

# Storytelling as a Springboard for Teaching Information Literacy

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## Abstract

The objective of this qualitative research project was to determine if storytelling would improve grade four students' information literacy. A storytelling program was presented to a class of 21 grade four students. This storytelling program was designed from a constructivist framework and was used to guide the students through Carol Kuhlthau's process approach to research. It aimed to determine how introducing an affective dimension to learning would affect the research process. The data included interviews, focus groups, observations and the students' final projects. I demonstrate that the students became emotionally involved in the research process and were highly motivated to complete the research project. Because of the storytelling program the students felt that the research inquiry was authentic. Imagination impacted the research process, including being viewed as a source of information. The students successfully worked their way through the steps of Kuhlthau's process approach.

## 1. Introduction and Literature Review

A substantial amount of literature exists demonstrating how to use storytelling in schools and libraries (Cooper & Collins 1992; Grugeon & Gardner 2000; Kavanaugh 1997; Norfolk et al. 2006; Zipes 1995; Zipes 2004). This literature often claims that storytelling is intrinsically beneficial for children and will aid them academically (Egan 1989; Zipes 2004). Unfortunately, there is very little research to validate these claims. Furthermore, the existence of this literature does not indicate that storytelling is widely used or recognized as a valid medium for instruction. The following document will examine literature relevant to storytelling and information literacy and outline a study undertaken to determine how storytelling can be used to demonstrate information literacy to grade four students.

In 1986 the Ontario Ministry of Education funded research to investigate the value of the arts in education. This study confirmed the value of storytelling in improving the memory and vocabulary of children (Wright & Young 1986). Frances Smardo Dowd also conducted research on storytelling in the 1980's. Her study determined that a live storytime was more successful than a recorded storytime in improving children's language skills (1982). Although both of these studies demonstrate that storytelling does have pedagogical value, more research needs to be done to investigate the use of storytelling as a teaching method.

As previously mentioned, numerous theorists and educators have expounded the advantages of storytelling. Specifically, Kieran Egan is the author of many books and articles on storytelling (Egan 1989, 2001, 2002, 2005, 2007). Egan believes that storytelling is a teaching tool that needs to be utilized more than it is. The basis of his argument lies in his belief that imagination is the most efficient and effective tool of instruction (2007). Egan emphasizes the importance of utilizing children's natural gifts to teach them, imagination being chief among these (1989, p. 7). He argues against what he calls the "inappropriately mechanistic way of thinking about teaching" that ignores the power of the imagination as a learning method (1989, p. 1).

Egan has developed a model of teaching that is based on the imagination. He explains the functions and capabilities of the imagination, illustrating why it is a vital learning tool. Because our ability to think abstractly is a function of the imagination, we can use it to think objectively. Imagination allows us to consider other peoples' feelings, and therefore we can draw on the imagination to attempt to understand someone else's perspective (2007, p. 16-17). Furthermore, imagination increases our memory. Egan argues that new information is learned in the context of ideas and feelings. Therefore, utilizing the imagination to create context and invite an affective dimension to education would improve students' ability to absorb new information (2007, p. 13-14). Egan draws a connection between imaginative learning and an increased level of emotional involvement in the learning process. He states that an affective teaching model will help students mature emotionally, improve motivation to learn, and increase their memory (2007, p. 19).

Egan supports the pedagogical use of storytelling claiming that it can actively engage children's minds in the teaching process and therefore, is a powerful teaching tool (Egan 1989, p. 7). His work highlights the need for an affective dimension to be incorporated into instruction. In addition, the work of information theorist, Carol Kuhlthau emphasizes the affective dimension of the research process.

Kuhlthau's work looks at the search process from the user's perspective. In 1989 she published research from a series of five studies that examined the user's experience of searching for information. With this data Kuhlthau developed the process approach, a series of six stages that users go through when searching for information. It is intended to include affective as well as cognitive aspects of information seeking. Thus, Kuhlthau demonstrates the importance of emotion in learning (1991). In addition, this model reinforces the idea that the search process is about creating meaning (Kuhlthau 1989).

The process approach begins with the 'initiation' stage. In this stage the researcher recognizes a lack of knowledge and is likely to have feelings of uncertainty. This gives way to the 'selection' stage during which the researcher weighs perspectives and anxiety increases until a choice is made. The 'exploration' stage follows. Feelings of confusion and doubt are common in this stage. Because the researcher is likely to encounter information that challenges previously held beliefs, this stage can be threatening and frustrating. 'Formulation' is the next stage and involves establishing a focus. This generally results in the topic becoming more personalized. Gathering information and defining the topic further or 'collection' is the second to last stage. Feelings of confidence increase during this process and continue to increase as the user moves into the last stage, 'presentation.' Relief is common in this final stage. Part of this stage is summarizing the research and organizing the information in preparation for completing the work assigned (Kuhlthau 1991, p. 368).

When used as a guide to conducting research, Kuhlthau's process approach can empower librarians with the ability to show learners the stages of inquiry, emphasizing information literacy skills as opposed to library skills (Kuhlthau 1995, p. 49). This approach draws attention to critical thinking, recognizing the need for information, and knowing what to do with information when it is found (Kuhlthau 1995, p. 49).

Alberta's information literacy model, *Focus on Inquiry*, builds on Kuhlthau's research and also stresses the need to inspire life-long learning rather than teaching specific library skills (Alberta Learning, 2004 p. 11). This program was designed with a constructivist perspective. For instance, the *Focus on Inquiry* model states that the teacher is to have a less directive role and the students are to be self-guided learners (Alberta Learning, 2004 p. 4). School library programs throughout the world follow these same constructivist philosophies. Danley, Forde, Lahmon, and Maddox surveyed 126 school librarians in 18 countries and discovered that the creation of lifelong learners is a goal of school librarians all over the world and that school librarians see themselves as possessing a constructivist's perspective (1999, p. 130).

