.

The excellent reputation of the school - People are coming to Glendale school from all over because of the reputation of the school. It is a good news bad news story because we don't want to lose the small school feeling if there are too many students who want to come to Glendale.

Parent Comments In Regard to the Glendale Staff:

- The teachers are very hard working, very professional and go beyond the job description, they bend over backwards for the kids, the teachers are excellent, the teachers work long days and it is much more than 8 to 4.
- The administrative team has done a great job in attracting and hiring excellent teachers.
- The teachers respect the students and the students respect the teachers.
- The teachers invite parents to be involved in the learning activities - appreciate the focus on inquiry.
- We like the focus on inquiry and how the staff members are all committed to it. Teachers do things in different ways to accomplish the same goals.
- The teachers are mentors not just teachers. They take the success of the students very personally.
- The staff members work very hard and they've had to put more work into their teaching because of inquiry.
- It is a dynamic staff.
- Staff members all know the children and the parents.

- Caring staff - Staff members give extra care for the students 5. The teachers want to know about how the student from is feeling not just about how he is learning and they are bringing good things out of him.
- Staff members work very well together. The new staff members have been an incredible in joining with the others.
- The staff is amazing and they love doing what they do.
- We appreciate the staff leadership in organizing the annual musical.
- The teachers try to be realistic in their expectations and to consider parent expectations. The teachers are focused, approachable, dedicated and they have great relationships with the parents and always have time for the parents.
- The teachers are energetic and interested in what they are teaching.
- The teachers work well as a team and they are good models of teamwork for their students.
- There is a relaxed atmosphere for learning in the classroom, but the teachers are still pushing the kids to do their best.
- I'm amazed at the dedication of the staff. You don't get that level of dedication everywhere.

Parent Comments in Regard to the Administrative team:

- They are fantastic. They keep teachers happy and motivated. They are amazing with the children. They welcome the involvement of parents and they are always looking for new ideas and ways to learn.
- Lori and Susan make a great team and they have a vision and foresight, which has made Glendale unique and people want to be here.
- They are very accommodating, very open, personable individuals.
- Concerns that are brought to the principal's attention are dealt with.
- The two administrators do things in different ways but they still work well together.
- The office is like a hub. The kids come in to see the administrative team and they see them as approachable. Kids are not intimidated by the administration.
- They know all the children by name and they know the families.
- They have a strong student focus and they care about the students and parents.
- They are available when you need to talk to them and they know who you are.
- The administrators come across as teachers first and administrators second.
- I like how they listen to parents and students and they always take time to talk.
- The administration encourages teachers to stretch themselves and their students as learners.
- They have done an excellent job of hiring very good staff.
- The administration got Galileo going which has been very good for the school.
- The administration advocates for the school system.
- They make a special effort to come out to celebrations and student activities.
- The Secretary is very good at greeting people making them feel comfortable, orientating them to the school and providing helpful assistance.
- There are some serious concerns about what will happen if the administrative team is gone and they are replaced with someone who doesn't support inquiry-based learning.
- No concerns were expressed in regard to the administrative team.

III. How would you describe inquiry-based learning?

It certainly is appropriate to take some time to develop a better understanding of inquiry-based learning or what is more commonly referred to in Glendale School as inquiry. One should begin with a caution that attempting to define inquiry because of the very nature of the approach to learning is complex and messy. In many ways one should avoid attempting to define the term. On the other hand, it is helpful to benefit from some observations from students, parents and teachers.

- Inquiry is hard to explain, but you know it when you see it. It is lifelong learning for students and teachers and that's what makes it exciting. You focus on a major question and topics that matter to students.
- Inquiry begins with big questions. You begin with a big question, generate ideas, identify goals and work toward the goals. Inquiry is alive, interesting and fun. We ask questions about what we want to learn and where we want to go. It is based on questioning and looking at things from different angles not just one way.
- Inquiry brings learning alive in the classroom. It is not learning the facts. Students ask questions, discuss, challenge and develop understanding.
- Inquiry involves considering information from many sources - It is recognizing that there are different viewpoints. Experts are brought in to share information and stimulate thinking.
- Inquiry is curriculum based - We are covering the program of studies with a lot more student input and the student learning depends on their interests and needs. It puts more pressure on teachers to cover the curriculum. It is messy to keep track of and it makes me concerned about covering the curriculum. To be effective, teachers must know the curriculum very well.
- Inquiry involves a new way of thinking - Thinking outside of the box and exploring learner expectations in different ways by creating purposeful, meaningful engaging activities.
- Inquiry extends beyond the school - The students come to school with work that they did at home as an extension of what they are have been doing in school. They have questions on their mind all the time.
- Inquiry work for students with special needs is structured, with selective grouping and plenty of feedback. - The early intervention especially in the area of reading, is very important in giving the students the skills and support they need to be able to be involved in inquiry.
- Inquiry is based on Blooms Taxonomy and it is important to look at all levels. Teachers are getting better at meeting the needs of the full range of abilities. It is important to keep class sizes small enough to allow for individualization. Inquiry is discovering or creating knowledge.
- Inquiry is unpredictable - You end up somewhere you didn't plan to go. The path changes in response to input from the students, world developments etc. It is hard to plan ahead, but it is positive at the same time because it is more exciting for teachers and students.
- Inquiry is student directed and teacher guided. There is a lot of conversation and heavy debating, research, give-and-take, development of new ideas and what's most important the creation of new knowledge. Students are engaged in tasks that matter to them but have a greater purpose beyond the school. It is not a project; it is a pedagogical approach and a process. Teachers are involved in constantly debating, reflecting discovering interacting with colleagues and outside agencies and participating in meaningful discussions.

Student Descriptions of Inquiry:

Grade One

- It is how we learn.
- We have inquiry groups.
- We have inquiry questions.
- I learned about Egypt and how to read hieroglyphics. We made a sarcophagus out of paper and wood and then the mummy group used it to do a mummy ceremony. I learned how ancient Egypt existed and we made amulets with clay.

Grade Two

- This is the main thing we do to learn.
- You learn about one thing and then you learn and learn more and you don't stop learning.
- We learned about insects in many different ways like art projects, field trips, books and information through the computer. I like learning by doing experiments.

Grade Three

- You start with an idea and you keep building on it.
- You get a topic you really want to work on like stars and you end up learning many other things like rocks and minerals and time. It mushrooms and you learn things you didn't think about.
- When you start on one thing and ask questions, it leads to more things.
- When you do inquiry you are just like an explorer.
- Our time study started when the teacher brought a clock and then one thing led to another and we learned a lot about how people all over the world deal with time.
- It is exciting to do projects like candling the duck eggs and hatching them and the Fish in School project.
- It was very interesting to do the time inquiry and learn how different people measure time.

Grade Three/Four

- The water inquiry and what we learned about the Bow River, glaciers and other things is a good example of how we get information on something and share it with others, ask questions and try to find answers to our questions. That is what inquiry is all about.
- We learned about all the body parts by making French dolls.
- We've learned a lot about fish through the rainbow trout project.

Grade Four

- You take a topic the whole class wants to study and you work on a project for a long time researching, gathering information and sharing information. You use robotics to make robots that will help you with your project.
- We were really excited about the garden project - planning the garden and getting vegetables.
- The inquiry we did on sports heroes was really good. The celebration of learning with our Rocky music was exciting.

Grade Five

- The teachers have made it possible for us to learn how to teach ourselves.
- We begin by focusing on one topic and we keep exploring and expanding.
- If something important or interesting like the Tsunami takes place than we make it part of our learning experience.
- Inquiries are normally based on something that is happening in the world and a real life situation.
- We interact with experts like the professor from Johns Hopkins University who created PUR for water purification. We e-mailed her and she sent us some packets of PUR to use in our inquiry. It works great. We learned so much from that experience.
- The Frankenstein inquiry and making the movie was excellent.
- I am really enjoying the Ann Frank inquiry.
- The famous five inquiry was fun. Every day in school is different and I wonder what we are going to learn today.

Grade Six

- You have to find your own information to answer the big questions. The teachers don't just read a textbook and mark right and wrong and give you information on a silver platter.
- The teachers ask important questions and you have to dig for information.
- You take a big topic like Greece and then you branch off into areas like laws, health care, human rights, math and science, arts and crafts, and mythology.
- Making the Frankenstein movie and all that went along with it was an awesome learning experience.

Parent comments about the impact of inquiry-based learning:

- My children have a curious spirit which is promoted at Glendale
- With the Mars inquiry in grade three our son was very interested in newspaper articles about Mars and he went outside and watched the stars and did a lot of his own research.
- A lot of inquiry ties to the real world
- The students really get involved in the learning activities such as the world water day, how big is to big and they talk about what they are learning in school at home. I was so impressed with the discussion with my grade two child about how big is big which led to a discussion about immigration. I wouldn't expect anything like that from a seven-year-old.

- We are amazed at the knowledge he shares with us. The students are taught to seek out information and ideas at home and through the media.
- Even buying a new bike becomes a matter of doing the research, just like in school.
- They make very good use of technology at home.
- My child's self-esteem has skyrocketed.
- My son is happy to learn and is more competent in his learning. He says, "I can find that out for you mom, let me show you".
- One of the students contacted the inventor of the water purification system and she got back to him. It was an incredible learning experience.
- They always make connections about health and well-being, the environment and the use of water. They do web site searches on nutrition and they keep food diaries.
- The dinner party project, which involved having the students select three famous people and do the dialogue that would take place over dinner, was an incredible learning experience. The students had to research and find different ways to draw out the information. Students are confident in seeking out information.
- I see my daughter raise questions and she knows where to start to get the answers. She goes to the Internet and to the library for books. She wants to get a dog and she has done a lot of research on different kinds of dogs.
- They come home with interesting questions like with the water study and they gather information about how a toilet works and how much water is being used.
- Our daughter talks about what she's learning at home, does research on the computer and pulls articles out of the newspaper.
- They develop a lot of confidence through their participation in the school musicals.
- The fires of Kelowna inquiry was excellent. I heard our son having interesting discussions with his friends and I was impressed with how he has learned to listen to others and to consider other points of view.
- The students initiate what they want to learn and take ownership for their learning.
- The students really know how to do research.
- The students are given a problem to solve and they look at it from different ways and they are able to work outside of the box.
- Information is not fed to the students. They learn to seek out their own information and understanding and develop an inquiring mind.
- The students learn that there is not a right or wrong answer.
- It involves teaching knowledge without compartmentalizing.
- The students are treated like learners and they are also treated like teachers.
- They learn to see the big picture and make sense of the world they live in.
- The children take responsibility for all they learn. They learn to focus, plan and organize. It is not boring for them at all; it is fun.
- They take things beyond and they learn different ways of looking at things. They take initiative, experience their learning and they develop a desire to seek out the answers.
- They take a topic of interest and integrate all of the subject matter into projects and activities. An example is the study of the Mayan people and their culture, which led them to learn about archaeology and other activities.

- Their involvement in Fiddler on the Roof is an example of how they didn't just do it; they learned all about it and appreciated all aspects associated with it.
- As parents we are surprised and thrilled with what they are learning.
- It is hard to put your finger on it. The teachers have a theme and they go the direction set by students and they build on it to get the information and help students learn what they're supposed to learn.
- As an extension of learning about recycling, our son is very environmentally conscious.
- The children are allowed to take what is given as curriculum a step further. There are no boundaries to their learning. The Frankenstein movie is an example of a huge learning experience where they were able to think outside of the box.
- The children are challenged, they get excited about the topics and they are not bored
- Our son's confidence level has increased tenfold. The children's opinions are respected and they are treated like little adults.
- They are not afraid to express their opinions. They feel safe to speak and not have the others laugh at them.
- They have learned to use computers and the Internet to gather information and to present what they have learned.
- They are challenged to think about what is going on in the world. Sometimes it may seem like there's too much realism like the study of fires, wars or disasters, but they seem to be able to handle it well emotionally. It is important to keep in mind the emotional impact that some topics may have on the children.
- The children realize that their actions will impact others and they learn to think and care for others.
- What concerns do you have as a parent in regard to the focus on inquiry-based learning in Glendale School?
- 65% of the parents indicated that they had no concerns.
- People need to understand that it is not a traditional school and there is a different way of thinking and learning.
- I am not sure how well the approach works with students with a major learning disability who don't have the inquiry instinct developed.
- At first I didn't understand what it is all about and I think it is important to have information sessions for parents.
- Sometimes as a parent it is hard to gauge what they are learning and whether they're covering the curriculum. For example, they have robotics in grade 1, 2 and 3. How many times do you do it? On the other hand, it seems that they learn something new each time.
- There are some concerns with the group work. Not all the students are comfortable in working with others and they need to learn about teamwork. Some students like to do it all on their own.
- At first I was concerned about whether the students would get the academics covered. The teachers still know where the students are with their learning and that's what is most important because I want them to cover the curriculum.
- I have a concern with what sometimes is too much showcasing when the emphasis should be on the individual student's learning.
- It is very important to promote teamwork. There should be more emphasis on teaching teamwork skills especially for new students. You want all students to be

involved and not just the high-performing students who carry the load for the others.

