Running head: COMMUNITY PRIDE IN ELEMENTARY STUDENTS

Promoting Community Pride in Elementary Students using Technology

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Table of Contents

Abstract

A rural elementary classroom in Québec was observed throughout its participation in a project called *Québec Roots: The Place Where I Live*, in order to identify whether or not the student's level of sense of community (SOC) increased or decreased from their participation in the project, as well as to provide insight into teaching practices, characteristics and resources which are conducive to successful implementation of technology in classrooms. The Sense of Community Index (SCI) was used in order to assess the students SOC pre- and post-test. Results indicate that there was an overall increase in SOC in the students, where great improvement was realized in the SOC components of *needs fulfillment* and *sense of influence*. The findings on the requirements for successful implementation of technology are consistent with previous literature on the subject, however adds classroom size as an important factor to consider in implementation as well.

Résumé

Une salle de classe du primaire en milieu rural au Québec a été observée tout au long de sa participation à un projet appelé Québec Roots: The Place Where I Live, afin de déterminer si le niveau de sentiment de communauté (SOC) des élèves a augmenté ou diminué, de suite à leur participation au projet, ainsi que de fournir un aperçu des pratiques d'enseignement, et des ressources qui sont propices à la mise en œuvre réussie de la technologie dans les salles de classe. L'indice du sentiment de communauté (SCI) a été utilisé afin d'évaluer le SOC des élèves pré-et post-test. Les résultats indiquent qu'il ya eu une augmentation globale du SOC chez les étudiants, où une grande amélioration a été réalisée dans les composantes du SOC *satisfaction des besoins* et *sentiment d'influence*. Les conclusions sur les conditions de mise en œuvre réussie de la technologie sont en accord avec la littérature sur le sujet, mais ajoute que le nombre d'élèves dans la classe est également un facteur important à considérer dans la mise en œuvre.

Promoting Community Pride in Elementary Students using Technology

With the adoption of the Québec Education Program (QEP) in 2001, the areas of community and citizenship education which had previously been thought of as a part of the "hidden curriculum" that a child would receive at school, has been placed at the forefront as one of the explicit and important outcomes of the education that a child should receive at school. Furthermore, with the rise in technology use and the current reign of the technological era, schools and school boards across Canada and the world are trying to incorporate the use of technology and promote the development of technological skills and savvy in their students, in order to prepare them for the world and workforce which lies ahead of them. In Quebec, numerous projects have been created in order to aid teachers with satisfying many aspects of the QEP (e.g. cross curricular competencies, broad areas of learning, English language arts, etc.), and one such project which was used by the participants in this case study and thus will be discussed in this thesis is called "Québec Roots: The Place Where I Live." The present case study and basis for my thesis aimed at investigating an elementary school classroom located within a remote school, working to promote community pride and identity in their school and larger community through the use of an array of technological tools.

The section which follows contains a comprehensive literature review organized to first inform about sense of community; then to provide information on the QEP and its components; followed by information on Québec Roots: The Place Where I Live project and lastly, to end the section with insight into previous literature on technology use and its implementation.

Literature Review

Sense of Community

Developing a sense of community or a community identity has been an issue of great interest for many social psychologists, environmental psychologists and most recently educational psychologists. Since the latter half of the 19th century, the pursuit to understand the characteristics and to define sense of community developed out of the perception that sense of community was decreasing with the increase in urbanization, and that traditional social supports in communities were also ceasing to exist; heavily influencing the decrease or "erosion" in sense of community (Glynn, 1981). Two pioneers to attempt to develop a measure to quantify sense of community were Doolittle and MacDonald (1978). These researchers developed a 40-item Sense of Community Scale (SCS) in order to study the behaviours and attitudes that people communicate with at the community or neighbourhood level of social organization. The SCS developed by Doolittle and MacDonald was based on five factors: informal interaction (with neighbours), safety (having a good place to live), pro-urbanism (privacy, anonymity), neighbouring preferences (preference for frequent neighbour interaction), and localism (opinions and a desire to participate in neighbourhood affairs), and was used to differentiate between low, medium and high SCS neighbourhoods. Through the work done by Doolittle and MacDonald three generalizations were able to be constructed: first there is an inverse relationship between pro-urbanism and preference for neighbouring. Second, there is a direct relationship between safety and preference for neighbouring, and lastly pro-urbanism decreases as perception of safety increases (as cited by McMillan & Chavis, 1986).

According to Glynn (1981), the "psychological sense of community" (PSC) is generally associated to those individuals living in and studying rural or remote communities. Towns and villages where the affairs of the community are discussed and the citizens are on a first-name basis are the "breeding ground" for PSC. It was in these types of communities (i.e., rural) where

many of the characteristics associated with the concept of PSC – homogeneity, interdependence, shared responsibility, face-to-face relationships, common goals – were an essential part of life. In rural communities, the development and or maintenance of PSC was not a conscious process, but rather woven into the tradition and morality of the community. Glynn conducted a study investigating three questions for his analysis of "the psychological sense of community" (PSC). First, is the PSC concept of whether there is sufficient importance to value being studied? Second, does PSC have the properties of a construct, i.e., can it be observed, measured and systematically used (Kerlinger, 1964, as cited by Glynn, 1981)? Lastly, in which ways can the psychological sense of community in a society be increased or at least maintained? In order to answer his three questions, Glynn approached the first question from a social-historical perspective, and answered the second and third questions through a study of PSC based on three communities in the U.S. and Israel. Based on his review of the social-historical perspective, Glynn concluded that PSC was an important concept to be studied because "the erosion of PSC may pose a serious threat to our society" (p.6). Further, in answering questions two and three he developed an additional study which had four primary goals: "(1) to attempt to identify a range of behaviours, attitudes, and community characteristics which could be said to represent PSC; (2) to devise a reasonable method(s) to measure these behaviours, attitudes, and characteristics; (3) to attempt to address the relationship between PSC and two qualities thought to most effect the erosion of PSC, namely, competent functioning in the community (as defined by White, 1959; Cottrell, 1967; Iscoe, 1974, as cited by Glynn, 1981) and satisfaction with life in the community; and (4) given a relationship between PSC, satisfaction, competency and community characteristics, to delineate ways of fostering and bolstering PSC" (p.7). The instrument which was designed in order to investigate the four primary goals of questions two and three was a 120-

item scale addressing an individual's and a communities actual PSC versus their ideal PSC. The study by Glynn (1981) described three strong predictors of actual sense of community: (a) expected length of community residency, (b) satisfaction with the community, and (c) the numbers of neighbours one could identify by first name. Furthermore, Glynn found a positive relationship between sense of community and the ability to function competently in the community.

McMillan and Chavis (1986) extended the theory of sense of community by constructing a definition for the theory which could equally be applied to territorial communities (neighbourhoods) and to relational communities (professional, spiritual, etc). Their proposed definition contained four elements: (1) "*membership* – the feeling of belonging or of sharing a sense of personal relatedness; (2) *influence* – a sense of mattering, of making a difference to a group and of the group mattering to its members; (3) *reinforcement: integration and fulfillment of needs* – the feeling that members' needs will be met by the resources received through their membership in the group; and (4) *shared emotional connection* – the commitment and belief that members have shared and will share history, common places, time together, and similar experiences" (p.9). In summary the definition proposed by McMillan and Chavis for sense of community and the definition used for this study was the following:

> *"Sense of community is a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (McMillan, 1976, as cited by McMillan and Chavis, 1986, p.9).*

Each of the four elements of sense of community contains its own specific attributes and characteristics. There are five attributes associated to the *membership* element: (a) boundaries, (b) emotional safety, (c) the sense of belonging and identification, (d) personal investments, and (e) a common symbol system.

Boundaries: referring to people who belong or are members of the group or community and people who do not belong. Boundaries provide members with the emotional safety which is essential for needs and feelings to be expressed and for intimacy to develop (Bean, 1971; Ehrlich & Graeven, 1971; Wood, 1971, as cited by McMillan & Chavis, 1986).

Emotional safety: may be considered as part of the broader concept of security. The boundaries created by the membership criteria provide structure and security that protects group intimacy (Doolittle & MacDonald, 1978; Riger, LeBailly, & Gordon, 1981, as cited by McMillan & Chavis, 1986).

The sense of belonging and identification: involves the feeling, belief, and expectations that one fits in the group and has a place there, a feeling of acceptance by the group, and a willingness to sacrifice for the group.