Other information theorists have also emphasized the importance of a constructivist standpoint in teaching information literacy to children. In 1994 McGregor published research that investigated the intellectual processes involved in research. Qualitative methods were used to examine the thinking processes of high school students in their research. McGregor found that in spite of the importance of higher-level reasoning skills in researching, most students do not instinctively operate in a metacognitive manner. Moreover, students were seen to value product over process. In addition, the nature of the question to be answered affected the level of thinking used (McGregor 1994). McGregor's findings illustrate the need for assignments that focus on process. Additionally, McGregor states that a metacognitive environment that enables young children to develop sound thinking habits is needed to teach information literacy (1994, p. 132). These points are consistent with Egan's theories of utilizing storytelling to teach. As a mirror of life, stories invite the viewer to draw connections between fantasy and reality. This creative method of finding meaning is a complex intellectual process.

This literature points to the importance of designing information literacy programs from a constructivist standpoint. Constructivism turns the focus of instruction to helping the learner become a self-directed problem solver and therefore, fosters the goal of becoming information literate (Danley et al. 1999, p. 3). These ideas parallel Egan's educational theories closely. Because storytelling invites children to extract their own meaning from a presentation, it is a constructivist style of teaching.

In the past, school library media programs attempting to implement information literacy programs have struggled with creating assignments that encouraged the process approach (Kuhlthau 1993). Furthermore, reports on information literacy programs list students' "emotional attachment" to the project as an element of success (Kuhlthau 1993). By designing an information literacy program with storytelling as its method of delivery, constructivist principles can be incorporated easily. In addition, storytelling promotes a heightened level of emotional involvement. These factors speak to the natural inclusion of storytelling in information literacy instruction.

While there is some scholarly literature to substantiate the use of storytelling for educational purposes, more is needed. This research built on the existing literature dealing with storytelling and information literacy. Kuhlthau's work on information literacy provides the grounding for this research, theoretically as well as methodologically. This project aimed to determine whether or not storytelling can be used to help grade four students through the research process. Specifically, it considered how Carol Kuhlthau's process approach could be incorporated into a storytelling program and if a storytelling program would increase grade four students' critical thinking and ability to understand the information process (1993). Furthermore, combining an information literacy model with storytelling made it possible to consider if storytelling would heighten the students' emotional involvement in their schoolwork and what influence this may have on their research.

## 2. Research Methods

I designed a storytelling program specifically for the purposes of this research. This program consisted of nine sessions. It was delivered to 25 students in a grade four class. Of the 25 students, 21 chose to be research participants. The teacher and teacher/librarian were also research participants. The storytelling program took place at the beginning of the school year. This is significant because the students had not received much instruction at a grade four level yet. The storytelling program was conducted over the course of six weeks. Data collection was then carried out in the following three weeks.

In each storytelling session I told between one to four stories. All the stories told centered on the theme of the Lost Lemon Mine. The Lost Lemon Mine is an Alberta legend and therefore, the storytelling program supported the social studies curriculum (Ste-

wart 1993). These storytelling sessions were linked to an assignment designed to guide the students through the process approach in order to complete a persuasive research paper. By using a story for lost treasure, this storytelling program was a metaphor of searching for information.

I informed the students that the purpose of the storytelling program was to allow them to solve the mystery of the Lost Lemon Mine. Their challenge was to prove whether or not the Lost Lemon Mine exists and if it does exist, decide where it is. The students were expected to defend their choice with valid information sources. In each class I told stories that provided information about where the mine could be located. The stories were based on fact and legend. Some of the themes covered in the stories were: expeditions that went in search of the Lost Lemon Mine, the Canadian gold rush, First Nations legends, geographical locations and landforms relevant to the Lost Lemon Mine legend, etc.

After the stories were told the students were given time to work on their assignment. In five of the sessions I gave a short lesson (approximately 20 minutes), highlighting a skill needed for the completion of the assignment. These 'mini-lessons' covered skills such as creating a bibliography, assessing information credibility, using databases, note taking and keyword searching. Following the lessons, students were invited to "explore" or find relevant information in the library or on the computers. During the last two weeks they were invited to continue exploring or to write their paper.

The students were required to write a one-page persuasive report explaining their claim. The students' teacher graded this paper and included the grades in their progress reports. On the final day of the storytelling program, each student placed a sticker on a map of Alberta and either told the class where they believed the Lost Lemon Mine was and why, or they explained that they did not believe the Lost Lemon Mine existed and why.

This program was designed to foster a genuine inquiry for the students as opposed to being an imposed research question. To accomplish this, the assignment was framed as a treasure hunt. Because the assignment was framed as a treasure hunt the students were invited to use their imaginations. In addition, the idea of a treasure hunt acted as a metaphor for an information search and reflected the theme of

the assignment. Several materials were used to demonstrate the process approach to the students. First, a colorful visual aid was used in each class. This visual aid was an arrow in a circular shape with a section partitioned off for each step of the process approach. It was casually referred to as the "coloured arrow" or the "research wheel." Second, notebooks were given to the students outlining the process approach. These notebooks were casually referred to as the "red notebooks."