- I am concerned with the possible changes in administration and if there is any turnover in staff it also would be a concern. It is very important that the teachers understand the philosophy of inquiry and that there are administrators who support it.
- My child is not always focused and she gets distracted easily. She is accustomed, from her former school, to doing what she is told to do.
- I have some concerns with their transition to junior high school where there is not an emphasis on inquiry.
- It is a fast paced school and it can be exhausting.

IV. To What Extent are Students Engaged in Inquiry-based Learning and Teaching and What is the Impact on their Learning?

In addressing this question reference was made to a framework developed by the Galileo Educational Network Association outlining indicators of success through inquiry-based learning. Teachers, parents and students were asked to reflect on the framework in terms of the learning which is taking place in Glendale School.

Academic rigour and achievement

100% of teachers and 82% of parents indicated a belief that academic rigor and achievement has been enhanced through inquiry and in support they offered the following comments.

Teacher Comments:

- They're doing amazing work for their grade level. They are definitely thinking and the vocabulary they are using is incredible.
- The students bring information and outside sources which they have gathered on their own time.
- The quality of the product is high and the level of understanding is huge. The students live the knowledge.
- We are creating lifelong learners.
- Students are by far exceeding curricular expectations and the standards, which have been established. Achievement Tests don't test what they should be testing. Inquiry is five years ahead of assessment practices. It is a different world.
- The students are building knowledge individually and collectively. Students challenge each other and they have shown that they are capable of doing much more than what you would ever expect. There are many examples, such as the Hobbit inquiry.

Parent Comments:

- Inquiry makes them stronger thinkers and they are doing well academically.
- I have some concerns in regard to developing math skills.
- They're not learning how to multiply by rote, they are learning by applying it.

- It is important for parents to know that the basic skills like reading and math are being covered.

Personal, organizational and self-management skills

65% of teachers and 58% of parents indicated a belief that student personal, organizational and self-management skills had improved through the focus on inquiry. A number of teachers indicated that it is difficult to determine if there has been a direct impact. Representative comments include the following:

Teacher Comments:

- You can send students by grade two off anywhere in the school and know that they will be engaged in their learning and doing what they're supposed to be doing.
- They know what needs to be done and they take responsibility for their part of the learning.
- I make a special point of teaching it because it's very important for the students to have good organizational skills.
- There are fewer behaviour problems because the students are focused.
- The students show good organizational skills when they prepare for the Celebration of Learning.
- They learn to be responsible and organized when they use their robotic components and keep their journals
- Students need to be organized. The system of posting assignments on the network helps them with their organization and self-management skills. Some are better than others. Technology does help because some have trouble with paper and binders.
- Absolutely, to be involved in inquiry the students need to be well organized. We've allowed them to mess up so they learn the reason for being organized.

Parent Comments:

- I would like to see the staff put more emphasis on the development of organizational and self-management skills.
- Yes the agendas are good and students are given responsibility for their learning, they learn about due dates and being organized.
- Some students just are not very good at being organized.

Teamwork skills

100% of teachers and parents stated the belief that teamwork skills had been enhanced by the focus of inquiry. Representative comments include the following:

Teacher Comments:

- They are developing good teamwork skills
- We need to spend more time with some students to help them to learn to work in teams
- Teamwork has its challenges. The more you do it the better you get.

- Teamwork skills are essential because students are working as a group and they need to learn to identify how they can contribute.
- It is important to have interdependent tasks so that each student has an important piece to do. They all need an important part to play.
- You have to be able to work as a team and the students learn to monitor and support each other's work.
- Teamwork skills are so important that I include it as part of the assessment of Students really learn how to be team players-very strong, they develop great team work skills through the projects like robotics, everybody contributes, they learn from their own projects as well as others. Teamwork is strongly emphasized in the school and it has been beneficial in so many ways including developing social skills and knowing what is appropriate. It hasn't all been rosy with teamwork- some do more work than others. The teachers need to monitor the teamwork to make sure that everyone is doing their best.
- We spend a lot of time talking about teamwork and how to work collaboratively. The big issue is accountability. We encourage kids to make sure everyone does his/her fair share.

Parent Comments:

- It is very important for the students to learn about teamwork because they need to be team players in life.
- I was amazed at how the students demonstrated their teamwork at the celebration of learning.

Appropriate use of technology to achieve specific outcomes

100% of teachers and parents expressed the belief that through inquiry students had enhanced their skills in the use of technology. Representative comments include:

Teacher Comments:

- The student use of robotics is an excellent example.
- The students, in using online information sources, are learning how to ensure that they are reliable and authentic.
- They use computers for literacy and math development skills.
- The more we use technology the more it becomes a tool. The students use technology as a third arm but we as adults don't do it naturally.
- It is interesting to see some new students who haven't used technology. It is quite a contrast.
- When technology is used for what it is needed, it is highly effective and the students are getting better with technology all the time.

Parent Comments:

- Student skills in the use of technology are outstanding.
- It is not overly technology-based, the students are highly comfortable with using technology but they use it as a tool when appropriate.
- They're much stronger than students from other schools.
- The robotics learning experience has been excellent.
- It is fantastic what they can do with Flash and PowerPoint.

- The arrangement that was made to connect with a high school in Ontario was excellent. The Glendale students, although younger, demonstrated a high level of understanding.

Motivation and experiencing success as learners

100 % of teachers and parents expressed the view that the students were more motivated and experienced greater success because of their involvement in inquiry. Representative comments include the following:

Teacher Comments

- They are very keen and self-confident as learners. They're just so proud, but they aren't cocky about it.
- The grade two students with the music inquiry went way beyond expectations.
- I've seen an amazing change in the students, especially those who are new to the school. They feel that they have a voice and they are motivated as active learners.
- All kindergarten children are enthusiastic but there's a difference. Their enthusiasm is for learning. They are excited about their learning and not just about having fun in the centre.
- With projects like the rainbow trout the passion is there.
- Some students are on the borderline between confidence and wanting to know and audacity. They need to know that the world doesn't stop for them.
- The students are highly motivated. They come early and stay late. They are highly engaged and they enjoy being in school.

Parent Comments

- Overall the students are highly motivated as learners.
- They are motivated to be self-motivated.
- You can tell that the kids like school.
- Once our son gets into a project he cannot leave it alone. He enjoys learning and he loves school. On holidays he is anxious to get back to school.
- They are motivated and they seem to have fun as learners.
- Students are experiencing significant success as learners.
- They're proud to be educated at Glendale School.
- The development of confidence and self-esteem has been huge.

Engagement as learners

100 % of the teachers and parents expressed the view that the students are more engaged as learners involved in inquiries. Representative comments include the following:

Teacher Comments

- The students change from passive to engaged and you see it in their eyes.

- They are engaged because they see a greater purpose in what they're doing.
- I hear them talking among themselves about what they are learning. I know they talk at home and they bring articles from the newspaper and books related to their inquiry.

Ability to problem solve, pose problems, make decisions and inquire

100 % of teachers expressed the view that problem-solving skills were enhanced through inquiry. Representative comments include the following:

Teacher Comments

- They are good at asking questions
- The students are critical thinkers and they question their learning.
- The students are constantly solving problems and asking questions.
- You can see the problem solving focus of the students through their discussions.
- Yes watch them on the computers. They talk through things. It comes from being here as a learner.
- A lot of what they do makes them problem solvers. They raise significant questions about real-life situations. For example the study of water led them to consider what is happening in their own homes in regard to the use and conservation of water as they gathered data on toilet flushes.

Parent Comments

- They always have questions, and have strong problem-solving skills.
- For some students it depends on their level of abstract ability.
- They have the skills to use a variety of approaches to problem solving.
- My son has learned to approach problems and everyday situations clinically and to get to the heart of the matter.
- At home they will ask you a question and you give an answer and they are not just satisfied. They are always looking for more and are exploring and trying to figure out why things happen.
- The children are not afraid to ask questions. They don't seem to worry about whether they are right or wrong and they are more open in expressing their thoughts.

Depth and breadth of learning achieved and demonstrated through inquiry

100% of teachers and parents indicated a belief that the depth and breadth of learning is enhanced through inquiry. Representative comments are as follows:

Teacher Comments

- I know they are covering the curriculum.
- We tried to move from the Egypt unit but the students kept saying there is still a lot more to learn.

Parent Comments

- Math is still the biggest struggle for inquiry. It's hard to incorporate the math strands in inquiry. Some are easier to incorporate than others. I believe the students are not lacking in any aspects of the curriculum.
- They have done very well in junior high School
- It was great to bring in an anthropologist from the University of Calgary for the Mayan unit. She said the students were asking questions that she would expect from first year university students.
- There still seem to be some struggles with getting math into inquiry.
- Generally the math achievement test scores have been pretty good.

Creativity and innovativeness

100 % of the teachers and 65% of parents expressed the belief that creativity and innovativeness was enhanced through inquiry. Representative comments include the following:

Teacher Comments

- They are so keen and they love brainstorming ideas.
- A lot of students can think outside the box and they approach things in a much more mature way than what adults give them credit for, especially when they know they have a voice and adults will take them seriously.

Parent Comments

- The students are encouraged to be creative.
- The movie is an excellent example of creativity.
- The paleontology dig was a very creative learning activity.
- The human rights project in grade six was an example of the student's creativity. They used skits and brought in an artist to demonstrate what they had learned.
- Inquiry is even used in music. Art, music and fine arts are great for developing creativity.
- The grade one students creating their robots and doing the ancient Egypt study activities demonstrated advanced levels of creativity.

Ability to communicate what they are learning to a variety of audiences

100% of the teachers and 65% of parents expressed the view that students' ability to communicate to a variety of audiences is enhanced through the focus on inquiry. Representative comments include the following:

Teacher Comments

- The students are very comfortable talking to anyone. They can talk to younger students, older students, professionals, parents, community members and experts who are brought into the school. They're definitely building life skills as communicators.
- The ESL and non-academic students are able to participate meaningfully as well.

- The celebrations of learning are excellent. The students at the celebration of learning demonstrated an amazing knowledge. They knew every detail.
- They have learned to use Flash animation to show how a toilet works.
- When I first saw the interview questions for the students I thought they couldn't do it and then I heard them respond and it was amazing.
- This is one of the strongest aspects of the Glendale School program.
- They demonstrate in presentations to a variety of groups, outstanding skills and adults don't intimidate them.
- Most students don't know any different. They think that inquiry is what happens in every school. When new students come there is a period of adjustment. Peers help pull them along and help them understand inquiry. They don't need too much orientation. The kids pick it up fast, but it is more complicated to communicate what inquiry is all about to the parents.

Parent Comments

- At the celebration of learning they demonstrate unbelievable communication skills.
- The students are not afraid to speak up and share their learning.
- The table talk conversations at home are powerful.
- They use drama and other approaches to demonstrate their learning
- They introduce the children to public speaking at such an early age and they provide so many opportunities that it becomes commonplace to them.
- In some ways the celebrations are overdone. It shouldn't be a competition to see who can have the most outstanding production.
- I like the focus on students describing what they have learned through activities such as the celebration of learning.
- Our son likes to come home and talk about what he is learning.
- Our son has developed a lot of confidence in presenting.

