Using ePortfolios as a Tool for Learning and Reflecting with Middle School Students

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Abstract

It is important for learners in the 21st century to develop the ability to think critically and creatively, to be curious problem solvers and to take initiative in their learning. Students who are activated as leaders of their own learning are more likely to be engaged in the learning process. This researcher observed that young adolescents are challenged when asked to articulate their knowledge of themselves as learners. They struggle to go beyond knowing that they are simply “good at” or “bad at” a particular subject or skill. This research focused on whether consistent practice at reflection would enable students in grade 6 and 7 to better understand their learning journey. EPortfolios were selected as the tool to facilitate reflection and self-assessment because they enable students to work with online media, while also being designed with reflection, celebration and sharing of learning in mind. This study found that at the end of the school year, students overall were engaged in the creation of the ePortfolios and there was some development of reflection skills but the ability to express their knowledge of themselves as learners was still largely superficial. The researcher made some recommendations as to how the Scholantis ePortfolio tool, powered by Sharepoint, could be adapted to increase the likelihood of independent student engagement and facilitate reflection. Additionally, recommendations were made for teachers and schools with respect to teaching reflective language and whole school implementation to reduce the technical learning challenges and develop metacognition over a longer period of time.
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Chapter One

Introduction

I have been a part of the Campbell River School system for most of my life. School District #72: Campbell River has always been a district that worked to be innovative around teaching and learning. As a student, teacher and parent, I have noticed that the format of report cards and communications with parents and students about learning varied greatly from year to year as the district attempted to find ways to communicate about learning in meaningful ways. The greatest variety was at the elementary and middle school level where teachers sometimes wrote anecdotal reports, or structured written reports with letter grades, or simply entered a letter grade, a work habit and selected a pre-written comment on the computer. Ultimately, the report cards, written by teachers and distributed to students, contained virtually all summative information about knowledge that was demonstrated in each individual curricular area during that term. Parents could say that their child was “good” in English, because they saw a B and students would know they were “bad” at Math because they had a C-. The strong students were excited to take home report cards full of As and Bs, while the other students struggled with the dreaded “report card day” and their parents’ reactions. Three times a year, learning was put on hold in classrooms while teachers wrote report cards to parents that created anxiety for most students and did not create opportunities for growth in our learners.

Five years ago, the Campbell River School District reconfigured its schools, moving grade nines to high school and bringing grade sixes to middle school. My school, Phoenix Middle School, changed from enrolling students in grades seven through nine to grades six through eight. Students in grades 6 and 7 were in combined classes, where they shared two teachers for their core subjects. Relationships within the class and between students and teachers
has an opportunity to become deep, as they remained together for both grade 6 and 7. The timetable had PE and exploration blocks scheduled, while the rest of the timetable was open, enabling the two teachers to be flexible while developing learning opportunities. Phoenix is a dual track school with a population of about 650 students. Approximately 30% of the population is in the French Immersion program and approximately 30% of the population is of First Nations ancestry. Up to 50% of the English stream classes are First Nations students. In the English stream, where I taught, the students were part of families with very low to middle level socio-economic status. Together with a partner teacher, I shared the responsibility of teaching two classes of students in grades six and seven.

As schools were already undergoing huge transformations, the district leadership took advantage of an offer from the British Columbia Ministry of Education to “do things differently,” as shared by our superintendent on the first professional development day in September 2013. Teachers of traditional elementary school grades were invited to participate in a pilot program that drastically altered the assessment and reporting process. Formative assessment practices became the renewed focus of assessment in the classroom. Furthermore, the focus shifted from reporting student achievement using letter grades to communicating student learning using grade and subject-specific rubrics that were locally developed, using British Columbia’s curriculum performance standards. Teachers communicated student learning to parents monthly. What was being learned in one or more curriculum areas, along with specific information about how each child was doing was included. The evidence could be in the form of work samples with descriptive feedback, celebrations of learning, quizzes or tests, phone calls or face to face interactions. Students talked about their learning during student-led conferences in November and March. At the end of the year, a formal rubric-based document
that indicated achievement in all curriculum areas, was sent home. Letter grades were no longer assigned. Over the past four school years, the *Communicating Student Learning* framework, as summarized above, was implemented for all elementary grades (School District 72, 2014).

During the summer of 2013, at the beginning of my graduate journey, I had the opportunity to spend eight days learning with Judy Halbert, Linda Kaser and a cohort of enthusiastic, dedicated education professionals. I returned to my classroom in September energized and ready in my teaching to embrace all aspects of “assessment for learning” (Wiliam, 2011; Davies, 2007). I worked to articulate the learning destination clearly, students were involved in co-creating criteria for success, and descriptive feedback was then given to help further learning. Students had opportunities to self-assess and act as instructional resources for each other. Overall, more students demonstrated a higher degree of success. Still, I noticed that they struggled to articulate how they were doing with their learning beyond “good,” “okay” or “bad,” or to identify meaningful next steps in their learning journey. I wanted to find further opportunities for my students to increase their independence as learners. I wondered if developing their metacognition and reflection skills would assist in that goal.

At the beginning of the school year, I enrolled myself and my class in a new district pilot: developing electronic portfolios (ePortfolios) as a means to communicate learning to parents. The Communicating Student Learning initiative, as described, involved monthly communication with parents that indicated what was being learned in one or more curriculum areas, as well as how a child was doing at the learning. These communications were in place of report cards. EPortfolios, developed using the *Scholantis* tool, powered by *Sharepoint*, were a means to facilitate that communication. I wondered if a regular, long-term commitment to the selection of artifacts to upload, reflection on the learning that took place and looking back at the progress
over the year would assist in the development of a stronger sense of themselves as learners while enhancing their metacognition. I wondered if the use of technology would result in a more engaging environment for students.

**Purpose of the Study**

This study explored the connection between creating ePortfolios and the development of reflection and metacognition skills in middle school students. As articulated in the British Columbia Education Plan (BC Ed Plan), it is necessary to engage students in their own learning while preparing them for a changing society by developing skills and competencies of life-long learners (British Columbia Ministry of Education, 2015). In addition to developing core knowledge and literacy, students need to develop thinking skills, problem solving skills and the ability to work both independently and collaboratively. It is essential that students have a sense of themselves as learners. They should be aware of their strengths, their struggles and their passions. The BC Ed Plan also asserts that learners should assume increasing responsibility for themselves as learners as they grow older. (BC Ministry of Education, 2015). This means that while teachers manage learning opportunities to develop foundations skills through more individualized learning opportunities, students should develop the ability to articulate where they are in the acquisition of these skills and identify pathways to attain them (BC Ministry of Education, 2015).

Adolescence is a time when children turn off school in large numbers (Dweck, 2008; Willms, Friesen, & Milton, 2009). They are less engaged in formal education and many become much more peer-focused than they were in childhood. It is a time when learners heavily evaluate themselves. When those who have experienced less success at school begin to doubt their abilities, they often are willing to take less risk and as a result, they become more
unsuccessful (Stiggins, 2009). One possible solution is to cultivate growth mindsets that will teach learners to have a less judgmental internal monologue. According to Dweck, as written on her website, people with a growth mindset “see their qualities as things that can be developed through their dedication and effort. They understand that no one has ever accomplished great things- not Mozart, Darwin, or Michael Jordan- without years of passionate practice and learning” (www.mindsetonline.com). Students can learn to maintain an internal growth monologue when the principles of assessment for learning are developed. Hattie and Timperley (2007) stated that effective feedback must answer three questions: “Where am I going?” (What is the goal?), “How am I going?” (What progress is being made toward the goal?), and “Where to next?” (What activities need to be undertaken to make better progress?). The ideal learning environment is when both teachers and students seek the answers to these questions; however, a student’s ability to answer the questions depends on the individual’s development level around metacognition (Hattie & Timperley, 2007). As stated by Black and Wiliam (1998), “If formative assessment is to be productive, pupils should be trained in self-assessment so that they can understand the main purpose of their learning and thereby grasp what they need to do to achieve” (p. 143). For students to be able to answer Hattie and Timperley’s three questions, they need to have the ability to assess their level of understanding, effort and the effectiveness of learning strategies. The research of Davies (2007), Stiggins (2009), and Wiliam (2011) revealed that the ability to reflect and self-assess increased as students were provided with feedback that emphasized the three questions as they practiced over time. As students became more able to accurately assess their learning and observe growth over time, a passion for learning was able to develop or be renewed.
A “growth mindset,” is not the only factor required to increase learning amongst adolescents; it is also necessary that students are engaged in their learning. Middle school students’ lives revolve around Information and Communication Technology (ICT). Their phones, tablets and iPods accompany them everywhere. There is a widening gap between the in-school and out-of-school lives of adolescents, with respect to ICT especially (Willms et al., 2009). As stated, the goal of the BC Education Plan is to have students become expert learners with an enduring passion for learning. Still, adolescents continue to disengage from school learning (Project Tomorrow, 2011; Willms et al., 2009). The digital world is where they engage with information and each other (Taylor & Parsons, 2011). Learning with digital media aligns with 21st century competencies. It is “highly social, [and] involves a good deal of experimentation and ‘tinkering,’ and encourages the production and sharing of knowledge” (Dumont & Istance, 2010, p. 25). It facilitates learning that is more about interaction and participation rather than passive consumption of information or knowledge. Further to this, technology can help empower learners to shape their own learning environments (Dumont & Istance, 2010). While exploring trends in digital learning, Project Tomorrow (2015) found that two-thirds of middle school students agreed that effective technology use increased their interest in what they were learning at school. This researcher also has observed that student engagement increased when the opportunity to complete school work using ICT was available. Given the importance of ICT in the lives of young people and its ubiquity in society, it seems that developing its effective use in schools is essential (Dumont & Istance, 2010).

The use of portfolios in education has come in and out of fashion over the past twenty five years (Barrett, 2008). They have been used much more consistently in Language Arts studies. Numerous researchers have advocated the use of portfolios to accumulate records of
student growth and to develop the students’ ability to self-assess and reflect upon their learning (Barrett, 2007, 2008, 2011; Carmean & Christie, 2006; Davies, 2001, 2007; Duke, 2010; Hebert, 2001; Sherman, 2006; Stiggins, 2009). Hebert (2001) asserted that reflection and conversation build metacognition. Barrett stated that “the real value of an ePortfolio is in the reflection and learning that is documented therein, not just the collection of work” (Barrett, 2011, p. 4). Through feedback and reflection, the opportunity for a conversation about individual student learning is presented. I would like my students to have the opportunity to showcase their learning, both as a process and a product, using ePortfolios. I hope that this will increase their engagement, build metacognition with respect to their learning and continue to develop the knowledge of themselves as learners.

**Significance of the Study**

The goal of this study was to learn about the experience of a group of middle school students when using ePortfolios as a tool for reflecting on their learning, as well as whether the ePortfolios would impact their ability to reflect effectively. School District #72 conducted a pilot project involving the use of ePortfolios to communicate student learning at all levels from 2013 to 2016. Teachers received training, attended a meeting once a month and were supported by district personnel who were able to assist with classroom teaching and trouble shooting. The time required to create the ePortfolios with students was intensive and it was important to me that the time spent was valuable. I wanted to know if the creation of the ePortfolios had an impact on learning, specifically on metacognition and the ability to reflect.

Most of the educational research that has been done about ePortfolio use and their application in education pertains to university students, particularly education students. There is some research that has been conducted with high school students. I would like to discover
whether the benefits of ePortfolio use translates to students in middle school, specifically grade six and seven, given that I teach this grade level and that the majority of the teachers involved in the pilot taught at the middle or elementary level.

**Research Questions**

The two dominant questions in this research study are the following:

1. What is the learning experience of my students when using ePortfolios as a tool for reflective learning?

2. How do ePortfolios influence my students’ abilities to reflect upon and articulate their own learning?

I was optimistic that when students were given opportunities to reflect on their learning, that they might become more capable of articulating their strengths and challenges as learners, which could, in turn, increase their competence and confidence at learning new things.

**Definition of Terms**

“Metacognition” according to Flavell (1979), as cited by Wiliam (2011), “refers to one’s knowledge concerning one’s own cognitive processes and products or anything related to them” (p. 148). Metacognition includes knowledge (knowing what one knows), skills (knowing what one can do) and experiences (knowing what one knows about one’s own cognitive abilities) (Flavell, 1979). Ultimately, metacognition is thinking about one’s own thinking. In this study, I observed the ePortfolios of grade 6 and 7 students for the duration of a school year to determine if their metacognition developed with focused attention on learning experiences through reflection.

According to Dewey (1933), “reflection” is when the basis for a belief is deliberately sought and when the adequacy of support for the belief is examined. For the purpose of this
study, reflection is part of the process of self-assessment, where students confirm and integrate new knowledge, gain insight that helps monitor learning, as well as practice giving themselves feedback (Davies, 2007). Reflection is a component of metacognition. Participants in this study reflected online, as part of an ePortfolio, when an artifact was uploaded, at the end of the week or at the end of the term. They were asked to focus on Hattie and Timperley’s three questions (stated earlier in this chapter), as well as their strengths and an area to develop further. It was hoped that students would develop deeper knowledge of self as learners, as well as develop a stronger growth mindset when identifying how learning developed over time.

“Learner engagement,” as defined by Willms et al. (2009) in the Canadian study What Did You Do In School Today? is “the extent to which students identify with and value schooling outcomes, have a sense of belonging at school, participate in academic and non-academic activities, strive to meet the formal requirements of schooling, and make a serious personal investment in learning” (p. 7). Data was collected on engagement through general observations recorded in my researcher’s journal, as well as through two questions asked as part of the mid-year and term reflection uploaded by the research participants to their ePortfolios.