Personal investment: contributes significantly to an individual's feeling of group membership and to their sense of community. Working to obtain or maintain membership will provide a feeling that one has earned a place in the group, and as a consequence of this personal investment, membership to the group appears to be more meaningful and valuable (McMillan, 1976, as cited by McMillan & Chavis, 1986).

A common symbol system: serves an important function as creator and the thing which helps to maintain a sense of community (p.9-10).

Influence is a bidirectional concept. The group member believes that either directly or indirectly they can exert some control over the community however cohesiveness is contingent on a group's ability to influence its members. There are four propositions concerning influence which have been concluded from research on group cohesiveness:

1. Members are more attracted to a community in which they feel that they are influential.
2. There is a significant positive relationship between cohesiveness and a community's influence on its members to conform. Therefore indicating the strength of the bond between conformity and community influence on members.
3. Conformity serves as an indicator of cohesiveness and for closeness, based on the pressure placed on conformity and uniformity from the needs of the individual and the community to be given validation.
4. Influence of a member on the community and influence of the community on a member operated concurrently and sometimes even simultaneously. (McMillan & Chavis, 1986, p.12)

The concept and third element to sense of community, *integration and fulfillment of needs*, may be summarized by the term *reinforcement*. Reinforcement is an important motivator of behaviour, and with respect to groups maintaining a positive sense of

togetherness, the individual-group association should be rewarding for its members. Integration and fulfillment of needs plays the following roles in a sense of community:

1. Reinforcement and needs fulfillment is a primary function of a strong community.
2. Rewards which are effective reinforcers of communities are status of membership, success of the community, and competence or capabilities of other members.
3. Individual values are the source of many needs that communities fulfill. The extent to which community values are shared among community members will determine the ability of a community to organize and prioritize its need-fulfillment activities.
4. A strong community is able to allow people to join in order for members to be able to meet their own needs while fulfilling the needs of others (p.13).

A *shared emotional connection* is partly based on a shared history. It is not necessary for group members to have participated in the history in order to share it, but they must identify with it. The amount of shared events between members of a group or community may serve to facilitate or inhibit the strength of the community and thus the sense of community. The principle of shared emotional connection contains the following features:

1. Contact hypothesis: the more people interact, the more likely they are to become close (Allan & Allan, 1971; Festinger, 1950; Sherif, White, &

Harvey, 1955; Wilson & Miller, 1961, as cited by McMillan & Chavis, 1986).

2. Quality of interaction: the more positive the experience and the relationships, the greater the bond.
3. Closure to events: if the interaction is ambiguous and the community's tasks are left unresolved, group cohesiveness will be inhibited (Hamblin, 1958; Mann & Mann, 1959, as cited by McMillan & Chavis, 1986).
4. Shared valent event hypothesis: the more important the shared event is to those involved, the greater the community bond.
5. Investment: determines the importance to the member of the community's history and current status.
6. Effect of honour and humiliation on community members: reward or humiliation in the presence of community has a significant impact on attractiveness (or adverseness) of the community to the person (Festinger, 1953; James & Lott, 1964; as cited by McMillan & Chavis, 1986).
7. Spiritual bond: is present in some degrees in all communities (p.13-14).

The majority of early research on sense of community has focused on the perceptions and experiences of adults (Pretty, Conroy, Dugay, Fowler, & Williams, 1996). Goodenow (1993) developed a study investigating the psychological sense of school membership among adolescents. Classroom engagement, academic effort, and school success or failures of students' are influenced not only by individual differences in skills, abilities, and pre-dispositions, but also by many situational and contextual factors. One aspect of the social context of special relevance to education is students' sense of

belonging or psychological membership in the school or classroom. In schools, students from grade school (Batcher, 1981; Zeichner, 1978, 1980) through college (Tinto, 1987) have difficulty sustaining academic engagement and commitment in environments in which they do not feel personally valued and welcome. Students who develop a sense of belonging achieve greater commitment to school goals and to their own engagement and participation in school life (Finn, 1989; as cited by Goodenow, 1993). Goodenow concluded that at the level of the individual student, psychological membership is influenced by both personal traits and situational and contextual factors. Further, psychological membership may contribute significantly to school motivation, effort, participation, and subsequent achievement, however exerts more influence through its effects of motivation than on achievement directly.

The study by Pretty, Andrewes, and Collett (1994) on adolescents' sense of community suggested that sense of community may have the same relevance for adolescents' well-being as for adults, because it was related to different aspects of social support depending on the community setting; the number of supportive persons identified, and the amount of assistance received. Further, they found that sense of community was significantly related to adolescent's loneliness, which can imply failure of the community as a system to accommodate integration of an individual.

Québec Education Program (QEP)

The Québec Education Program (QEP) for preschool and elementary education represents the work of more than 500 people from the education community; it was informed by the most recent research on teaching and learning of the time, and was the response to the need

to reform the Québec education system. The reforms which have taken place were focused on three orientations: "*the new curriculum should be comprehensive and diversified, have a long-term perspective and be open to the world"* (Ministère de l'éducation, du loisir et du sport (MELS), 2001, p. 7). Its programming focused on learning being adapted to the reality of children and youth, ensuring the proper development of general competencies which are essential in both the academic careers and general lives of the children. The QEP places much emphasis on the exploration and understanding of the complexities of everyday life, encouraging students to make the connections between their learning and real life. Through the completion of this program, students should be able to develop high-level competencies in a school that has their success as their number one concern and is suited towards the students needs (MELS 2001). The QEP outlines the "school's mission" and states that:

> *"Québec schools have a mandate to prepare students to contribute to the development of a more democratic and just society. Their primary responsibility concerns the basic learning's that students must acquire in order to achieve success in school beyond the elementary level. But they also have a responsibility to help students take their place in society, by familiarizing them with basic social knowledge and values and giving them the tools they need to play a constructive role as citizens" (MELS, 2001, p.7).*

According to the QEP the school's mission should be accomplished in three ways: "*(a) To provide instruction: with renewed conviction; (b) To socialize: to prepare students to live together in harmony, and (c) To provide qualifications: through a variety of options"* (MELS, 2001, p.8). The present case study focused on criterion number two: "To socialize", and how this criterion of the "school's mission" has been attempted to be satisfied by a remote school in

Québec through the use of various technological tools. The QEP further details what "To socialize" involves within the parameters of the school's mission:

> *"In a pluralistic society such as ours, schools must act as agents of social cohesion by fostering a feeling of belonging to the community and teaching students how to live together. This means that they must transmit the heritage of shared knowledge, promote the fundamental values of democracy and prepare young people to become responsible citizens. They must likewise prevent exclusion, which jeopardizes the future of too many young people." (MELS, 2001, p.8)*

The participants observed in the present study attempted to satisfy criterion number two of the "school's mission" by focusing on the areas of the QEP reform which involved the "cross-curricular competencies" (i.e. intellectual competencies, methodological competencies, personal and social competencies, and communication-related competency), as well as the "broad areas of learning" (i.e. health and well-being, personal and career planning, environmental awareness and consumer rights and responsibilities, media literacy, and citizenship and community life). Out of the four cross-curricular competencies there are two which were emphasized in this case study:

> ***Methodological Competencies:*** *involve the use of effective work methods and information and communications technologies (ICT).They promote the development of attitudes such as a sense of responsibility, pride in work well done, discipline and rigour. These competencies allow the students to enjoy the pleasure of work well done through the development of the ability to organize activities and persevere in them (MELS, 2001, p.28).*

> ***Personal and Social Competencies:*** *are associated with the development and affirmation of students' personal and social identity. They involve both the cognitive and socio-affective dimensions of learning. They also promote the expression of attitudes related to open-mindedness, adaptability, commitment and mutual aid (MELS, 2001, p.33).*

Furthermore within the "broad areas of learning", media literacy and citizenship and community life were emphasized in the project done by the participants:

> ***Citizenship and Community Life:*** *to ensure that students take part in the democratic life of the classroom or the school and develop a spirit of openness to the world and respect for diversity. Development is focused on three elements: (1) awareness of the importance of rules of social conduct and democratic institutions; (2) involvement in action in a spirit of cooperation and solidarity, and (3) culture of peace (MELS, 2001, p.51).*

> ***Media Literacy:*** *to enable students to exercise critical, ethical and aesthetic judgment with respect to the media and produce media documents that respect individual and collective right (MELS, 2001, p.49).*

Québec Roots: The Place Where I Live

"Québec Roots: The Place Where I Live" is a Blue Metropolis distance-education project that has been supported by Québec's Ministère de l'éducation, du loisir et du sport (MELS) (Direction générale de la formation des jeunes), Bell, Canadian Heritage, LEARN, and the Canada Council for the Arts, as well as by school boards, teachers, and students across Québec (Blue Metropolis Foundation, 2008). This project is community-based and invites Anglophone

students in ten schools around Québec to explore their community roots and define what community means to them through photographs and words. The photo-essays created by the students are developed in collaboration with professional writers and photographers and are then developed into an anthology that is later published for a real audience.