Further Responses from Teaching Staff

Teachers were given an opportunity to provide further elaboration on the impact of inquiry-based learning in Glendale School and their responses to a series of questions, are summarized below (with the categories of strongly agree, agree, undecided or disagree):

- Glendale teachers understand inquiry work SA (8) A (9)
- Glendale students understand inquiry work SA (5) A (9) U (3)
- Everyone does inquiry work in the classroom SA (6) A (9) D (1) U (1)
- Everyone supports each other in the inquiry work they do SA (12) A (5)
- Every student in Glendale School is deeply engaged in meaningful, authentic learning SA (3) A (11) D (2) U (1)
- Every teacher in Glendale School is deeply engaged in meaningful, authentic learning SA (5) A (7) U (4) D (1)
- The students are deeply engaged in authentic investigations SA (3) A (12) D (1) U (1)
- Students are critical thinkers SA (5) A (11) U (1)
- Teachers are critical thinkers SA (6) A (11)

- Students do work that contributes to society SA (5) A (11) U (1)
- Students are able to discern their own learning SA (3) A (12) U (2)
- Parents are engaged in their children's inquiries SA (5) A (10) U (2)
- Parents are supportive and understanding of inquiry-based learning SA (9) A (8)
- Assessment is used to support continuous learning and development SA (6) A (11)

Based on the feedback outlined above, there appears to be strong support for the belief that the teaching staff and students understand inquiry; everyone supports inquiry, and to varying degrees is involved in inquiry; the Glendale students and teachers are critical thinkers and are engaged in authentic meaningful work; students do work that contributes to society and are able to discern their own learning and assessment is being used to support continuous learning. There is overall support for the statements that parents are engaged in their children's inquiries and are supportive and understanding of inquiry-based learning.

V. How is Technology Being Used in Glendale School to Enhance Learning and Teaching?

When the parents and staff indicated support for becoming involved with what was described as the Galileo pilot project, many had the impression that it was mainly about technology. It seems somewhat amusing, that at the time Glendale School with a very limited capacity in regard to technology, would be chosen for this type of project. In working with the Galileo staff, it soon became clear that this initiative was about much more than technology and making Glendale a high tech school. It was very much about inquiry-based learning and the role of technology was to provide access to sources of information that would not normally be available as well as to provide students with new tools for sharing with others what they had learned.

Since those early days with Apple computers, the technological capability of the school has been significantly enhanced. Several computers with full Internet access are located in each classroom and computers in other areas of the school (such as the library) are extensively used by the students. The students also have access to digital cameras, video cameras, video editing equipment, data projectors and a wide range of computer applications such as PowerPoint, Flash Animation and XL spreadsheets. In response to the question about how technology is used teachers, students and parents clearly and consistently describe technology as a tool for learning rather than the focus of learning in Glendale school.

Teacher Comments

Representative teacher comments relating to use of technology in Glendale school include the following:

Technology is a tool for learning and teaching - I see it now as a tool like anything else. We use it when it is appropriate. It is just like using a pencil. There is a lot of teaching being done with the data projector. The camera is being used to monitor the fish on the

web site. There are several computers in every classroom, which are online. The students and I use computers daily. I use the data projector to demonstrate web sites and we use the digital camera. The students are all comfortable with the use of technology. I give the students sites to explore and have them do their own searches. The students have good keyboarding skills and excellent skills in the use of technology. Students have strong skills in the use of technology - I see technology being used in every classroom. Technology is used a lot and the students are very strong in its use. Students are doing research using Flash Animation, XL spreadsheets and PowerPoint to present information. The students are very good at using Photo Draw and the digital camera. It is amazing how students learn how to use technology by working together and being buddies to other students. The students' use of technology blows me away. Technology connects students to the real world. - Galileo did a survey based on the inquiry rubric and it is clear that we are doing a lot because of technology. Technology is used when it is appropriate to enhance learning - For example one student came in to talk about what makes a good story and he used photodraw and a digital camera. It made sense to use it for that purpose. When we were first involved through Galileo and began to explore inquiry the focus was on technology. Now technology is simply used to enhance learning and we realize that we don't need technology for all inquiry. It is like a pencil now. Technology is still a motivator for the students but the students have learned that you need to use your intellect when using the tools and make sure it makes sense. We use technology when it makes sense. The use of robotics has been very successful in enhancing the learning experiences and promoting inquiry

Technology is used for planning and communication - We e-mail each other with our questions and suggestions and we use intelligence online for planning and communication.

Technology is used by students to communicate beyond the school - The students communicate with each other and with professionals. The students access their work at home through e-mails to themselves.

Communication beyond the school-Our web page is a very important tool for communicating with parents and presenting information to anyone who accesses the web site about our school and how students learn in our school.

Students are using technology extensively to gather information and present their learning - The students do research, PowerPoint, Flash, Inspiration and make films. One form of assessment is observing the students' ability to teach the key ideas to someone else and our students are very good at using technology to demonstrate their learning and to teach others about what they have learned. The students are using word-processing, researching contacting experts, e-mailing assignments, Flash, PowerPoint, and video editing. The students are very capable in regard to using technology and they know to use it as a tool if it makes sense.

Student Responses

Grade One

- We learn on computers.
- We do stories on computers like our how to stories.
- We find lots of information using the computer

Grade Two

- We use technology in many different ways as a tool for learning.

Grade Three

- We use computers to surf the web for information and answers to our questions.
- We use computers for graphing and presenting information.
- We type our stories and information that we get from web sites using computers.
- We watch movies and learn from them.
- We use the digital camera to present information.
- We learn from putting the robotics together and using RCX boxes.

Grade Three/Four

- We search the Web for information to answer the questions we have raised.
- We use computers to do graphs and prepare reports.
- We use PowerPoint to present information and describe what we learned.
- We phone and e-mail people when we are doing research and gathering information.
- We use technology in programming our robots.

Grade Four

- We use computers a lot for word processing, writing stories, getting information and doing robotics.

Grade Five

- We e-mail our homework and assignments home.
- We do a lot of communicating with people all over the world through e-mails.
- We use the Internet to do searches and find the information we need.
- We use Flash, Word, PowerPoint, a digital camera and movie animations to demonstrate what we are learning. For example, we used Flash to demonstrate how a flush toilet works as part of the research we were doing in our water study.

Grade Six

- We use technology everyday to do research and we use technology to make presentations like videos and movies and digital pictures to show what we have learned.
- I like how there are so many computers available for students to use.

VI. How Is Assessment Being Used to Enhance the Learning Experiences of the Students?

Assessment is a major issue, which was identified when the guiding questions were outlined. The approach that is taken in assessing student learning is a reflection of

fundamental beliefs relating to learning and teaching. The following information in regard to the assessment of learning was generated through the teacher interviews.

- Actively involving students in the assessment process - I try to get the students to be part of the assessment process through role-playing and using the video camera for subjective assessment. I have developed some rubrics with the students and it has real potential. The students need more experience in assessing their learning realistically. The use of rubrics is huge. The students understand what is expected of them and they take more ownership for their own learning and their own assessment. Much of the assessment is developed within the students' self and peer assessment, using rubrics. When the students have ownership for a task, they are competent in holding each other up for excellence on the task. We get students to work on tasks that rely on each other. If they are not well done the rest will help out, but they keep pressure on those who are not as involved. This is what happens when you do authentic tasks.
- Developing rubrics to communicate learning expectations - Students know what is expected of them through the use of rubrics and other assessment techniques. Standard rubrics often are not appropriate; you need to make up your own rubrics. We are now getting students to do rubrics. I used the inquiry rubric for the Egypt inquiry and it was very helpful. We make rubrics up as a class, but probably don't do enough ongoing assessment.
- On-going assessment processes - I do a lot of assessments based on the oral presentations. I get the students to talk about their learning. I judge by the questions the students ask. I use anecdotal notes based on the discussions and questions. The celebrations of learning have been quite showy lately and that puts pressure on the teachers. I am not sure that's what it is all about.
- Recognizing the complexity of assessing student learning through inquiry - Assessment of inquiry learning is more difficult. You do a lot of observational assessment, peer assessment, anecdotal notes, subjective methods and it is important to have rubrics in place to focus assessment. Assessment has been challenging because I have a wide range of students including a number of E.S.L. students. When you are teaching through inquiry you need to change how you assess student learning. The dilemma is having the time to be able to assess appropriately.
- Assessing basic skills - I still test math skills. I'm trying to find a sense of balance. I use checklists for basic skills. We do the traditional diagnostic reading inventory and Key Math to make sure the students have the basic skills and the curriculum is covered.
- Developing new approaches to assessment - Lori and three teachers have been involved in creating a rubric and learning how to assess all students as part of the AISI project. Everyone needs to understand the importance of doing assessment of and for learning. The Glendale staff members are part of a pilot relating to the provincial grade level achievement requirement. This is very good because we are able to explore other measures of learning related to inquiry rather than simply looking at achievement test scores.

- Assessing students with special needs -Our special education students are given an opportunity to write their own goals for their IPP's.
- Reporting student achievement - It is a real challenge doing report cards because we do everything by inquiry and then in the report card we have to break down the marks by subject area. Parents are not interested in the Fraser Institute report and the attempts to compare schools on the basis of achievement test scores. They realize that the learning of the students in Glendale School is so much broader than what is measured through the achievement tests and suggest that representatives of the Fraser Institute come to Glendale School to see what is happening.

Student Comments

The student comments relating to the assessment of learning include the following:

Grade One

- We get information about how we're doing from report cards.
- Our parents are surprised at how much we know.
- We know we're learning a lot when we know things that our teachers and parents don't know.

Grade Two

- You know you are learning if you want to learn more about something.
- If it sticks in your head.
- I'll always remember about the Mayans because of the play we did.
- You know you're learning if you can do something you were never able to do before.

Grade Three

- We just know and we don't need to be tested.
- We get information about how we are doing as learners from our report card.
- We find out how we are doing from tests and if our marks improve we know that we are learning more.
- We learn about how we are doing as learners by being at the parent-teacher interviews.
- The teacher comments about doing a good job help us know how we are doing as learners.
- If you can tell somebody what you have learned, then you know you've really learned.

Grade Three/Four

- We get information about how we're doing as learners from our report cards.
- We attend parent-teacher interviews along with our parents to talk about how are doing as learners.
- We go home and tell our parents about what we have learned in school.

- You have this feeling about knowing things when you're learning.

Grade Four

- You know you're learning if you understand how to do something.
- You know you're learning if you have confidence in yourself.

Grade Five

- You know you're learning when you know more than before. You can feel it, you feel good and happy.
- We know how we are doing from report cards and parent/student teacher interviews.

Grade Six

- When you're learning the teachers make you feel you're doing a good job.
- You know that you have learned if you can remember information and ideas.
- You know that you have learned if you can explain things to other people.
- We get a lot of good feedback about what we are learning from people who visit our school and people from the outside world.

VII. How are Glendale School Staff Members and Students as a Learning Community Celebrating and Sharing with Others Their Accomplishments Through Inquiry-based learning?

Teaching Staff Comments

Celebrating through special events such as the celebration of learning - The celebration of learning provides a wonderful opportunity for students and staff to come together and to celebrate the learning that has taken place. The musicals are a good way of showing what the students have accomplished.

Celebrating through recognizing the accomplishments of staff members - The opportunities for staff members to make presentations to colleagues in other schools are a good way of celebrating what has been accomplished through inquiry-based learning.

Celebrating through the school web site - We celebrate the learning of our students through the school web site. The web page is good for recognizing and celebrating student learning. The web page has been huge for sharing and celebrating and keeping parents informed.

Involving parents in the celebration of student learning - Parents feel free to come into the classrooms to see what the students are learning. The parent/student interviews provide a good forum for recognizing the accomplishments of the students. We invite parents into the school to see what is going on.

Celebrating through displays of student work - There are many examples of student work being posted and displayed throughout the school.

Recognizing student learning beyond the school community - The school has a high profile because of the nature of learning. For example experts on environment and members of the bomb squad have been brought in as resources. We've had a lot of publicity as a school, but we haven't been seeking it out. It is the nature of inquiry.

Student Comments

Grade One

- The celebration of learning
- The Egypt play

Grade Two

- The Celebration of Learning
- Doing a play
- Showing your parents what you have learned.
- Taking the Mayan huts we made home to show others what we had done.

Grade Three

- The Celebration of Learning
- Presenting what you have learned to the class and to your parents.
- The musicals are celebrations.

Grade Three/Four

- We share our learning with others.
- We have a party to celebrate our learning.
- The celebration of learning is very good.
- The musicals and performances are a celebration.

Grade Four

- The celebration of learning
- The musical

Grade Five

- We had a big party at the Science Centre to celebrate.
- We celebrate our learning at special events
- We celebrated Out of the Ashes and Frankenstein by demonstrating all that we had learned.

Grade Six

- We had a Greece food feast, which was a good celebration of what we had learned.
- The Celebration of Learning is very good. (Sometimes it drags on and people get restless and maybe it should be shorter.)
- The celebration of the Frankenstein movie at the Science Centre was excellent.