During the first storytelling session I explained the process approach. I did this by telling the students they were invited to solve a mystery and suggested that the steps of the process approach were the steps of solving a mystery. I used the visual aid and the students' notebooks to help convey this idea. This pattern of daily explanation and reflection on the process approach was followed throughout the program. Not all students worked through the process approach at the same pace. While most students followed the structure I laid out, some required more time in certain stages than others. To address this I would simply tell the class that they should work at their own pace. My goal was to allow the students as much freedom as possible and therefore, it was necessary to allow them to take as much time as they needed to work through the various stages.

Many of the skills in this assignment were new to this class. This was the first time they had written a research paper of this nature and as a result it was a very demanding exercise for them. To meet the demands of the workload, the teacher/librarian and teacher met with the students for supplementary classes on four to six different occasions. In addition, one-on-one time was given to specific students by the teacher and/or teacher librarian to help them with their assignments.

### **3. Data Collection**

As a researcher working with children in a school system, special considerations had to be made to address ethical concerns and ensure that the research methods used accommodated the children's specific needs. Children's distinctive roles and attributes have significant impacts on research theory, methods, and ethics. Past research with children has been "criticized for conceptualizing children as incompetent, unreliable and incomplete, as mere objects to be studied" (Barker & Weller 2003). More recently, a paradigm shift has emphasized children as subjects of research as opposed to objects (Chris-

tensen & James 2000). As children's lives are explored largely through the eyes of adult proxies, researchers are attempting to adopt a child-centered perspective in order to give a voice to children. I made an effort to maintain a child-centered perspective throughout this project by adopting an attitude of reflexivity and selecting my research methods carefully.

Reflexivity is fundamental to adopting a child-centered perspective. As a method of exploring one's own subjectivity and raising awareness of the impact the researcher has on interpreting data, reflexivity allows those working with children to be cognizant of their own bias and their pre-existing ideas of childhood (Somekh & Lewin 2005). Part of reflexivity is accepting children's voices as valid and allowing children the opportunity to express themselves in the research setting. Traditional research methods have been called 'adultist' because they rely on literary skills that many children have not fully developed (Valentine 1999). Utilizing skills children are not fluent with will only intimidate them and inhibit their ability to express themselves. Thus, I chose to use research methods that, as far as I was aware, would not place limits on my participants' ability to express their opinion. These included observation, interviews, focus groups and analysis of the students' research papers. None of these techniques required literary skills and each permitted the students' own words and behaviour to speak.

Because this study took place in the school system it was necessary to consider the affect it had on the participants when selecting research methods to use. A central part of school culture is testing. Because of this, the data collection methods might have been regarded as part of students' regular workload. While the school environment can prompt greater attention and a more meticulous response from students, it can also leave students feeling as if their responses are going to be graded. It may change students' perceptions of confidentiality, or create a 'right answer' mentality (Christensen & James 2000). In an environment so heavily regulated, where children are constantly measured and graded, it is not surprising that responses to research questions would be affected. For instance, children are often called on to answer questions that they do not have the answer to, and in such cases answering, "I don't know" can be considered uncooperative. To address these concerns, the students were assured several times that saying "I don't know" or just not responding was perfectly appropriate. Data collection methods did not

include a written component lest it be treated like an exam. In addition, I informed the students multiple times that I was not there to test or grade them and that their participation was voluntary.

### *Observation*

Throughout the storytelling program I recorded my observations of the 21 participants. Specific items I observed included their research processes and reactions to the storytelling program. As suggested by McKechnie, I recorded where a specific participant moved within the library, what books they looked at and for how long, their facial expression as they looked at the book, and any comments they made or questions they asked (2000). A note pad and pen were used for the purposes of creating these field notes and the students were informed that they would be observed.

Informing the students that they would be observed was in part, an effort to prevent my presence from affecting the students' behaviour. Formally known as the 'observer effect,' McKechnie explains that researchers can limit their influence on their participants by allowing them to examine the equipment used, familiarizing them with the objectives and expectations of research, and making every effort to conform to the group (2000; 2006). I attempted to follow these recommendations. I explained my research methods to the students, showed them all the equipment I used and allowed them to ask questions. I asked the students to call me by my first name and wore clothing similar to theirs. These efforts were made to symbolize equality and to help research participants identify the difference between a researcher and a teacher (Jones and Somekh 2005).

Despite my efforts, there were still times when I felt like the students viewed me in a role similar to their teacher. It was difficult to avoid this as my role included instruction and assignment administration and, therefore, was very similar to the role of a teacher. I tried to minimize the students' perception of me as authoritarian as much as possible. I would refer all matters that did not address the project directly to their teacher. Furthermore, I was very open with the students regarding my role as a researcher.

### *Interviews*

During the last two weeks I spent in the classroom, the interviews and focus groups were conducted.

Five 30-minute interviews were conducted with students who were selected randomly. Random selection ensured that all the students had an equal opportunity to participate in interviews. It also ensured that I did not favor specific students in interview selection. In addition, two one-hour interviews were conducted with the teacher and teacher/librarian. As with other research methods, many of the traditional standards developed for interviews and focus groups cannot be applied to children.

A successful interview depends on the level of trust established between the researcher and the participant. Often a child's reluctance to share her views with a researcher may be attributed to a lack of trust. Fortunately the interviews conducted for this project took place after the storytelling program (in week seven) and therefore, the students and I had already spent a great deal of time together. During this time I had multiple opportunities to discuss the purpose of the interviews with the students. In the initial explanations of the research project the interview process was described, as well as prior to conducting each interview. The process was described verbally as well as in written format, using language that was available to the students.