The project started in 2005 and was modeled after a project which was done in some of the inner city schools located within the city of Montreal, where the students worked with photographs and wrote about their communities. Since its beginnings in 2005, the project has been designed to expand its reach and foster the understanding that Anglophones have contributed and still continue to contribute to the cultural diversity of Québec in prominent ways. In this project "community" is a concept that denotes the active construction of a place or sentiment by people who live together in a certain space and time. Much emphasis is placed on having the students discuss and explore what community means to them and how they may show different aspects of this in pictures and words. Further, the project requires that participants adopt a contemporary understanding of literacy; where it is more than the capacity to recognize and reproduce words, but rather involves the understanding of the communities that have been built out of the fabric of ordinary lives by recording what they mean to those who experienced it, and how they have shaped the memories, experiences and personal histories of those who have experienced it. With the Québec Roots project, literacy is more than the capacity to read the word and the image, but is about reading the world (Blue Metropolis Foundation, 2008).

"Québec Roots: The Place Where I Live" provides the opportunity for teachers to expand on what they are already doing in their classrooms and allows them to think in a different way. Participating teachers guide their students through a production process from beginning to end. Although the task may seem daunting to most, the teachers are not working in isolation in order

to complete it. Through the use of technology, the participating teachers are able to remain connected with other participating classes and are able to maintain weekly contact with their author and photographer, as well as obtain support from the RÉCIT person in their school boards; if they are in need of technical help such as teleconferencing troubles, uploading photos, etc. Furthermore, the project is pedagogically relevant in that it touches on many aspects of the Québec Education Program such as the incorporation of cross-curricular competencies (i.e. uses creativity, uses ICT, cooperates with others, communicates appropriately, etc.) and broad areas of learning (i.e. media literacy and citizenship and community life) into the curriculum outlined for the English Language Arts, History and Citizenship Education and Visual Arts programs.

Technology use was an essential component to the success of this project. Throughout the entire duration of the project both teachers and students engaged in:

1. Using a technological infrastructure which promoted an educational; experience through an online model that allowed real time instruction, collaboration and training;
2. Participating in a video-conference with their designated author and photographer;
3. Collaborating through forums:
    a. Students with authors and photographers;
    b. Students with students;
    c. Teachers with teachers;
4. Using digital cameras;
5. Recording interviews conducted with community members;
6. Documenting interviews and stories using word processing tools and;

7. Using computer software to prepare their final products.

Technology Use and Implementation

In order to increase the quality application and implementation of computer-based technologies and technology in general into classrooms, one of the main factors which definitely require much attention is teacher education and professional development (National Council for Accreditation of Teacher Education (NCATE), 2003; Windshitl & Sahl, 2002). With the current culture of teaching, teachers spend a large majority of their time in classrooms isolated from one another. They are one of the very few professions which has limited access to computers or other means of interaction and communication with those outside of the classroom (Riel & Levin, 1990). However, they are also important interpreters of any classroom-based intervention, and are responsible for a large amount of diversity in the effects of instructional interventions (Fishman & Davis, 2006). Therefore, with respect to the effective application of computer-based technologies in classrooms, in most cases, teachers are required to undergo a change or transformation in their understandings of what learning and teaching are all about and how they may perceive or interpret computer-based technology or technology in general in those two practices. In other words, the culture of teaching needs to undergo a great transformation from the traditional method of knowledge transmission, to more methods of knowledge construction (Laferrière, Breuleux, & Bracewell, 2000).

In a study by Becker and Riel (2000) it was found that teachers who had participated regularly in professional interactions and activities outside the confines of their classrooms taught differently than those who had minimal interactions with their peers or profession. Those professionally engaged teachers were more likely to practice teaching philosophies which were

compatible with constructivist pedagogy and tended to use computers more and in more exemplary ways. They were more motivated to master and learn new technologies, as well as saw and understood the utility of computers in their work. Moreover, Becker and Riel found that if professionally engaged teachers were provided with sufficient access to computers they would use and implement them in exemplary ways. The findings by Becker and Riel were further corroborated by more recent evaluations of the role of instructors in effective application of computer-based technologies in the classroom, in a review conducted by Wan, Fang, and Neufeld (2007) on online learning communities in university settings. These researchers noted that a professors level of technology experience and self-efficacy, in terms of having the ability to use technology effectively and having a positive attitude towards technology, affected the learning outcomes of the students.

In order to improve and obtain more successful and effective application of technologies in classrooms there are critical aspects which need to be taken into consideration when designing and trying to implement technology into the classroom. First, solely placing the technology into the hands of the teachers will not assure effective application and is not the best strategy (Becker & Riel, 2000; Riel & Levin, 1990). More focus needs to be placed on staff development and training in technological tool use and constructivist practices which extend themselves beyond purely only literacy skills, but which address a more thorough application and curriculum integration as well (Nanjappa & Grant, 2003). This may include, but is not limited to, showing teachers the "best-practice-approach" of technology use, but in doing so showing them the steps or phases that they are required to move through with their students and themselves in order to obtain effective use of the technology-based tool (Bielaczyc, 2006). Lastly, the technology-based tool needs to have a purpose and function which serves and cooperates with the ideals and goals

of the teacher (Bielaczyc, 2006; Riel & Levin, 1990). If the teacher does not fully understand or know the purpose of the tool than most probably it will not be used effectively or be applied properly in the classroom. Therefore, communication and interaction between the designer and the teacher about the technological tool is of extreme importance to the success of such educational technologies.

Purpose

Remote or rural schools are often targeted for closure due to their low student enrolment and increase in families leaving the area. Is it possible for a rural school to promote their image, maintain quality education, and develop productive relationships with their wider community through their participation in a project which required technology use? This case study aimed at investigating an elementary school classroom located within a remote school, working to promote community pride and identity in their school and larger community through the use of an array of media and technological tools, and through their participation in the Quebec Roots project. Moreover, this study sought to provide additional support and understanding to the literature on teacher characteristics which are conducive to the successful implementation of technology into classrooms.

Evidence of change in sense of community pride was sought in an attempt to provide insight into how media and other technological tools may be used in order to increase and support community pride and identity. The research questions examined were:

1) How can the use of technological tools be used to promote community identity and pride in an elementary school classroom?

2) What resources are required to promote teacher professional development in order to ensure successful implementation of technology in classrooms?

3) What kind of teaching practices and characteristics are associated with the successful implementation of media and technological tools in classrooms?

The expected value and benefits of this project were to examine and identify how students' community identity and pride can be supported or promoted through the use of media technology, as well as to provide insight into the types and kinds of resources and learning atmospheres which were required for teacher professional development, and the successful implementation of technology into the classroom.

As this project is part of a greater-scale initiative involving schools learning how to use media technology in order to complement and promote writing and literacy, information about what resources and teacher characteristics are required for successful implementation of technology will be crucial to the capacity building of the participants and the transformation of school practices in coherence with the reformed Québec Education Program.

Method

Participants

The participants for this study were teachers and students from an elementary school, in the New Frontiers School Board of the province of Québec which was already participating in the Québec Roots Project by the Blue Metropolis Foundation. They were contacted by the principal investigator who worked with them on a different project called Building Community through Tellecollaboration (BCT), the previous year, as part of the intervention and research team. The classroom used in the study was located in South-western rural Québec, within a

school of only 55 students from kindergarten to grade 6. The class was a cycle 3 grade 5/6 split with 14 students (6 boys and 8 girls) participating in a bilingual program where the subjects of Mathematics and English language arts were taught in English and Geography, History and French language arts were taught in French, however only 12 students pre-test (5 in grade 6 and 7 in grade 5) and 11 students post-test, were present to answer the sense of community questionnaire used in the study. The teachers for this grade 5/6 cycle 3 classroom have been team teaching together at the school for over 17 years, and have always tried to initiate and participate in new and interesting activities and events in the school, in order to create better learning experiences and a better learning environment for the students.