VIII. What has been the Impact of the Galileo Educational Network Association?

In undertaking the study the Galileo Educational Network Association was interested in determining the nature of its impact on learning and teaching in Glendale School. In the first two or three years of the undertaking there was a much greater involvement and presence of the Galileo staff in Glendale school. The parents and teachers who were involved in the early stages of the initiative would have a different perspective and understanding of the role of Galileo than those who are new to the school community.

The goal of Galileo in this as well as other school initiatives is for inquiry-based learning with the appropriate use of technology to become self sustainable. The major source of ongoing support from Galileo is Intelligence Online. Intelligence Online provides an opportunity for teachers to interact with colleagues from other schools who may be involved in similar learning initiatives. Intelligence Online also provides a very comprehensive template for planning learning activities, which appropriately incorporate Alberta Education curricular content and objectives.

The Galileo staff members have maintained a presence in the school as well through involvement in facilitating professional development activities such as the staff retreat at the beginning of the school year and weekly after-school technology support sessions, which are referred to as Techie Tuesday.

Parents have been involved in some fund-raising activities to support the school in accessing other professionals to support the work in the school. Students have observed artists in the classroom doing such things as reading stories, presenting poetry and playing a harp, drumming, painting, etc. as well as working with their teachers.

Since it is teaching staff members who have been most directly involved in working with Galileo through the years, questions in regard to the impact of Galileo were directed to them. It is interesting that all staff members including those who are new to the school recognized the involvement of Galileo in promoting inquiry-based learning and the appropriate use of technology and expressed appreciation for the professional development support, which continues to be provided. The responses of the teaching staff members are as follows:

- Appreciation for having access to Galileo support - For the first three years Galileo was very involved and we had a lot of support but they have pulled back. We still feel that we can get support by contacting them by phone calls, e-mail and through Intelligence Online. When they first came there was more on-site support and it was very helpful. The new people on staff could use more direct on-site involvement. I appreciate being able to e-mail the Galileo team for advice and feedback and they respond very quickly at any time of the day.
- Challenging and supporting - Pat Clifford has been exceptional in helping us. She challenges us, offers valuable suggestions and is always available to be supportive. Jeff Stockton has been very good with storytelling and being a good model of inquiry. I wouldn't have been able to do it without Galileo and the support and assistance from Sharon, Pat and Jeff. I have done work with Sharon and

she has been excellent. It is a huge benefit to have her get the year off to a good start with all of the staff at the retreat. They gave us a lot of help and encouragement and I appreciate it when they attend our student presentations and provide us with positive feedback. The retreat at the beginning of the year helped me get into inquiry. I have benefited from my interactions with Pat, Sharon and Jeff. I am using Intelligence Online and I send e-mails to the Galileo team for ideas and to share my success stories. They always respond.

- Access to support through Intelligence Online - It depends on how you use it. It is a great way to exchange ideas and raise questions with other colleagues. It can be cumbersome and it could be streamlined.
- Facilitating professional development - The Galileo people often facilitate our professional development activities such as the staff retreat. Their involvement in the retreat at the beginning of the year is very important because we need to develop a common understanding of what we're doing in inquiry. The Galileo resource people were involved in brown bag discussions and it was excellent. I don't feel cut off from Galileo at all because I know the support is there if we need it. As a Master of Teaching student last year we did a lot of work with Galileo.
- The impact of an external influence - It has been very helpful as a school community to have the external influence of Galileo. They have been able to raise questions and offer suggestions that the administrative team and staff could not have dealt with on their own.
- Promoting the appropriate use of technology - Initially Galileo provided huge support in setting up technology and coming into classrooms to discuss inquiry, model questioning techniques and offer support and encouragement. We still benefit from the mentoring and professional development support through the retreat, Techie Tuesday, Intelligence Online and other professional development activities. The Techie Tuesdays are very helpful. Richard has helped us a great deal with our web site. They have helped me to bring technology into the classroom in a meaningful way. They have given the technical support I have needed. We need to emphasize that Galileo is more than technology. Through Galileo we have learned how to use technology appropriately as a tool.
- Promoting a different approach to learning and teaching - Galileo has been absolutely fabulous. They've helped me become a better teacher and challenged me and helped me approach learning and teaching in a different way. I use Intelligence Online to interact with Galileo and other teachers. I have e-mail communication with Pat, Sharon, Jeff and staff in other schools.
- Providing valuable resources - Galileo provides access to tools, cameras, software, professionals and people who know and support professional dialogue and access to IO as a planning and communication tool.
- Developing a better understanding of inquiry - If you have an idea but you're not sure how to fit it into inquiry there is a lot of expertise from Galileo to help you see the big question. Working with Pat Clifford and others in Galileo has helped me understand and implement inquiry. Unfortunately we see less and less of

them personally. Jeff is good at storytelling and modelling inquiry. We appreciate the involvement of Sharon and Pat at the retreat and in professional development activities.

- Promoting and facilitating changes in how teachers teach and how students learn
They have brought about a major change. Sharon Friesen's involvement in the retreat and helping us consider how we can incorporate math into inquiry was excellent. This is a very different school than it was before Galileo became involved. The staff retreat facilitated by the Galileo staff, is very important in getting the year off to a good start and providing a positive focus on inquiry. They got us to believe that we could do it. The discussions are powerful. They have tons of suggestions. The influence has been very great. They have challenged and supported teachers. Without their support there would be a much larger struggle. Pat and Sharon work well together in supporting the teachers. They are brilliant people and they seem to be available at any time of day or night to respond to our e-mail messages. They have a great way of gently guiding you to where you think you're going. They support you and ultimately make you feel you got there on your own. They don't tell you what to do. They let you be a learner. They ask questions, give ideas and resources and guide you. Those are the same things that we are doing as teachers in working with our students.
- Promoting and facilitating the use of performance-based approaches in the assessment of student learning - The rubrics in intelligence online are very good. This is an area for improvement, which we must pursue further
- Enhancing teacher satisfaction and sense of efficacy - I feel very proud to be in this school and everyone feels they are part of something special. I feel very good about what I'm doing. I have a learner focus and I am motivated to learn more. The students raised questions about where numbers come from and I was interested too and needed to learn more and together we did. Yes it has been hard but it is very satisfying. It would be hard go back to teaching any other way.
- Fostering a spirit of collaboration and teamwork among students and staff - Galileo definitely provides a very good support system. The Galileo team members have been very effective in promoting collaboration, helping us to know what inquiry looks like and what people can expect and being there to offer support, ideas and resources.
- Promoting and facilitating inquiry-based learning and teaching - They are so good at picking up where we are at in developing meaningful learning experiences. They are very good at working side-by-side with us. They maintain an ongoing conversation with us about learning and teaching. I really appreciate Sharon's involvement in the retreat and her daily and hourly support by responding to my e-mails. We need more opportunities like the retreat at the beginning of the year to have the Galileo people working with all staff members. Galileo has been the key in promoting and facilitating inquiry.

The teachers were asked to reflect on the impact of Galileo to the school through the years and to give some thought to what more Galileo could be doing to support what has

been accomplished and to continue to help the school sustain and evolve as a learning community promoting inquiry-based learning. Their responses include the following:

- More access to the Galileo team - I would like to see more of the Galileo team. It would be nice to see them more personally involved as much as they can be. Their participation in the retreat has been excellent. We need to recognize that online interaction cannot totally replace face-to-face. We still need to have the Galileo people spend as much time as they can with us in our classrooms so they are able to understand our context and provide the type of feedback we need. It would be nice to see them personally in our school more often. It was very good when they made a special point to be at the celebration of learning. It would be nice to have more people from Galileo coming into the classrooms at certain stages and working directly with us, especially for the new staff. We all need reassurance and we all benefit from new ideas.
- Continue to promote awareness of inquiry - The main thing is that we need Galileo to make sure that all staff and students are aware of what inquiry is all about. As a new staff member it would have been very good to have an orientation to inquiry and information on what is available through Galileo.
- Provide more help with technology.
- Revamp intelligence online to make it more user-friendly.
- I would like to see Galileo continue to grow and have more staff time available to spend in our school.
- We need some more help and support in the area of mathematics.
- I would like to see Galileo continue to do more work on inquiry at the junior and senior high school level so there is a smooth transition for our students.
- We need more help in the area of assessment of student learning. The impact of Galileo on our school has been huge. We still need Galileo, but over time we need to phase it out because you can create a dependency.

IX. The Leadership Role in Promoting Inquiry-based Learning in Glendale School

We have seen that leadership in Glendale School comes in many forms. Frequently reference is made to the leadership density in the school. Teachers on reflecting on the leadership in Glendale School identified the following key themes:

- The impact of the administrative team as leaders - The administrative team has been outstanding in encouraging staff members to take on leadership responsibilities. There is a strong commitment for inquiry from Lori and Susan. They totally believe in you and they let you know that they have full confidence in you. They say that inquiry is not easy and that is messy and they encourage us to work with it. Traditionally in other settings leadership is top-down; here the administrative team encourages teachers and students to take on leadership roles. There is a lot of leadership within the staff. Anyone can initiate things in this school. The administrative team is very supportive of risk taking and allowing staff members to become leaders. Lori and Susan are strong leaders. They encourage the staff to take on leadership roles like Gord and Erica going to New York and teachers making presentations to conferences and other school communities. There is a lot of great leadership potential in the school. I

appreciate the arrangements that are made by the administrative team to bring in substitutes so we can work on projects.

- Visionary leadership from the administrative team - The administrative team is making it clear that inquiry and planning together is a priority. Lori has fireside chats about how well the teachers are doing as teams in working together. There is a real need to have relevant, meaningful professional development for principals just like there is for teachers in regard to providing leadership for inquiry. Lori and Susan would have a lot to offer to other administrators. We have been lucky to have a supportive administration and staff. There is an ongoing push from Lori and Susan for teachers to be learners. It is part of the school culture.
- Relationship building - The key is relationship building among students, among staff and among staff and students. We spend a lot of time interacting, being involved in meaningful dialogue and recognizing the variety of needs and abilities among the students and staff. Without establishing positive relationships of trust and mutual respect not much can be accomplished whether you are using inquiry or not.
- Teachers as leaders and leadership density - Everyone takes on a leadership role and everyone is doing it together. Staff members take on leadership roles by presenting at conferences and sharing what they are doing with colleagues in other schools. I see every teacher taking on leadership in developing inquiries. Teachers e-mail each other a lot with information they have found and ideas that they have on topics like the water study. All of us to some extent are involved in leadership roles. There is plenty of discussion during staff meetings and PD days. People are given opportunities to take on leadership roles and present to other groups.
- Demonstrating leadership through learning together - The Roland Barth book Learning by Heart has been helpful for us to understand how we can all be leaders. The focus on the learning by heart book by Roland Barth by all the staff members as a focal point for discussion has been very good. The professional reading helps make the staff feel they are worthy as leaders and everyone takes on some kind of a leadership role. The brown bag discussions have been good for generating ideas and talking about areas of concern. Everyone coming to the brown bag sessions is involved in leadership. It is interesting how leadership develops naturally through inquiry. There are so many opportunities for teachers to take on a leadership role, just as there are opportunities for students to take on leadership roles. The professional development days are very helpful.
- Leadership by example - The more experienced teachers are providing leadership and they have set a high standard in regard to inquiry.
- Providing opportunities for everyone to be leaders- It seems like everyone is involved in inquiry in our school. Our caretaker saw what we were doing and provided some resources, which were very valuable. There are always lots of things going on that need to be headed up by someone, so there are plenty of opportunities for leadership. The staff members are keen and they look for

things to take on. Staff members are encouraged to go to other places to share what they're doing with others. This is a very good professional development activity.

