

E-inclusion in Early French Immersion Classrooms: Using Digital Technologies to Support Inclusive Practices That Meet the Needs of All Learners

Martine Pellerin

Campus St. Jean, University of Alberta

Abstract

This paper presents a 2-year collaborative action research project that investigated the use of digital technologies to support inclusive practices in Early French Immersion (EFI) classrooms. The findings reveal that the collaborative action research project contributed to empowering teachers in using digital technologies to support the implementation of new inclusive instructional strategies. The use of digital technologies allows for the implementation of inclusive instructional strategies by providing multiple means of representation, action and expression, and engagement, based on the Universal Design Learning (UDL) framework. The findings also support the adoption of an e-inclusion approach in EFI classrooms to meet the needs of all learners.

Keywords: inclusion, digital technologies, professional learning and development, e-inclusion, Early French Immersion, Universal Design Learning (UDL), instructional practices

Précis/Résumé

Cet article présente un projet de deux ans de collaboration « recherche-action » a étudié l'utilisation des technologies numériques qui à soutenir les pratiques inclusives en immersion français (tôt) dans les salles de classe. Les résultats révèlent que le projet a contribué avec l'autonomisation des enseignants à utiliser les technologies numériques pour soutenir la mise en œuvre de nouvelles stratégies pédagogiques inclusives. L'utilisation des technologies numériques permet la mise en œuvre de stratégies d'enseignement compris en fournissant de multiples moyens de représentation, d'action et d'expression, et de l'engagement. Les résultats prouvent que l'adoption d'e-inclusion dans les cours avec l'approche inclusives en immersion est capable de répondre aux besoins de tous les apprenants.

Mots-clés: inclusion, les technologies numériques, l'apprentissage et le développement professionnel, l'e-inclusion, immersion précoce en français, UDL, les pratiques pédagogiques

Author's Note

This project was made possible through funding from Campus Saint-Jean (University of Alberta) and from the Alberta Initiative for School Improvement (AIS) of Alberta Education. I would like to thank the Rocky View School District in the province of Alberta for opening their doors to make this project possible. My sincere gratitude to the principals of the two schools, and the dedicated Early French Immersion teachers who participated in this collaborative action research project for the last 2 years. Through their willingness to embark on an inquiry process about their practice and to engage in reflection and dialogue about it, new knowledge and understanding about e-inclusion were created.

Introduction

Although Early French Immersion (EFI) programs are widespread across the country, not every student enrolled in one of these second language programs encounters success and remains in the program. There is an alarming incidence of students experiencing *learning difficulties* (a generic term used to refer to language, literacy, academic, and behavioural difficulties of students; Genesee, 2007) being transferred out of EFI programs. The lack of inclusiveness and lack of equal opportunities to learn a second language were the main criticisms contributing to the cancellation of EFI programs in the province of New Brunswick (Canadian Parents for French, 2008; “Early French,” 2008). EFI programs were first developed in the province of Quebec to provide French language instruction to Anglophone students in hopes that they would become as functional in French as their Francophone counterparts. The students enrolled in these early EFI programs not only shared similar socioeconomic backgrounds, but often were enrolled on the basis of having similar cognitive abilities, which later contributed to claims that the programs were elitist (Ouellet, 1990). With the increasing popularity of EFI programs across the country, the student population enrolled in these programs has evolved and now represents a more heterogenous clientele that corresponds closely to that of monolingual programs. EFI teachers need to acknowledge these changes in their respective classrooms, and for this to happen, they need to move away from traditional pedagogical practices (Cummins, 1998) and adopt new inclusive instructional approaches in order to address the diversified learning needs of this new wave of EFI learners.

It has been argued (Hogan & Harris, 2005; MacCoubrey, Wade-Woolley, Klinger, & Kirby, 2004) that the absence of inclusive and differentiated pedagogical practices has been partly responsible for a failure to meet the needs of all learners in EFI classrooms.

Even though school districts across the country are moving forward with inclusive education, implementation of inclusive education in the classroom remains a major challenge. In most Canadian provinces, training in inclusive education at the pre-service and in-service levels is inadequate (Crawford, 2003; Fox, 2005; Naylor, 2005). Even though most teacher education programs across the country offer some type of inclusive education training (Fox, 2005), there is no clear path or model for inclusive training for pre-service teachers or current teachers. In the specific context of EFI programs, effective and ongoing professional development that provides inclusive instructional strategies is also lacking. Thus many teachers do not have the necessary instructional strategies to address the diversified learning needs of their students, resulting in non-inclusive EFI programs and an alarming transfer out of students with learning difficulties (Pellerin, 2009).