The interview setting can have a great effect on the perceptions of a child. Ideally, several spaces would have been available for the participants to choose from, however, these interviews were limited to the space the school was able to provide. The school provided the boardroom, a small room with windows on two sides and one door. There was a medium size table and seven large leather swivel chairs around the table. The students were able to choose where they would like to sit after which I would take a seat next to them.

A set of interview questions was developed prior to the interview and followed in each interview. However, I remained flexible and willing to vary from the interview questions if the interviewee guided the interview in another direction. In most cases this did not happen. Some of my questions were general, some specific and some were hypothetical.

Finally, a common response from adults when listening to children is to try to help children communicate their ideas. Adults often give children words or complete their statements for them. Irwin and Johnson caution against this habit as it may replace a child's own thoughts with the interviewer's ideas (2005).

Furthermore, although a child's ideas may not always make sense to an interviewer, it is the role of the interviewer to *listen* to what a child says not to guess what they feel (Mauthner 1997). I made a conscious effort to not complete my interviewee's sentences for them. In many cases a student would not answer a question or have trouble remembering a word that they needed to describe something. In such cases I would give the interviewee time to finish answering a question and if they did not, we would simply move on to the next question. This was an attempt to allow the interviewee as much control as possible.

### *Focus Groups*

By including focus groups as well as interviews it was hoped that I would discover the opinions of the class as a whole in addition to specific students opinions. I was optimistic that the focus group environment would diminish any tensions that may exist when children are asked to confide to an adult (Darbyshire et al. 2005; Large & Bheshti 2001).

In this project, two focus groups were conducted with six participants and one facilitator (Morgan et al. 2002; Large & Beheshti 2001). I facilitated each group. One group was all boys and the other group was all girls. The focus group participants were selected purposely in an attempt to create an environment where all students would have an equal opportunity to speak. The opinion of the student's teacher was elicited in this decision. These choices were made in an attempt to minimize the effects of peer pressure, as recommended by Mauthner (1997). However, because the size of the group in this study was small, regardless of whether or not I chose to use purposive sampling, all but four research participants had the opportunity to be part of either a focus group or an interview. The focus groups were held after the completion of the storytelling program and assignment (in week eight). The focus groups were also held in the boardroom.

Just as in interviews, there is a delicate balance of power between the adult and child. It was my job as the facilitator to attempt to dissolve a pre-existing notion of superiority. Morgan and others recommended that the facilitator stand or sit with the children to maintain a level of equality with them and to try as much as possible to use the same language as their participants (2002). Accordingly, I sat with the students at the table and ensured that I was not at the

head of the table. I also attempted to maintain a vocabulary that was similar to theirs.

Open coding was used to analyze the interview, focus group and observation data. This included creating labels for the data. The labels were then divided into categories. After the data was coded, charts for each category were created. Frequencies of specific labels were recorded in the charts as well as the qualities of specific labels (Strauss and Corbin 1990).

### *Students' Final Papers*

Analysis of the students' papers involved looking for themes, examining the students' arguments, use of resources, bibliographies, etc. This information was compared with the individual student's comments in the interview or focus group they were part of as well as the observations of that particular student. This helped create a complete picture of that individual's inquiry process.

## **4. Results and Discussion**

### **The Process Approach: Incorporating it into a Storytelling Program**

Efforts made to incorporate the process approach into this program were based around the structure of the assignment, the delivery of the assignment, and the style of instruction. Examining the students' reactions to the program indicates that many of them worked their way through the stages of the process approach. This can be determined by looking at their comments regarding their research process, as well as the emotions they expressed as they went through the process. It was evident at the beginning of the program that the students were not aware of the process approach prior to beginning the program. Furthermore, at the end of the program, the students demonstrated that their understanding of the process approach had increased.

In the first days spent working with the students on this assignment, the students were eager to jump to the final stages of the research process by selecting a location for the Lost Lemon Mine. Rather than focusing on general information regarding where the mine might be, they went immediately to selecting a final location. It was evident that they were unfamiliar with the idea of generally exploring a topic. Later on, the students' teacher, Mrs. Walters (pseudonyms have been used to replace the names of all the research participants) noted that the extended period

of time the students spent looking at the subject broadly was different than the usual research method employed by the class. She said, "There was a lot more time to explore than sometimes I am able to give and keep up as well." She also stated that at this school their approach to research is generally "a little bit more directive."

Because this program was based on a constructivist model, the students had the freedom to progress through the research process at their own pace. Accordingly, the students progressed at different rates. For instance, my observations record that on October 30<sup>th</sup> Dylan looked up from a book he was studying to tell me that he believed the mine was in the Highwood River. At this point in the class schedule, we were in the collection stage. However, by the end of the program Dylan had decided that the story of the Lost Lemon Mine was an "urban legend." Although Dylan had already formed a focus by October 30<sup>th</sup>, somewhere between then and the end of his search, November 13<sup>th</sup>, his theory had changed significantly. This demonstrates the importance of a constructivist perspective that will permit students to guide their own search.

While the students required the freedom to progress through the program independently, they also required a structure to base their research on. They indicated that the process approach model provided guidance and direction for them. However, as is indicated by Dylan's progress through the research process, the students needed the freedom to move through the stages of the process approach in their own time.