The participating school is located within a rural community surrounded by apple farms, lumber yards, pork industries, dairy farms and maple syrup growing. Despite this rich atmosphere of country living the residents in this small community are confronted with many hardships, for example economic hardships, where many of the parents have to leave the community to find work to support their families. Two years prior to participating in the Québec Roots Project the school was targeted for closure, however the parents, teachers and students in the community rallied behind and fought to keep the school open. According to the two teachers used in the study, the participating school is the "centre of the community"; it houses the community's library, as well as hosts many of the events and activities scheduled in the community (e.g. movie nights, antique shows, etc.). The teachers expressed that if the school were to close down, it would be a "major blow" to the Anglophone community. Therefore, the teachers who work at the school were continuously searching for projects and opportunities to enrich the learning environment for their students, as well as reasons to keep their school alive and away from closure.

Procedure

The data used for this investigation were collected through a mixed design of quantitative and qualitative procedures and analyses. The majority of the data analysis was based on the quantitative measure using an adapted form of the Sense of Community Index (SCI) by Chavis, Hogge, McMillan and Wandersman (1986) in order to identify the students' level of community identity both pre-test and post-test (see Appendixes D & E). However, qualitative measures such as the researchers observations of student interactions and interviews with the teachers (see Appendixes B & C) were used in order to complement the results from the SCI, as well as to answer research question #2 - What resources are required to promote teacher professional development in order to ensure successful implementation of technology in classrooms? – and research question #3 - What kind of teaching practices and characteristics are associated with the successful implementation of media and technological tools in classrooms?

Instrument for Quantitative Analysis

The Sense of Community Index (SCI) is an instrument which measures an identifiable group of attitudes and behaviours associated with community satisfaction and competence. There are four underlying dimensions of SCI and each contains its respective attributes: (1) membership; (2) the capacity to influence the referent group; (3) the collective meeting of need; and (4) a shared emotional connection in time and space (McMillan & Chavis, 1986). Chavis et al. (1986) developed the SCI based on 100 profiles of respondents to a large survey, the Neighbourhood Participation Project (NPP) Questionnaire of the Centre for Community Studies, George Peabody College for Teachers (Chavis et al., 1986; Chipuer & Petty, 1999; Hill, 1996). Using a Brunswick's lens model, a methodology which allows a theoretical basis to be

determined for mathematically deciphering individual and/or group perceptions by identifying the degree to which certain cues are relied on in the perception of a phenomenon or judgement about it (Chavis et al., 1986), 23 open- and closed-ended items were identified as representing sense of community. The profiles were based on responses to 43 items from the survey, 39 of which were believed to be related to one of the four elements in the sense of community theory proposed by McMillan and Chavis. Twenty-one judges gave each profile a rating (from 1 to 5) based on the personal opinions or perceptions of the judges own meanings and understandings of sense of community. There was an extremely high (.97) level of agreement among the judges which signified that a common core of perception of sense of community from an identifiable diverse population was attained. The respondents to the questionnaire were adult residents (at least 18 years old) of the Waverly-Belmont neighbourhood in Nashville, Tennessee.

The SCI scale consists of 12 True/False items, with "block" as its referent group, however in this case study "town" was used as the referent group. Three closed-ended items were chosen from each of the four "subscales" of the long form Sense of Community Index – L. These items were selected to represent perceptions of neighbourhoods in terms of membership, influence, fulfillment of needs, and emotional connection (D.M. Chavis, personal communication, August 18, 1987, as cited by Chipuer & Pretty, 1999). The total scale had an internal reliability coefficient of .80. For the purpose of this case study, pre-post measures on the SCI instrument (grade, years in school, age, and sex) were analysed based on the four elements of sense of community as the factors of analysis; membership (pre-post mem), the capacity to influence the referent group (pre-post infl), the collective meeting of need (pre-post needs), and the shared emotional connection in time and space (pre-post emot). As well, the overall sense of community (pre-post over) achieved was analysed.

Project Time-line

In order to answer the three questions posed as the purpose of the case study, the investigation was conducted in three stages: (1) orientation, (2) development, and (3) finale. During the orientation period first the teachers were introduced to the Québec Roots initiative, its purpose and the expectations and commitment involved in being a part of the project. The teachers were given a one day workshop on how the project would be conducted as well as how to use the technology, and were introduced to their support team which included the author, professional photographer, RECIT animator (provides training and professional development for teachers in the use of information and communications technology (ICT) for the classroom, as well as provides guidance and support for teachers with implementation of pedagogical projects), and the other team members as part of the Blue Metropolis Foundation. The second part of the orientation was for the students, who were the ones actually taking the photographs and developing the stories which portrayed the community in which they live. On a separate day after the teachers had their introductory workshop and orientation session, the author and professional photographer visited the school to meet with the children and give them authentic learning situations which provided information about the writing process and photography. Before meeting the author and photographer, the students were instructed to create a "my community" statement where they were required to answer three questions: (1) Who are we? (2) What makes us unique? and (3) Where do we live? The "my community" statement allowed the students to begin thinking about the project, their community, what was special about their community, and prepared them for their meeting with the author and the photographer. The author took the students through the writing process and the components of what makes "good literature". The students performed writing exercises and were able to ask the author questions about how and

why she became a writer, and how and where she received the motivation to continue to write and create books. With the photographer the students engaged in more authentic practices by learning the language that photographers use, the techniques used to make good and meaningful photographs with a story and which invoke emotion and awe, as well as received important advice: "Keep taking pictures and take many pictures!"

The SCI pre-test was given to the students at the beginning of the development section of the investigation process, as well as the first set of teacher interviews were conducted at this point in the process. During the development section of the project, the students were paired and each pair focused on a specific topic which they thought helped portray the uniqueness of their community. Each pair took many pictures which were related to their topic and were required to upload the pictures to special laptops which were used specifically for the purpose of the project. Then each pair was required to select the photos which they thought were the best out of all the ones that they took, and pasted them to a Googledoc, in order to begin writing the stories or information which went with each photo. Throughout the development process, the author and photographer were able to log into the students Googledocs and give comments and suggestions about the students work. As well, the RECIT animator would visit the school occasionally, in order to lend technical support as needed by the students and the teachers.

Creating the opportunity to be a part of such a great project required an immense amount of time and commitment for the teacher's involved in Québec Roots project, however the teacher's found their reward in being able to provide a great learning atmosphere for their students. During the final periods of the project the students were able to hold a video conference with the author and the photographer in order to receive last minute feedback about their work before the final draft was due. Once the final draft was submitted by all participating schools and

the book was created, the students and teachers were provided with the opportunity to attend the launch of their book in the city of Montréal, Québec. The final interview with the teachers and the post-test SCI for the students were conducted after the final book was created and launched.

Results

In order to answer the first question proposed as the purpose of this case study, analyses of the SCI pre-test and post-test were conducted. The SCI pre-test was extensively analysed in order to achieve a comprehensive understanding of the students' initial sense of community before the intervention of the project, and in which SOC elements they were significantly stronger and or weaker. Following analysis of the SCI pre-test through the analysis methods of T-tests and ANOVA's on the variables of grade, sex, years in school, and age, it was found that the variables of "grade" and "years spent in school" were significant for the sense of community elements of "shared emotional connection in time and space" and "membership". There were positive two-way interactions between "age" and "years in school" for the sense of community element "shared emotional connection in time and space", between "grade" and "years in school" for the sense of community elements of "membership" and "shared emotional connection in time and space", as well as between "sex" and "years in school" for the sense of community element "shared emotional connection in time and space" (see Table 1). T-tests were used for variables with two weights of interest, for example sex: male, female, and ANOVA's were performed on variables with more than two weights interest, for example years in school: 1, 2, and 3.

Table 1

Pre-test Results of ANOVA's and T-tests for the SCI

VARIABLE	SOC ELEMENT	F-VALUE	Pr > F
Grade	Emotional	8.55	0.0152
Years in School	Membership	5.42	0.0285
Age*Years in school	Emotional	7.91	0.0283
Grade*Years in school	Membership	7.07	0.0325
Grade*Years in school	Emotional	5.81	0.0467
Sex*Years in school	Emotional	8.06	0.0251

The descriptive statistics for the sense of community inventory pre-test revealed that before the project intervention the female students contained a larger overall sense of community than the males in the same classroom (see Table 2 and Table 3).