An “ePortfolio” is an electronic collection of evidence that show the learning journey over time. The evidence can be in the form of writing, photographs, video or other projects, with accompanying reflection. The key aspect of an ePortfolio is the reflective component; without it, it is simply electronic storage. For the purpose of this study, the ePortfolios were the individual student portfolios created using the Scholantis tool, powered by Sharepoint.

“Information and Communications Technologies” or ICT is an expansion of the term information technology, or IT. They are “a diverse set of technological tools and resources used to communicate, and to create, disseminate, store and manage information” (Blurton, 1999, p. 1).
For the purpose of this study, ICT refers to any computers, networks, hand held personal devices and accompanying peripheral devices, such as monitors, digital cameras or projectors.

**Brief Overview of the Study**

The participants in the study were my class of 25 grade 6 and 7 students from a middle school on Vancouver Island. Students and parents were informed about the nature of the study and assent was attained from those students whose parents consented to them being a part of the study. The ePortfolio tool that was used was the Scholantis Portal Edition, which is used with SharePoint for Schools. All students completed an initial student reflection about their perceived learner characteristics (Appendix A) and uploaded it to their ePortfolio. Throughout the year, students completed weekly reflections based upon the three questions discussed earlier in this chapter. Additionally, students were given the opportunity to reflect on work samples/artifacts with respect to criteria that was established or co-created. The goal was to upload at least two artifacts per month that were representative of their learning, with the accompanying reflections. An artifact could be a photo, video, drawing or print sample. Finally, at the end of the term two in March and again in June, students completed an “End of Term/Year Reflection” (Appendix B) and selected several of their weekly reflections to accompany it. For the duration of the study, I maintained a researcher’s journal where I recorded ongoing observations, reflections and interpretations of my own with the purpose of maintaining a record of the process, including the obstacles, challenges and successes with actual uploading of artifacts, as well as general observations about the experiences and abilities of the class as a whole.

At the end of the year, the ePortfolios of students I was given permission to use were analyzed and interpreted, along with my researcher’s journal. I looked for evidence of
strengthening reflective skills, increased knowledge of themselves as learners (metacognition), and their experiences using the tool, with respect to engagement and ownership of their learning.
Chapter Two: Literature Review

Introduction

“We are the first generation of educators who know we have no idea what we are doing” (Wiliam, 2013). As Dylan Wiliam asserts, as educators, it is our purpose to prepare learners for a world that is constantly changing; one where we do not know what is coming. In the “Information Age,” while there is still a need for transmission of culture, preparation for citizenship and preparation for work, arguably, the most important skill a learner can gain in school is the ability to learn (Wiliam, 2013). Rotherham and Willingham (2009) write of how a combination of experience and practice is necessary to teach a variety of 21st Century skills, including critical and creative thinking. Wiggins and McTighe (2005) assert that there are six facets to understanding, that include explaining, interpreting and applying what is known, as well as having perspective, being able to empathize and having self-knowledge. The new curriculum being introduced in British Columbia, Canada, speaks of providing engaging learning environments in which to develop Core Competencies that include communication, thinking and personal/social components (https://curriculum.gov.bc.ca/competencies). A key component of thinking is building metacognitive awareness. My research focus is on the use of ePortfolios as a tool for building reflection in middle school students. I will explore whether using technology, specifically the Scholantis ePortfolio tool, to develop reflection skills will deepen their understanding of themselves as learners, as well as strengthening their engagement with learning at school. In this chapter I will discuss metacognition and its development, building learner engagement, using technology to aid engagement, as well as developing metacognition through reflection and the use of ePortfolios.
Metacognition: Thinking about Thinking

“The meaning of ‘knowing’ has shifted from being able to remember and repeat information to be able to find and use it.” Herbert Simon, Nobel laureate.

The goal of education in the twenty-first century is to help students develop the tools and strategies needed to acquire the knowledge to think productively about history, science and technology, mathematics, society and the arts (Bransford, Brown, & Cocking, 2000). It is necessary for students to be able to control and focus their own learning. Because understanding is so important, learners must be able to recognize when they understand and when more information is needed (Bransford et al., 2000; Davies, 2007). A focus of educational research has been on the role of metacognition as a tool for self-regulated learning and how it relates to age, motivation and achievement, as well as how it can be cultivated (Shunichi & Kazuo, 2009).

**How metacognition develops.** Metacognition is thinking about one’s own thinking. It is the self-regulatory process of cognitive processes while engaging in a task (Shunichi & Kazuo, 2009). Flavell (1979) divided metacognition into knowledge (knowing what one knows), skills (knowing and regulating what one can do) and experiences (knowing what one knows about one’s cognitive abilities.) Furthermore, metacognition can be subdivided into thinking around the task or the strategy. Metacognitive knowledge about the person encompasses what one believes about oneself or about other people, whereas task and strategy encompass what one believes about the task and possibility of success with one strategy over another (Flavell, 1979). Development of metacognitive ability progresses from simple to complex. Initially, learners can only recognize understanding versus not understanding, or that they are confused but uncertain of a next step. This progresses to the ability to be able to discern accurate understanding from inaccurate. Flavell (1979) believed that more sophisticated metacognitive abilities, such as
recognition that understanding is hard to obtain and can be influenced by variables like personal bias or illness, evolved from the secondary stage of development.

Since Flavell’s work on metacognition, there has been a great deal of research that focused on brain development and on how people learn. Ramsay, Richmond, Klapp and Sperling (2012) stated that metacognition plays a critical role in students’ memory, learning and achievement, while being critical to academic success and overall development. Metacognition enables planning, regulating and assessing; whereas poor metacognition is linked to ineffective learning strategies and poorly developed “figure it out” skills (Joseph, 2010).

The adolescent brain and metacognition. The brain undergoes tremendous change and development during adolescence. Brain volume and myelination increases throughout adolescence into the twenties. Besides this, there is extensive white and grey matter structural change that occurs (Centre for Educational Research and Innovation, 2007). Evans, Gerlach, and Kelner (2007) posited that the brain is a sculpture shaped by experience. Further, learning occurs with the growth of new synapses (connections in the brain), as well as strengthening, weakening or eliminating existing connections. Experience seems to determine which connections are strengthened and which are weakened (Evans et al., 2007). Brain development in adolescence involves development of the ability to reason hypothetically, think about thinking, plan ahead and think in abstraction. There are also self-regulatory aspects of metacognition that include the ability to plan, monitor success and correct errors; these abilities appear to develop in childhood. The ability to reflect on one’s own performance develops later. Metacognitive abilities emerge more fully in adolescence and continue to develop into adult life. Brain maturity occurs in part due to the aging process but is additionally shaped by learning experiences and activities engaged in by an individual (Bransford et al., 2000; Evans et al., 2007). Because brain
development is so prominent in adolescence and metacognition is so important to successful learning, teaching self-assessment and reflection strategies that enhance metacognition are essential.

**Self-Assessment and Reflection Deepen Learning**

Formative assessment or assessment for learning has been proven to raise standards across all ages (Black & Wiliam, 1998). Formative assessment involves clarifying the learning destination and criteria for success with learners, providing feedback that moves learning forward and activating learners as the owners of their own learning through reflection and self-assessment (Davies, 2007; Wiliam, 2011). Reflection is a powerful tool for student development and learning. Reflective thinking keeps the focus on learning while encouraging students to integrate learning experiences, enhancing self-understanding, supporting developing intellectual identity and promoting responsibility for one’s own learning (Riedinger, 2006). Wiggins and McTighe (2005) assert that “the immature mind is thus not ignorant or unskilled but unreflective” (p. 101). A metacognitive or reflective approach to teaching within a discipline enhances learning while students become more aware of themselves as learners. Students who are more aware of themselves as learners, and who monitor learning strategies and resources demonstrate improved transfer of knowledge and skills from one discipline to another (Bransford et al., 2000; Davies, 2007). Indeed, students who reflect upon and communicate about their own learning are more likely to have ownership of learning by defining learning goals and monitoring their progress as they move towards them and over the long term, present themselves as learners (Bransford et al., 2000; Davies, 2007; Davies, 2001; Joseph, 2010). Metacognition is an internal conversation. Students may be unaware of the importance of this conversation unless the processes are emphasized by teachers in a variety of subject areas (Bransford et al., 2000;
Joseph, 2010). With teaching, students can develop the ability to predict outcomes, explain information to oneself, recognize lack of understanding and strategize for success.

Self-assessment is an important component of assessment for learning that involves and further develops metacognition. There are two aspects of metacognition involved in self-assessment: self-appraisal and self-management (Hattie & Timperley, 2007; Paris & Paris, 2001). A learner with self-appraisal skill can review and evaluate ability, knowledge and strategies used. One who is strong in self-management can monitor and regulate behaviour, as well as plan and apply strategies to fix errors (Hattie & Timperley, 2007; Paris & Paris, 2001). As these skills combine, students can evaluate their levels of understanding, effort and strategies used on a task, along with the opinions of others about their performance with respect to learning goals (Wiggins & McTighe, 2005). Metacognition, and thus, the ability to self-assess, improves with age, instruction and academic achievement (Paris & Paris, 2001). Davies (2007) adds that developing the ability to self-assess through reflection may be especially important for children who don’t have extra learning support outside the classroom.

**Teaching students to reflect and self-assess.** Self-assessment can only work if learners have a clear picture of the learning target (Black & Wiliam, 1998; Stiggins, 2009). When learners are aware of the goals, they can begin to open the dialogue around their own work and learning. Hattie and Timperley (2007) found that feedback given must answer three questions in order be effective. First, “Where am I going?” relates to the goals of the learning. Knowledge of the goals can encourage persistence when faced with difficulty. Second, “How am I going?” helps the learner see the progress being made towards the goal. Finally, “Where to next?” indicates what needs to be done to make better progress or to deepen the learning. An ideal learning experience is when both the teachers and the students attempt to answer these questions
(Hattie & Timperley, 2007). When students have continuous access to descriptive feedback, they can be taught to generate their own feedback (Davies, 2007; Stiggins, 2009).

The process of teaching students to reflect needs to be intentional and scaffolded (Riedinger, 2006). Wiliam noted (2011) that most first attempts at self-assessment are neither insightful nor useful. What is more, he found that especially in the early stages, each activity needs to be framed to ensure that students focus on things within their control. Feedback or reflection can take several forms. It can occur as a result of performance, where aspects of understanding are considered. Also, it can provide information on the process of learning, relating to the task in order to fill a gap between what is and isn’t understood. Reflection can relate to affective processes, such as effort or engagement. It can also trigger cognitive processes where understanding is restructured or confirmed as correct or incorrect (Hattie & Timperley, 2007). Each type requires coaching, where, during discussion, students are given the opportunity to express understanding and emotion. Questioning helps to ensure that learners take part in thoughtful, reflective dialogues (Black & Wiliam, 1998). Wiliam (2011) advocated use of learning logs at the end of a lesson where students chose from several prompts for reflection. He suggested that involving choice in the prompts encouraged a more thoughtful approach to reflecting on learning.

Learning how to reflect on one’s own learning takes time (Davies, 2007). “Reflecting critically on one’s own learning is emotionally charged, which is why developing such skills takes time, especially with students who are accustomed to failure” (Wiliam, 2011, p 158). Students ask themselves “Can I learn this or is it too hard?” or “Is trying worth the risk that I might fail?” (Stiggins, 2009). However, with other aspects of formative assessment included, fear of failure from low achievers isn’t inevitable once they have a clear understanding of what is
wrong and how fix it (Black & Wiliam, 1998). Part of learning is recognizing when learning has been successful; as learners collect and organize evidence in relation to the learning destination, the recognition becomes more fluent (Davies, 2007). Harper and O’Brien (2012) stated:

> Reflection is an ongoing process for both teacher and student. It should not be reserved for a formal fifteen-minute reflection at the end of every unit. Reflecting on what we have learned and what experiences and skills we have gained from a unit or activity is essential. Without reflection, we lack the final part of our learning map – discovering where to go next. (p. 114)

As learners practice the skills of reflection and self-assessment within a defined framework, it is hoped that gradually, students begin to think metacognitively on their own.

**Learner Engagement**

The British Columbia Education Plan stated that it was based on a simple vision. It said “we need an education system that better engages students in their own learning and that fosters the skills and competencies they will need to succeed” (BC Ministry of Education, 2015, p. 4). The new curriculum that began implementation in the fall of 2016 was redesigned with an emphasis on the development of “Core Competencies” across all learning areas (https://curriculum.gov.bc.ca). The competencies encompass communication skills, thinking skills and personal and social skills. The *What Did You Do Today?* study summarized the goal of formal education is to have students:

- Become expert learners with an enduring passion for learning.
- Develop imaginative and innovative habits of mind.
- Gain confidence in generating new ideas on their own and collaboratively.
• Learn core concepts of major disciplines and value different knowledge traditions.

• Develop cross-cultural, communicative and ethical competence (Willms et al., 2009, p. 6).

The Galileo Educational Network defined an engaged thinker as:

One who thinks critically and makes discoveries; who uses technology to learn, innovate, communicate, and discover; who works with multiple perspectives and disciplines to identify problems and find the best solutions; who communicates these ideas to others; and who, as a life-long learner, adapts to change with an attitude of optimism and hope for the future (Friesen et al., 2015, para. 2).

Schlechty (2011) posited that these higher level skills develop more as a result of engagement. Further, he wrote “all students value learning, and all students are motivated” (p. 33). However, he recognized that many students do not find value in school learning and that without meaning, they do not direct their motivation towards it. Students control the amount of effort and attention that is directed towards a task; in order for deep learning to occur, students must commit to the learning, rather than simply comply with completion (Schlechty, 2011). Indeed, students who are engaged must be attentive to the learning, committed to the effort required, persistent and must find meaning in the tasks that comprise the learning (Schlechty, 2011). Engagement by students is associated with achievement, school climate and instructional practice (Preciado Babb, Saar, Marcotte, Brandon, & Friesen, 2013). Student engagement can be broken into three components:

1. Academic or institutional engagement: participation in the formal requirements of schooling.
2. Social engagement: having a sense of belonging and participating in school activities.