A visual aid and notebooks outlining the steps of the process approach were used to provide structure for the students. They repeatedly commented on how the visual aid used in the class pointed out the steps of the process to them. This indicates their perception of the process approach. In the beginning of my interview with Kristi I offered her paper and pens for drawing if she had a desire to make use of them. She picked them up and as we began our interview drew a picture of our storytelling sessions. What is significant about this picture is that it contains an image of the coloured wheel I used as a visual aid. Her memory retained this image so well that it became a symbol of our storytelling visits. Other students talked about how the visual aid demonstrated the steps of the research process. Flora explained this in her interview. I asked her if the coloured arrow made a difference to her. She claimed, "It helped me a lot,"

because "then like if you go from step by step it's much easier than doing all one thing all together." Daniel expressed a similar sentiment in his interview when he said, "it might have made a difference to everyone about what steps to do it in, like what steps to do it and if you memorized it next time you do it if they don't have a research wheel and when you do something like that it might be good if you remembered it."

By using the red booklet and the coloured wheel, the students were able to experience Kuhlthau's model, thereby increasing their awareness of the steps in the process approach. While the flexibility of the process was important, the structure and guidance provided by these two tools were essential in taking the students through these steps.

The emotional reactions of the students show that they followed Kuhlthau's model closely. Many students expressed feeling of confusion, frustration or stress that subsided as the research progressed. As Jaldev explained, "I felt it would be hard, but when I actually started to do it, [it] kept on like I kept on feeling it would be easy. And then I kept getting used to it and then it got easier and easier." He later states that it was easier because he had more ideas because of his jot notes. It was common for the students to express an increased sense of ease and confidence as their knowledge of the subject matter increased. Ramell said looking for information made him feel more confident because "like finding information thinking that you're not going to find anything, cause if you think at first that you're not going to find anything and then you do and so you think you can do it." Although many students' sense of ease and confidence increased as they went through the search process, many still felt that it was very difficult. When asked how doing research and writing the paper made them feel, common words used by the students were "hard," "frustrating," and "work." In contrast, Miley said it was "exciting," "fun," and "easy."

In a study examining the factors that make implementation of the process approach successful, Kuhlthau consistently found that successful schools had supportive staff that worked as a team (1993). The same attributes would apply to this program. Having a teacher/librarian in the school was an essential element in making this program successful. As a result, the staff and students at this school were already familiar with inquiry-based learning. Furthermore, this classroom had a teacher who was open and wil-

ling to have this study conducted. Together, the teacher/librarian and the teacher provided ongoing support as this project was carried out. This study confirms Kuhlthau's finding that a team approach to inquiry based learning is an essential element to successfully carrying out a program based on the process approach.

This experience demonstrated that students are capable of fully engaging in the process approach when they are permitted a significant amount of freedom. Still, a certain level of guidance is necessary in order for them to follow the steps of the process approach. When these guides were in place the students in this study worked their way through their research assignment following the steps of the process approach.

### **The Students' Critical Thinking Patterns**

Critical thinking patterns can be found in the students' statements and behaviours. Often students would approach me and offer explanations of where they thought the Lost Lemon Mine was. In these moments it became clear to me that they were using the information they had available to create solutions to this problem. However, this was not always the case. At the beginning of the program it was common for students to approach me and explain that they had found the Lost Lemon Mine. When asked how they knew where it was, they responded that they had found it online. As the program progressed, however, this pattern changed. Students continued to tell me where they thought the Lost Lemon mine was, but with a much more substantive explanation of their belief. Their behaviour reflected their increasing knowledge of the subject matter and increased critical thinking.

In addition to providing more complex explanations of their reasoning, students began to ask more questions as the storytelling program progressed. For instance, as new versions of the Lost Lemon Mine story were told, characters' names changed. The students noticed this inconsistency and began to question why the characters would have more than one name. In this way, the storytelling program naturally initiated critical thinking. Near the end of the program, Dylan began to question the validity of the Lost Lemon Mine as a whole. In the final weeks of the program he told me that he no longer believed that the Lost Lemon Mine existed because so many people had searched for it in vain. In the focus group Dylan sta-

ted that the story "doesn't make sense to me" because, he said, "why would people tell about gold?" "It is just an urban legend." His reaction to the story indicates that he was thinking critically.

During a focus group Shuvani asserted the value of critical thinking stating, "I think what helped us most is my mind. Because if I never had my mind how would I think? And also, what I thought not what other people told me." Later she offered theories about characters in the story such as, "I think if we can find Blackjack's body we would know where the gold is." These comments demonstrate Shuvani's analysis of the stories in an effort to find a solution to the problem.

Some students recognized how skills from this program could be applied to their other courses. For instance, when I asked Daniel if this program helped him with his school work he told me, "I just like answering questions and stuff, like if there's a tricky question it could have gave me a skill on how to answer." Similarly, in the boy's focus group Felipe said the program helped with social studies. He explained, "In social studies we got to figure out where the puzzles are so it's like it helped us learn to do other projects like that.

Other indicators of critical thinking included students ability to put "clues" together to form complex explanations of where the Lost Lemon Mine could be. For instance, Zachary consistently relied on the geographical features he identified in the stories to locate the mine. He pulled all these "clues" together and began to create theories. In his final paper he states, "Most of the landscape explains it quite a bit. I learned a lot by listening to the stories about the landscape." The argument in his final paper is a combination of facts he learned from the stories, his own theories, and knowledge of the geographical features of Alberta.

Finally, Mrs. Ursum and Mrs. Walters talked about how the students developed critical thinking skills in this project. Specifically, Mrs. Walters explained that "they really had to be able to take the storytelling clues and the information they found in print and online and bring it all together and that was really higher level thinking skills for them." Mrs. Ursum agreed, stating that the project, "really forced them to synthesize and use the higher level, the higher level thinking to filter through all the information they'd heard,

they'd read, they'd collected or seen in different formats."