Table 2

Means for Gender Differences by Grade Pre-test

Grade: 1 = Grade 5 / 2 = Grade 6

Sex: F = female / M = Male

Years in School: 1 = 1-3yrs/ 2 = 4-6yrs/ 3 = 7-9yrs

Age: 1 = 10yrs old / 2 = 11yrs old / 3 = 12yrs old

GRADE	SEX	N	YRS in School	AGE	PRE-MEM	PRE-INFL	PRE-NEEDS	PRE-EMOT	PRE-OVER
5	F1	6	2.167	1.5	2.5	1.83	1.33	2.58	7.58
6	F2	1	3	3	3	1.5	2.5	1.5	8.5
5	M1	1	3	3	2	2	2	2.5	8.5
6	M2	4	2	2.25	1.75	2.13	1.25	1.25	6.38

Table 3

Means for Gender Differences Pre-test

SEX	N	YRS in SCHOOL	AGE	PRE-MEM	PRE-INFL	PRE-NEEDS	PRE-EMOT	PRE-OVER	DIFFERENCE (of overall SOC score)
F	7	2.14	1.43	2.14	1.79	1.64	2.29	7.71	0.91
M	5	2.2	2.4	1.8	2.1	1.4	1.5	6.8	

The results from the post-test Sense of Community Index was quite different from the pre-test results, in terms of which variables were significant after a period of time had passed and the Québec Roots project had been completed. The T-tests suggested that the variable "grade" was significant for the sense of community elements of "the capacity to influence the referent group" and "the collective meeting of need". Further, with the variable "sex", this variable was significant for the sense of community element of "the collective meeting of need. There were positive two-way interactions between the variables "grade" and "years in school" for the sense of community elements of "the capacity to influence the referent group", "the collective meeting of need", "shared emotional connection in time and space", and for the "overall sense of community achieved". Moreover, there were positive two-way interactions between the variables of "sex" and "years in school" for the sense of community elements of "the collective meeting of need", "the capacity to influence the referent group" and for "the overall sense of community achieved" (see Table 4).

Table 4

Post-test Results of ANOVA's and T-tests for the SCI

VARIABLE	SOC ELEMENT	F-/T-VALUE	Pr > F
Grade	Influence	8.93 (F-value),	0.0152,

		2.77 (T-value)	0.0389
	Needs	11.12 (F-value), 3.11 (T-value)	0.0087, 0.0253
Sex	Needs	6.53 (F-value), 2.44 (T-value)	0.0309, 0.0480
Grade*Years in school	Influence	14.27	0.0023
	Needs	11.18	0.0046
	Emotional	8.30	0.0105
	Overall SOC	6.88	0.0170
Sex*Years in school	Needs	16.98	0.0059
	Influence	11.47	0.0136
	Overall SOC	8.90	0.0225

Analysis of the descriptive statistics for the SCI post-test suggests that there has been an overall increase in the sense of community achieved for the participating students in the Québec Roots Project in this case study (see Table 5).

Table 5

Comparison of Means for SOC Elements Pre- and Post-test

ELEMENT	N	MEAN	STD DEV	ELEMENT	N	MEAN	STD DEV
PRE-MEM	12	2.00	1.02	**POST-MEM**	11	1.91	0.54
PRE-INFL	12	1.92	0.70	**POST-INFL**	11	2.05	1.01
PRE-NEEDS	12	1.46	0.69	**POST-NEED**	11	2.18	1.01
PRE-EMOT	12	2.04	0.96	**POST-EMOT**	11	2.45	0.69
PRE-OVER	12	7.42	2.32	**POST-OVER**	11	8.59	2.32

Further, female students continued to possess an overall greater sense of community post-test than their male peers, however both female and male students achieved a larger sense of community post-test (see Tables 6 and 7).

Table 6

Means for Gender Differences Post-test

SEX	N	YRS AT F.E.S	AGE	POST MEM	POST INFL	POST NEEDS	POST EMOT	POST OVER	DIFFERENCE (of overall SOC score)
F	6	2.3	2.5	2.7	1.45	1.75	2.25	8.15	0.96
M	5	2.5	2.88	2.06	1.31	2.13	1.69	7.19	

Table 7

Means for Sense of Community Elements by Gender Pre- and Post-test

SOC ELEMENT	FEMALE	DIFFERENCE (pre-post test)	MALE	DIFFERENCE (pre-post test)
PRE MEMBERSHIP	2.14	0.56	1.8	0.26
POST MEMBERSHIP	2.7		2.06	
PRE NEEDS	1.64	0.11	1.4	0.72
POST NEEDS	1.75		2.12	
PRE EMOTIONAL	2.29	-0.04	1.5	0.19
POST EMOTIONAL	2.25		1.69	
PRE INFLUENCE	1.79	-0.34	2.1	-0.79
POST INFLUENCE	1.45		1.31	
PRE OVERALL	7.71	0.44	6.8	0.39
POST OVERALL	8.15		7.19	

Questions two and three were investigated and answered by observing the students as they worked on their project and interacted with each other, as well as through the use of the teacher interviews. During the classroom observations, with the students the main focus was to take note of how they were using the technology, as well as how each pair of students interacted with each

other while they were using the technology and performing the requirements of the project. On the other hand, with the teachers the focus was on how the teachers taught and engaged their students in the project, and the type of teaching practices they employed. The interview sessions were informal and were conducted during lunch breaks in the staff room of the school. During these conversations a question concerning how the teachers thought the project was working for their students, for example, would spark a slew of commentary from the teachers. Based on their responses to a question the other questions which followed were built off of the previous responses given, in order to distinguish between which aspects of their responses were pertinent to the study and which aspects were not. Although pre-determined categories, for example classroom structure and set-up, methods of instruction, roles, the resources required, and teaching history, were created in order to subtract the required information, there was not a systematic checklist used during the observation periods. The dimensions were decided upon based on previous literature (Becker & Riel, 2000; Nanjappa & Grant, 2003; Scott, Cole & Engel, 1992) on the types of teaching practices and characteristics which are optimal for technology implementation.

The teachers in this study were extremely forthcoming and vocal about what they thought were the important resources necessary to promote teacher professional development in order to ensure successful implementation of technology into classrooms. They expressed that certain key requirements were necessary in order to engage in a project like Québec Roots, which is technology and time intensive, as well as in order to simply attempt to try something "new" like implementing and using technology in the classroom. The requirements were the following:

1. Classroom size,
2. Teacher attitude, and

3. Support system.

The teaching duo in this case study voiced that classroom size is a key concern in attempting anything new with students, because with large classrooms (e.g. 30-35 students) the task of involving, engaging, and teaching all the students the new technology becomes a whole lot more difficult, due to factors such as the students' behaviours and attention span. Teacher attitude was an important factor expressed by the teaching duo, because they affirmed that a positive attitude towards technology was definitely required. The acknowledgement that the attitude possessed by the teacher is a significant factor in successful implementation of technology was also echoed by Gulbahar and Guven in their 2008 study on ICT usage and the perceptions of social studies teachers in Turkey. The researchers note that successful implementation of educational technologies is largely dependent on the attitudes of educators, and that teacher attitudes are the most significant factor which determines the adoption of technology in the classroom. As well as the teacher should be self-directed, in the sense that they ask many questions, take the initiative to seek aid, write down steps, and are leaders who try to aid others as well as enrich their own learning. Teacher leaders was a point expressed by Becker and Riel (2000) as to educators who were more likely to engage in constructivist teaching practices, as well as more likely to master new technologies and attempt to use new technologies with their classrooms. Lastly, the teachers in this case study felt that a "good support system", consisting of administrative support, community support, technical support, and peer support, for teachers and students were necessary to the technology implementation process. They expressed that support was essential because there were so many factors which made implementation difficult such as: the behaviour of the students, lack of time for teachers to properly teach the students the necessary skills, lack of technological know-how, as well as lack of proper training for the teachers. "A good support

system" is echoed in many previous studies on technology and implementation in classrooms, where it is expressed that simply equipping schools and classrooms with technology is not sufficient enough to achieve successful implementation (Becker & Riel, 2000). Barriers to technology implementation are often due to insufficient technical knowledge by teachers, which directly affects the teachers' competence in technology and thus their attitude towards technology (Granger, Morbey, Lotherington, Owston & Wideman, 2002; Gulbahar & Guven, 2008; Scott, Cole, & Engel, 1992).