3. Intellectual engagement: making a cognitive and emotional commitment to learning, including using higher-order thinking skills to construct deeper learning (Preciado Babb et al., 2013; Willms et al., 2009).

The shift to a knowledge-driven society has necessitated a shift in the education system. Skills such as creative thinking, problem solving, curiosity and the ability to lead and work well in groups are necessary (BC Ministry of Education, 2015). These are skills that develop from student engagement, particularly intellectual engagement (Preciado Babb et al., 2013).

Pink (2009) described the drives that motivate humans to act. The first drive is biological; people are moved to fulfill their basic human needs. The second drive, called the Reward and Punishment Response, influenced how schools and economies were structured. It is based upon the belief that rewarding behaviours that are desired while ignoring or punishing the behaviours that aren’t will result in more of the desired behaviour. Pink argued that the use of this extrinsic reward-based drive worked well when the task was relatively simple; however, he cited numerous studies that showed extrinsic motivators did not increase success when a challenge required higher level thinking and intellectual engagement. Instead, he argued that a third drive, based upon intrinsic motivators increased engagement and success in higher level tasks. The three motivators are autonomy, mastery and purpose (Pink, 2009).

Autonomy is the desire to direct one’s own life. It is natural to be active and engaged, however, at some point, many people become passive at work or at school. Introducing autonomy over task, time, and team resulted in increased creativity and productivity in work environments and developed deeper understanding and greater persistence in school environments (Pink, 2009). Mastery is the desire to get better at something that matters and how
creative one feels when working on a project (Pink, 2009). It is related to Csikszentmihalyi’s (1990) idea of flow, when one is completely absorbed in a task (as cited in Wiliam, 2011, p. 150). Flow occurs when one is intrinsically interested in the task or there is a match between task challenge and individual ability. Purpose relates to the desire to do meaningful tasks (Pink, 2009). He wrote, “The richest experiences in our lives aren’t when we’re clamoring for validation from others, but when we’re listening to our own voice – doing something that matters, doing it well, and doing it in the service of a cause larger than ourselves” (Pink, 2009, p. 146). While Pink’s writing referred primarily to the economy and the world of work, he also spoke to engaging students in their learning. He suggested that students need to understand the purpose of the learning activity and how it is relevant to their world. Opportunities to assess one’s own progress in the pursuit of mastery, in addition to building autonomy into projects or problems are motivators towards engagement (Pink, 2009).

Boekaerts (2010) wrote “If all classroom activities were interesting and fun, students would engage in them naturally” (p. 92). Consequently, teachers work to adapt curriculum and learning activities so that they are interesting and purposeful, and so students feel able to do them (Boekaerts, 2010). Indeed, Schlechty (2011), asserted that the role of teachers in the 21st century is to be designers of experiences that students will choose to engage in because they find meaning and purpose in them, as well as lead to the learning that has been deemed important. It is necessary to design tasks that align with students’ beliefs about themselves, as emotion influences motivation and subsequent engagement. To summarize, Boekaerts (2010) said that learners are motivated when they feel competent, they see a purpose in the subject or activity, they experience success, they have the ability to manage resources and time and they perceive the environment is favorable to learning.
The What Did You Do in School Today? initiative, undertaken by the Canadian Education Association (CEA), set out to “explore relationships between student engagement, achievement and effective teaching” (Willms et al., 2009, p. 1). The study was motivated by evidence that showed disengagement and dissatisfaction by middle and secondary school students was linked to the learning environment (Willms et al., 2009). Additionally, educators were aware of “the widening gap between the in-school and out-of-school lives of students” (Willms et al., 2009, p. 6). Communication technologies are widely used outside of schools by learners, while most school environments are still relatively “low tech” (Dumont & Istance, 2010; Willms et al., 2009). According to Dumont and Istance (2010), using the European country data from Empirica 2007, learners spend an average of one hour per week at school versus fourteen or more hours per week at home using communication technology (p. 25). The hope of the What Did You Do in School Today? initiative was to understand social, academic and intellectual engagement, and determine how all three result and their impact on learning. In this study, over 32,000 students from 93 schools from ten districts across Canada were surveyed with respect to social engagement (participation and belonging), academic engagement and intellectual engagement in language arts and math. The survey used was the Tell Them From Me survey, designed by Willms. The students were in grades five through twelve (Willms et al., 2009).

There were several results of note in the study. First, while feelings of belonging remained fairly constant through the age range surveyed, levels of participation and academic engagement declined gradually through to grade twelve and intellectual engagement declined substantially during the middle years and remained low, to a mean of around 30%. Social and academic engagement had a mean of around 70%. Also, female students were more likely (5 – 9%) to be engaged intellectually and students with higher socio-economic status were found to
be significantly more engaged across all areas. Researchers also found that students were more intellectually engaged when the instructional challenge met the confidence level of the students, but less than half of students surveyed felt both interested and successful in math and language arts (Willms et al., 2009). There were significant differences from school to school, even when age difference and socio-economic status was considered. It was shown that the effect of school and classroom climate had a significant impact on student engagement (Willms et al., 2009).

Willms et al. (2009) made several suggestions in order to maintain or increase student engagement as students get older. Learning environments that focus on deep learning and are authentic and meaningful should be intentionally designed. Assessment that guides teaching and learning, by encouraging students to reflect on their own learning is also suggested. Finally, the study suggests that relationships are critical; students want their teachers to know them (Willms et al., 2009).

Taylor and Parsons (2011) and Preciado Babb et al. (2013) reinforced the What Did You Do in School Today? findings. They suggested that relationships between teachers and students are critical. Furthermore, they stated that opportunities to explore learning, using meaningful tasks and subject matter, helps develop intellectual engagement. Finally, they wrote that “technology brings learners accessible and relevant subject matter and experts and is a tool for engaged learning” (Taylor & Parsons, 2011, p. 14). By exposing students to digital technologies in school, their experience of learning, both in and out of school, is bridged (Taylor & Parsons, 2011).

Technology and Engagement

The importance of Information and Communications Technology (ICT) to the youth of today can’t be denied. The adolescents of today, having grown up in the world of hand held
technology, are digital natives. As stated earlier in the chapter, based on European country data from 2007, youth averaged around fourteen hours of ICT use outside of school (Dumont & Istance, 2010). I suspect that the number has increased during the past decade. The identities of youth are shaped by their interactions with other youth using digital media (Dumont & Istance, 2010). They use their smart phones and tablets to access and interact with information (Dumont & Istance, 2010; Harper & O’Brien, 2012; Taylor & Parsons, 2011). Dumont and Istance (2010) noted that use of ICT by youth does match with skills required for today’s learners. “It tends to be highly social, involves a good deal of experimentation and ‘tinkering’, and encourages the production and sharing of knowledge” (Dumont & Istance, 2010, p. 25). Brown (2002) wrote “They want to turn the thing on, get in there, muck around, and see what works. Today’s kids get on the Web and link, lurk, and watch how other people are doing things, then try it themselves” (as cited in Taylor & Parsons, 2011, p. 12). Because of the rapid growth of ICT in society, educators are still attempting to determine how best to teach the digital literacy skills students need while still acquiring the skills themselves (Harper & O’Brien, 2012).

According to Mayer (2010), there are two approaches to learning with technology. The first, called “technology-centered,” focuses on the use of technology in education by providing access to it. He noted that the availability of technology by itself (including film, radio, television or computers) has not caused tremendous change in education over the past century because it assumes that learners and teachers will adapt to the requirements of the technology (Mayer, 2010). Mayer (2010) instead advocated a “learner-centered” approach, where technology is used as a tool to facilitate learning. Students are motivated to use ICT for learning, but it is the instructional method implemented by the educator that causes the learning (Mayer, 2010). Further to this, Taylor and Parsons (2011) found that students do not necessarily
understand how technology affects their habits of learning; but exposing students to digital
technologies in a learning environment can connect learning in and out of school.

Preciado Babb et al. (2013) completed a study that investigated the use of mobile
technology to develop intellectual engagement in high school students. It involved a three year
study where researchers affiliated with the Galileo Educational Network (GENA) at the
University of Calgary worked with teachers and students to design learning environments based
upon a “Teaching Effectiveness Framework” (TEF) that was developed as a result of the Tell
Them From Me survey and the What Did You Do in School Today? findings. The TEF is built
upon five core principles:

1. Teachers are designers of learning environments that engage students
   intellectually and academically

2. Work students are asked to undertake is worthy of their time and attention,
   personally relevant and deeply connected to their world.

3. Assessment practices improve student learning and guide teaching.

4. Teachers foster a variety of interdependent relationships in classrooms that
   promote learning and create a strong culture around learning.

5. Teachers improve their practice in the company of peers and others (Preciado
   Babb et al., 2013, p. 47)

One of the questions asked by the study was how students experienced intellectual engagement
when in learning environments co-designed by GENA. The projects, which were designed with
intellectual engagement in mind, involved iPad2 tablets and made use of professionals in theatre,
math and science. To determine the results, researchers interviewed six students, used the Tell
Them From Me Survey for the entire group and used field notes and observations. They found
that when compared with the non-project group of the same year, intellectual engagement increased by 11%. The students reported that using mobile technology helped them think differently, express their understanding in a way that didn’t involve pen and paper, and that they used it to solve problems. Moreover, the students said that the work was rewarding and became about the learning rather than a good mark (Preciado Babb et al., 2013). While the study was designed with intellectual engagement at the forefront, researchers also found that social engagement increased by 14%. As social engagement is a factor that contributes to students staying in school and being engaged citizens, this was considered to be a positive side effect of the study (Preciado Babb et al., 2013).

*Project Tomorrow* is a national nonprofit organization based in California that has operated for more than nineteen years. Its vision is “to ensure today’s students are well prepared to be tomorrow’s innovators, leaders and engaged citizens of the world” ([www.tomorrow.org](http://www.tomorrow.org)).

As part of its *Speak Up* initiative, *Project Tomorrow* created a survey that asked about uses of technology for learning, 21st century skills, emerging technologies, math instruction, STEM career exploration and schools of the future. Over 1.85 million students, parents and educators in over 23,000 self-selected middle and high schools across the United States took part in the survey in 2009 ([Project Tomorrow, 2010](http://www.tomorrow.org)). The survey found that teachers believe that the use of technology in the classroom results in students who are more motivated to learn, are developing 21st century skills and who take more ownership of their learning ([Project Tomorrow, 2010](http://www.tomorrow.org)). In a later survey, two thirds of middle school students agreed that effective use of technology increased their interest in school ([Project Tomorrow, 2015](http://www.tomorrow.org)). In the same survey, 92% of principals and administrators said the effective use of technology is important for the preparation of students for the future ([Project Tomorrow, 2015](http://www.tomorrow.org)).
The *Speak Up* findings of the 2010 surveys completed by Project Tomorrow spoke of the new 3 *E*’s of Education: Enabled, Engaged and Empowered (Project Tomorrow, 2011a). The study acknowledged that students are already using technology with or without the assistance and support of teachers and schools, but it is how they are using it that gives insight to its place in schools (Project Tomorrow, 2011a). First, students are enabled by giving access to resources and experts that extend beyond the school. Second, students are engaged by rich learning experiences that develop problem solving, creativity and critical thinking. Third, students are empowered to take responsibility for their learning by exploring passions online (Project Tomorrow, 2011a).

Teachers use technology a great deal for their own personal and professional purposes. They use communication and research tools, social media tools, take part in webinars and make multi-media presentations; however, the greatest percentage of using technology to increase student learning is to give homework and practice (Project Tomorrow 2011b). Project Tomorrow (2015) found that there are several methods of incorporating technology with teaching that show increased student engagement, in addition to teacher buy in. The initiatives include use of digital content in the classroom, use of digital textbooks, online classes, and using mobile devices to extend and expand upon traditional “book” content (Project Tomorrow, 2015). A critical finding was that between 2008 and 2010, there was very little growth in the use of technology to set student objectives, provide feedback to students or to track the relationship between effort and achievement (Project Tomorrow, 2015). The researchers noted that “We still have more work to do, therefore to ensure that the effective use of technology is fully integrated into all functions of the classroom if we wish to achieve that promise of increased efficiencies and transformative learning” (Project Tomorrow, 2011b, p. 5).
Project Tomorrow found that there are a number of challenges associated with widespread introduction of digital technology in schools. At the infrastructure level, teachers and students have to work within filters and firewalls designed to increase student safety and privacy (Project Tomorrow 2011a, 2011b). Also, there is a concern around funding and digital equity (2011b). Project Tomorrow (2011b, 2015) found that the largest challenge in implementing digital technologies is the gap between teacher and student familiarity with digital environments. Through professional learning and private exploration, as teachers become more proficient at implementing digital technology for communication and personal learning, they will become more able to connect student outcomes with strategic use of digital tools in the classroom (Project Tomorrow, 2015).

It is important to note that students believed that teachers were important to the learning process and that what they are learning in school is important. Still the majority of students in middle years wished that classes were more interesting. (Project Tomorrow 2015). At all grade levels, the surveys found that students were interested in learning environments that were relevant, rich in content and used digital tools to explore ideas (Project Tomorrow, 2015). As noted earlier in this chapter, digital tools alone were not found to be the answer to educational innovation or engagement. Instead, digital initiatives, such as ePortfolios, combined with instructional design are resulting in increased engagement by students (Project Tomorrow, 2015).