- A culture of openness and collaboration - I feel comfortable going to any staff member for ideas and advice. The retreat at the beginning of the year provides a valuable opportunity for us to get together as a staff. The teachers are great about helping each other out and the staff works together very well. I have never seen anything like it. In other schools I've been in, teachers are isolated and there's no sharing or team teaching. Here everyone talks with each other about their learning activities and people work together.
- Promoting ongoing communication - We make good use of the brown bag discussions. Someone will send an e-mail describing what is being done with a request for ideas. As a staff we e-mail each other frequently with questions either during the day or evening. We e-mail each other with questions and ideas and everyone is approachable. Over the spring break I had between 40 and 50 e-mails. I seek out feedback from other teachers in the school and I talk about what went well and what didn't go well.
- Maintaining a learning focus at staff meetings - Staff meetings are positive and people are doing a lot of sharing about learning at the staff meetings. We share ideas at the weekly staff meetings. Teachers bring articles to share at staff meetings. There is ongoing dialogue throughout the school relating to students and learning and teaching.
- Promoting professional development and lifelong learning - Every day feels like a professional development activity because every single day I am learning something and I am learning from others. It is important for teachers to be active learners and for the students to see that they are learners and inquirers. Professional development in Glendale school is very focused and purposeful. It's not like saying here are a bunch of choices do whatever you like. Brown bag discussions are very valuable. There is a lot of informal consultation among the teachers, which takes place on an ongoing basis. The brown bag discussions aren't happening as much because we don't have Galileo hosting them. It is very helpful to have the outside expertise of the Galileo team at our professional development activities and the brown bag discussions.
- Creating the sense that "we are all in this together" - It is an expectation you cannot do inquiry alone. There is a sense of everyone being responsible for all of the learning. For example, everyone is part of the fish project. The staff works out together for fitness and we do a lot together. The retreat was huge. You get to know each other as a staff. Lori and Susan mention what other teachers are doing and encourage teachers to connect with each other and to work together. The retreat at the beginning of the school year gives us a chance as a staff to get away from the school. Pat and Sharon come out and enhance our understanding of inquiry. We connect, become friends and support each other. The retreat creates a sense that we are all in this together and we make a commitment to inquiry. When someone isn't committed, it's hard to work as a team.

- Working together as teams - The only way to avoid burnout and to be able to handle the workload is to have people working together as teams. The administrative team makes an effort to maintain team partners who work well together. If you team with the right person collaboration is natural. The administrative team has been excellent in allocating a lot of time for team planning. The staff members are encouraged to be in grade level teams. It is very important to have enough joint planning time to make it work well.
- Students take on leadership roles - The students learn from each other by sharing their work with each other each and inviting others into the classroom. The kindergarten students buddy up with the grade five students. We do lots of group work and we have the stronger students helping the weaker ones and we get the students to think about themselves as a team.
- Visionary leadership from the administrative team - The administrative team is making it clear that inquiry and planning together is a priority. Lori has fireside chats about how well the teachers are doing as teams in working together. There is a real need to have relevant, meaningful professional development for principals just like there is for teachers in regard to providing leadership for inquiry. Lori and Susan would have a lot to offer to other administrators. We have been lucky to have a supportive administration and staff. There is an ongoing push from Lori and Susan for teachers to be learners. It is part of the school culture.
- Parent leadership and support - The parents are very strong and very supportive. They have been very good about making available whatever resources we need.

X. What has been the Impact of the Involvement of University of Calgary Master of Teaching Students?

For several years Glendale School has been involved in a unique arrangement with the University of Calgary Master of Teaching program. The two-year teacher preparation program for individuals with an undergraduate degree promotes a learner-focused, inquiry-based approach to learning and teaching. Normally cohorts of three or four student teachers would be placed in a school. Arrangements have been made for Glendale School to have a cohort of fifteen-second year student teachers in the school from September to December. The cohort in essence doubles the number of adults working directly with students. Comments from the staff in regard to the contribution of the Master of Teaching student teachers include the following:

- Increased opportunities to individualized instruction - It has been tremendously positive. We have been able to work with smaller groups of students by involving the Master of Teaching students. You have more adults in the classroom so you can provide more individual guidance to the students. We had six adults for 40 students and we could take the students in six areas of interest and do much more with them.

- Leadership in organizing special learning activities- It has had a very positive impact. It is a great loss in the second half of the year when we don't have them here. The out of the ashes inquiry was incredible because we had six student teachers and three teachers all planning and working together. With the student teachers we were able to form small groups and we benefited from their ideas and expertise.
- The Master of Teaching students come with an inquiry focus - The Master of Teaching students are very creative and imaginative and they have a very good understanding of inquiry-based learning. They have brought lots of ideas into the classroom and they make it possible to do more small group work and to team teach. The impact of the Master of Teaching students is very positive. It varies from year to year depending on the particular group of student teachers. They bring amazing knowledge and skills and a very good understanding of inquiry.
- They bring a lot of enthusiasm - They bring a lot of enthusiasm to the school. They have lots of good ideas and they like working with the teachers in coming up with ideas for activities like out of the ashes. The student teachers had great ideas and we all worked together for the symposium. It has challenged me to better my craft. They ask questions which get me thinking. They bring energy and enthusiasm. They bring a lot of background knowledge. They actively participate in staff meetings and in many ways become like additional staff members. They develop strong relationships with small groups of students and share their areas of expertise and interest through the inquiries.
- Learning together - One of the concerns is that many of us haven't had that much teaching experience ourselves but we learned a lot together. We really learned a lot together. It was like the student teachers were team partners. I look forward to having student teachers. It is a very positive learning experience for the teacher and the student teacher because we are truly living it together. It is good to have more adults in the classroom. Students see adults learning together and see that it is ongoing. Modeling learning is a good thing.
- A positive response from students -The students really like having student teachers in the school.

Student comments

Grade One

- The student teachers were really nice.
- The student teachers read stories to us and helped us learn.
- The student teachers helped us with our study groups.

Grade Two

- I liked having them work along with our teacher.
- They taught us things about science that we didn't know before.
- They helped us learn about the Mayans.
- Having a student teacher is really helpful to our teacher. She needs a break once in a while.

Grade Three

- They were very good and they taught like real teachers.
- They gave us extra help.
- The student teachers had some really good new ideas about our inquiries.
- We got individualized help from the student teachers.
- There were more people to help us learn.
- We had fun with them.

Grade Three/Four

- The student teachers were very friendly and helpful and they had lots of new ideas.
- They helped us gather information using the heart rate monitors.
- We liked to have the student teachers in our school.

Grade Four

- It was cool having them in our school. They would give us extra help and they had good ideas for us.
- They helped us get information and they taught us too.
- The student teachers were a miniature version of our teachers.
- I've been in Glendale School for five years and I've learned a lot. My favorite memory would be in grade four when we did our celebration of learning for our inquiry on sport heroes. Our student teachers helped us a lot on this inquiry. We used computers and fun books to research.

Grade Five

- They had a lot of good ideas and helped us with projects like Canadian Identity.
- We were able to get more individual help with our inquiries because the student teachers were working along with our teachers.
- The student teachers gave us a lot of encouragement and support.
- They were like real teachers. We had fun learning with them.
- I liked the sense of humour of the student teachers.

Grade Six

- It was good to have the student teachers and to have different people teaching us different ideas.
- We became attached to our student teachers and didn't want to see them go.
- They brought new ideas.
- We got more attention and individual help.
- They were super nice.
- They just didn't watch, they taught us too.

XI. What are the Challenges in the Implementation of Inquiry-based Learning in Glendale School?

The transformation in learning and teaching in Glendale school was not without significant challenges. It is very difficult to bring about change in an educational setting. The staff members in describing their experiences with inquiry-based learning identify the following major challenges:

1. There is a great deal of work and there are significant challenges associated with developing meaningful inquiries - The first inquiries at the beginning of the year when we have the Master of Teaching students seem great. It seems like after Christmas Break inquiries are not as exciting or as much in-depth. There has to be some way to keep strong inquiries going. For some reason the first inquiries of the year seem to be the strongest. You are fresh from the retreat and you have lots of ideas. After Christmas we could use another professional development activity and another shot of inspiration. Some teachers may find it very challenging because you are no longer the expert who has all the information to pass on to the students. Often you know little more than the students. You are a learner to and you do a lot of homework.
2. Implementing an Integrated Approach to Learning - I didn't know what inquiry was all about and letting go of a segregated approach to learning with everything organized in subject areas was hard to do. There are challenges associated with the integration of mathematics into inquiries. It is a challenge to integrate learning and make sure that all of the curriculum is covered. The learning is student-based, but you still need to fit in the curriculum. The challenge is to ensure the curricular goals are incorporated. It hasn't been easy for someone who has taught for a number years. You have to give up control of what happens and it can be quite unpredictable. When I first started teaching I thought it would be getting easier but that hasn't been the case. I used to have a box for the units I taught; you sure can't do that now. I do like the excitement of it all.
3. Having in place technology and resources - Fundraising for the technology that we needed to do inquiry the way it should be done has been a challenge. Lori had to work hard in presenting the case for more funding for technology through the Board after the two schools were amalgamated. As well, the parents have been great in supporting fundraising initiatives.
4. Inquiry is hard work and time consuming - It has been hard work. You have to be willing to give extra time to learn new things and do things like the web page and use Intelligence Online for planning. It has been challenging, but in a good way. There is a lot expected of teachers. Inquiry is intellectually challenging and it is hard work. We just had a three-month inquiry on water and I didn't know anything about water. The time commitment is an issue. We need to find balance in our lives.
5. Changing from the traditional approach to learning and teaching - It is still a challenge to let go of the traditional way of looking at the curriculum. I'm worried

about covering the curriculum. On the other hand, I know that the students have learned a lot. Covering the Program of Studies is a constant concern for me.

6. Ensuring that students develop basic skills - It is challenging for teachers because you have to do the guided reading, printing, basic facts and at the same time have flexibility for inquiry. You always have many demands and voices coming at you at the same time. The challenge at the primary grades is to develop the basic skills and at the same time combine the skill development with inquiry as much as you can.
7. Challenges associated with the changes in administration - In thinking ahead to next year, I am concerned about what the administrative team will look like. The philosophy and beliefs of the new administration will make a difference and that is a big question for all of us. Could anyone stop inquiry? If they didn't provide the funding and the support they could kill it to some extent. With the change in the administrative team it will be very important that we have someone who willingly supports inquiry work.
8. Dealing with external pressures and misconceptions - One of the challenges is that people in the school system think Glendale has had a high profile and has been patted on the back too much. A big part of inquiry is connecting with the community and doing high profile initiatives like the movie productions and bringing in guests to see what we're doing. When Glen Meadows and Glendale School were amalgamated we were in the third year of Galileo. We went on a retreat to Banff and everyone who had not been involved in inquiry felt quite uptight. They were looking for a concrete picture of what inquiry looks like. Looking back, I understand where they were coming from. You have to be willing to try and fail and you need parental, school administrative and school system/political support to make it all possible. As a result of the retreat, everyone agreed to give it a try, share ideas and support each other because we realized you couldn't do it with just a few people. We also needed support from Galileo and we benefited from their expertise in planning, their ideas on how to use technology and their understanding of learning and teaching. When you have an idea like clay animation you need external help to put it all together.
9. Developing appropriate approaches to assessing for learning as well as the assessment of learning - One of our major challenges is to continue to work toward authentic assessment. In regard to the celebration of learning, we need to make sure that we have the proper perspective on exhibition versus performance. Sometimes it is too much of a performance.
10. Challenges for new teachers to the school - Inquiry can be very scary for people who are new to the school. The new teachers who have inquiry as part of their background are doing well. You don't have to sell the kids on this because they like learning this way.
11. Developing a shared understanding of what inquiry is all about - It is very important that everyone understands what it is all about. When you are a teacher who has been educated through the Master of Teaching program, inquiry is very natural and it is how you think. The challenge is to explain what it is and to help students and staff members develop a shared understanding of it. There are

misunderstandings about what inquiry is all about. For example, some think that it is a very unstructured approach to teaching and learning, but really you need structure. On an ongoing basis we need professional development activities relating to inquiry.

12. Pressures associated with working with Master of Teaching students - At the beginning of the year you wonder whether inquiry will fly or flop and you have the cadre of Master of Teaching students who come to see inquiry. There certainly is pressure on the teachers.
13. The pressure of Achievement Tests - I feel pressure because of the achievement tests but it is not coming from the parents. They seem to be very satisfied with how their children are learning. We do use the achievement tests to review the results and use the information appropriately. I wouldn't change how we teach because this is still the best way.
14. Staffing is extremely critical. You need the right people and not every teacher can do this kind of work. We have a great staff and we have been very fortunate in being able to bring in new staff members who have been outstanding in their contributions to inquiry. We have been able to create an incredibly high leadership density in our school and we need to keep building on it.