Throughout the investigation, the teaching practices and characteristics associated with successful implementation of media and technological tools in classrooms were quite obvious with this particular teaching team. The teachers in this case study conducted their classrooms in a very constructivist way. According to Nanjappa and Grant (2003), there is a complementary relationship between technology and constructivism, where the implementation of each benefits the other, because each focuses on the creation of learning environments. Professionally engaged teachers, like the ones described in this study, are usually more constructivist in practice and are more likely to have their students use computers and technology on the regular (Becker & Riel, 2000). First, the classroom was laid out in such a way, that the feet of the desks were attached to tennis balls in order to allow ease of movement for whichever configuration the daily lesson required. At times, the students took on the role as the teacher in the classroom, showing their peers how to solve certain math problems, or perform certain equations and writing tasks. The teachers did not show any discomfort with allowing their students peer teach, but instead enjoyed watching their students interact with each other and help each other out. Further, the teachers demonstrated that they trusted their students and respected them greatly, by allowing students to

go to another class in order to work on writing section of their project, or to go around the school taking photographs and interviewing staff members.

The teachers in this case study have been team teaching for 17 years and are quite dynamic. They are initiators who have always worked to provide better learning environments for their students through the creation of opportunities, such as being a part of the Québec Roots project for example. They were people who were eager to learn and not afraid to ask questions and to try and experience new things. The teaching team was very structured and shared tasks and time efficiently. They overextended themselves to their students, in order to ensure that their students were receiving the help which they required in order to be successful. Further, they displayed great care for their students and their well-being, their school and the town in which they lived. As well as realized that with greater educational awareness, the more pride and effort their students would put into their community and themselves.

Conclusion

The purpose of this case study was to investigate how an elementary classroom located within a remote school community was able to promote community pride and identity in their school and larger community through the use of an array of media and technological tools, and through their participation in the Québec Roots project. The research questions examined through this investigation were the following:

1) How can the use of technological tools be used to promote community identity and pride in an elementary school classroom?

2) What resources are required to promote teacher professional development in order to ensure successful implementation of technology in classrooms?

3) What kind of teaching practices and characteristics are associated with the successful implementation of media and technological tools in classrooms?

In order to provide an answer for the first research question the Sense of Community Index (SCI) was used as the inventory of choice. The students answered the SCI questionnaire at two points during the project, once during the beginning of the project (pre-test, see Appendix D) and once during the end of the project after the finale (post-test, see Appendix E). The pre-test results revealed that the grade the students were in affected their sense of "shared emotional connection in time and space" where the students in grade 5 possessed a higher level of shared emotional connection than those in grade 6. Further, the number of years that the students had spent in their school affected their sense of "membership", where the longer the students had spent in their school, for example 6 years from kindergarten to grade 6, the higher their membership score tended to be. However after completion of the project the students' post-test results revealed that grade and the number of years the students had spent in their school no longer possessed the same effects as they had pre-intervention. Post-intervention the grade that the students were in was significant for their "capacity to influence the referent group" and their "collective meeting of need, where again the grade 5 students scored higher on both SOC elements post-test." Also, the number of years that the students had spent at the school was no longer a factor of interest, but the sex of the students affected their "collective meeting of need."

These results suggest that the project did have a significant effect on the students' sense of community and pride because with the sense of community elements of "membership" and "shared emotional connection in time and space" these two elements remained relatively high both pre- and post-test, however the elements of "capacity to influence the referent group" and "collective meeting of needs" increased from a relatively low degree to a relatively high degree.

With the SOC element "the capacity to influence the referent group" there are four key characteristics in its composition: "(a) that members are most attracted to a community in which they feel they have power; (b) that a community's influence on its members to conform is significantly related to the members' sense of community; (c) that the pressure toward conformity and uniformity comes from the need of individuals and the community for consensual validation, by which members achieve closeness; and (d) that a member's influence on the community and the community's influence on the member operate concurrently" (Chavis et al., 1986, p.25). Therefore, it appears as though the students had gone from feeling like they had no power in their community, to a new sense of importance and closeness to their community after participating in the project. Likewise, with the "collective meeting of needs" SOC element, the values of an individual – one's sense of one's own needs and the needs of others – are shared (Chavis et al., 1986). Therefore after participating in the intervention, students probably sensed that their values and what they thought were important were given the same importance in their community, where before they participated in the Québec Roots project those sentiments were probably not shared. Moreover, because the project required the students to extensively use technological tools - from manipulating their digital cameras, to uploading their photos to their laptops, to creating files and working with Googledocs in order to link their text and photos in order to receive feedback from the author and professional photographer - by extension one can say that the technology involved in the project played a role in aiding with the creation of the students sense of community pride and identity.

Research questions two and three were examined through interviews with the teachers as well as by observation. The teachers expressed that the resources required in order to ensure successful implementation of technology into classrooms were a large amount of support

(technical and non-technical), positive teacher attitude, as well as manageable classroom sizes (e.g. small). These factors to successful implementation described by the teachers were consistent with those found in previous literature on barriers to technology implementation in classrooms. However, the mention of smaller, more manageable classrooms, is adding to the literature in that classroom size has not necessarily been a focus of study in most research studies on the topic of technology implementation. Classroom size is an important factor to consider and to include in future studies, because in most instances where technology is successfully implemented the classroom usually does not contain 30 plus students. In addition, teaching practices and characteristics associated with successful implementation of media and technological tools in classrooms were those which were representative of constructivist teaching practices, which again is consistent with previous literature on teaching practices which are conducive to technology use and implementation in classrooms.

Discussion

When first approaching this research study and meeting with the teaching duo involved, there were several questions posed to which they truthfully responded. The teachers had decided to have their classroom take part in the Québec Roots project because they wanted to introduce their students to the concept of community, which they felt that their students did not have. The teachers regarded a sense of community as essential to the survival of the English population in their area. An area where many different factors such as transient families (arriving from the city of Montreal), isolation, lack of common interests, no ties to the area unless an individual was involved in farming or orchard related work, etc., had affected the sense of community that one who lived there may have felt. Through their participation in the project, the teachers hoped that they would have been able to increase awareness in their student population of how fortunate

they were to have been able to live and grow up in an area like theirs, and perhaps could one day return as adults and make the area more prosperous. After the project was completed, the teachers expressed that they were happy with the project and that they felt that their students do have somewhat of a greater sense of community, although they are not sure if it will be temporary or long lasting. There were many different areas of interest examined in this case study; sense of community, technology use and implementation, and teacher professional development and characteristics which were conducive to proper technological implementation and use within classrooms, which will be discussed in the following section.

Sense of Community

There are five dimensions of school and community relations identified, based on theories provided by public relations and the conception of Merz and Furman (1997, as cited by Tam, 2007); they are geographical, structural, relational, cultural and political. The geographical dimension outlines the physical boundaries and geographical location of a school and its community. Structural dimensions provide the instrumental and socio-structural relationship between a school and its community. The relational dimension describes the human interactions and social relationships between members of a school and its community. Cultural dimensions reveal the symbolic and ideological nature of the interaction between a school and the community, and the political dimension depicts the political nature of the relationship between a school and the community (Tam, 2005, as cited by Tam, 2007). As a cultural institution, the school is a part of the history of the community where it is located, and its value system cannot by separated or distinguished separately from that of the community (Tam, 2007). The participating school in this investigation provided an example of a classroom within a remote

school which worked to develop a positive community identity and pride, while providing a quality educational experience.