Not all of the students demonstrated the same level of critical thinking as Zachary. Responses from some students indicate that this assignment presented challenges for them. Such students required extra attention from Mrs. Ursum and Mrs. Walters. For instance, Jaldev finished his report the day before it was due. He said that he "didn't have any more ideas" and so he sat with Mrs. Ursum while she guided him through the end of the assignment. He said that Mrs. Ursum "told me to write Harris E, like the name, and then I write it down cause Mrs. Ursum told me to." However, when I asked Jaldev what Harris E had to do with the Lost Lemon Mine he wasn't able to explain it. In his discussion of how he drew his conclusions regarding the Lost Lemon Mine he said, "Like it is near Coleman AB, like I have an encyclopedia at home. Then I decided to search for information, then I went to the Lost Lemon Mine on Google, then I found the information that I found a story then I clicked on mysteries of Canada and the Lost Lemon Mine came. I started reading it and then I scrolled down, they had a map where it is." In contrast to Zachary who demonstrated that he thought about the research process and synthesized information with his own ideas, Jaldev provided a step-by-step explanation of what sources he went to. Furthermore, his reason came from a direct source as opposed to being a synthesis of ideas.

Despite the fact that Jaldev did not demonstrate higher level thinking, he did say that the stories were "cool" and that he thought they "had lots of information that I can use." Even though Jaldev's critical thinking skills may not be as well developed as those of other students, he followed the steps of the research assignment. For example, he claimed that the work "got easier and easier" as time progressed because of his "jot notes and yeah and uh, the research that I did." Indicating that he went through the steps of the process approach.

Part of critical thinking is the ability to analyze the quality of information sources. Unfortunately, the class did not demonstrate the ability to analyze the quality of their sources. This assignment necessitated the use of sources from many different formats. Furthermore, in the process of completing this project, the students were introduced to many new information sources, such as databases. As a result, the students were on a steep learning curve, acquir-

ring new skills and being asked to find, understand and synthesize information in a way they were not previously accustomed to. In addition, many of the print and online sources available were written at a reading level that was challenging for the students. At the beginning of the program it was apparent that the students had not discussed the process of assessing credibility at length. On the first days of the program students consistently approached me to say that they knew where the Lost Lemon Mine was. Ramell was one of these students. After telling me he knew it was in Coleman, he explained that he knew this from looking it up online.

Similarly, Bryan made it clear that the students needed help understanding credibility. One afternoon Bryan was doing research online and found a site that he wanted to share with me. As I looked over the site it became apparent that it was a blog without credibility (the author listed was 'Mother'). I asked Bryan how he had found this information and he told me it was "on the fourth page of Google."

In the mini lesson I taught on credibility I asked the students if everything they read on the Internet is true and they answered with a resounding "No!" Clearly they have been taught not to trust all online information; however, the behaviour I observed indicates that many of the students still need to learn how to determine credible sources on the Internet. The storytelling environment encourages the audience to suspend their disbelief as opposed to questioning the storyteller's information source. It is possible that this impacted the students' ability to apply the concept of credibility.

### **Role of Stories**

The stories involved the students emotionally as well as intellectually. The students' comments indicate that the stories were a source of information for them. This was expected as the project was based on an uncommon legend. Still, it is interesting to see that a significant number of the students perceived the stories' main role as an information source. In addition to providing information, the students also indicated that the stories brought enjoyment to their school curriculum.

When asking the students questions such as how they would describe the Lost Lemon Mine program or what it was like to listen to the stories, the most common responses used the words interesting and

informative. When Daniel spoke about the stories he said they were “interesting cause it gave some like information that I used in the story to tell if it’s true.” Similar comments came from many other students who indicated that not only did the stories present facts they could use, but the stories were also a springboard to help them find more information. For instance, Dylan said the stories “helped us find information cause you tell us new stories and we can look those stories up and research the Lost Lemon Mine.” The stories gave the students more “clues” and because the students were engaged in the project this motivated them to conduct their own research. As Jessica put it, “I want to find out more cause I liked your stories.” On one occasion, a student asked me where I learned the story I had told. I explained that it had come from a book. He told me he would like the book and asked me to show him where he could find it. I helped him locate the book and he checked it out of the library. As this illustrates, the stories provided information for the students and also led to the students taking the initiative to find more information on their own.

Several of the students’ comments indicated that storytime was a break for them. Kristi explained that storytime was fun for her “because you don’t have to read it and then someone is telling it to you.” Daniel’s opinion was comparable; he said that it is “easier listening to stories than doing research in books and on the computer.” In addition to being a break from the students’ routine, they perceived the stories as exciting and funny and several of them said the stories made them happy. Stewart said, “it’s probably the funnest thing I’ve ever done” while another boy said, “it was cool at school.”

By providing the students with an experience that made their studies fun or cool, the storytelling sessions helped the students enjoy school. In addition, these sessions gave their academic schedule variety. Although the program challenged the students academically, using storytelling as a method of instruction engaged the students in a new way and provided a sense of relief from the rigors of their routine. As Kristi put it, “it’s fun, instead of doing spelling or reading or anything.” Furthermore, the storytelling sessions delivered a substantial amount of information. The students were able to learn this information and were motivated to learn more.

An increased motivation to learn was evident as the storytelling program progressed. As Mrs. Ursum ex-

plained, the stories “created an interest and maintained it throughout, so that waning [or loss of interest] that goes ‘are we ever going to finish this?’ it was, when is Jilliane coming? Is she going to tell us stories? So it kept their interest throughout the whole project.” This heightened motivation can be attributed to the students’ sense that their query was genuine, their ability to use their imaginations to visualize the stories and their increased emotional involvement.