Making learning accessible to all students should be a priority for all Canadian educational programs, including EFI. Advancements in technology have greatly contributed toward helping students with learning difficulties or disabilities to reach their full potential. The use of digital technologies plays an important role in assisting students with learning difficulties to succeed in mainstream education (Hopkins, 2004). The use of assistive technologies (AT) provides options and removes barriers to learning among students with special needs, and therefore becomes an empowering tool for inclusion (Florian & Hegarty, 2004). However, the technology itself cannot be viewed as “the” magic solution to learning difficulties, or one that will remove all learning barriers. It has been argued that a greater emphasis needs to be placed on appropriate pedagogical practices to assure the effectiveness and lasting benefits of the use of technological devices (Abbott, 2007; CAST, 2011; Marino & Beecher, 2008; Marino, Sameshima, &

Beecher, 2009). These perspectives foreground new directions concerning educational inclusion by moving away from AT approaches that prioritized technology over learning, and toward the synergy between the role of the teacher, the adoption of differentiated instructional practices, and the use of digital technologies to create an empowering learning environment for *all* learners (Abbott, 2007; CAST, 2011; O'Connell, Freed, & Rothberg, 2010).

This paper examines the outcomes of a 2-year collaborative action research project that investigated the use of digital technologies to support inclusive practices in EFI classrooms. In particular, the paper discusses how EFI teachers participating in a collaborative action research project became empowered to adopt new inclusive instructional strategies with the use of digital technologies. The project used a spiral model of action and reflection proposed by the author (Pellerin, 2011). Contrary to traditional professional development, this spiral model of action and reflection promoted the development and implementation of new instructional strategies by EFI teachers, as well as their ongoing documentation of the impact on the students' learning, and critical reflection on their actions. The paper also examines the evidences gained from the ongoing digital documentation by the teachers, which demonstrate how the use of digital technologies support inclusive instructional strategies by providing multiple means of representation, action and expression, and engagement, as suggested by the Universal Design for Learning (UDL) framework (CAST, 2011). Finally, on the basis of the outcomes of the collaborative action research project, the paper suggests the adoption of an e-inclusion approach in EFI classrooms as a means of meeting the needs of all learners.

Theoretical Framework

The terms *integration* and *inclusion* are often used interchangeably to refer to the placement of a student with learning difficulties in a mainstream educational context. However, each term entails a construct and set of beliefs that correspond to an entirely distinct educational and social paradigm. Integration policies were adopted in the 1980s to allow students with learning difficulties and disabilities to be placed in a mainstream educational context. Schools were responsible for providing the necessary adaptations and resources to allow learners with difficulties and special needs to fit in with the existent curricula and learning environment. Inclusion is much more aligned with a social model of learning (Abbott, 2007; Wenger, 1998), which emphasizes the notion that learning is socially situated—that is, the barriers to learning exist not in the learners, but rather in the learning environment and the teaching practices, as well as in the homogenized curricula and testing system. Inclusion is also associated with the broader notion of social justice and equality in the educational context (Gewirtz, 2006), which addresses inequities of access and opportunities for successful learning.

Universal Design for Learning (UDL)

UDL is a curricular framework for differentiated learning defined by the Center for Applied Special Technology (CAST). UDL fosters the development of curricula that embrace the learners' variability. Individual variability is not addressed in most traditional instructional contexts, which "fail to provide all individuals with fair and equal opportunities to learn by excluding learners with different abilities, backgrounds, and motivations who do not meet the illusive criteria for 'average'" (CAST, 2011, p. 4). The

UDL framework provides guidance for the development of curricula to furnish options and remove barriers to learning among students with learning difficulties and disabilities, and among students with diverse learning needs and preferences. The UDL curricular framework is guided by three main principles that have been informed by research in neuroscience:

1. Multiple means of representation,
2. Multiple means of action and expression,
3. Multiple means of engagement (CAST, 2011).