It is important to understand that the SCI was not created for children and has not been tested or used on children younger than adolescents. In the literature where adolescents have been the focused group, there have been concerns about measuring the construct of sense of community (SOC) in teenagers using adult tools (Chipuer & Pretty, 1999; Evans 2007). Adolescents may perceive and understand community in different ways than adults, therefore tools which are used to assess the sense of community in adolescents should reflect this difference (Evans, 2007) and by extension, the tools used to assess sense of community in children should reflect the differences in perception as well. During the use of the SCI, the students displayed some difficulty with understanding the context and or meaning of certain words used in the instrument and required explanations at times. Researchers have supported the relevance of SOC in adolescents and have shown that SOC may be a significant factor in civic participation and important for positive social development and well-being in adolescents (Chavis & Wandersman, 1990; Clifford & Crichlow, 1995; Connell, Halpern-Felsher, as cited by Evan, 2007; Pretty, 2002; Pretty et al, 1996). In youth, SOC correlated with length of residence, number of supports, satisfaction with supports, and nondirective support (Pretty et al., 1994). Younger adolescents tend to have a stronger neighbourhood SOC, therefore as teenagers age they tend to congregate in areas that are not necessarily in the neighbourhood and thus feel less connected and have less opportunities to influence the neighbourhood (Evans, 2007). The findings from this case study support the findings on younger adolescent SOC, where the students in this investigation were in the pre-adolescent age range (10-12 years old) and possessed an overall high SOC mean, where the SOC elements which were the most affected by

the intervention being the "capacity to influence the referent group" and "collective meeting of need." Further, Wighting (2006) found that there were three factors which affected the students' sense of community in his research, technology and the use of computers, sense of belonging to the class, and the amount of trust that they experienced in the classroom. Other research on adolescents and SOC suggest that a relationship exists between a students' sense of community and their position within their formed social network. The social network centrality (SNA) measures of closeness and degrees were positive predictors of an individual's perceived sense of community; an individual's pre-existing social network influenced the type of support and information exchanges that an individual requires, and thus the degree of sense of community experienced (Dawson, 2008). The findings from this case study supported the findings from Dawson and Wighting, in that the students who were either new to the school, or were less appealing to their peers (because they disrupted the class, etc.) possessed lower SOC scores, especially in the area of "membership" and "emotional connection," as well as all of the students enjoyed learning how to use the technology and found it one of the best parts of taking part in the project.

Technology Implementation and Teacher Professional Development

According to Squire and Johnson (2000, as cited by Dawson, 2008) the contemporary learner does not receive enough opportunities to engage with peers in a collaborative environment due to limitations placed on spatial and temporal requirements within traditional classroom settings. The integration of online technologies and computer-mediated communication (CMC) within the education sector may be seen as one way to address the challenges with traditional classrooms as well as facilitate the implementation of collaborative learning activities. However, equipment and connectivity do not guarantee successful or

productive use of technologies. The implementation of technology in education is quite complex; it is shaped by pedagogical philosophies, curricular requirements, and the proliferation of, for example, ICT in society at large. With the surge in technology use, it has become critical for education to remain updated in ICT and technology implementation, in order to respond to and shape broader societal developments, and to address pedagogical issues related to technology (Granger et al., 2002; Gulbahar & Guven, 2008; Stahl, Koschmann, & Suthers, 2006).

Stereotypically, the classroom and instruction within the classroom has been perceived and often implemented as a closed-door often individualistic practice. Frequently, the culture of teaching did not allow for collaboration, let alone the use of technology as the instructional and mediating tool, instead of having the teacher fulfilling these roles. Typically, teachers are isolated from one another in their work (Lortie, 1975, as cited by Fishman & Davis, 2006). Becker and Riel (2002), described the traditional practice of teaching as a closed door practice as an educators attempt to conceal the problems that they were having with the complexity of teaching. Where if the individual having difficulty were to seek help or offer help to another colleague, assumptions of incompetence or interference with the autonomy of others would ensue. For many years the traditional teaching methods were very much teacher-centered and not learner-centered. With the recent shift towards more constructivist teaching practices, the practice and culture of teaching has been slowly evolving into a more student-centered atmosphere which allows and permits the use of technology as an instructional tool. In order for technology to be effective in advancing student learning, the transformation of the whole concept of learning is of the utmost importance and the adoption of educational frameworks such as constructivism, knowledge building, and situativity is required (Stahl, Koschmann, & Suthers, 2006).

Cognitive tools and tools in general are essentially only tools which are given their purpose and made relevant when the individual who uses them uses them in directed practice, therefore "technology does not exist independent of its use" (LeBaron, 2002 as cited by Lajoie, 2005) and cannot define or implement new practice methods, but is conversely given its purpose and relevance within practice (Lajoie, 2005). Because teachers are the ultimate interpreters of any classroom-based intervention, and are responsible for a large amount of variance in the effects of instructional interventions, (Nye, Konstantopoulos, & Hedges, 2004 as cited by Fishman & Davis, 2006), it is understandable why proper teacher education, when it comes to technology within the classroom, is essential to the transformation of the practice of classroom instruction.

In order to achieve proper and complete adoption of technology into the classroom it is important for researchers, programmers, and educators of current and future teachers to pay careful attention to how teachers learn their domain of practice and how they learn to effectively implement the new technologies which have emerged. Often, emphasis is placed on how teachers should or might teach as opposed to how teachers learn how to teach in these new constructivist and knowledge-based ways (Fishman et al., 2004, as cited by Fishman & Davis, 2006; Wighting, 2006). In trying to educate and transfer knowledge about teaching to novice teachers it is important to remember that teachers are learners themselves and the constructivist methods which are recommended for teaching other fields of study such as math and science should also be implemented in teacher education practices. Therefore, for effective teacher education and knowledge transfer some of the requirements include promotion of reflection and closely coupling the teacher education experience to that which will be eventually experienced in the classroom once the teacher has acquired a classroom of their own. Furthermore, scaffolding

and mentoring as well as situating learning opportunities within a classroom context are all necessary aspects to enhancing teacher education, as well as to ensuring that new emerging technologies will be effectively used and implemented into classrooms (Granger et al., 2002; Gulbahar & Guven, 2008).

The team teaching duo in this investigation served as a prime example of the type of teacher characteristics and attitudes required in attempting a large-scale project like Québec Roots, but also provided a reminder of the kind of essential support systems required for any type of technological implementation.

Future Investigations

Although the SCI was used in an investigation where elementary school age children were the referent group, it was not designed for the use with children. At times, the students had difficulty with understanding the context of some words used in the instrument and required an explanation. In the future, researchers should try to develop a sense of community instrument that may be used with elementary school children and which reflects their level of understanding. Also, more in depth interviewing and analysis is required in order to completely penetrate and properly obtain a full representation of the sense of community for elementary school children. Furthermore, projects like the Québec Roots project should be researched in order to examine how they may be expanded in order to be able to reach out to more communities around Québec and Canada, because the educational experience that is achieved should be shared with all.

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Appendix A

Assent Script

(Explanation of the study to the students)

Good afternoon/morning class my name is Latoya Morgan and I am a Master's student at McGill University in Educational and Counselling Psychology. In general I study the learning sciences, which involves studying different areas of how and why people learn.

Today I am in your class because you all are participating in a project that is of interest to me because it is about your community and learning about your community. In order to complete my Master's degree, I have to write a paper about how people learn and I have chosen your class to observe and write about how you all are learning about your community and how you feel about your community through your participation in the Quebec Roots/BCT Project. I have spoken with your teachers and they have agreed to allow me to come and observe and visit your classroom throughout the time you are working on the project, however I still need your permission and the permission of your parents to include you and the work that you produce for the project in my research study.

As my research participants, you all will be required to fill out a short questionnaire about your community and how you feel about your community, as well as allow me to observe and take notes about you while you work. There is absolutely no pressure to participate in this study. If you do not want me to observe you or take notes about the work that you do, that is perfectly alright. My feelings will not be hurt if you or your parents decide to not allow you to participate in my study. If you decide to not participate in the study, during the times when I am visiting or handing out the questionnaires, I will make sure to not observe or take notes about you and you

will not have to fill out the questionnaire. Also, at any time you are allowed to leave my study if you no longer want to participate. All information that I collect and that you say on the questionnaire will remain between me and you, unless you would like me to say that you were the person involved. Please be assured that everything you do or say will remain anonymous, unless you instruct me otherwise.

Does anyone have any questions for me about what I will be doing and how you are supposed to participate? Please take home this permission form and bring it back as soon as possible if you would like to participate in my study. If you choose to not participate in the study than you do not need to bring back the form.

Thank you for your time and I look forward to seeing you all again soon!