**What are Electronic Portfolios?**

At its simplest, a child’s school portfolio, according to Hebert (2001), is a 9.5” by 14.5” folder containing selected samples of school work for the year. It is however, much more. A portfolio functions to tell the story of learning; it is a vehicle that connects previous knowledge
to present learning (Hebert, 2001). Stiggins (2009) added to the definition when he said that a portfolio is a collection of student work that demonstrates achievement or improvement. Further, he said it was “a means of communicating about student growth and development” and that it was “not a form of assessment” (as cited in Barrett, 2007, p. 488). An electronic portfolio, or ePortfolio, is an electronic collection of evidence that shows a learning journey over time (Barrett, 2011). The artifacts, selected purposefully by the learner, can include writing, photos, videos, projects and observations (Barrett, 2011; Carmean & Christie, 2006; JISC, 2008). With both a portfolio and an ePortfolio, the critical element is reflection. Barrett (2011) said “the real value of an ePortfolio is in the reflection and learning that is documented therein, not just the collection of work” (p. 4).

There are a number of types of portfolios in society. An artist’s portfolio generally displays the best work of the artist. A financial portfolio is a record of investment holdings and financial transactions. In education, portfolios can take three forms. An achievement or showcase portfolio, which contains samples of a learner’s best work, along with reflections, features the products of learning (Barrett, 2007, Hebert, 2001; Stevenson, 2006). A learning or process portfolio includes evidence of a student’s learning progression instead of, or in addition to the best work. It documents the learning journey rather than the arrival at the destination (Barrett, 2007; Hebert, 2001; Stevenson, 2006). A structured portfolio is more standardized, in that it outlines expectations for work that is to be completed. The artifacts and experiences are matched to a matrix of pre-determined attributes (Stevenson, 2006). A structured portfolio is most often used when it is necessary to demonstrate a particular set of criteria have been met. I have not seen evidence of its use to demonstrate learning with children. All of these formats can be converted to an ePortfolio. Hebert (2001) suggested that the decision to use a showcase
ePortfolio or a learning ePortfolio depended on three factors: purpose, content and ownership. Once one value is identified, the other two become defined as well. If the purpose is to provide evidence of teaching the curriculum and whether or not the learner has understood, the artifacts often are teacher-selected and reflected upon by the learner. If the learner is the owner of the ePortfolio, the content will be related to his or her individual learning story (Hebert, 2001). Regarding this, Hebert (2001) wrote, “If we can begin to consider that the primary purpose for the portfolio is to provide a vehicle for each child to grow metacognitively and to demonstrate competence in telling the story of learning, the door is open for the child to assume ownership” (p. 48). The conflict that can arise when an ePortfolio is being used to serve two purposes will be discussed further in the next section.

**Uses of electronic portfolios in education.** Portfolios and ePortfolios in education were initially used primarily as a way of chronicling learning in writing (Avraamidou & Zembal-Saul, 2002; Hebert, 2001). While this is still the most common use, ePortfolios are now often used for broader purposes (Avraamidou & Zembal-Saul, 2002; Barrett, 2008). Higher education institutions are a place where ePortfolio use is growing at a fast pace. Most of the commercial ePortfolio tools were created for use in higher education (Barrett, 2011). JISC (2008) mentioned a pilot study done at the University of Wolverhampton with midwifery and nursing students. The study found that reflections by students generated discussions between the students, instructors and the workplace supervisors. Additionally, adult students noticed that reflecting gave them perspective on how far they had come in their learning (JISC, 2008).

Brown (2002) completed a qualitative study of eight adult learners who completed an ePortfolio as part of a degree program. The ePortfolios represented the learning that came from work experiences and participation in professional and community activities. The reflection
process was found to aid in the understanding of how the participants’ learning occurred, as well as helped them appreciate growth in their lives. There was an increase in self-knowledge, improved communication and organizational competencies and increased recognition of the value of learning through work experience.

The adoption of ePortfolios in teacher education programs is increasing (Carmean & Christie, 2006). Teacher candidates in a study by Baker and Christie (2005) who had ePortfolio requirements as part of their program of study reported that they uncovered their own strengths and weaknesses as a result of reflections, were better able to accommodate learning styles and it helped them model life-long learning (as cited by Carmean & Christie, 2006). In other studies, researchers found that teacher candidates were able to make stronger connections between coursework and what was applied in their teaching (Avraamidou & Zembal-Saul, 2002). Using ePortfolios tools, such as blogs, adult learners became active, reflective learners. They also found that a wide variety of artifacts were used to demonstrate learning; the web-based ePortfolio was easy to show relatedness via links, as well as being easy to revise and store (Avraamidou & Zembal-Saul, 2002). Students in the program stated that the ability to give and receive feedback from peers and teachers was appreciated. Further to this, it was noted that teacher-candidate views of teaching and learning were reshaped as new their experiences were reflected upon (Avraamidou & Zembal-Saul, 2002; Hartnell-Young, 2006). Dewey (1938) wrote “What he has learned in the way of knowledge and skill in one situation becomes an instrument of understanding and dealing effectively with situations that follow” (p. 44). The continuous cycle of self-assessment and self-reflection the occurs when ePortfolios are created causes older learners to make sense out of how they learn, explore their understanding, ideas and beliefs, or become more metacognitive (Avraamidou & Zembal-Saul, 2002; Hartnell-Young, 2006; JISC,
EPortfolios helped create conditions for deep, meaningful learning that was owned by the learners; they were found to promote self-assessment and motivate personal involvement in learning (Avraamidou & Zembal-Saul, 2002; Carmean & Christie, 2006; JISC, 2008).

Duke (2010) completed a six-week study that explored the learning experiences of twenty-five grade 9 girls as they used the internet ePortfolio tool, MyPortfolio, to complete a collaborative project. One of Duke’s questions related to how ePortfolios supported a constructivist approach to learning. After examining artifacts, daily logs, interview notes and observations, she found little evidence of deep reflection. Student reflections were brief and surface level, with very little about themselves as learners (Duke, 2010). At the end of the six-week period, she felt that students were not skilled users of the tool, and relied on the teacher, but found that it was a strong communication tool between students, parents and teachers, as well as providing an authentic audience for learning (Duke, 2010).

A similar study explored the relationship between reflection and effect on learning among a sample of forty-five grade eight students in a computer class (Chang, Tseng, & Liang, 2014). The researchers wondered if time and frequency spent reviewing peers’ reflections related to attitude and learning. The study took place over 10 weeks and a total of 20 hours. During the computer course, students completed two computer projects. At the same time, they created learning ePortfolios that involved goal setting, reflection writing, self and peer assessment of the projects. First, the study indicated that students needed to be taught to reflect and recognize their strengths (Chang et al., 2014). The study also found that the more peers reviewed other ePortfolios, their own learning was positively influenced. Students demonstrated a more positive attitude, spent more time on their own projects and began to produce better reflections. Comments made by students included how reading the reflections of their peers helped them
think about their own learning and they tried harder to improve (Chang et al., 2014). The study reinforced the importance of peers commenting on and assessing the work of their classmates, as well as the use of ePortfolios to increase metacognition.

Also at the high school level, Barrett (2007, 2008) completed the Reflect Initiative, in conjunction with TaskStream ePortfolio tool developers. A key component of the two year study was to look for evidence of deep learning and demonstration of assessment for learning within the ePortfolios. From fall 2005 through spring 2007, over twenty five schools, with 3000 students took part in the project. At the conclusion of the study, Barrett found that most reflection was surface level; however it was deeper in schools where there was greater implementation throughout the school or there was a greater focus on technology use within the school prior to the study (Barrett, 2008). Fewer than 50% of the students surveyed said that the ePortfolio helped them to think about their learning. Barrett believed that two years was a short time frame in which to demonstrate deep change within the system but that comments from students over the two years indicated that given time and greater implementation, more evidence of deep learning as a result of reflection would be seen (Barrett, 2008).

JISC (2008) did give two cautions when referring to ePortfolio development at the higher education level. First, they emphasized that the ePortfolio must be part of a commitment to learner-centered learning. Geoff Rebbeck, e-Learning coordinator at Thanet College said, “The ePortfolio is the central and common point for the student learning experience” (as cited by JISC, 2008, p. 11). If the ePortfolio is an “extra”, it will not be used. Additionally, JISC reminds readers that it is pedagogy that comes first; technology is the tool that supports the reflective practice desired and taught by educators. EPortfolios are about people, rather than technology.
**EPortfolios as a tool for reflection and metacognition.** As shared in Chapter one, the mandate of education in British Columbia, and indeed, in much of the world, is to prepare its students to be life-long learners in a knowledge-based society. Formative assessment or assessment for learning practice has been found to enhance learning at a deeper level and also to enable students to gain a stronger knowledge of themselves as learners. Electronic portfolios, specifically learning ePortfolios, assist in the development of life-long learners by facilitating assessment for learning and the development of 21st century skills (Hartnell-Young, 2006). They provide evidence of learning over time, and require ongoing reflection where learners consider their personal strengths and weaknesses, their gaps in knowledge and competencies and determine next steps in learning. Moreover, they celebrate achievements and dialogue with others about their learning (JISC, 2008).

The creation of an ePortfolio requires several processes. Carmean and Christie (2006) suggested that they are conception (determining a central focus), collection (of artifact related to the focus), selection, reflection and connection (to the medium and back to the focus or growth goal). JISC (2008) named the steps as process planning, synthesizing, sharing, discussing, reflecting and giving, receiving and responding to feedback. Barrett (2007) named very similar processes but added corresponding technology that enhanced ePortfolios, as in Table 1.

Table 1

*Comparison of Traditional Portfolio Processes with ePortfolio Processes*

<table>
<thead>
<tr>
<th>Traditional portfolio processes</th>
<th>Adding technology allows enhancement through</th>
</tr>
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<tbody>
<tr>
<td>* Collecting</td>
<td>* Archiving</td>
</tr>
<tr>
<td>* Selecting</td>
<td>* Linking/thinking</td>
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<tr>
<td>* Reflecting</td>
<td>* Storytelling</td>
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<td>* Projecting</td>
<td>* Collaborating</td>
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<td>* Celebrating</td>
<td>* Publishing</td>
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Barrett, 2007, p. 439
Regardless of how the processes of creating an ePortfolio are named, the heart of an ePortfolio is reflection. Barrett (2007) wrote “A critical component of an educational portfolio is the learner’s reflection on the individual pieces of work as well as an overall reflection on the story that the portfolio tells about the learner” (p. 439). Reflection occurs at several points during the development of the ePortfolio. The first reflection point happens when the artifact is saved to an archive and reflected upon while its completion is still fresh (Barrett, 2011). The next point is when it is selected from the archive to be linked in a summative selection process. Barrett (2011) suggested that hyperlinks be used to connect blog-type reflections with documents attached. The reflection at this time is more retrospective. A third reflection occurs when the ePortfolio is reviewed and future goals and learning directions are set (Barrett, 2011). As discussed previously in the chapter, strategies to aid the development of reflection skills need to be taught, but now, within the ePortfolio context. Metacognition can develop when young children are taught reflective language and are provided cognitive experiences that enable a connection between the process and the task (Hebert, 2001). Reflective conversation that occurs between student and teacher during the selection and reflection stages of creating the ePortfolio also influences metacognitive development. The process of receiving constructive feedback encourages the student to sense the importance and begin to do it independently (Hebert, 2001). Further, the repeated interaction done while looking back over artifacts increases the chance that learners will begin to see improvement and identify strengths (Barrett, 2011; Hebert, 2001). When the ePortfolio is celebrated and shared with an audience, either peer or parent, gaining further feedback provides yet another opportunity to reflect. “Portfolios can be a central curricular framework for the development of a child’s metacognitive awareness” (Brown & Brown, 1996, as cited by Hebert, 2001, p. 52). Throughout her research (Barrett, 2007, 2008,
USING EPORTFOLIOS FOR LEARNING AND REFLECTING

2011), emphasized that the learning ePortfolio is superior with respect to developing reflective skill and metacognition. Children benefit from the opportunity to self-construct meaning that comes from open-ended selection experiences (Hebert, 2001).

**Learning engagement and ePortfolios.** There are a number of features of ePortfolios that may lead to increased learner engagement. First, because students are drawn to technology, there is the potential to engage them initially simply because it is on the computer. However, once they are there, other factors must be in place – engagement won’t simply occur because it is on a computer (Hartnell-Young, 2006). The ePortfolio tool that is used should enable both creative and cognitive thinking. Additionally, it should not have too much structure – if it is too rigid, it decreases choice and limits the ability to use the computer to create other media that represents learning (Barrett, 2011; Hartnell-Young, 2006). Part of choice that is appealing to learners is the ability to individualize the ePortfolios. The ability to change colour and personalize the look was something students thought would make the ePortfolio more desirable (Barrett, 2008; JISC, 2008).

Social networking has become a very engaging part of youth society. Whether the educators like it or not, adolescents are definitely engaged in social media outside of school. The Reflect Initiative study took place when social media was in its infancy. Students involved in this study related their ePortfolios to MySpace (the popular platform at the time), calling them their academic MySpace. They related to the academic ePortfolio pages differently than their social pages, but still wanted more individuality and ability to be creative with the TaskStream tool used in the study (Barrett, 2008). Most students also reported that they did not find using the ePortfolio fun (Barrett, 2008). However, the younger students involved with Duke’s (2010) study found using the ePortfolio tool to be fun. Barrett (2011) suggested that ePortfolio design
should encompass the element of social networking that proves so engaging. She modified her earlier table to include these elements, as seen in Table 2.