E-inclusion

The term *e-inclusion* is relatively new to the educational context, but it is increasingly used to define a new educational paradigm that emphasizes meeting the learning needs of all learners. The concept of e-inclusion emphasizes the use of digital technologies in the creation of a rich and empowering learning environment that aims to minimize learning difficulties, and in some cases remove barriers, to make learning possible (Abbott, 2007; CAST, 2011; O’Connell et al., 2010). Although e-inclusion calls on the use of digital technologies to support and scaffold learning, it is important to understand that the focus is not on the digital technologies themselves (Abbott, 2007). Instead, e-inclusion creates an educational context in which the learning experiences of all learners are maximized. The concept of e-inclusion is also aligned with the universal principles found in the UDL curricular framework (CAST, 2011). The significance of these previous findings for the present inquiry is that e-inclusion promotes the adoption of instructional strategies that make use of digital technologies as pedagogical tools to support, scaffold, and enhance learning for all students.

Methodology

The study was informed by a qualitative, interpretative research methodology that used *collaborative action research* (CAR) to conduct a systematic inquiry into how the use of digital technologies can support differentiated instruction to meet the needs of all students in French Immersion classrooms. CAR has been shown to engage teachers in systematic inquiry with the goal of improving their teaching practices (Denos, Toohey, Neilson, & Waterstone, 2009). The teachers' direct participation in the inquiry process transforms their beliefs, attitudes, knowledge, and skills; such changes in turn contribute to changes in their pedagogical practices (Kemmis & McTaggart, 2000).

Participants and Research Context

The study involved 12 EFI teachers and their students (Grades 1 through 4) from two elementary schools in the Rocky View school district in a rural suburb of Calgary, Alberta. Both schools offered Early French Immersion programs from Kindergarten to Grade 4.

In each classroom that participated in the study, an average of four to six iPods were made available for full-time use, as well as one or two iPads. In addition, a set of laptop computers and iPads were made available on a wheeled cart to be shared between classes. All classrooms in both schools were equipped with an interactive white board (IWB). The school district received funding from the Alberta School Initiative for School Improvement (AISII) to support the CAR, in order to promote school improvement and enhance student learning. The researcher (the author of this paper) received funding from Campus Saint-Jean (University of Alberta) to support the inquiry process.

Design, Collection, and Analysis of Data

The CAR model used for the study was inspired by the systematic and cyclical process proposed in action research (Riel, 2010) and adapted by the author (Pellerin, 2011). The first phase of the spiral model, referred to as “study and plan,” was achieved through a collaborative professional development meeting (CPDM). Teachers in the CAR project were relieved of their regular teaching assignments in order to participate in these meetings, which took place four times each school year. During the CPDM, teachers would share their own documentation of the use of technologies in their respective classrooms, as well as how they implemented new pedagogical practices to better meet the diversified needs of their learners. The group engaged in discussion and interpretation about the information gained through their digital documentation.

Teachers in their respective classrooms collected initial data on an ongoing basis. They gathered digital documentation (audio and video recordings) of how students were using mobile devices such as iPods and iPads—in addition to computers—to support, scaffold, and enhance their learning. The digital documentation was later examined and discussed during the CPDM. The university researcher also engaged in data collection through classroom observation; in addition, she gathered anecdotes about how teachers were integrating the use of the emergent technologies into their daily teaching practices, and how students were making use of the technological devices to support and scaffold their own learning. The researcher gathered further data at the end of the first and second year of the project through semistructured interviews in which the teachers shared their experiences with the use of digital technologies in their classrooms. The triangulation of these data from multiple sources allowed for interpretation (Denzin & Lincoln, 2008),

and continual data analysis was achieved by means of “thick description” or layers of interpretation (Geertz, 1973). The data analysis was achieved with the use of a coding process aligned with qualitative research approaches (Miles & Huberman, 1994).

Key Findings

Several key findings emerging from the inquiry contribute to our understanding of how the use of digital technologies contributes to the implementation of an e-inclusive approach in the EFI classroom context. These key findings are organized under the following four statements:

1. The CAR Model Empowered Teachers to Integrate the Use of Digital Technologies to Support the Implementation of New Inclusive Practices

All the teachers participating in the CAR project integrated the use of digital technological devices such as iPods, iPads, computers, and IWB as tools to support the adoption of new and more inclusive instructional practices. There were similarities and differences in the ways the teachers used these available digital devices in their respective classrooms, mainly due to their level of comfort in using technology in their personal life and their experience in using digital devices as pedagogical tools. During the interviews, teachers indicated that at the beginning of the first year of the project they were not comfortable using technology even for their personal use, and that they felt nervous and in some cases scared to use it with their young students.