XII. Sustainability of Inquiry-based Learning in Glendale School

Clearly a great deal has been accomplished in Glendale school over the six-year period of time involving the use of inquiry-based learning. A major focus of the study relates to the sustainability of inquiry in Glendale School. In considering factors for sustainability, the following were identified:

1. Administrative Support - The importance of having administrative support was identified as a key element relating to sustainability. The role of the administrative team in bringing the staff, students and parents together to develop a common understanding of inquiry and providing ongoing support and assistance for its successful implementation was frequently mentioned. The administrative team of Lori and Susan was frequently referred to with comments of commendation and appreciation. The administrative team would be identified as being instrumental to the success of the inquiry-based initiative. There were numerous concerns expressed in regard to the proposed change in administration and the belief was expressed that if there is a new administrative team and if the administrative team is not supportive of inquiry in Glendale School, it will not be sustainable.
2. Intelligence Online - Intelligence Online provided through Galileo was identified as a major facilitator. Teachers describe how they interact with colleagues, raise questions, share ideas and develop curriculum related inquiries using the Intelligence Online inquiry-based learning template.
3. A Continued Commitment to Inquiry - Teachers individually and collectively must maintain their commitment to inquiry. One teacher commented, I love teaching

this way and if you have a passion about something the students pick up on it. I have seen how invigorating this type of teaching is.

4. Ongoing Support from Galileo - Although the role has changed through the years, it will be important to have ongoing support from the Galileo Educational Network Association. The staff members realize that Galileo cannot be involved as much as they were initially. Appreciation was expressed for all that is provided and recognition of the importance of an external influence was highlighted.
5. Developing a Common Understanding of Inquiry - The need for continued job-embedded professional development and opportunities to develop shared meaning and a common understanding of inquiry was emphasized.
6. Ongoing Professional Development - The importance of providing ongoing professional development opportunities for staff members, which are relevant and connected to what is taking place in Glendale School, was emphasized.
7. Parental Support - The continued support of parents for inquiry in Glendale school and active involvement in the work of the school as volunteers and in promoting inquiries and meaningful learning experiences for their children, is seen as being critical to sustainability.
8. Parent Involvement as Resources and Volunteers - Parents have been actively involved in sharing information with students as experts and in taking on leadership roles such as the coordination of the garden project. The continued involvement of parents as learning resources and volunteers would enhance sustainability.
9. Adequate Funding for Technology and Learning Resources - Inquiry -based learning involves accessing information sources through technology and using technology to present what has been learned. It is also important to have adequate funding for other resources used in the inquiries.
10. Access to Alberta Initiative for School Improvement (AIS) Funding - AISI funding has been used extensively to provide release time for planning and professional development activities related to inquiry-based learning. The discontinuation of access to this funding would significantly impact the sustainability of the initiative.
11. Adequate time for Planning and Collaboration - There are budgetary implications associated with making provision for time for planning, teambuilding and collaborating with colleagues.
12. Continued Support from the Calgary Board of Education - The continued support of the Calgary Board of Education for inquiry-based learning and what is taking place in Glendale School will be very important in regard to the continued sustainability of the initiative.

XIII. Commendations

The Staff

Commendations are extended to the teaching staff for:

1. Relationship Building - The teachers recognize the importance of relationships and they have been very effective in establishing relationships of mutual respect caring and trust with students, parents and colleagues.
2. Establishing a positive climate for learning - The teachers demonstrate excellent skills in establishing a productive, positive climate in their classrooms and ensuring that students are conducting themselves appropriately.
3. Caring for the students - The students sense that the teachers genuinely care about them as individuals as well as learners.
4. Creating a positive culture for learning in the school - The teachers through their informal interactions with students, their colleagues and visitors to the school have been instrumental in creating the sense that "we are all in this together" and "this is a good place to be". In the feedback received, there are many comments describing Glendale School as a happy fun place to be.
5. Demonstrating a strong commitment to inquiry-based learning individually and collectively - Teachers describe the demands on their time and challenges associated with the development of inquiry-based learning experiences and at the same time they acknowledge the tremendous sense of satisfaction which they derive from this approach to learning and teaching. All members of the teaching staff demonstrate a strong commitment to using inquiry in organizing learning activities in Glendale School.
6. Demonstrating a willingness to take risks and be innovative - Teachers describe how moving from the traditional organization of learning in specific subject areas to an integrated, inquiry-based learning approach has caused them to experience some apprehensions, specifically related to addressing all the curricular goals, however they have demonstrated a willingness to take risks and be innovative because they have seen the very positive impact it has had on student learning.
7. Establishing teams and a close working relationships with teacher colleagues - The close working relationship among the Glendale teachers is reflected in the ongoing informal conversations about learning and teaching, the sharing of ideas, the support teachers show for each other and the active involvement of teachers in professional development activities such as the brownbag sharing sessions.
8. Establishing relationships with a learning focus - Teachers describe themselves as learners. There are many examples throughout the study of teachers describing how much they have learned from their students. Teachers in their

- interactions with their colleagues are also modeling for their students a learning focus.
9. Promoting teamwork - Having students work together as teams is a significant component of inquiry. Teachers describe how they make a special effort to help students develop effective teamwork skills. The teachers in working with colleagues as teams also are good mentors and models of what can be accomplished through teamwork.
 10. Providing students with meaningful learning experiences through inquiries - There is a great deal of work involved in developing inquiries with the active input of students and ensuring that curricular goals are adequately addressed through the inquiries.
 11. Offering support, assistance and encouragement to students - The students frequently expressed appreciation for the support, assistance and encouragement, which they receive from their teachers.
 12. Motivating students as learners - Parents commented on how impressed they were with the level of motivation of their children as learners and how their learning had extended beyond the classroom and the school. They recognized with appreciation, the impact of the teachers in motivating their students.
 13. Addressing the special learning needs of students - Appreciation was expressed by parents for the care that has been taken in considering the special needs of students by organizing inquiries and learning activities which ensure they have opportunities to be involved in meaningful learning experiences.
 14. Actively accessing the professional development opportunities made available through Galileo - Teachers described their appreciation for opportunities to work directly with the Galileo Team members and to benefit from their coaching, support and leadership through inquiry-based learning professional development learning experiences such as the brownbag sharing sessions, Techie Tuesdays and Intelligence Online.
 15. Actively participating in school-based and other professional development activities - Teachers seek out opportunities for learning through professional development activities as well as opportunities to learn through making presentations at conferences and to colleagues in other schools.
 16. Participating in an action research projects dealing with the assessment of learning- Teachers are involved in an AISI project, which will provide an opportunity to develop new approaches to performance-based assessment of student learning, in keeping with the philosophy of student-based learning.
 17. Embracing the opportunity to work with a cohort of University of Calgary Master of Teaching Students - The feedback from students and staff in regard to the involvement of the Master of Teaching students in Glendale school is very positive. The teachers have been outstanding in joining with the MT students in a journey of exploration, learning and mentoring.

18. Establishing positive partnerships with parents - Parents expressed an appreciation for all that teachers do to make them feel welcome in the school and in their children's classrooms as well as the opportunities provided for them to become involved in the education of their children through volunteering and sharing their knowledge and skills as expert resources.
19. Willingly taking on leadership roles and building a high-density of dispersed leadership in Glendale School - Teachers have been outstanding in their willingness to accept opportunities to take on leadership roles and their involvement as leaders has significantly impacted learning and teaching in Glendale School. There are many examples including musicals and drama productions and the celebrations of learning.
20. Celebrating learning and recognizing the accomplishments of students - There are many examples of student learning in the hallways and throughout the school and the teachers are actively involved in celebrating learning and reinforcing the accomplishments of students informally and through special events such as the celebration, of learning.

The Administrative Team

Commendations are extended to the administrative team for:

1. Establishing positive relationships with students, parents, staff and visitors to the school -The administrative team has very effectively established positive relationships with students, parents, staff and visitors to the school. Parents and visitors to the school feel welcome and respected and expressed appreciation for the positive relationships among students, staff and the administrative team which are very much in evidence.
2. Building Trust - The administrative team has, through ongoing informal communication processes, conveyed to teachers that they trust them, believe in them and have confidence in them.
3. Articulating a Vision for Inquiry-based Learning - The administrative team has with the active involvement of students, staff, parents and the Galileo team articulated clearly a vision for inquiry-based learning and has maintained a healthy pressure while at the same time providing support and encouragement.
4. Creating a Culture of Openness and Collaboration - The administrative team has facilitated the development of a culture of openness and collaboration in Glendale School through the organization of special activities which promote opportunities for staff members to get to know each other better and establish a foundation for working together as well as providing ongoing informal modelling and mentoring,
5. Bringing People Together - The administrative team has very effectively promoted the sense among parents, staff and students that "we are all of this together" and "everyone is responsible for the learning which takes place in the school"

6. Creating Leadership Density -In recognition of the belief that leadership arises naturally through inquiry drama the administrative team has been very successful in encouraging staff, students and parents to take on leadership roles.
7. Leadership Development - Staff members are encouraged by the administrative team to share their learning experiences from Glendale School with fellow educators at workshops and conferences.
8. Time for Planning - The administrative team places a priority on allocating time during the school day for teachers to come together for planning in recognition of the importance of having opportunities to come together to reflect on curricular expectations, share ideas and collaborate.
9. Facilitating and Promoting a Close Working Relationship and Partnership with the Galileo Educational Network Association - It was very important in the early stages of the partnership with Galileo to have strong support from the school administrative team. The administrative team has through the years made a special effort to facilitate and promote a close working relationship with Galileo and to benefit fully from the professional development support of the Galileo team.
10. Promoting Professional Development - The administrative team has clearly articulated the view that professional development should be relevant, meaningful and ongoing. The administrative team actively promotes focused and purposeful professional development activities such as staff meeting discussions of books and articles relating to inquiry and professional learning communities and sharing sessions, such as brownbag lunches and fireside chats as well as professional development activities provided through the Galileo Educational Network Association.
11. Communicating Beyond the School Community - Staff members are encouraged by the administrative team to use the school web page as a form for communicating beyond the school the nature of learning in Glendale School and student success stories as learners.
12. Celebrating Learning and all that Glendale School Represents - The administrative team encourages students, staff and parents to take time to be actively involved in celebrating learning in Glendale school through special events such as drama productions, musicals and celebrations of learning.
13. Promoting Students as Ambassadors of Glendale School and the Calgary Board of Education - Students are encouraged by the administrative team to host guest and touring groups, make presentations and serve as ambassadors of Glendale School and the Calgary Board of Education. Certainly a highlight for Glendale School during the current school year was the opportunity to showcase the student production of Frankenstein at an international film festival in New York.
14. Promoting Glendale School and the Focus on Inquiry - Students, staff, parents as well as the administrative team are actively involved in sharing their enthusiasm for inquiry-based learning and their appreciation for the transformation in learning, which has taken place in Glendale School as a learning community.

The Galileo Educational Network Association

Commendations are extended to the Galileo Educational Network Association team for:

1. Promoting Inquiry-based Learning - The Galileo team members have through the years maintained a strong presence in the school through facilitating professional development activities, visiting classrooms and mentoring teachers, attending celebrations and special events and being available on an ongoing basis personally and through electronic communication to provide support and assistance.
2. Challenging and Provoking Reflection - The Galileo team members have served an important function in challenging teachers through thought-provoking questions, sharing ideas, providing resources and facilitating meaningful inquiries.
3. Promoting the Effective Use of Technology as a Learning and Teaching Tool - The Galileo team members through their mentorship of inquiry-based learning have demonstrated the tremendous potential of technology as a tool for gathering information, presenting a description of the learning that has taken place and enhancing inquiries.
4. Promoting Students as Mentors - In keeping with the ideals of inquiry, the Galileo team members have encouraged teachers to provide opportunities for students with expertise in the use of technology and/or knowledge and skills in areas related to their inquiries, to take on leadership roles as mentors for the students and teachers.
5. Supporting the Administrative Team - Galileo through the partnership with Glendale School has provided an external perspective and strong support for the leadership of the administrative team in developing and articulating a vision and promoting inquiry-based learning.
6. Providing Ongoing Support through Intelligence Online - All members of the teaching staff made reference to accessing intelligence online to share ideas and resources with colleagues from other schools and to develop curricular-based plans for inquiries using the intelligence online template.
7. Reinforcing Fundamentals of Inquiry - Dr. Pat Clifford and Dr. Sharon Friesen have participated in the annual staff retreat at the beginning of the school year and other professional development activities providing staff members with an opportunity to refocus on the goals of inquiry as well to provide a valuable orientation for new staff members.
8. Facilitating Ongoing Professional Development - The Galileo team members through the years have been involved in facilitating a variety of professional development activities such as the brown bag sharing sessions and Techie Tuesdays.