Table 2

<table>
<thead>
<tr>
<th>Traditional portfolio processes</th>
<th>Social Networking</th>
<th>Adding technology allows enhancement through:</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Collecting</td>
<td>* Connecting (Friending)</td>
<td>* Archiving</td>
</tr>
<tr>
<td>* Selecting</td>
<td>* Sharing (Posting/linking/tagging)</td>
<td>* Linking/thinking</td>
</tr>
<tr>
<td>* Reflecting</td>
<td>* Listening (Reading)</td>
<td>* Storytelling</td>
</tr>
<tr>
<td>* Projecting</td>
<td>* Responding (Commenting)</td>
<td>* Collaborating</td>
</tr>
<tr>
<td>* Celebrating</td>
<td>* Interactivity and collaboration</td>
<td>* Publishing</td>
</tr>
</tbody>
</table>

Barrett, 2011, p. 6

As discussed earlier, Pink (2009) suggested that intrinsic motivation is comprised of three elements: autonomy, mastery and purpose. If these elements are captured in the design of ePortfolios, learners should be more motivated and engaged in creating their ePortfolio (Barrett, 2011). If the ePortfolio offers choice and voice, along with sharing with feedback in real time in an environment where the learners feel good about themselves, the desire for autonomy may be achieved (Barrett, 2011). This is mirrored in most social networking sites that are popular today with adolescents. “Learners find their voice and passions through choice and personalization! A portfolio is a student’s story of his or her own learning” (Barrett, 2011, p. 9). Students are inclined to engage in activities where they can move towards mastery. It is the role of education to deepen and extend passions – the ePortfolio that is a celebration of mastery, as well as a map of the journey may also engage learners in its creation (Barrett, 2011). The ePortfolio has purpose in that students make connections between what they are learning and themselves. As learners can connect with the “big picture,” they become more invested in the outcome. Their identities are represented in the act of maintaining an ongoing personal learning environment (Hartnell-Young, 2006; Barrett, 2011).
Levels of development and ownership. The implementation of ePortfolios within a class or school is a process that takes time and the level of development is incremental (Avraamidou & Zembal-Saul, 2002; Barrett, 2007, 2008, 2011; Hebert, 2001; JISC, 2008). The ownership of the ePortfolio is determined in part by where the system is in its level of development and also by the age of the learners. Questions around ownership asked by teachers are “Is this my portfolio of teaching supported by you? Or Is this your portfolio of learning supported by me?” (Hebert, 2001, p. 43). In reality, most fall somewhere in between. The ratio of ownership changes as child matures and can vary from child to child (Hebert, 2001). The ePortfolios of younger students tend to be more teacher-directed with a gradual movement towards student-directed during adolescence (Barrett, 2011; Hebert, 2001). The Reflect Initiative also investigated the conditions that influenced students to take ownership of their ePortfolios (Barrett, 2007, 2008). The high school students involved in the study enjoyed that they could access their work online, both at school and at home and felt that it was good to show their progress. A large number of students surveyed reported that they planned to continue to use ePortfolios after they graduated. Barrett (2008) found that the few very creative examples of ePortfolios featured individual student passions more than their academic work; however, as the project progressed, student use grew. Barrett (2011) indicated that her next project is to explore the transition of ownership as children increase in age.

Rate (2009) produced graphs, as seen in Figures 1 and 2, that indicate the degree of ePortfolio ownership as children age and how it coincides with shifting ePortfolio purpose over the same time period.

The speed of implementation of ePortfolios within a system is dependent on several factors. Competency with assessment for learning and reflection strategies, along with
knowledge of portfolio learning among participating teachers influences the rate that ePortfolios are implemented (Barrett, 2007, 2008, 2011). Additionally, the technical competency and ability to use the ePortfolio tool by both teachers and students is a factor (Barrett, 2011).

Figure 1. Transition of ePortfolio ownership from teacher to student (Rate, 2009).

Figure 2. Transition of ePortfolio purpose over time (Rate, 2009).

Schools that had been purposefully using technology in instruction for five years or more prior to the study were found to have a greater level of ePortfolio implementation at its conclusion (Barrett, 2008). Barrett (2008) found that students who said the ePortfolios were beneficial to
their learning and helped them see progress over time also reported that they were easy to use because of teacher assistance. While investigating obstacles to implementing ePortfolios in the high school during the Reflect Initiative, the study indicated that after two years, the schools with the most successful ePortfolio implementation had a school-wide community of practice, with a supportive administration team and often a teacher-leader (Barrett, 2008). Schools with only one or two implementing teachers or application in limited curricular areas tended to have lower implementation (Barrett, 2007, 2008). Teachers involved in the Reflect Initiative shared that lack of time, competing priorities and technical issues were other obstacles that impacted implementation (Barrett, 2008).

Barrett (2011) categorized implementation into three levels and indicated that schools or districts would move at different rates towards a Level 3 implementation based upon the factors discussed previously in this section. Her categorizations, in Table 3, refer specifically to Google Apps Education Edition as the ePortfolio tool.

Barrett advocated that the majority of the time be spent developing the learning ePortfolio. A showcase ePortfolio, along with an opportunity to present the learning to an audience (parents, peers and teachers), is prepared at the end of the learning period from the learning ePortfolio to summarize the learning journey while featuring the products of learning. This enables both process and product purposes to be served, while maintaining the emphasis on the learning ePortfolio, where there is the greatest impact on learning (Barrett, 2011).

Barrett (2008) summarized her beliefs about ePortfolios in the following statement:

The use of technology can motivate students to develop portfolios, especially if we make the process engaging and rewarding. We must give students opportunities for creativity and personal expression in their
ePortfolios. If we can facilitate a higher level of engagement while furthering the goals of learning in formative electronic learning portfolios, then we may realize the real promise of using technology to both improve and showcase student achievement. (p. 35)

Table 3

Levels of ePortfolio Implementation using Google Apps Education Edition ePortfolio Tool

| Level 1: Portfolio as Storage | *The focus is on collection of artifacts into a designated digital archive.  
*Artifacts are collected regularly – weekly or monthly  
*Often teacher chooses one curricular area upon which to focus  
*Teacher’s role is to guide students in the selection of artifacts and how to save them |
| Level 2: Portfolio as Workspace/Process | * Level one continues. The additional focus is on reflecting on the learning that is represented by archived artifacts.  
*A learning journal is kept – may be used to document learning that doesn’t have an artifact or set short term goals for learning.  
*Learning from a range of curriculum areas is represented and reflected upon.  
*Teacher’s role is to provide formative feedback so learner can identify next steps for learning. Teacher may also provide a reflection structure. |
| Level 3: Portfolio as Showcase/Product | * Level one and level two continue.  
*Focus is on product and the documentation of achievement. Occurs at a natural ending – semester or year.  
*Materials gathered and organized to provide a retrospective of learning achievements. Reflection includes reflection on achievement and sets longer term goals for learning.  
*Teacher’s role is to continue to provide formative feedback and also to provide validation of learner’s self-assessments. |

(Barrett, 2011)

Conclusion

The intent of this research project is to explore the experiences of a group of middle school students as they create learning ePortfolios. Does reflection upon their learning give them
insight into their learning strengths and challenges? Does the use of technology and the tools associated with it connect with other aspects of their lives and increase engagement with learning in school? The connection of the research within the literature review has provided a deeper understanding of what themes to explore within the data analysis.
Chapter Three: Procedures and Methods

Description of the Research Design

The overall purpose of this study was to explore the experiences of a class of grade 6 and 7 middle school students as they developed electronic portfolios (ePortfolios) over the course of a school year. My research explored possible connections between the creation of ePortfolios and the development of reflection skills, along with knowledge of themselves as learners. I hoped to observe that with on-going reflection, students would be better able to articulate their learning and identify behaviours that supported their learning. I also wondered if the use of technology could be a hook to engage them in the reflection process.

To address these questions, qualitative research was done within an action research framework. Action research provides the teacher with the opportunity to improve the lives of children and learn about the craft of teaching through the examination of his or her practice (Mills, 2014). It provides an opportunity for teaching and research to come together where an inquiry lens enters into the practice of teaching. A component of formative assessment is activating students as owners of their learning (Wiliam, 2011). As a teacher, I had noticed that this was something students in middle school struggled to do in any detail. I wanted to explore whether teaching students to reflect within a framework, on a regular basis, using technology, would help them develop their ability to reflect on their learning in a meaningful way.

Qualitative research “uses narrative, descriptive approaches to data collection to understand the way things are and what the research means from the perspectives of the participants in the study” (Mills, 2014, p. 6). There is an emphasis on the study of phenomena from the perspective of insiders (Lapan, Quartaroli, & Riemer, 2011). It enables research within a real-life context where there can be a short distance between the teacher researcher and the students (Lapan et al., 2011; Mills, 2014). As the teacher of the participants in my research, it
was important to me that my data collection techniques were not separate from my teaching. My primary data sources were the reflections completed by the students as a part of their learning. Additionally, I maintained a researcher’s journal where I reflected on the overall process of implementing ePortfolios, as well as my thoughts and perceptions throughout the year. Qualitative research “examines social settings from insiders’ perspectives and generates descriptions and analyses of contexts” (Lapan et al., 2011, p. 16). Both my students and I were insiders as we examined our own learning over the school year.

**Description of the Sample**

The current study took place at Phoenix Middle School, in Campbell River, on Vancouver Island. At the time of this study, it was a dual track school of approximately 650 students. Approximately 30% of the students were of First Nations ancestry. In the English stream of the school, the students were from families with very low to middle level socioeconomic status. Up to 50% of the students in the English stream classes were First Nations. I shared the responsibility of teaching two classes of grade 6 and 7 students with a partner teacher. Our school looped its grade 6/7 classes, so we had two years with our students and the culture of respect and acceptance in our classes was very strong.

All 26 students in the class that I primarily taught constructed ePortfolios throughout the school year. Some of the grade 6 students had some experience with ePortfolios the previous year, as the district pilot had been in its first year. Most students, including all the grade 7 members of the class had no previous experience with ePortfolios. There were 9 students whose parents gave consent for their child’s involvement in the study. Of these, 4 were in grade 6 and 5 were in grade 7. Additionally, 4 were female and 5 were male. One student/parent gave
permission to use the ePortfolio but not permission to quote directly what was written. A breakdown of the participants is seen in Table 4.

Table 4

Gender and Grade Level of Participants

<table>
<thead>
<tr>
<th>Grade</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 6</td>
<td>Aaron</td>
<td>Hannah</td>
</tr>
<tr>
<td></td>
<td>Ethan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eric</td>
<td></td>
</tr>
<tr>
<td>Grade 7</td>
<td>Joseph</td>
<td>Anna</td>
</tr>
<tr>
<td></td>
<td>Daniel</td>
<td>Maya</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Christine</td>
</tr>
</tbody>
</table>

*Student names are pseudonyms

Research Instruments Used

The Scholantis ePortfolio tool, powered by Sharepoint, was used to create the ePortfolios used by my students. It was selected for use because it was available for all middle and elementary school teachers in Campbell River who wanted to be involved in the district pilot program. The school district’s purpose was to adopt the ePortfolio as a method of communicating student learning to parents. As a member of the pilot program, I received training and support in the technical aspects of the tool, as well as an iPad to help facilitate the process of uploading artifacts. I created an initial ePortfolio for all the students in my class and updated existing ones to the current grade. Additionally, I created digital shortcuts to each students’ district hard drive and placed an “ePortfolio” folder in each hard drive in order to simplify the uploading process for the students. The ePortfolios were password protected and only able to be viewed by me, as the current teacher, the district support person and the student/family.
The ePortfolios themselves were the main instruments used to evaluate students’ experiences using the tool, their knowledge of themselves as learners and their reflection skill. Each student completed an initial reflection titled “The Learner in Me” that established perceived strengths and challenges, initial reflection skill, as well as personal interests (Appendix A). The reflection stems were: 1) I think my strengths as a learner are... 2) If you asked my parents, they would say my strengths are... 3) I think my challenges as a learner are... 4) Something that I do that helps me when I’m stuck is... 5) If you really want my undivided attention, you should mention... 6) Others things I love to learn or do are...

Every Friday, students reflected on their learning during the week. Sometimes, the reflection was specific and sometimes it was more general; however each time it centered on three questions, called Ms. Ritchie’s Big Three by the students. These questions mirrored the questions Hattie and Timperley (2007) asserted must be answered in effective feedback. I modified the questions slightly to reflect language used in my classroom. Where Hattie and Timperley ask, “Where I am going?,” my students answered, “What am I supposed to be learning?” Hattie and Timperley’s second question asks, “How am I going?” My students answered the question, “How am I doing at it?” The final question, modified from “Where to next?” was “What are my next steps?”

In the middle of the school year and again at the end, students completed an overall reflection, called “Reflection on Learning” that referred back to “The Learner in Me” artifact (Appendix B). They selected several of the Friday reflections to the end of term/year post as evidence of their developing reflection and learning. The reflection stems were: 1) Several things that I have done well this term are... 2) One thing I need to work harder at is... 3) Something I am proud about this term is... 4) In 2 or 3 sentences, reflect on how your strengths
and challenges as learner have grown or changed when compared with The Learner in Me entry.

5) My learning goal for next term is... 6) Throughout the term (year) you have used an ePortfolio to showcase and reflect on your learning. In several sentences, share your experiences and/or feelings about using the ePortfolio as a tool for learning. 7) Has using an ePortfolio helped you reflect upon or develop characteristics of a learner? Please explain in 1 or 2 sentences.

Each artifact that was uploaded to the eportfolio was selected to demonstrate some aspect of student learning. Some artifacts were teacher-selected, while others were chosen by students. Each artifact had criteria in order to be complete, including a reflection about the artifact. Students could do their own reflection or choose several of the reflection stems that were on a poster in the classroom and the computer labs. Figures 3 and 4 show the criteria for an ePortfolio artifact and reflection stems.