At the beginning of last year I was really uncomfortable with the technology. . . . I think at the beginning it's always a question of planning . . . and maybe because I'm older and this is all new to me.

However, teachers felt that the ongoing professional development provided through the CAR project helped them become more comfortable in using the digital devices to support the adoption of new instructional practices in their EFI classrooms.

Last year using the technology in the classroom was new to me, sort of being from the old school, I had to get used to using technology and it was a process for me . . . but once I developed my level of comfort it was there and once you show the students what to do they're pretty quick at picking it up . . . and this year we started off right away with the technologies and there was no delayed start because I knew what I was doing.

Teachers also indicated that they found it very beneficial to share their digital documentation with colleagues and discuss the impact of the new instructional strategies they implemented during each action research cycle (6 to 8 weeks). Sharing the digital documentation during the cyclic CPDMs provided teachers with new ways to integrate the use of technologies to meet the diversified needs of their EFI students. In addition, knowing that they would have to bring some evidence to share at the next CPDM, made the teachers feel more accountable and motivated to implement new instructional strategies:

When it's my turn I'm forced to reflect on why I want to share this.

It gives us a reason to continue with it and to push ourselves further.

If I'd had less chance to meet with the others I wouldn't have had the chance to reflect on how to use the technology like I did during this project.

Teachers also indicated that the CAR model of professional development allowed them to communicate and collaborate with the other teachers from the same grades and

across grades, which in turn contributed to the development and implementation of new instructional strategies to better meet the learning needs of their students. Some teachers felt that compared to the traditional development model, the CAR model provided more support to experiment with new instructional strategies that called on the use of digital technologies.

The project let me see the different things I can do with the technology, and I had no idea how to use the iPad for learning, and the project made me think about the different methods, and I think if I hadn't participated in this project I really wouldn't have known what to do.

I like it better because it's all the colleagues working together, you find out what works in everyone's classrooms and you compare notes, and I know what changes I can make.

I like being able to share with the others because I can learn from them.

2. The Use of Digital Technologies Contributed to the Development of New and More Inclusive Instructional Strategies in the EFI Classrooms

Integrating the use of digital devices such as iPods and iPads allowed the teachers to adopt new instructional strategies that included more individualized and guided practice, as well as a more student-centered approach. Students became more engaged in their learning and displayed greater autonomy during learning activities. As a result, teachers felt empowered to shift their instructional approach from a teacher-centered or transmission-oriented approach to a more student-centered approach. According to several teachers, once the routines were established, students became quite capable of

working more independently, and participated in either small groups or individual activities with less or no assistance from the teacher.

Because we have a lot of special needs in our classroom in terms of behaviour and also learning, so it's important to find ways of meeting their needs.

The teachers also felt able to reorganize their teaching in ways that provided more guided practice for students who needed individualized instruction or scaffolding. Teachers could work with small groups or even with one student while the other students were engaged in other activities. With the use of the digital technology, they were also able to create learning experiences that responded more to the learning needs and interests of their students.

I also find it more personalized, it's tailored to their needs at that moment.

It means I can let them go ahead with it, while I work with another small group.

This year it was about getting the students to identify what tools worked for them . . . and the students are capable of doing that.

The use of digital technologies allowed teachers to adopt new ways of assessing the learning of their students. Teachers were able to move away from using only traditional classroom observation and written tests to gather information about their students' learning. The audio and video recordings obtained from the students' use of digital devices such as iPods and iPads provided tangible evidence and traces of the students' learning on an ongoing basis. The information gained from the digital documentation enabled teachers to better assess the specific needs of individual students, and in turn make the necessary modifications to their instructional strategies to support and scaffold the learning of each student.

I can really see where each student is in developing reading strategies. Okay, I watched this student's video and I know with this student I have to work on this reading strategy.

So it's as if each student receives his or her own mini-lesson because you watch their video with them.

The use of digital documentation also allowed teachers to engage in a reflective process about their practice, leading them to review their pedagogical approaches and to move forward with the adoption of new instructional strategies aimed at meeting the specific needs of the diverse learners in their classroom. Some teachers even shared that through listening to and viewing the digital documentation they were able to see where they went wrong with the instructional strategies adopted for a specific student. By reflecting on their practice, teachers became more conscious of the instructional practice and the impact on their students' learning.