9. Providing Ongoing Technical Support - Galileo has provided technical support on a regular basis to assist teachers in web site development and in developing personal skills in the use of technology.
10. Providing Valuable Resources for Inquiries - Galileo has made available resources such as digital cameras, heart monitors and computer software as well as access to experts to support various inquiries.
11. Working with the Master of Teaching Students -Dr. Clifford and Dr. Friesen have been involved in providing professional development sessions dealing with inquiry-based learning for instructors at the University of Calgary who are working with the Master of Teaching Students. The inquiry-based focus on the Master of Teaching Program as well as the support that has been provided through Galileo, is reflected in active involvement of the Master of Teaching students in working with their partner teachers to promote learning through inquiry.
12. Promoting Teacher Efficacy - The Galileo team members have through their work with the Glendale teachers helped them develop confidence in their ability to bring about positive change and enhance the learning experiences of their students through inquiry.

The Students

Commendations are extended to the students for:

1. Enthusiastically Embracing Inquiry - The enthusiastic response of the students to the opportunities through inquiry-based learning to become actively and meaningfully involved in learning activities which help them connect to the real world has been gratifying for the teachers and as well has served as a motivator.
2. Welcoming new students to the school and making them feel comfortable with inquiry - Students who are new to the school comment about the special effort that has been made by the Glendale students to make them feel welcome and to help them learn in new ways through inquiry.
3. Sharing expertise and knowledge with others - The students have been outstanding in mentoring their teachers and fellow students and in sharing their expertise and knowledge.
4. Enriching learning experiences - Students have enthusiastically extended their learning experiences beyond the school and have willingly shared with their teachers and colleagues information and ideas from their personal research.
5. Demonstrating Outstanding Learning Experiences - Students, through class presentations and displays and participation in special events such as drama productions, musicals, celebrations of learning, have demonstrated outstanding accomplishments as learners.
6. Demonstrating Initiative as Inquirers - The students have demonstrated extraordinary initiative and talent through the production of movies based on The

Hobbit and Frankenstein and through their contacts with national and international experts in areas related to their inquiries.

7. Being Outstanding Ambassadors of Glendale School and Inquiry-based Learning- The students through their enthusiastic involvement as learners in Glendale school and participation in a variety of significant activities as outlined in this report, have been outstanding ambassadors of Glendale School and the benefits of inquiry-based learning.

The Parents

Commendations are extended to the parents for:

1. Supporting the Partnership with the Galileo Education Network Association - When the opportunity to become involved in the inquiry-based learning initiative through the partnership with the Galileo educational network Association was presented to the parents, they enthusiastically provided financial and moral support.
2. Providing Financial Support - Through the years parents have been actively involved in fund-raising projects to support inquiry-based learning in Glendale School.
3. Supporting the Staff - The parents have demonstrated an appreciation for the hard work, dedication of the staff and all they are doing to make Glendale an excellent school. They describe the teachers, administrators and support staff as being outstanding. The strong parental support has contributed significantly to the successful implementation of inquiry-based learning.
4. Supporting Inquiry in Glendale School - The parents have expressed strong support and appreciation for the learning opportunities provided to their children through inquiry-based learning. Without parental support this innovative approach to learning and teaching would not be possible.
5. Becoming Actively Involved in the Learning of their Children - The parents have actively embraced inquiry through their interactions with their children at home as an extension of the school learning experiences and through the interest they have shown in their children's learning activities in Glendale School.
6. Supporting Learning in Glendale School through Volunteering - The parents have been actively involved in supporting learning as volunteers and resource persons and through taking on various leadership roles in the school.
7. Attending Special Events Celebrating Student Learning - Parents are very involved in spending time in the school to reinforce the learning of their children and in attending special events such as the musicals, drama productions and celebrations of learning.
8. Being Strong Advocates and Ambassadors for Glendale School - The parents express a great deal of pride in the school and in the accomplishments of their children as learners and appreciation for all that the staff does to make it a very

good school. The parents have been strong advocates and ambassadors for Glendale School.

Calgary Board of Education

Commendations are extended to the Calgary Board of Education for:

1. Providing the opportunity for Glendale School to Become Involved in the Inquiry-based Learning Initiative - The involvement of Glendale School in the pilot project and partnership with the Galileo Educational Network Association was initiated by the Calgary Board of Education school system leaders.
2. Providing Financial Support for Technology and Classroom Access to the Internet-Student and teacher access to the Internet and other sources of information through technology is a very important component of inquiry-based learning. The extra financial support for technology that was provided by the Calgary Board of Education in the initial stages of the pilot project contributed significantly to its success.
3. Providing Ongoing Support -The ongoing support from the Calgary Board of Education and school system administration for inquiry-based learning in Glendale School has enabled the school to undertake the transformation in learning, which has taken place.

XIV. Recommendations for Further Consideration

1. Building on the Foundation of Success - Throughout the report there are many success stories and what could be described as a transformation, which has taken place through inquiry-based learning, expressed from the perspective of students, parents and members of the Glendale School staff. It is recommended that the Glendale School community continue the process of transformation by building on the foundation of success through inquiry-based learning, which has been highlighted in this report.
2. Continue the Partnership with the Galileo Educational Network Association - Although the involvement cannot and should not be at the same level as what was in place in the early stages of the pilot project, the importance of maintaining the ongoing professional development support of inquiry-based learning which is available through the Galileo Educational Network Association is highlighted throughout the report. It is recommended that Glendale School continue to utilize available funding to continue the partnership with the Galileo Educational Network Association.
3. Ensure Continued Administrative Support for Inquiry-based Learning -The leadership of the administrative team in promoting and actively supporting inquiry-based learning has been identified as a key contributor to the success of the initiative. With the administrative changes that will be taking place in Glendale School at the end of the current school year, continued administrative support for inquiry has become a major issuer for staff members and parents. It

is recommended that the importance of administrative support in the sustainability of inquiry-based learning in Glendale School be brought to the attention of the Calgary Board of Education and school system administration.

4. Ensure Continued Strong Support of the Teaching Staff for Inquiry-based Learning - There are significant challenges for teachers associated with inquiry-based learning, which have been identified in the report. On the other hand, teachers have described the professional satisfaction and tremendous rewards they have experienced and have expressed their strong commitment to inquiry. In recognition of the importance of having the commitment of all teachers to successfully provide learning experiences through inquiry, it is recommended that the continued commitment of the existing teaching staff be assured and that a commitment to inquiry-based learning be a major consideration in the selection of new staff.
5. Maintain a Shared Vision and a Common Understanding of the Fundamentals of Inquiry-based Learning - As has been demonstrated in this study, inquiry can take many different forms, however there are fundamental elements such as integration of curricular objectives through meaningful, relevant learning experiences, which should be reflected in all learning activities. In order to ensure that teachers maintain a common understanding of the fundamentals of inquiry-based learning, it is recommended that a retreat for this purpose be held at the beginning of each year and that throughout the school year focused and purposeful professional development activities, similar to those described in this report, continue to be made available.
6. Focus on the Integration of Curricular Expectations Through Inquiries - In recognition of the challenges associated with the development of integrated learning experiences as well as appropriately addressing curricular expectations outlined in the program of studies, it is recommended that teaching teams work collaboratively in developing rubrics and checklists which can be used to ensure the curricular expectations are being met through inquiries.
7. Review Assessment Practices - Feedback from parents and staff reflect concerns with the interpretation of Provincial Achievement Test results and a desire to develop further performance-based assessment measures that relate to the achievement of students as learners through inquiry-based learning experiences. It is recommended that a priority be placed on reviewing assessment practices, considering the appropriate use of provincial achievement test results for instructional purposes and articulating a philosophy and describing processes for the authentic assessment of student learning and the use of assessment for learning.
8. Orientation to Inquiry-based Learning of New Students to the School - Glendale is described as a friendly welcoming school community and new students acknowledge with appreciation the efforts of students and staff to make them feel welcome. For many students who are new to the school, the focus on inquiry-based learning is a significant departure from what they have experienced in other schools. It is recommended that provision be made to develop an orientation program (which ideally could involve Glendale students as mentors) designed to provide students new to the school with an understanding of inquiry-

based learning and experiences which would contribute to their success in making the transition from schools with a different approach to learning.

9. Ongoing Information Programs Dealing with Inquiry-based Learning for Parents - In recognition of the important role of parents in supporting and becoming actively involved in the learning experiences of their children it is recommended that information programs be organized for new parents in particular but available to all parents with the focus on how students learn in Glendale school through inquiry and how parents can become active partners in the education of their children.
10. Promote Leadership and Empower Students, Staff and Parents - A key element of inquiry is empowering individuals as learners. Throughout this report there are numerous examples of students, teachers and parents taking on leadership roles, which have resulted in the enrichment of learning in Glendale School. It is recommended that the development of leadership and empowerment continue to be a high priority.
11. Promote the Continued Evolution of Glendale School as a Learning Community - It is common for every school to strive to be what is described as a professional learning community however, experience has shown that it is a complex undertaking. It is noteworthy that the descriptions of learning in Glendale School in this report and in particular the manner in which students, staff and parents have come together as learners can best be described as a learning community. In recognition that becoming a learning community is an ongoing process rather than a goal to be achieved, it is recommended that every effort be made to promote the continued evolution of Glendale School as a learning community.
12. Continue to have a Cohort of Master of Teaching Students - In recognition of the feedback from students and teachers in regard to the positive impact of the cohort of Master of Teaching students in supporting inquiry-based learning, it is recommended that Glendale School continue the partnership, which is in place with the University of Calgary, Master of Teaching program.
13. Consider the Perspective of the Student, the Staff and Parents Reflected in the Glendale School Inquiry-based Learning Study Report - As was stated in the introduction of this report, it was written to reflect the experiences and reflections of students, staff and parents as they relate to learning in Glendale School. In keeping with the inquiry-based approach to learning, the report is intended to serve as a rich source of information to be used in exploring further the nature of learning in Glendale School and the identification of opportunities to further enhance Glendale School as a learning community. It is recommended that this report on the study of inquiry-based learning in Glendale School be used as a focal point for further exploration.

XV. Some Observations from the Author of the Report

As an educator with 35 years experience in teaching and administration at the school and school system levels including 21 years as Superintendent of Schools, I have had

the opportunity to develop an appreciation for learning, teaching and leading from various perspectives. As well, over the past two years, through opportunities to teach graduate courses in educational leadership at the University of Calgary and to work with student teachers through the University of Calgary Master of Teaching program and through my involvement in contract educational consulting involving a number of Alberta educational initiatives, my frame of reference has been expanded as it relates to learning, teaching and leading. I was very impressed with what I observed and learned through the study of the impact of the Inquiry-based learning initiative on learning and teaching in Glendale School. Over the six year period since the Glendale School community entered into a partnership with the Galileo Educational Network Association to promote inquiry-based learning and the effective use of technology as a learning tool, I believe there has been a significant transformation in learning and teaching in the school and the school has become what can truly be described as a learning community. It is a learning community which continues to grow and evolve.

In writing this report, it was my goal to describe through the information gathered, the voice or perspective of those who been involved or impacted by this initiative. Ideally I would have welcomed an opportunity to undertake the study in the first half of the school year when the cohort of fifteen Master of Teaching student teachers (whose preparation through the University of Calgary program is strongly embedded in inquiry-based learning), became active members of the Glendale School learning community. I was able to ascertain through the information gathering process that the Master of Teaching students in the past two years they have joined the staff as a large cohort have had a very positive impact in promoting learning through inquiry.

I enjoyed having the opportunity to spend several days in Glendale School interviewing parents, students, teachers and members of the administrative team and developing a feeling for the school. I found the students to be very friendly, eager as learners and happy to be in the school. Students who were new to the school indicated that they quickly noticed that learning was different in Glendale School. Without exception there were many indicators demonstrating that the students truly enjoy being in the school and learning through inquiry. Each day I spend in the school parents were very visible and actively involved in supporting the work of the school. The teachers and the administrative team were enthusiastically involved in working together, supporting each other and learning together. My overall impression of the school is that it is a very vibrant, dynamic, active learning community in which students, parents and staff members demonstrate an enthusiasm for learning through inquiry and a great deal of pride in all that has been accomplished as a learning community in Glendale School.