![Figure 3. ePortfolio artifact criteria.](image)

As a secondary instrument, I kept a researcher’s journal throughout the school year. In the journal, I wrote general observations about how successful different learning activities were and how to adapt them the next time. I kept track of the process and frustrations involved as we learned to use the ePortfolios. I recorded my thoughts on how reflections were developing, as
well as pondering how to help deepen student reflection. I wrote questions about things I was
wondering at the time. Overall, it is a combination of fact and perception; it was used to add
another perspective to my research.

\[Figure 4. Poster of possible reflection stems.\]

**Procedures Followed**

After approval from the Vancouver Island University research ethics board and School
District #72 was granted, this study was conducted during the 2014 – 2015 school year. In
October, I told the class that we were going to be constructing individual ePortfolios that year in
order to celebrate and share learning, build reflection skills and become more aware of learning
strengths and challenges. I announced the study to the class and explained its purpose to them. I
notified families in the monthly class newsletter that information would be sent home regarding
the study the following week. The third week of October, I distributed envelopes containing a
letter explaining the purpose of the study and an informed consent form. A letter detailing the
study, with an assent form was also included for students to sign, if parents consented to their
child’s participation (Appendices D & E). A second recruitment was completed in May 2015, at
the school wide Celebration of Learning. Envelopes were given to parents at the event or sent
home with students whose families were not at the event. Informed consent/assent forms were
returned to the secretary in the main office of the school. She stored the forms in a locked
drawer until the end of the school year in June 2015. Students who consented to be a part of the
study were not known to me until the end of the school year.

The research project required me to hold both teacher and researcher roles. All the
students in my class completed the activities and lessons involved in the study as part of their
regular program. The first actions taken involved technical learning. Students needed to learn
how to access ePortfolios from my teacher website using their school user names and passwords.
They also wrote the introductory paragraph about themselves directly onto the ePortfolio.
Students also uploaded their pictures to the ePortfolios using an iPad. A sample of an ePortfolio
homepage can be seen in Figure 5.

We then discussed traits that successful learners possessed and compared them to the
locally developed rubric of successful learning behaviours (Appendix C). Students then
completed the “Learner in Me” document that had been loaded into each student’s hard drive
folder. After each student had completed the reflection document, a second computer lab time
was needed to teach how to save the document as a pdf file, how to upload the document and the protocol for each ePortfolio artifact.

Throughout the year, in my teacher role, I asked students to reflect during and after lessons with respect to current understanding of a concept. Some reflecting was informal and in the moment, while some was written down, in the form of tickets out the door. I modelled reflecting to students when I adapted lessons or re-taught concepts that needed more attention. I shared the thinking that led to certain decisions and could also share how I reflected as I completed the final required course for my Master’s degree.

The goal was that students would complete a written reflection in the computer lab every Friday afternoon. The reflection varied from thoughts on learning during the week in general, to subject-specific reflections with a learning behaviour focus. Initially, the reflection topic was structured; as the year progressed, students were permitted to set their own focus. The reflection centered on Hattie and Timperley’s (2007) three questions, that the students called Ms. Ritchie’s Big Three.

Throughout the year, students also reflected on a variety of work samples with respect to criteria that were either established or co-created. The intention was to upload two artifacts per month. Each artifact had a title, an uploaded component and a reflection, using the three questions or a variety of the reflection stems provided. Some of the artifacts were teacher-selected, and all students used them; other artifacts were compiled by students because they believed they were representative of their learning. An artifact could be a photograph, a video, a drawing or a document.
In March and again in June, students completed the “Reflection on Learning” summary sheet and uploaded it, along with two or three of the weekly reflections that supported what they wrote in the summary.

In my researcher role, I maintained a journal for the duration of the research. Typical entries included ongoing observations, reflections and my interpretations of the process. I documented technical hurdles that needed to be overcome by me and by the students, as well a record of what was going on for the learners at various points in the process. I also made general observations about ability of students to articulate their strengths, challenges and next steps, as well as my ideas for how to move learning forward.

At the end of June I retrieved the consent forms from the school secretary and in the beginning of July 2015, I “screen-captured” each page of the nine ePortfolios I received consent to study. It was necessary to have copies because I would lose access to the ePortfolios when students moved to a new teacher. The digital copies were stored on my password-protected computer. While each participant was known by me, each was assigned a pseudonym to ensure anonymity in the research.

**Discussion of Validity**

To increase the validity or trustworthiness of qualitative research, Guba (1981) suggested the researcher establish credibility, transferability, dependability and confirmability within the research method (as cited in Mills, 2014). Credibility in this research was created by completing the study over nine months during one school year. Throughout the year, the reflection prompts and the focus on answering the “Big Three” reflection questions remained consistent, which enabled the observation of developing ability throughout the year, as well as comparison from student to student. Further to this, by collecting data from the student ePortfolio artifacts and
reflections, in conjunction with the reflections in the researcher’s journal allowed for triangulation and cross-checking of data.

Transferability refers to “the researcher’s belief that everything is context bound” (Mills, 2014, p. 117). My research took place within one class, where I was the teacher. My knowledge of the students within the classroom and years of middle school experience allowed thorough understanding of the data produced. The use of direct quotes from student ePortfolios, and from my researcher’s journal provided detailed descriptions of the data and the context within which the research was conducted. I attempted to include detail that would enable others to make comparisons to other schools and other contexts.

To increase validity, through dependability, a critical friend read the ePortfolio data after it was coded, as well as my researcher’s journal. Observations and trends that were very similar to mine were noted by the critical friend. Additionally, without knowing the identities of the research participants, a fairly accurate representation, based upon my knowledge of each student, of each student was offered.

Data Analysis

The ePortfolio reflections of the nine student participants were the focal point of my data set. Students reflected on specific work samples, in addition to reflecting specifically on their learner traits and how they believed they were doing. My researcher’s journal was used to add context and insight to the student reflections.

Prior to beginning the coding process, I read each ePortfolio several times to develop a general idea of student experiences, any developing reflection skill or the ability to articulate learning, as well as any other emergent themes.
The first round of analysis involved reading each ePortfolio individually. I wrote first observations on colour-coded index cards using the themes of experience, developing reflection and knowledge of self as learner. I noted enjoyment or engagement, samples of reflection at several points in the year and my perception of their self-knowledge. These cards helped focus the deeper analysis that followed.

I first analyzed the questions and stems that were employed during the year to determine which aspect of my research questions they addressed. As I coded student responses, I entered them directly into Table 5.

Table 5

_How Reflection Stems and Questions Were Used to Code Student Responses_

<table>
<thead>
<tr>
<th>Theme: Knowledge of Self as Learner</th>
<th>Initial</th>
<th>Mid-year</th>
<th>End year</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think that my strengths as a learner are…</td>
<td>• In 2 or 3 sentences, reflect on how your strengths and challenges as a learner have grown or changed when compared with <em>The Learner in Me</em> entry.</td>
<td>• In 2 or 3 sentences, reflect on how your strengths and challenges as a learner have grown or changed when compared with <em>The Learner in Me</em> entry.</td>
<td></td>
</tr>
<tr>
<td>If you asked my parents, they would say my strengths are…</td>
<td>• Several things that I have done well this term are:</td>
<td>• Several things that I have done well this term are:</td>
<td></td>
</tr>
<tr>
<td>I think that my challenges as a learner are…</td>
<td>• One thing that I need to work harder at is:</td>
<td>• One thing that I need to work harder at is:</td>
<td></td>
</tr>
<tr>
<td>Something that I do that helps me when I’m stuck is…</td>
<td>• Something I am proud about this term is</td>
<td>• Something I am proud about this term is</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• How I am doing at it?</td>
<td>• How I am doing at it?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• What are my next steps?</td>
<td>• What are my next steps?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theme: Evidence of Strengthening Reflection</th>
<th>Initial</th>
<th>Mid-Year</th>
<th>End Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>What am I supposed to be learning</td>
<td>• What am I supposed to be learning</td>
<td>• What am I supposed to be learning</td>
<td></td>
</tr>
<tr>
<td>How am I doing at it?</td>
<td>• How am I doing at it?</td>
<td>• How am I doing at it?</td>
<td></td>
</tr>
<tr>
<td>What are my next steps?</td>
<td>• What are my next steps?</td>
<td>• What are my next steps?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• In 2 or 3 sentences, reflect</td>
<td>• In 2 or 3 sentences, reflect</td>
<td></td>
</tr>
</tbody>
</table>
on how your strengths and challenges as a learner have grown or changed when compared with The Learner in Me entry.

• Several things that I have done well this term are:
  • One thing that I need to work harder at is:
  • Something I am proud about this term is
  • My learning goal for next term is

Mid-Year

<table>
<thead>
<tr>
<th>Theme: Experiences with ePortfolios</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mid-Year</strong></td>
</tr>
<tr>
<td>• In several sentences, share your experiences and/or feelings about using the ePortfolio as a tool for learning.</td>
</tr>
<tr>
<td>• Has using an ePortfolio helped you reflect upon or develop characteristics of a learner? Please explain in one or two sentences.</td>
</tr>
</tbody>
</table>

End Year

<table>
<thead>
<tr>
<th><strong>End Year</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• In several sentences, share your experiences and/or feelings about using the ePortfolio as a tool for learning.</td>
</tr>
<tr>
<td>• Has using an ePortfolio helped you reflect upon or develop characteristics of a learner? Please explain in one or two sentences.</td>
</tr>
</tbody>
</table>

At the outset, several questions or stems were designed to focus on specific aspects of my research, while others overlapped into several themes. For example, a student who wrote in October that a strength was working hard, while in March the same student wrote that a strength of learning factors in math connected to how he looked for patterns in multiplication, in response to the same reflection prompt. The response indicated a strengthening ability to reflect, as well as knowledge of himself as a learner in math. Ability to reflect is linked to the ability to articulate one’s learning, therefore, one reflection or prompt may provide evidence for both themes.

After the coding charts were built, I went through each ePortfolio, and transcribed student responses directly into each category. The responses were identified by pseudonym only, as indicated in Table 4. Responses from October to December were included in the Initial category,
responses from January to March (up to the “Reflecting on Learning” document) were Mid-Year, while April to June was included in the Year End column.

Once student responses were organized, I coded my researcher’s journal using the same structure, ensuring that I was identified so my thoughts and opinions were distinguishable from the students. I began to look for patterns in the data. I used colour-coding, index cards and a notebook to identify the following themes and patterns:

- Development of the three reflection questions over time
- Increasing ability to articulate own learning
- Differences in ability to reflect or articulate learning by subject area
- Differences in age/grade level/gender
- Experiences related to technology – learning with technology or learning to use the technology

Finally, I looked at each ePortfolio as a whole. Did students attempt to personalize it by changing their photo? I noted the number of artifacts uploaded, as well as how many independent selections versus required selections were included. I wrote whether the learning story told by the ePortfolio aligned with what I knew about each student. This information will be shared in the following chapter.
Chapter Four: Findings and Results

Introduction

When I began my journey as a Masters’ student, I had recently returned to a “traditional classroom” setting after teaching middle school physical education for a number of years. While it was exciting to be working with grade 6/7 students, which was my teaching desire realized, it was daunting to re-vision myself as a classroom teacher again, especially with respect to assessment. I soon realized, that despite newer language surrounding assessment practices, virtually all assessment done in PE was assessment for and as learning. Setting learning goals around lifestyle, fitness or sports with students, and constructive feedback as they progressed toward them were standard. Students could usually talk about how they were doing with respect to their goals or objectives. Now in the classroom with my grade 6/7 students, learning intentions were made clear, criteria for success was either given or co-created and feedback was given. Students had regular opportunities to self-assess with respect to learning intentions and criteria using several simple systems, like thumbs up, down or sideways, or red, yellow and green cups. However, despite this, I noticed at student-led conferences and year end interviews the previous year, students still had a rough sense of how they were doing but they couldn’t consistently articulate their learning beyond “good at” or “bad at.” They wanted to do well, but were not able to identify the “what.”
In July 2014, while attending courses at Vancouver Island University, while continuing to think and talk about how to help students become more able to own their learning, I discovered that the second year of the Campbell River district’s ePortfolio pilot was just beginning. I immediately asked to be a part of the pilot that was designed to communicate student learning to parents because I wanted to determine if consistent reflection on learning would help the young adolescents in my class become more reflective and more knowledgeable about themselves as learners.

**Starting Out**

September was a month of building classroom culture and initial assessments. Our school loops its grade 6/7 classes, so my grade 7 students were returning for a second year and they helped tremendously in communicating a supportive, respectful classroom community to the new grade 6 students. I told the students early in September that we were going to be creating ePortfolios that year. The in-service for me, to learn how to create and use the **Scholantis** ePortfolio tool, was at the end of September. Once the ePortfolios were built, everyone’s first activities were the same. Students learned to log in, wrote an introductory paragraph for themselves and uploaded a picture of themselves for the home page.

**The Experience of Using ePortfolios as a Tool for Learning**

I wanted to explore the experience of my students as they used ePortfolios to develop their skill at reflection and constructed their understanding of themselves as learners. Positive
emotions that surround learning experiences can lead to engagement and I was hopeful that the experience of using technology would engage students and lead them into deeper reflection. At the outset, the students and I were both excited by the potential of ePortfolios. The idea of being able to look back over previous work was intriguing, particularly when several students were able to show the class the grade 5 versions of their ePortfolios. As we progressed, it became clear that there were two sets of experiences involved. First, there was the technical experience of learning to use the tool and second, was the experience that came as a result of learning with the ePortfolio. When “learning about” was the focus, the “learning with” became overshadowed; therefore I will discuss both aspects.

The technical experience: Learning about ePortfolios. While my first research question asked, “What is the learning experience of my students when using ePortfolios as a tool for learning?” I discovered that my experience as a teacher was also important and relevant. If the experience was not positive for the teacher, and the benefit to learning did not exceed the effort in using the tool, teachers would not attempt to use it. Early on in the process, I noted that the learning curve was steep. The initial preparation before students could begin to use them involved building the class ePortfolio set, creating a link to student hard drives and adding an ePortfolio folder into each hard drive. Before students could upload, documents had to be scanned as either pdf or jpeg files on the photocopier, then transferred to each student’s individual ePortfolio folder. I learned that if I renamed each file, students could find it much
faster, as the photocopier simply numbered each document. I am technically quite skilled using a computer and other ICT, so this process was not difficult, but instead time consuming.