It helps me know what I need to do, because it's feedback for me.

As the teacher I can see what I need to do and what is the next step for my students.

It allows me definitively to look at what they are doing, what they are saying, and revisit certain things with some students.

3. The Use of Digital Technologies Provided Multiple Means of Representation, Action and Expression, and Engagement, Based on the UDL Framework

The findings reinforce the UDL concept that theoretically guided the inquiry. This section discusses how the use of digital technologies supported the adoption of inclusive instructional strategies in EFI classrooms following the three main principles of the UDL

framework (multiple means of representation, multiple means of action and expression, and multiple means of engagement), and in turn promoted the adoption of e-inclusion.

Multiple means of representation. According to the first principle of the UDL framework, learners differ in the ways they perceive and comprehend information. The teachers used the digital technologies to differentiate the way information was presented to students. The use of the technology allowed teachers to provide multiple representations of content that supported the diverse needs of their learners.

Example 1. Each classroom in both schools was equipped with an IWB. Teachers used the IWB to present the content of a lesson in early literacy, science, or math, calling on different modalities such as visual, tactile, and auditory. For example, the Grade 1 teachers used the IWB to present the morning routine, which involved attendance, calendar, weather chart, and reading of the morning message. The information was presented to the students not only in a large format but also with attractive colours and graphics and multimedia features. Students were able to interact with the content on the screen by moving objects, words, and pictures. Some activities also had audio support to help students with reading difficulties to hear the content, and some activities enabled students to respond through touch or through verbal or written responses. Once this routine was well established, the same activities were integrated into literacy centres where students in small group engaged in activities without the assistance of the teacher. According to one Grade 1 teacher, it was “like having another teacher in the classroom.” For students with specific learning needs or learning difficulties (e.g., reading difficulties), the multimedia and digital features contributed to the scaffolding of their learning. Some teachers also provided different ways to assess their students’ knowledge about a specific science unit. They posted the questions on the IWB, and students who

experienced difficulties reading the questions alone were allowed to come to the IWB and interact with pictures and words to demonstrate their knowledge and understanding gained throughout the science unit.

Example 2. During the period dedicated to literacy centres in the Grade 1 and Grade 2 classrooms, iPods were used to listen to audio-recorded books. Some commercial audio recordings had been purchased by the school and downloaded to each iPod. Other books had been recorded by the teachers or by volunteers at the school. The printed books were available in the classroom and were organized by level of reading ability. Students were able to choose their own books in accordance with their reading abilities and interests. In some classrooms, the listening activities were done alone; in other classrooms, students listened to the book in pairs or small groups, using iPods linked with a device called a splitter. The students were then encouraged to discuss the story in small group. The technology allowed the teachers to differentiate the reading activities according to the specific needs and interests of the students. Moreover, the digital audio recording helped reduce some of the learning barriers in learners who lacked fluency or who had difficulties with the decoding process. Some teachers indicated that the use of the digital devices also promoted autonomy on the part of struggling learners, who did not have to wait for an adult to assist them with their reading.

Multiple means of action and expression. According to the second principle of the UDL framework and differentiated instruction, learners differ in the ways they can navigate their learning environment and express information. The findings indicate that teachers used the handheld devices such as iPods and iPads to provide alternative modalities for expressing knowledge, ideas, and concepts in the learning environment. The use of these technologies helped to support and scaffold ways of expression among

learners with a variety of special needs and learning difficulties, and to reduce barriers caused by limited or specific media. The use of alternative ways of expression was beneficial to all learners in the respective classrooms, because it provided opportunities to develop the wider range of expression associated with the communicative skills necessary for the 21st century.

Example 1. From Grade 1 to Grade 4, students had opportunities to use the oral language assisted by the use of voice recording applications (e.g., voice memo app or ShowMe app) available on the handheld devices, as well as on some software programs for computers. When asked about the purpose of recording his ideas and listening to them while writing, a Grade 1 student explained that when he tried to write his ideas he usually lost them because it took him so long to trace his letters. Students who have difficulties with fine motor skills find it challenging—or even almost impossible—to write down their ideas or information on a piece of paper. The teachers observed that these students often became frustrated and tended to give up on the task. The energy required to trace each letter on paper creates barriers for students with learning difficulties to fully express their ideas or demonstrate their knowledge. In addition, some students produced very little when asked to use traditional tools (such as pens) to express their ideas or demonstrate their knowledge. As one teacher said, “We often don’t have the entire picture of what the student is actually able to produce.” In the study, students as young as Grade 1 were able to first record their thoughts orally instead of writing them down. Some students would record their ideas with the digital devices and then listen to them while writing. The use of the oral media supported by the technology helped to reduce the cognitive load experienced by the students who demonstrated fine motor difficulties and disabilities.