Comments made by the students indicate that they treated this assignment like a mystery needing to be solved. They believed that the mystery of the Lost Lemon Mine was real and as a result, their assignment became a genuine inquiry. Shuvani’s comment in a focus group demonstrates the students’ belief in the reality of this mystery. She explained, her plans to “go down to the North Saskatchewan River and when I am older I may look for it.” Other girls in the group responded by telling Shuvani her idea was crazy because of the curse on the mine that has taken so many lives. Whether or not the students believed in the existence of the Lost Lemon Mine, they appeared to feel that mystery was real and solving it was important.

Because the students felt that this was a mystery needing to be solved, their research process took on added significance. For instance, in the middle of the program Zachary approached Mrs. Ursum to ask her if the Lost Lemon Mine really existed. Mrs. Ursum responded, “well, if I knew if it really existed why would we be doing this?” As Mrs. Ursum explained, this gave Zachary a sense that his inquiry was genuine. Later, Zachary approached other students, telling them “we wouldn’t be doing this if Mrs. Ursum already knew the answer.” This research assignment became a real quest for Zachary because he knew that his teacher was not expecting a set answer.

Mrs. Walters explained that in her classroom a typical research assignment has a guiding research question, is very structured, and tells the students where to look for information. In contrast, this project gave the student a great deal of freedom, allowing them to solve the mystery in whichever way they pleased. Throughout the program I continually reinforced to the students that they could provide any answer they wanted, as long as they had sufficient “proof.” As the teacher/librarian Mrs. Ursum stated, “they saw that it had value because there wasn’t a set answer. When the kids—when we know where we’re going, in some ways it’s not truly authentic because we know all the

steps that they will go through. We (as the teachers) know the end result.” This loosely structured assignment created a genuine inquiry, thereby motivating the students.

In addition to creating a genuine inquiry, having a loosely structured assignment fostered a constructivist approach. The assignment was framed with the overarching question *where is the Lost Lemon Mine?* Besides number of sources, formatting, and structure there were no other restrictions. The objective of this method was to encourage the students to define the project by the process as opposed to the result. Some students’ responses to questions indicate that this attitude was adopted. For instance, when Daniel was asked how he would describe the Lost Lemon Mine program he replied, “It would be hard to describe it, but probably in the steps that I did it. I would go from the first step to the last step in order telling how I did it and stuff.”

The stories influence on the students was also evident in the students’ descriptions of the imagery. Each week the students in this program listened to several image-filled tales that contained new “clues” to aid them in their search for information. What is interesting to note, is the effect the stories had on their imaginations and the role the students’ imaginations played in their research. Several of the students consistently referenced the images the stories produced in their minds and cited them as a source of information. This indicates that a visual awareness of the stories impacted some students’ interpretation of the information conveyed in the story. In addition, their visual interpretation of the story became a source of information for them.

The students who referenced their imaginations and the images they perceived were all female. Six girls cited their imaginations; five of them were from the focus group and one was from an individual interview. The common trend in each of these girls’ discussions was their visual perception of the stories. As Flora explained in her interview, “Um, like when you were storytelling like a little mini movie was running in my head and that’s just where all the ideas came from.” Similarly, Shuvani described it in her focus group by saying, “while you’re telling the stories there’d be a film in your head.” It is clear that for some of the girls, the experience of listening to stories became a visual exercise for their imaginations. As the story unfolded for them with words, a parallel story unfolded in their minds. Miley depicted this pro-

cess when she said, “a couple times when I was listening I kind of saw some pictures in my head about what was happening.”

The images the girls perceived in their minds became a source of information for them as they attempted to solve the mystery. For these girls, visual information processing was an essential aspect of their problem solving process. Ashley’s claim that “my imagination helped me the most because of the pictures in my mind when you told stories” illustrates the important role of the imagination. The ability to picture the stories helped the girls better understand them and have more confidence in their interpretation of them. As Shuvani said, “if you didn’t really think about it in your imagination and picture these people and how they looked you wouldn’t be so sure.” Another girl claimed that if you did not imagine it, “you’d get less information.”

After hearing a tale and interpreting it in their minds, the girls could use their mental interpretation as a platform for solving the mystery. The fact that this occurred is demonstrated by the girls’ work in their final papers. Flora’s paper cites specific images from multiple stories, combining characters and events to form a theory of where the gold is hidden. It states, “In Jilliane’s stories Lemon left the gold because he got scared. Well, I think after Lemon left, Bobby came and took it. Bobby found a trail of gold that led him to the mine. Lemon’s sac was probably open and the gold was falling out. And there was also a hill near the gold when the bear came.” She uses images and events from several stories and combines them in a theory to solve the mystery. Flora’s paper demonstrates that her main source of information in solving the mystery was her memory of the stories and in particular, the images she retained in her memory from listening to the tales. While her paper lacks critically analyzed sources of information, it points to her ability to treat the stories as malleable clues to be worked out in order to solve the mystery. This ability highlights the constructivist nature of this assignment. Flora’s citation of the images in the stories makes it clear that her visual interpretation was a central element in her process of understanding the information.

Relying on the physical description of the story was a common theme in the students’ work. Many students based their whole theory on the physical components described in the story. In this way, their visual interpretation of the story actually became a source of

information for them as they solved the mystery. Shuvani claimed, "Your imagination is one resource." These students sent a clear message that they feel the imagination is an important component of the information search process.