My initial goal in preparing this report was to capture the essence of what is taking place in Glendale School as it relates to inquiry-based learning in a document that did not exceed twenty pages. I was overwhelmed with the response of parents, teachers and the administrative team through the interviews and the response of the students through interviews, visits to their classrooms and their written reflections relating to learning in Glendale School. I decided to incorporate the richness of the feedback I received through the information gathering process, as I addressed each of the guiding questions. It was my goal in preparing this report to reflect the authentic voices of the members of the Glendale School community as they told their story. I prepared a document featuring the highlights of the study which initially was to be in the form of an executive summary but again I found that it became more lengthy than what I had initially intended as I

attempted to ensure that the document also accurately presented the Glendale School story.

In interviewing parents of Glendale School students, I was impacted by the significant number (over 35%) of parents living outside of the school attendance area, who have made a special effort to have their children attend Glendale School. In many cases the parents have made significant personal sacrifices to provide transportation on a daily basis for their children and to participate as volunteers in the school. The parents had carefully researched the nature of learning in the school through the school web site, visits to the school and conversations with other parents and they are strongly committed to having their children in Glendale School. I was impressed with the knowledgeable, articulate and supportive responses of the parents as it relates to the involvement of their children in learning through inquiry. Many parents described how the learning experiences of their children have spilled over into the home and how they have become involved as learners as well. There were many examples of parents being in the school and being involved in the learning of their children as volunteers and expert resources. For example, one of the parents dedicates countless hours to serving as a resource person and coordinating the involvement of groups of students in the garden project which is a key focal point and source of pride for the Glendale School community. Another parent whose children are in junior high enthusiastically described how she continues to volunteer because she enjoys so much being in the school. The parents interviewed expressed appreciation for the hard work and leadership of the teaching staff and administrative team, support for inquiry-based learning and a strong sense of pride in the school. There is tremendous potential in continuing to provide ongoing opportunities for parents to develop a good working knowledge of inquiry-based learning and in encouraging them to reinforce it through their interactions with their children. Parents can also significantly support the school through participation as volunteers and in addressing some of the needs, which were identified in the study. I believe the strong parental support for inquiry-based learning, the parent's active involvement in school activities and their meaningful interactions with their children has contributed significantly to the success of the initiative.

In arranging to have my interviews with each teaching staff member, I was sensitive to the time commitment and I realized that through the years there have been a number of studies and touring groups, which have placed demands on the time of the teaching staff. I was appreciative of the effort that had been made by the teachers to review the questions prior to the interview and to reflect on their responses. The teachers were thoughtful and knowledgeable in their responses to questions and their observations relating to the impact of inquiry-based learning in their classrooms and throughout the school. The teachers described the demands on their personal and professional time and the challenges associated with effectively implementing inquiry. At the same time they acknowledged a tremendous sense of satisfaction, which they derive from this approach to learning and teaching. They described how they have learned by working together with colleagues and how they have learned from their students. They identified significant challenges such as ensuring that curricular expectations are effectively addressed, developing more authentic approaches to the assessment of student learning and ensuring that the learning experiences of the students are meaningful, relevant and interconnected.

In visiting the classrooms I was impressed with the effective teaching practices I observed. The teachers demonstrated a high level of competency in building positive

relationships with their students based on mutual respect, addressing individual needs and interests of students, helping students develop confidence in themselves as learners and providing a structure for learning based on reasonable behavioral expectations. I was impressed with the enthusiasm of the students as they described what they were learning by making reference to displays and projects they had completed. The teachers were also enthusiastic in describing how they had taken an idea for an inquiry to the students and how it had mushroomed as the students addressed the big questions and assumed ownership for their own learning. One example is the water study which began with a discussion of distillation and led to the creation of Flash animation and a study of the use of flush toilets. The inquiry also involved an intriguing Internet dialogue with a California university professor in regard to different techniques for the purification of water and a consideration of the implications for helping the Tsunami victims in East Asia. The teachers involved in this inquiry described how they had learned so much from their students. The hallmark of learning and teaching in Glendale School is the involvement of students in teaching and leadership roles along with their teachers and the involvement of teachers in learning roles along with their students.

There are many comments of commendation for the leadership of the administrative team. Although the focus of the administrative team has been on empowering staff members and students as leaders and developing what they describe as leadership density in the school, it was still very evident through the feedback from parents, staff members and students that the visionary leadership of the administrative team, the high expectations relating to learning and teaching and their ongoing support is extremely important. In fact one of the major concerns expressed by parents and staff members centred around the administrative changes for the next school year and the belief that if there is not administrative support for inquiry from the administration there will be a significant negative impact on the inquiry-based learning initiative. The administrative team members were acknowledged for their leadership in establishing positive relationships, building trust, promoting professional development, articulating a vision and providing both pressure and support as it relates to the implementation of inquiry-based learning.

The Galileo team members have through the years maintained a strong presence in the school through facilitating professional development activities, visiting classrooms and mentoring teachers, attending celebrations and special events and being available on an ongoing basis personally and through electronic communication to provide support and assistance. They have served an important function in challenging teachers through thought-provoking questions, sharing ideas, providing resources and facilitating meaningful inquiries. Galileo through the partnership with Glendale School has provided an external perspective and strong support for the leadership of the administrative team in developing and articulating a vision and promoting inquiry-based learning. All members of the teaching staff made reference to accessing Intelligence Online to share ideas and resources with colleagues from other schools and to develop curricular-based plans for inquiries using the intelligence online template. The Galileo team members through the years have been involved in facilitating a variety of professional development activities such as the brown bag sharing sessions and the Techie Tuesday workshops. Dr. Pat Clifford and Dr. Sharon Friesen have participated in the annual staff retreat at the beginning of the school year and other professional development activities providing staff members with an opportunity to refocus on the goals of inquiry as well to provide a valuable orientation for new staff members. Appreciation was expressed for

the special effort they make to be accessible when teachers are seeking out there feedback and assistance. The Galileo team members have through their work with the Glendale teachers helped them develop confidence in their ability to bring about positive change and to enhance the learning experiences of their students through inquiry. Although there has been less involvement of Galileo in recent years, there still appears to be a need for the external influences and the facilitation of job-embedded professional development, which is made available through the Galileo Educational Network Association.

I enjoyed having an opportunity to be involved in this study and I found that in many ways it was a learning experience for me. I concluded that it is not easy to accomplish what I believe has been accomplished in Glendale School in bringing students parents and school staff members together in a journey of learning through inquiry. Hopefully, this report will be used by the Glendale School community to celebrate what has been accomplished and to continue to build on the accomplishments. As well, I believe this report could be used by educators in other settings who wish to explore the tremendous potential of inquiry-based learning as a framework for learning and teaching. In keeping with the spirit of inquiry, the journey of learning continues and I applaud everyone who has been involved in this significant learning experience.

Appendices

Appendix A

Glendale School Study, March 2005, Parent Interview Questions

1. How long has your child been attending Glendale school? Are you in boundary or out of boundary? If you are out of boundary why did you elect to send your child to Glendale school?
2. What causes you to believe that Glendale is a very good school?
3. What comments would you offer in regard to the staff of Glendale School?
4. What comments would you offer in regard to the administrative team in Glendale School?
5. Give examples of how what your child is learning in Glendale School carries over to their life experiences outside of school.
6. What would you identify as some of the positive aspects of inquiry-based learning?
7. What concerns, if any, do you have in regard to the focus on inquiry-based learning in Glendale School?
8. Specifically what evidence would you offer in support of your observations of the impact of inquiry-based learning on your child and/or other students you have observed in regard to the following:
 - Fundamental academic skills?
 - Personal organizational and self-management skills?
 - Teamwork skills?
 - Skills in the use of technology?
 - Level of motivation as a learner?
 - Experiences of success as a learner?
 - Engagement as a learner?
 - Ability to problem solve, pose problems, make decisions and inquire?
 - Depth and breadth of learning achieved and demonstrated through inquiry?
 - Creativity and innovation?
 - Ability to communicate what has been learned to a variety of audiences?
9. How have you become involved as a parent in the learning experiences of your child?

10. What aspects of how students learn in Glendale School would you like to see continued?
11. What aspects of how students learn in Glendale School do you believe should not be continued?
12. As a parent what do you believe is the place for professional development in Glendale School?
13. Are there any other comments that you would like to offer?

Appendix B

Glendale School Study, March 2005, Student Interview Questions

1. How long have you been a student in Glendale School?
1. What causes you to believe that Glendale is a very good school?
2. What suggestions would you offer for making Glendale an even better school?
3. How do students in Glendale School learn?
4. How do you learn best?
5. What do teachers do that help you learn?
6. What excites you as a learner and causes you to really want to learn?
7. How do you know if you are doing well as a learner?
8. How do you celebrate your accomplishments as a learner?
9. What is inquiry-based learning?
10. How do you use technology as a learner?
11. How did having student teachers in your class help you learn?
12. What suggestions do you have for your teachers to help you improve as a learner?

Note - Students will be asked to provide specific examples in their responses. Consideration will also be given to having teachers work with the students in providing written responses to the questions as a learning activity.

Appendix C

Glendale School Study, School Staff Interview Questions, March 2005

1. How long have you been a member of the Glendale school staff?
2. What does learning in Glendale School look like?
3. How would you describe inquiry-based learning?
4. What has been the impact of the Galileo Educational Network Association in promoting and facilitating inquiry-based learning in Glendale School?
5. What would you identify as challenges in the implementation of inquiry-based learning in Glendale School?
6. What would you identify as facilitators or factors, which have contributed to the successful implementation of inquiry-based learning in Glendale School?
7. How is technology being used in Glendale school to enhance learning and teaching?
8. How is the assessment of student learning in Glendale School used to enhance the learning experiences of the students?
9. How is collaboration and teamwork among students and staff in Glendale School promoted and facilitated?
10. What is being done to provide ongoing professional learning and to promote Glendale School as a learning community?
11. How are Glendale School staff members and students as a learning community celebrating and sharing with others their accomplishments through inquiry-based learning?
12. What has been the impact of the involvement of University of Calgary Master of Teaching students?
13. How is leadership in promoting and facilitating inquiry-based learning demonstrated in Glendale School?
14. Do you personally have the capacity to sustain the focus on inquiry-based learning, which is now in place in Glendale School?
15. Does the Glendale School learning community have the capacity to sustain the focus on inquiry-based, which currently is in place?
16. What recommendations for fostering sustainability and making enhancements in regard to inquiry-based learning in Glendale School should be considered?
17. Specifically what evidence would you offer in support of your observations of the impact of inquiry-based learning on students in regard to the following:
 - Academic rigour and achievement?
 - Personal organizational and self-management skills?
 - Teamwork skills?
 - Appropriate use of technology to achieve specific outcomes?
 - Motivation and experiencing success as learners?
 - Engagement as learners?
 - Ability to problem solve, pose problems, make decisions and inquire?
 - Depth and breadth of learning achieved and demonstrated through inquiry?
 - Creativity and innovativeness?
 - Ability to communicate what they are learning to a variety of audiences?

18. Using the indicators (strongly disagree, disagree, uncertain, agree, strongly agree) please respond to the following:

- Glendale teachers understand inquiry work
- Glendale students understand inquiry work
- Everyone does inquiry work in the classroom
- Everyone supports each other in the inquiry work they do
- Every student in Glendale School is deeply engaged in meaningful, authentic learning
- Every teacher in Glendale School is deeply engaged in meaningful, authentic learning
- The students are deeply engaged in authentic investigations
- Students are critical thinkers
- Teachers are critical thinkers
- Students do work that contributes to society
- Students are able to discern their own learning
- Parents are engaged in their children's inquiries
- Parents are supportive and understanding of inquiry-based learning
- Assessment is used to support continuous learning and development

19. Specifically what evidence would you offer in support of your observations of the impact of the Galileo Educational Network Association in the following areas:

- Providing support and assistance to teachers as learners?
- Promoting and facilitating changes in how teachers teach and how students learn?
- Promoting and facilitating the effective use of technology to enhance learning and teaching?
- Promoting and facilitating the use of performance-based approaches in the assessment of student learning?
- Enhancing teacher satisfaction and sense of efficacy?
- Fostering a spirit of collaboration and teamwork among students and staff?
- Providing access to resources, ideas and ongoing support through Intelligence Online?
- Promoting and facilitating inquiry-based learning and teaching?

20. What more would you like to see Galileo do?

21. In regard to inquiry-based learning in Glendale School, what is working, what is not working and what are the next steps?

22. Are there any other comments that you would like to offer?