Example 2. One Grade 1 teacher started to use differentiated ways to assess her students' understanding of math concepts. She used the oral language with the support of iPods to help students demonstrate their understanding. For example, upon completing the task of classifying groups of objects according to specific criteria, students made a video clip of themselves explaining the criteria they had chosen to classify their objects into different groups. The teacher explained that by using different modalities to assess her students' understanding, she was able to determine what each specific student understood and what further instruction was needed to help him or her grasp the concept. She also explained that it informed her own teaching so that she could adapt her instructional strategies to the needs of her students.

Grade 2 teachers made use of iPods to assess their students' knowledge following a science unit on the properties of liquids. With the iPods in their hands, the students not only recorded their oral responses, but also made video clips of their demonstrations to indicate their understanding of the content learned during the science unit.

Example 3. The use of digital technologies in the classroom allowed students to gather their own evidence of their learning process, and to become active participants in the revisiting and self-assessment of their learning process. A Grade 1 teacher explained that it was difficult for some of her young second language students to express their thoughts in the target language, and she saw the value for her students of listening to the audio recording in order to review what they had said and to engage in a process of self-assessment, reflecting on their work and judging the value of it in terms of "stars" for good aspects and "wishes" for aspects that needed to be improved.

Multiple means of engagement. According to the third principle of the UDL framework and differentiated instruction, learners differ greatly in the ways they can be

engaged or motivated to learn. The level of engagement in learning activities can be influenced by many factors such as personal relevance, learning style, and personality. All the teachers in the study observed higher levels of engagement and motivation in all their students during activities supported by the use of digital technological devices. In particular, many teachers observed that their students with attention disorders benefited by the use of digital technologies, which helped them become more engaged in the second language activities and stay focused on the task at hand for longer periods. When using technological tools, students were also more willing to engage in compensatory skills activities that required repetitive practice. Because many of the digital technology devices provide multimodal experiences, students with sensory learning difficulties were more inclined to use these tools to support and scaffold their learning, even if it meant doing the activities repetitively.

Example 1. One Grade 1 student who was struggling to learn his alphabet in French demonstrated a lack of interest in learning to read. He became increasingly motivated through the various multimodal applications on the iPods. He became very motivated to learn all the letters of the alphabet and even asked his teacher if he could take the iPod home to practice further.

Example 2. One of the Grade 4 teachers used the iPads as a means of helping students practice their reading fluency. She indicated that students who struggled with reading fluency in French were very reluctant to read aloud in front of their peers or to their teacher. Students in her classroom became motivated to practice reading aloud with the use of the iPad. They liked the idea that they could listen to the recording of their voice and identify their own mistakes without fear of being ridiculed by others.

Example 3. From Grade 1 to Grade 4, teachers indicated that their students were more willing to speak French when using digital devices such as iPods and iPads to audio record their voices, and when making video clips of themselves. In one of the Grade 3 classrooms, students used the video recording to do a presentation of their social studies project. Usually students are shy about presenting in front of a group, especially when they have to do their presentation in the French language. Students became very engaged in the activities and took pride in speaking French in order to make a very good video.

Implications for EFI Classrooms

The findings provided by this inquiry have the potential to contribute to any educational program, but are particularly significant for Early Immersion classrooms because they provide tangible evidences that support the need to adopt an e-inclusion approach in EFI classrooms. As indicated earlier, the implementation of new inclusive instructional strategies supported by the use of digital technologies allowed teachers to address the needs of *all* students in their respective EFI classrooms. These findings also offered rich data about the impact of the collaborative action research model developed by the author (Pellerin, 2011) to support ongoing professional development that allowed teachers to become aware of their own praxis, and to engage them in a reflection process that promoted professional and personal growth. The ultimate goal of collaborative action research as professional development is to improve teachers' practice in order to better support the learning process of all learners.