In addition to engaging the students' imaginations, involving them affectively was a focus of this project. Firstly, it was my belief that using stories as a method of instruction would increase the students' emotional engagement. Through this I hoped the students would be motivated to learn and have an improved ability to absorb new information (Egan 2007, p. 13-19). In addition, I focused on observing the students' emotional involvement in order to determine whether or not they went through the steps outlined in Carol Kuhlthau's process approach (1989). Many different emotional responses were expressed in interviews or recorded in the observations of the students. These would indicate that the students did become involved in this program on an affective level.

When discussing the way the students responded to the program on an emotional level Mrs. Walters and Mrs. Ursum highlighted two main themes. According to them, the program captured the students' interest and motivated them. Because the stories were entertaining and unique, the students found them engaging. Mrs. Walters said by beginning each session with stories, the classes "started with that focus to draw them [the students] in." She went on to say that the stories "captured their attention immediately, and sparked their interest in a topic." Similarly, Mrs. Ursum recalled, "I remember the one day when we were in a class and you said "should we do research" and they went "yeah!" and I thought by this time they're going to be sick of research. You'd think they'd be bogged down, but they were all pumped up because again, you'd given them another reason to go do research, you know, and they thought, 'well now I have to find out if that's true!'" Listening to stories affected the students' emotions, giving them a desire to complete their research assignment.

As Mrs. Ursum pointed out, the students had a desire to "find out if that's true" after listening to the story. This desire to discover the answer motivated them to carry out their research. The idea of solving a mystery was embedded in this storytelling program. It was embedded in the stories and in the students' assignment. Nearly each story I told had a plot line that included characters searching for lost gold. Because many of the students were able to envision such

images and identify with them, they became emotionally involved in the program. As Egan points out, "Our emotions seem tied to these mental images; when we imagine something we feel as though it is real or present, such that it seems that our "coding" and "access" to images is tied up with our emotions" (2007, p. 8-9).

### *3.1 Conclusion*

This research project has explored how a storytelling program can incorporate Carol Kuhlthau's process approach and whether this program could help grade four students understand the research process. It has considered how a storytelling program would affect students' emotional involvement in their schoolwork and what influence this would have on their work.

The storytelling program was successful in incorporating the process approach.

Comments made by the students as well as observations of their advancement through the assignment, demonstrate that the process approach guided their work. Students' emotional responses indicate that they experienced the feelings of doubt and confusion common early in the stages of the process approach; however, these feelings gave way to feelings of confidence and relief as the students approached the completion of their projects. In addition, observations of the students show that they began by exploring many ideas and slowly moved to focus on one idea. Finally, the comments made by the teacher and teacher/librarian state that the students moved through all the stages of inquiry in this project.

The students awareness of the stages of the process approach did increase. Although the students did not directly reference the names of the stages, they did imply an understanding of the process approach model. The students were aware that there are steps to research. Furthermore, they expressed an appreciation for the process approach model and the guidance that it gave them as they worked through their project. They claimed that they needed the model to help them know what to do as they carried out their research. Daniel stated that he thought it would be helpful to memorize the steps, but that the words used to name the steps were too big to recall. Much of the students' awareness of the steps of the process approach was due to the visual aid used to depict the steps of the process. The students were able to recall the visual aid and associated it with the

steps they took as they moved through the research process.

The program was not successful in teaching the students how to analyze sources critically. Although a mini lesson was taught on determining credibility, this skill was not developed. The students' teacher and teacher/librarian both indicated that they did not believe the students could determine the credibility of sources. Observations of the students throughout the project would also indicate that in many cases the students did not determine credibility effectively.

Critical thinking was an integral part of the research process for the students in this program. All the data sources indicate that the students adopted a critical approach. Many conflicting facts were presented in the stories that created an attitude of questioning. Throughout the program the students adopted the attitude of solving a mystery, comparing facts and ideas, and asking questions. In their final papers they express strong opinions and offer unique hypotheses as a solution to the problem. Their description of arriving at these solutions demonstrates a process of critiquing ideas and creating solutions.

The students were emotionally involved in this program. Not only were they engaged in the stories, but this engagement also carried over into their research process. As a metaphor for searching for gold, the research process echoed the stories of the miners. This provided a stimulus for the students' imaginations. As a result, many students became involved in the process on multiple levels. Some students' comments indicate that they were visually engaged in the program, claiming that the pictures they could see in their minds as the stories were told contributed to their research. Others indicated that they found their role as detectives in a mystery exciting and engaging.

The students' ability to suspend their disbelief in the stories was an important part of their engagement. Because they believed the stories, their role as researchers became more important. The teacher/librarian emphasized this effect, claiming that their involvement in the process was heightened by their sense of the authenticity of the query.

The experience of listening to stories had a great effect on the students. Because the students found the stories exciting, they looked forward to my visits and associated positive feelings with the project as a

whole. The teacher and teacher/librarian both indicated that the students' motivation and engagement in the program was heightened and maintained because of the effects of the stories. This is verified with observations of the students as well as their comments.

### *3.2 Potential for Future Research*

This research has generated many questions for further research. One question posed by this research is how stimulating a student's imagination with storytelling can help create a more authentic inquiry. While several of the students indicated that this research experience was meaningful to them because they felt it enhanced the authenticity of their query, our knowledge of this could be increased by conducting further studies examining research queries given to students and their perceived role as researchers. In addition, the role of students' imaginative visualizations on their research process needs further research. Students indicated that their imagination was a source of information for them. Furthermore, it is clear that some students' visualization of the stories implicated their decisions in the research process. The students' imaginations were a significant factor in their information processing and therefore, this area needs further research.

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