Appendix B

Teacher's Questionnaire Pre-Test

1. What is your motivation for engaging in this project? (Why are you concerned about the decrease in the sense of community?)
2. Do you feel that the sense of community is lacking in your students?
3. How do you think that this project will help increase the sense of community and Quebec identity in your students?
4. What factors do you think are contributing to the decrease or increase of sense of community and identity in your students?
5. What outcomes would you like to see your participation in this project will have for your school, larger community, school board?
6. What relation do you see between the sense of community and educational success?

Appendix C

Teacher's Questionnaire Post-test

1. Do you think that your students' perceptions of their community have changed through their participation in this project?
2. How do you think their perceptions have changed? Do they have a more positive sense of community or a more negative sense of community?
3. How has your participation in this project affected your school and larger community?
4. Do you think that you will participate in this type of project again? Or, do you think that you will need to participate in this type of project again?

Appendix D

Sense of Community Pre-test Questionnaire

Please fill in the following information (please be informed that all information collected will remain confidential):

Name: _____ Grade: _____

Male □ Female □ Age: _____ Years in School: _____

This questionnaire is about communities and asks for your opinions about your community or town. There are statements in this questionnaire that you may agree or disagree with. If you agree with a statement check **T**, but if you disagree with a statement, check **F**. Please record the first impression that occurs to you and try to answer every statement.

T = True **F** = False

Place a check mark (√) in the box that best suits your opinion!

NO.	STATEMENT	T	F
1	I think my town is a good place for me to live.		
2	People in this town do not share the same values.		
3	My neighbours and I want the same things from the town.		
4	I can recognize most of the people who live in my		

	town.		
5	I feel at home in this town.		
6	Very few of my neighbours know me.		
7	I care about what my neighbours think of my actions.		
8	I have no influence over what this town in like.		
9	If there is a problem in this town people who live here can get it solved.		
10	It is very important to me to live in this particular town.		
11	People in this town generally don't get along with each other.		
12	I expect to live in this town for a long time.		

The original Sense of Community Index (SCI) was developed by Chavis, Hogge, McMillan, & Wandersman (1986).

Question Section

How would you describe your town to people who have never visited? (You can use key-words or sentences)

_____
_____
_____
_____

Thank you for your participation in this questionnaire!

Appendix E

Sense of Community Post-test Questionnaire

Please fill in the following information (please be informed that all information collected will remain confidential):

Name: _____ **Grade:** _____

Male □ **Female** □ **Age:** _____ **Years in School:** _____

This questionnaire is about communities and asks for your opinions about your community or town. There are statements in this questionnaire that you may agree or disagree with. If you agree with a statement check **T**, but if you disagree with a statement, check **F**. Please record the first impression that occurs to you and try to answer every statement.

T = True **F** = False

Place a check mark (√) in the box that best suits your opinion!

NO.	STATEMENT	T	F
1	I think my town is a good place for me to live.		
2	People in this town do not share the same values.		
3	My neighbours and I want the same things from the town.		
4	I can recognize most of the people who live in my		

	town.		
5	I feel at home in this town.		
6	Very few of my neighbours know me.		
7	I care about what my neighbours think of my actions.		
8	I have no influence over what this town is like.		
9	If there is a problem in this town people who live here can get it solved.		
10	It is very important to me to live in this particular town.		
11	People in this town generally don't get along with each other.		
12	I expect to live in this town for a long time.		

The original Sense of Community Index (SCI) was developed by Chavis, Hogge, McMillan, & Wandersman (1986).

Question Section

How would you describe your town to people who have never visited? (You can use key-words or sentences)

_____
_____
_____
_____
_____

What did you enjoy about participating in this special project?

_____
_____
_____
_____

What did you not enjoy about participating in this special project?

_____
_____
_____
_____
_____
_____

Please list the number of the questions that you had trouble understanding or answering here!

_____
_____
_____

Thank you for your participation in this questionnaire!

McGill

Appendix F

Research Consent Form

Informed consent form concerning a child participating in this research project; this form should be signed by the parent or legal tutor of the participating child.

Title of Research:

Promoting Community Pride in Elementary Students using Technology

Researcher: Latoya Morgan, MA candidate, Educational Psychology

Supervisor: Dr. Alain Breuleux **E-mail:** alain.breuleux@mcgill.ca

Contact Information of Researcher: **E-mail:** latoya.morgan@mail.mcgill.ca

Phone: 514-365-9234

Purpose of the research:

This research project aims at investigating how an elementary school classroom, located within a remote school, may promote community pride and identity in their school and larger community, through the use of an array of media and technological tools. The study will further aim to describe the classroom dynamics which are necessary in order to promote community pride and identity attitudes in the classroom and larger community, as well as the teacher characteristics which allow successful implementation of technological tools into classrooms. This research represents the core phase of the writing of my Master's thesis. Like all works, the finished text will be made available to the public. The information may also be used in other analyses involving community pride and identity development in remote communities.

Requirements of Participants:

Participants will be required to respond to a questionnaire relating to the study, about the community in which they live and how they feel about the community in which they live, as well as allow the researcher to observe, take notes, and collect sample work of the participants periodically throughout the course of the Quebec Roots or BCT project in their classroom interactions. The questionnaire will be given twice throughout the study (at the beginning and at the end), and will take approximately 20-25 minutes each time. Your signature below serves to

signify that you agree to allow your child to participate in this study. If you do not agree to allow your child to participate in this study please do not sign this form.

Your child's participation is entirely voluntary and they can choose to decline to answer any question or even to withdraw from the study at any point from the project. Anything your child says will only be attributed to them with theirs and yours permission; otherwise the information will be reported in such a way as to make direct association with your child impossible. My pledge to confidentiality also means that no other person or organization will have access to the interview materials and that they will be coded and stored in such a ways as to make it impossible to identify them directly with any individual (e.g. they will be organized by numbers and coded rather than by name).

Consent:

I have read the above information and I agree to allow my child to participate in this study.

Parent/Legal Tutor Signature: _____

Parent/Legal Tutor Name (print): _____

Name of Child: _____

Date: _____

Researcher's signature: _____

If you have any questions or concerns about your rights or your child's rights as a participant in this project, you may contact the McGill Research Ethics Officer at 514-398-6831. Questions about the research (rather than about rights as a participant) should be directed to the researcher or the supervisor. Thank you in advance for your participation in this great project!

McGill

Appendix G

Research Consent Form

Informed consent form concerning an adult participating in this research project

Title of Research:
Promoting Community Pride in Elementary Students using Technology

Researcher: Latoya Morgan, MA candidate, Educational Psychology

Supervisor: Dr. Alain Breuleux **E-mail:** alain.breuleux@mcgill.ca

Contact Information of Researcher: **E-mail:** latoya.morgan@mail.mcgill.ca

Phone: 514-365-9234

Purpose of the research:

This research project aims at investigating how an elementary school classroom, located within a remote school, develops processes and products in order to promote community pride and identity in their school and larger community, through the use of an array of media and technological tools. The study will further aim to describe the classroom dynamics which are necessary in order to promote community pride and identity attitudes in the classroom and larger community, as well as the teacher characteristics which allow successful implementation of technological tools into classrooms. This research represents the core phase of the writing of my Master's thesis. Like all works, the finished text will be made available to the public. The information may also be used in other analyses involving community pride and identity development in remote communities.

Requirements of Participants:

Participants will be required to respond to a few questions relating to the study about the community in which live and their motivation for participating in the Quebec Roots project, as well as allow the researcher to observe the participants classroom periodically throughout the course of the Quebec Roots or BCT projects. Interviews will be conducted twice throughout the study (at the beginning and at the end), for 20-30 minutes each time. Your signature below serves to signify that you agree to participate in this study. If you do not agree to participate in this study please do not sign this form.

Your participation is entirely voluntary and you can choose to decline to answer any question or even to withdraw from the study at any point from the project. Anything you say will only be attributed to you with your permission; otherwise the information will be reported in such a way as to make direct association with yourself impossible. My pledge to confidentiality also means that no other person or organization will have access to the interview materials and that they will be coded and stored in such a ways as to make it impossible to identify them directly with any individual (e.g. they will be organized by numbers and coded rather than by name).

Consent:

I have read the above information and I agree to participate in this study.

Signature: _____ Name: _____

Date: _____

Signature: _____

If you have any questions or concerns about your rights as a participant in this project, you may contact the McGill Research Ethics Officer at 514-398-6831. Questions about the research (rather than about rights as a participant) should be directed to the researcher or the supervisor. Thank you for your participation in this great project!