There is a tendency in the educational system to keep using traditional tools, even when these tools create learning barriers or impede opportunities for students to be successful and to reach their full potential. In addition, teachers are too often creatures of

habit who continue using the tools and strategies that they feel most comfortable with. Cummins (1998) maintained that EFI teachers need to move away from traditional pedagogical approaches that have been developed and implemented since the beginning of the EFI program 40 years ago. According to Cummins, not only is the adoption of new inclusive instructional strategies imperative to respond to the diversified needs of students enrolled in EFI programs, but the adoption of inclusive instructional strategies that call on the use of digital technologies is crucial to respond the reality of immersion programs in the 21st century. The findings of the present study support these claims. They also provide tangible evidence that the implementation of new inclusive instructional strategies, through the use of digital technologies to support universal principles found in the UDL curricular framework (CAST, 2011), promotes the adoption of an e-inclusion approach that addresses the diversified learning needs of students enrolled in EFI programs.

Conclusion

Inclusion in mainstream programs calls for more funding and improved access to assistive technology (AT) to support the learning of students with special and diverse needs. School districts, school administrators, and teachers are requesting support for more inclusive pedagogical approaches in EFI programs. Some argue that without the necessary funding for AT assistance and special teachers who are trained to use the AT, the needs of struggling students with learning difficulties and/or specific needs cannot be met (Marino & Beecher, 2008), especially in noncompulsory programs like EFI. However, this paper proposes a different perspective on the issue of inclusion in EFI programs. The perspective proposed here is aligned with Marino & Beecher's (2008)

statement that instead of thinking about AT only in terms of support for students with specific needs, the educational community should begin thinking about the use of technology to respond to the needs of all students in an inclusive setting.

One of the criticisms of the AT approach to inclusion (Abbott, 2007; Marino & Beecher, 2008) is that it prioritized the technological tools over the learning. The focus should not be on the digital technologies themselves but rather on their contribution to creating an educational context in which the learning experiences of all learners are maximized. The findings demonstrate that the e-inclusion approach promotes the use of digital technologies to support, scaffold, and enhance learning not only for students with learning difficulties, but for all students in every classroom. Moreover, as the findings of this inquiry indicate, the e-inclusion approach also promotes the adoption of inclusive instructional practices based on universal design principles defined in Universal Design for Learning (UDL; CAST, 2011) that support, scaffold, and enhance the learning of all learners.

Many school districts in provinces that offer Early French Immersion programs are increasingly investing in the purchase of digital technologies to enhance their students' learning. However, the emphasis is still on the digital technology as "the" tool that enables learning, even though it is the learners who make learning happen, and learning happens when a synergy exists between the learning environment, the teacher, and the inclusive practices that support and scaffold the learning process. Therefore, successful inclusion of students with learning difficulties and disabilities in EFI programs requires the adoption of an approach in which the role of technology is to support the adoption of inclusive practices by teachers following the UDL principles. Thus, through the adoption of e-inclusion, digital technology becomes available to everyone who needs

it to reach their full potential, as part of “a policy that promotes learning across a broad spectrum of diverse learners” (Marino & Beecher, 2008, p. 20).

Finally, the adoption of an e-inclusion approach in any educational program requires ongoing and sustainable professional development for teachers and school administrators. A strong partnership between schools, school districts, and university educators and researchers—as well as education ministries, as in the CAR model adopted in this inquiry (Pellerin, 2011)—is crucial to supporting successful implementation of an e-inclusion approach in all educational programs, including EFI programs.

References

- Abbott, C. (2007). *Futurelab Series: Report 15. E-inclusion: Learning difficulties and digital technologies*. Retrieved from <http://www.scribd.com/doc/33194464/e-Inclusion-Learning-Difficulties-and-Digital-Technologies>
- Canadian Parents for French. (2008). *Canadian Parents for French (CPF) position statement on the Government of New Brunswick's commissioned report titled: A Comprehensive Review of French Second Language Programs and Services Within the Anglophone Sector of the New Brunswick Department of Education*. Retrieved from http://www.cpfnb.com/news_articles/FSL_conflict/letters%20of%20support/CPF_psn_mar04_08.html
- CAST. (2011). *Universal Design for Learning Guidelines Version 2.0*. Wakefield, MA: Author.
- Crawford, C. (2003). *Seminar on teacher preparation for inclusive education*. Retrieved from <http://www.inclusiveeducation.ca/documents/ROEHER-CALGARY.pdf>
- Cummins, J. (1998). Immersion education for the millennium: What have we learned from 30 years of research on second language immersion? In M. R. Childs & R. M. Bostwick (Eds.), *Learning through two languages: Research and practice. Second Katoh Gakuen International Symposium on Immersion and Bilingual Education* (pp. 34–47). Numazu, Japan: Katoh Gakuen.
- Denos, C., Toohey, K., Neilson, D., & Waterstone, B. (2009). *Collaborative research in multilingual classrooms*. Bristol, England: Multilingual Matters.
- Denzin N. K., & Lincoln, Y. S. (2008). *Collecting and interpreting qualitative materials* (3rd ed.). London, England: Sage.