The process of learning to use the ePortfolio tool was quite challenging for most of my students. In my experience, students are able to navigate a web environment, like YouTube, but many students are not skilled at word processing, saving into or retrieving objects from specific folders. When word processing, they needed to learn how to fix an error using the mouse to reset the cursor, rather than backspacing and retyping, as well as how to format using the toolbars.

This made the process of creating initial reflections very long. It took many demonstrations and written step-by-step instructions to show students how to find objects in specific folders, save them as pdf documents then upload them. In November, I noted in my journal that “This process is time consuming and onerous so far.”

Given current adolescent focus on social media tools, it was not surprising to me that most were very familiar with picture uploads. Most students changed the individual homepage photo more than once over the course of the year as they attempted to personalize their ePortfolios. A challenge was the time it took to complete a class set of photo uploads. Using an iPad or a personal device, only four or five photos could be completed in a fifty minute time slot because of the internet speed and the necessity of logging in and out individual accounts. Many quickly learned how to download a personal Facebook or Instagram photo and transfer it to their ePortfolios.
Initially, I had hoped that parents would view and comment on student artifacts. I hoped that reflections of others would add another perspective on how they viewed their evolution as a learner. Because the ePortfolios were password-protected, other students could not view or comment on their peers’ work. I hoped that parents would be able to be that additional voice.

We planned as a class to use the first student-led conference time to teach parents to access the ePortfolios; however, a server crash on that day resulted in that opportunity falling away. Some students showed their parents from home, but many parents didn’t see the ePortfolios at all.

A server upgrade in December limited computer access for that month.

In February, I had a lengthy reflection in my researcher’s journal about the technical aspect of ePortfolios:

> Working on ePortfolios is still challenging because the process, as students learn the ins and outs, is still very teacher-driven by necessity. Last Monday and Wednesday we had 2 lab blocks, 2 iPads, a Surface tablet, an EA and me to load one student-selected artifact each and finish any unfinished reflections or posts. Still several are incomplete. Because the process of getting all uploads done is still so tricky and glitchy, it is hard to do any group conversation about reflection while in the lab.”

At this point in the year, while in the computer lab, much of the learning was still focused on the ePortfolio tool, rather than using the ePortfolio as part of the learning. There were a growing number of students that were becoming adept at using the tool. This is evident in
student responses to the question, “In several sentences, share your experiences and/or feelings about using the ePortfolio as a tool for learning.” There were several students who skipped this question on their reflection.

_Maya:_ I like it because it’s easier to show my mom or dad the work I have been doing. I don’t like using it because most of the time doesn’t work and I get frustrated.

_Jeff:_ I feel like it is a lot easier than it was in January. I find it really easy to go back to the stuff I already did.

_Hannah:_ I think using the ePortfolio is a good way of showing my work and I am kind of getting the hang of uploading my stuff and using it.

_Daniel:_ I think the ePortfolios would be cool if they worked.

_Christine:_ I like using the ePortfolio when it works and I also like how I can show my mom what I am doing in class. It’s also useful because you can remember what you have done at the start of the year.

As the year progressed, _Scholantis_ made changes to the ePortfolio tool that made uploads more straightforward for students. Additionally, some students were becoming more able to use it on their own. In May, I wrote, “I have been working to build their ability to use the technology more efficiently and independently. As proficiency grows, there is a larger ‘helper’ pool. I am not spread so thin and things take less time.” In June, I concluded with the thought that “use was still not second nature to many— they are not generally technology problem solvers.”
There are several students who are helpers but many need someone there at every step.” When students answered the question about experiences and feelings using an ePortfolio at the end of the year, only two out of nine students shared an overall negative experience because of technical aspects. Overall, accommodating technical difficulties and learning to use the ePortfolio tool was a huge part of the experience for students.

The learning experience: Engaging with ePortfolios as a tool for learning. By the end of the study in June, most students said that using ePortfolios was a positive experience during the year. However, there were a variety of responses to the question, “Has using an ePortfolio helped you reflect upon or develop characteristics of a learner?” Jeff, Joseph and Daniel felt that it helped with organization and storage. The three all expressed that it would help them remember what they did. Maya spoke of feeling proud of the improvement she could see throughout the year. Anna also believed ePortfolios were a good way to show work she was proud of but she wasn’t sure if it helped develop any learner characteristics.

Jeff: An ePortfolio has helped go back to the stuff I already did. It (h)as helped me organized my stuff around and find it easier.

Maya: I liked using ePortfolios because it was easier to show my parents the work I’ve been doing threw out the months. When I look back to October or February to know(should read “now”) it makes me feel proud from how much I’ve improved.
Hannah and Christine both expressed that it was “cool” to do but that it didn’t really help them develop learner characteristics, other than “just reflecting.” Typing those words made me smile, because “just reflecting” was a skill I was hoping to build.

**Christine:** *It was easy but sometimes very frustrating. It didn’t really help me but I think it is a cool thing to use. You just type out a reflection and it just stays there forever.*

Eric was the only student who wrote emphatically against ePortfolios as a tool for learning. However, those objections were largely based on the many technical frustrations throughout the year. According to the quote below, he believed that in time, they could still help develop learner skills.

**Eric:** *I think ePortfolios are a pain they take too long to upload and my parents don’t even look at them if they made it faster then it would be better. It is a good a reflecting but it’s too long to upload. If were using it more I would begin to see this developing characteristics.*

At the outset, I was curious to know if ePortfolios would engage students in reflective learning. I hoped that a positive experience, using an adolescent learning “tool of choice”, would be a “way in” to reflection. I appreciated my students’ willingness to persevere through technical frustrations and the “learning how” process. In fact, if we went too long between uploads, students asked when we were getting back to them. While, “it was fun” or “cool” or “I liked it” weren’t complex responses, they demonstrate that the experience was mostly positive
and the fact that most students expressed some learning benefit led me to conclude that the door to self-knowledge was opened a bit further. It was clear to me, that they were willing to engage with this technology to enhance their learning, despite the many frustrations over the year.

**Initial Skill at Reflection**

The first artifact that students created to upload to their ePortfolios was called “The Learner in Me” (Appendix A). Students wrote about their strengths and challenges as learners, as well as their interests. Before writing, we spoke as a class about what characteristics of a successful learner were and created a list. Once in the computer lab, students almost exclusively listed subject-specific strengths and challenges only. I made the decision that I would go over learning characteristics again, using components of the district rubric (Table 6), and have students re-do the first sections on the “Learner in Me” form. I noted in my researcher’s journal that on the “first attempt, very few identified characteristics that helped them be learners.” This reinforced the struggle that I had noticed for students in identifying their own learning strengths and challenges.
### Table 6

**Successful Learning Behaviours, with examples, from School District 72 rubric**

<table>
<thead>
<tr>
<th>Engagement</th>
<th>Active thinking and participation; focused; demonstrating curiosity; flexible and creative thinking; open to continuous learning.</th>
<th>Ready to Learn</th>
<th>Respects others’ right to learn; attends class on time; meets deadlines; brings supplies to class.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perseverance</td>
<td>Does not give up; keeps trying even when challenged</td>
<td>Striving for Accuracy</td>
<td>Takes care to stay organized and strives to do best work; refers to criteria and examples to complete and improve work.</td>
</tr>
<tr>
<td>Team Work</td>
<td>Participates cooperatively; contributes to the thinking and work of the group, works well with others and respectfully considers their ideas.</td>
<td>Reflecting on Learning</td>
<td>Identifies what he/she knows, understands and can do based on criteria and examples; sets goals and identifies next steps.</td>
</tr>
<tr>
<td>Health</td>
<td>Makes healthy eating choices; gets a full night’s sleep; exercises daily; seeks positive relationships; respectfully advocates for self and others.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The second attempt was much more successful and was uploaded to the ePortfolio. As I read over the responses from the consenting students, I first observed how diverse the interests were among the nine; there weren’t any that were the same. When asked how I could get their undivided attention, students said I should mention:

*Ocean monsters and gaming, or dirt biking, or hockey and tech decks, or skiing and heli-skiing, or judo and rugby, or horses, or new subjects I have never done before.*
When asked about other things they loved to learn or do, there were more responses in common. Six students included combinations of PE, science, and math. Other interests in the group were explorations (woodwork, art, foods, etc.), language arts, history and dance. This information reminded me that while I looked for reflection skills that developed in all students, I also needed to look for change in each individual, as each learner experience is unique for the individual.

When asked to complete the stem, “I think my strengths as a learner are” the students listed what they believed were their strengths. I observed that the girls tended to write in sentences, while the boys purely listed. Most were able to identify learning characteristics, while some continued to list subjects.

**Aaron:** I like to do math and science and social studies. (If you asked my parents, they would say my strengths are) smart, clever, creative.

**Anna:** I always have my supplies. I get along with all people in my group. I don’t give up when I get stuck on a question.

**Jeff:** listening, helping others, teamwork, and perseverance. My subject strengths are gym, math, socials.

**Hannah:** Listening, consecrating (concentrating), and I do not give up. I also do not forget my stuff and I do not go to my locker all the time.

**Maya:** I always have the supplies I need for class. I get along with groups I get put in. I don’t give up when it comes to a question I get stuck on.
Eric: curiosity and energy.

Daniel: I am very positive, and I don’t give up easily and I am very responsible.

Christine: I am positive at learning, when the teacher puts us in groups I work well and stay on task. I engage in what I am doing and don’t give up easily.

The second reflective stem was “I think my challenges as a learner are...” While the wording changed from student to student, they all wrote that staying focused or concentrating for extended amounts of time was their main challenge. Anna wrote “staying focused for a long period of time.” Maya added “to not fidget with things and have side conversations.” Jeff said his challenge was simply “science.” Eric believed that his challenges were “focusing and listening.” I noted in my researcher’s journal that student reflections were “overall more focused on learner traits but very simple. I.e. Not giving up or focusing or listening. I hope reflections become more detailed.”

The next artifact for all students in my class was titled “October Slice of Life.” Students selected a decade from the last century, selected four significant people or events from that decade, researched several facts for each and wrote what they found into a paragraph. It was presented on a cardboard “pizza” with pictures on one side and writing on the other. For the post, students were first asked to summarize what they did or learned. They then completed the stems, “I think my strengths in this unit were…” and “My next step is...” At the time, I observed that reflections contained accurate summaries but were short. When describing their
learning they tended to be focused on skills, such as good at finding information or writing in paragraphs. Seven students completed the reflection while two just uploaded a picture and rubric. They all were able to write what they did in this project and each student wrote a single sentence to complete the stems. In general, they believed their strengths were finding important facts and challenges centered on writing stronger paragraphs.

**Daniel:** A strength was writing complete sentences even when I had frustrations. My next step is to get correct information.

**Christine:** A strength was finding information from sources. My next step is to pick important information and narrow my paragraphs down.

**Aaron:** A strength is finding information from google. My next step is putting information in order.

**Hannah:** A strength is finding important information. My next step is to work on sentences.

The third artifact posted to ePortfolio, in November, was a math unit assessment and reflection. This artifact, which consisted of the unit test, rubric and reflection was also posted by all members of the class. As in October, students summarized the learning in the unit, with assistance from me and completed strength and next steps stems. The responses to the stems matched what I believed to be individual strengths and challenges, but again, were very simple.
Maya: A strength for me in this unit was using the red and yellow sided tiles. My next step is to get better at subtracting integers.

Jeff: I am really good at addition and subtraction. My next step is to learn how to do multiplication and division.

Eric: My goal in math are to get better at long multiplication.

A district server upgrade meant that our school computers were unavailable for the last two weeks of December. We were unable to load a fourth artifact until January. From October to December, the class completed learning reflections on several Friday afternoons. Initially, I had planned to do a reflection every Friday, but that didn’t happen at the beginning of the project consistently and they weren’t always on the computer.

Developing and Strengthening Reflection

Over the holiday and into the New Year, I thought about the ePortfolio project and how
to help students deepen their reflective thinking. In early January, I had the opportunity to participate in a “Critical Friends Assessment Conversation” with members of the Campbell River and Courtenay School districts. A Courtenay teacher shared a structure called the Taxonomy of Reflection (Figure 6), developed by Peter Pappas (2010), that mirrored Bloom’s taxonomy and built more structure into the reflection process. At the time, I wrote, “I like that it breaks the reflection down into steps but requires more thinking than ‘I did well.’” The class used the Taxonomy of Reflection structure first to think about two specific learning behaviours: engagement and ready to learn. The responses took much longer than I had anticipated; most were not done after working for 50 minutes. At the time, many had a hard time differentiating between the two behaviours. As I read through the responses, it was evident that they had difficulty articulating why demonstrating the learner traits were important. I cued students with “Do you notice if you learn better if you are on one side of the rubric or another?” They did work very hard and were thoughtful as they completed their reflections.

Aaron: I have demonstrated engagement by being curious in Science. I have demonstrated being ready to learn by ‘that I bring my supplies to a class to learn and I also don’t rarely get reminded to do stuff.’ The more engaged I am, the more I learn.

Next: get to consistently by being curious in other subjects.

Anna: I have demonstrated engagement by asking creative and curious questions about what we are learning, also I participate in discussions. Participating is also important
because then you can really think about what is happening and get involved. I think I use these well most of the time when I’m learning. Next steps: Try to show up on time and ask more questions about what we are learning.

Eric: I have demonstrated engagement by being ready to learn and bring my binder and a pencil. If I did not bring supplies to class I would not be a good learner. Next: try to be more focused in class.