Early French immersion program has created a two-tier system: Education minister.

(2008). *CBC News*. Retrieved from <http://www.cbc.ca/news/canada/new-brunswick/story/2008/03/28/lamrock-immersion.html>

Florian, L., & Hegarty, J. (Eds.). (2004). *ITC and special educational needs: A tool for inclusion*. Maidenhead, England: Open University Press.

Fox, M. (2005). Appendix I: A review of inclusive education programming for pre-service and in-service teachers, teaching assistants, and student service administrators. In A. W. MacKay (Ed.), *Inclusive education: A review of programming and services in New Brunswick*. Retrieved from <http://www.gnb.ca/0000/publications/mackay/appendixi.pdf>

Geertz, C. (1973). Thick description: Toward an interpretive theory of culture. In *The interpretation of cultures* (pp. 3–30). New York, NY: Basic Books.

Genesee, F. (2007). French immersion and at-risk students: A review of research evidence. *Canadian Modern Language Review*, 63, 655–687.

Gewirtz, S. (2006). Towards a contextualized analysis of social justice in education. *Educational Philosophy and Theory*, 38, 69–81.

Hogan, T. P., & Harris, R. (2005, June). *Reading development in first and second languages: The case of French immersion in an urban school district*. Paper presented at the Fourth Annual Canadian Language and Literacy Research Network Conference, Toronto, ON.

Hopkins, J. (2004). Assistive technology (AT) to support students with special needs. Retrieved from

- <http://resources.curriculum.org/tcf/teachers/projects/repository/AssistiveTechnology.pdf>
- Kemmis, S., & McTaggart, R. (2000). Participatory action research. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 567–605). Thousand Oaks, CA: Sage.
- MacCoubrey, S. J., Wade-Woolley, L., Klinger, D., & Kirby, J. R. (2004). Early identification of at-risk L2 readers. *The Canadian Modern Language Review/La Revue canadienne des langues vivantes*, 61, 11–28.
- Marino, M. T., & Beecher, C. C. (2008). Assistive technology policy: Promoting inclusive education for students with reading disabilities. *Northwest Passage*, 6(1), 14–22.
- Marino, M. T., Sameshima, P., & Beecher, C. C. (2009). Enhancing TPACK with assistive technology: Promoting inclusive practices in preservice teacher education. *Contemporary Issues in Technology and Teacher Education*, 9(2). Retrieved from <http://www.citejournal.org/vol9/iss2/general/article1.cfm>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage.
- Naylor, C. (2005, November). *Inclusion in British Columbia's public schools: Always a journey, never a destination?* Paper presented at the Canadian Teachers' Federation conference, Ottawa, ON.
- O'Connell, T., Freed, G., & Rothberg, M. (2010). *Using Apple technology to support learning for students with sensory and learning disabilities*. Retrieved from http://images.apple.com/education/docs/L419373A-US_L419373A_AppleTechDisabilities.pdf

- Ouellet, M. (1990). *Synthèse historique de l'immersion française au Canada suivie d'une bibliographie sélective et analytique*. Quebec, QC: Centre international de recherche sur le bilinguisme.
- Pellerin, M. (2009). *Immersion for all: Inclusive practice in French Immersion*. Retrieved from <http://www.cpfalta.ab.ca/inclusion.pdf>
- Pellerin, M. (2011). University–school collaborative action research as an alternative model for professional development through AISI. *AISI Journal*, 1(1). Retrieved from <http://www.uleth.ca/education/research/research-centers/aisi/aisi-journal/new-issue/vol1-no1-2011>
- Riel, M. (2010). *Understanding action research*. Retrieved from <http://cadres.pepperdine.edu/ccar/define.html>
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. New York, NY: Cambridge University Press.

Copyright of Canadian Journal of Education is the property of Canadian Society for the Study of Education and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.