Daniel: I have demonstrated engagement by bringing supplies to class. I am also very focused and I participate in subjects that I have not learned yet. Being focused helps me understand what we are learning. I use these skills often. I also use them to my fullest.

On my pasta bridge, I went on until we had completed the bridge and more. And on my early humans brochure, I used proper facts and I put as much time into it as possible.

Next I should try to increase my understanding of confusing subjects.

Using a structure that broke reflections into several components did appear to help students think about learning at a greater depth. Some students, like Daniel, were able to give examples that supported their opinions. Others, like Eric, were much more thoughtful than they had been previously, but still had difficulty making deeper connections in writing.

After the winter holiday, on most Fridays, students wrote reflections on the week’s learning and saved them to their ePortfolio folder. When completing the “Reflecting on My Learning” sheet at the beginning of March, students selected two of their reflections to attach
that helped to tell their story of learning so far (Appendix B). Sometimes they were asked very specific questions about the week, while other times they chose what they wanted to reflect about, but staying focused on “The Big Three” questions. Students appeared to take this seriously each week, and I was pleased to see that a number of students included reflections about subject areas that I didn’t teach, but they felt told their story. Students who weren’t academically strong celebrated their achievements in woodwork or wrestling, while others highlighted areas where the effort was the story.

Aaron: In Science I learned about plate tectonics, layers of earth and continental drift. I understood most of it. My next steps are to understand all of it.

Anna: This week we learned about decimals and simplifying. A connection I can make is I know how to simplify from last year, so I kind of got that a bit better than others. Next I should learn about other math and how I can do better at it, also I could try and learn about decimals a bit more.

Maya: I am proud of this sample (spaghetti truss bridge) because I put a lot of effort into it, took my time and improved from the last structure I made. If I were to change the project and restart I would make it look cleaner and maybe not put so much glue and tape.
Jeff: I did well in paragraphs and spelling. I did well when I used the play do (playdough) to used it as continental drift. Next steps: Paying attention, learn about continental drift more, get better in geometry and basketball.

Hannah: I choose this piece because it shows what I have been working on for a long time in socials. We are learning about early humans. The species I find the most interesting is Homo sapiens sapiens because they are almost just like us. The part of the project I need to focus on is more on the coloring.

Eric: In LA we are learning to do a book report the book is the Giver. I am really excited to read it. I have never done a book report before so I think it is important for me to learn this. I think did okay for my first time. Next time I should do a bigger report.

Daniel: After completing this piece of work (short story upload), a new learning goal that I have is to add more detail to my stories.

Christine: I am proud of this project (spaghetti truss bridge) because I put a lot of effort into it and took my time. Something I would like others to notice about this project is that it is neat. This assignment was a bit difficult because the spaghetti kept on breaking. If I did this again, I would make the sides more sturdy.

By mid-year, students were putting more effort into writing their weekly reflections and reflections that were included with their artifacts. At the beginning of the year, they wrote single sentences or merely listed thoughts; whereas by March, most wrote several sentences that
expressed more detailed thoughts. They could identify aspects they were proud of or things that excited them quite consistently and even things they found difficult. It was still challenging for them to express how they were doing, with any real examples. Because of this, it was hard to identify next steps to build understanding beyond getting “better at,” “understanding more of” or “focusing more on.”

Just prior to completing the “Reflecting on Learning” sheet with the class, I answered a question about why I was “forcing” them to reflect. We spoke about how I was asking them to write about their learning in the hopes that they would build habits and begin to do it on their own. I reinforced that I wanted them to see that learning happens over time – it may be slow, but it happens and that looking back over previous work and thoughts could demonstrate that. As seen below, students did notice some changes when they looked at earlier artifacts and at their “Learner in Me” entry. Two students did not upload this entry to their ePortfolio and two did not complete many of the sections.

**Christine:** A challenge I have gotten better at is listening for long periods of time. A strength of mine that has grown would be engaging in my work.

**Daniel:** My strengths have gotten better. I am a better listener and I no longer need to fidget. I need to work on adding more detail to my projects and learning more confusing words.

**Hannah:** My strengths have grown a bit because I am focusing longer.
**Jeff:** I have been way better in working with groups than I was in January. I have been way better at having my stuff in class.

**Maya:** I haven’t really gotten better at all of my strengths but I have been focusing a lot more and asking for help when it’s needed. If I were to say the strengths I have got better at they would be not skipping the question. Instead I encourage myself to do it.

During the last half of the year, computer lab time became harder to come by. Our class carried on with in class reflections at various points in the lesson, day or unit. Additionally, we continued to use most Fridays to reflect on weekly learning, but sometimes it was on paper. As I analyzed student reflections that were done later in the year, I noticed that the quality remained generally consistent. Their thoughts were earnest but surface level. Most were able to answer what they were learning. In my researcher’s journal in May, I wrote that “Some students still asking about what they learned. I redirect to their notebooks if they can’t remember. I pointed out that I couldn’t tell them what they learned. I could help with “learned about” but learned was their domain.” The biggest change seen in the participants’ ePortfolios was that some students were starting to offer some simple evidence to support the “How am I doing?” question.

**Jeff:** Science mass, volume and density and the density tube. Level of understanding: fully because I know how to calculate density. All the perditions (predictions) I made was right about the density tube.
Maya: In math we are learning fractions and decimals. I am doing better than usual. I know this because if I compare my work from a couple weeks ago to the work now I’ve understood a lot more.

The question “What are my next steps?” continued to be the most challenging question for students to answer meaningfully. Responses generally involved the words “better” or “more.”

Typical responses were:

Learn about density cubes better.

To get better at reading responses.

To work a bit better at all of them.

Two students, Daniel and Christine, outlined next steps to further learning that had some substance beyond doing more. To be sure, the steps aren’t detailed, but they were written.

Daniel: In Science we learned certain liquids float on others. This phenomenon used the density of the liquids. (He then outlined his understanding, with examples) My next step is to try at home to see if other liquids float on water.

Christine: I am learning to add and subtract fractions. I am doing well because I get most of them right. My next steps are to try and do it without writing (the steps) down.

The year-end “Reflecting on Learning” document was also very similar to the middle of the year. Students listed their successes, which were generally tangible products of learning, often represented as artifacts in their ePortfolios. When asked what they still needed to work
hard at, three students responded with a subject area, like Language Arts or Math. Five students noted a behaviour, such as being on time or focusing, while one reported that working hard to achieve the goals she set for herself was her challenge.

Over the school year, there was not a large shift in the depth of reflection, but there was some incremental change. In the beginning, reflections tended to be very brief. As the year progressed, students became more competent at writing about what they were learning and making a judgement about how they were doing at it. With repeated practice, and teaching, some students were beginning to offer evidence as to how they knew how they were doing. Students, when asked, could look back at earlier statements about their learning and discuss very briefly about growth or change, but this did not appear to be occurring independently or at any depth. Being able to chart a learning path, by identifying specific next steps, was not yet noted, except in limited circumstances.

The Learning Journey: ePortfolio as a Story of Self Knowledge

When we first began to discuss ePortfolios in September, students in my class were enthusiastic about the idea of developing a place to tell the story and archive their learning. From the outset, students were earnest in their efforts. As noted, my young adolescent students generally had a sense of their subject strengths; they were good at math, or science, or reading. They also were able to identify what they were not good at, but they struggled to identify what made them good or what they needed to do to become good. My hope was that as we used
ePortfolios to help tell the story of their learning via frequent reflections, students would become more naturally reflective and build a well-founded understanding of themselves as learners.

Throughout the year, we had many informal discussions and several formal lessons about characteristics displayed by successful learners. We talked about the “Big Three questions” and how being able to answer them fully contributed to their understanding of themselves as learners and helped to build or further develop a growth mindset. As noted earlier in this chapter, when students completed the “Learner in Me” document in October, on the first attempt, students identified primarily subject area strengths and challenges when asked to identify learning behaviours that were strengths. This suggested that students needed additional guidance, and after a second attempt, they were more able to identify them. As a group, at some point in the year, all of the students participating in the research identified perseverance as a behavioral strength. As their teacher, I believe that this was a trait common to all these students. Moreover, it wasn’t surprising that was a named strength as it was a characteristic being nurtured in the pursuit of growth mindsets.

A second trait that was common to all participants was identifying a component of engagement (focus) as a learning challenge. When asked to look back over the year, Anna, Maya and Daniel realized that this wasn’t a problem for them anymore; however, no one indicated that they had done anything differently to overcome this challenge.
In the multiple readings of student ePortfolio reflections, I noted again and again that my students generally did have an accurate picture of themselves as learners. Eric was indeed a curious, energetic boy that was challenged by listening and focus. At the year end, he noted “I still have a lot of curiosity but not a lot of energy my weaknesses are mostly focusing and listening.” Joseph identified his strengths as being a curious hard worker and being able to express himself. Anna “did good because my paragraphs had complete sentences.” Students could talk about their learning journey accurately, however, the picture they painted had many unfinished areas and blank spots.

Students had a variety of opportunities to build self-assessment and reflection skills. They used a coloured cups system, as well as thumbs up/down/sideways to provide a snapshot for themselves and for me during the learning. They often needed to think about the day using a reflection stem as a ticket out the door. On most Fridays, we ended the day in the computer lab to complete a reflection on learning for the week. At the beginning of the year, reflection stems were given. As noted earlier in the chapter, reflection was done, but was very short and didn’t go very deeply into the learning.

In January, as I was wondering how to deepen reflection, I also wondered if the ePortfolios were telling the learning story of each individual student or my story of the learning in the class. I noted in my researcher’s journal that “I want to find a way to make this more of a story of learning for the students.” The following week, students were asked to find and upload
two or three experiences or artifacts that were important to their learning story at that point in the year. The uploaded artifacts could be in the form of photos, videos or documents. Students worked hard to complete this task; the selection process was difficult for some and there were technical challenges for everyone. After several attempts, most had one independently selected artifact, several had two or three. Four students selected a photo of their spaghetti truss bridges, built using blueprints they constructed. One selected a picture of his pasta car, again constructed following a design process. Several used pictures of class work and one spoke of achievement in wrestling and in woodwork.

Anna: *Doing the assignment helped me understand that building is harder than it looks.*

Maya: *I’m proud of this sample because I put a lot of effort into it took my time and improved from the last structure I made. If I were to change this project and restart I would make it look cleaner and maybe not put so much glue and tape.*

Daniel: *After completing this piece of work, a new learning goal that I have is to add more detail to my stories.*

Hailey: *pasta bridge photo, no reflection*

Jeff: *pasta car photo, no reflection*

Eric: *Science diagram, no reflection*

These artifacts are examples of important pieces of the learning story selected by the students that have holes in the plot. Students without a reflection almost certainly had trouble with the
photo uploads and forgot to go back and complete the reflection process. The artifacts with writing do have reflections that tell why they are important, but they are not articulated with any depth or detail.

The class also completed activities to help them build their ability to give useful feedback, to themselves and to peers. A social studies unit about Early Humans, which culminated in a brochure uploaded onto the ePortfolio was one such activity. The task was to produce a brochure with written information and a drawing of several species of Early Humans. The illustration was an activity built to develop growth mindset and the written portion was a summative assessment for the unit. The class co-created criteria for the project from exemplars, then using those exemplars wrote practice feedback. After practicing, each student read and gave written feedback to one peer. Students then uploaded and reflected upon their own learning. I noticed that the feedback to peers and then to themselves was generally related to drawing and quantity of writing, rather than quality of information.

**Hannah:** I have chosen this piece because it shows what I have been working on for a long time in socials. If I could do this over again I would make the pictures more detailed.

**Eric:** My focus is to try to get better at the illustrations on it.

**Christine:** What I like best about this work is that I tried my best and put a lot of work into it. This assignment was difficult because it was hard to draw the pictures.
The drawing was an aspect that students worked extremely hard on; therefore, it wasn’t surprising that reflections focused here. It is also easier to focus reflections on drawings, rather than the work that went into showing what was known.

While students didn’t begin to articulate their learning in great detail throughout the year, there were trends noted. First, students who were able to upload more of their own selection of artifacts had a clearer voice over time. Their choices reinforced what I knew of them as learners. Daniel and Christine were able to upload more artifacts than other students and were much more able to articulate their learning, using the three questions or other stems, by the end of the year. Both were strong students in the class as a whole. Joseph also uploaded more self-selected artifacts that emphasized his achievements in areas other than academic. He still struggled to articulate his next steps, but could state why he had selected something to tell his story.

A second trend noted was that grade seven students were more able to articulate their learning journey than students in grade six. Daniel, Christine, Maya and Anna were in my class for a second year. Building growth mindset was a focus for both years; it is uncertain if their stronger ability to tell their learning story is a factor of age or extra practice or a combination of both. Christine summarized her growth over the year by talking about her degree of engagement.

*Christine: I used to just engage in my work, but now I engage in my work and also take in all the information.*
Maya and Anna particularly stood out for me, because in grade 6 both had fairly low opinions of their abilities as learners. At the end of their time with me, they emerged as leaders in the class, who were aware of their academic struggles but were committed to overcoming them.

**Maya:** *I think I’m doing good because reflecting and reviewing back from a couple of weeks I’ve gotten better marks. If I fall behind or get really stuck in something like Math I will go in on my own time for extra help. I used to think that trying to stay focused was really hard and I used to have a lot of side conversations but now I’ve gotten better at staying focused and maybe every once in a while have side conversations.*

**Anna:** *One thing I need to work hard at is achieving the goals I set for myself. Engagement (has helped me this year) because I always try to participate in conversations.*

Another trend noted in students’ abilities to articulate their learning was that they were stronger at it in subjects where it was done on a more consistent basis. I shared my class with another teacher for some academic subjects and they participated in exploration classes with a variety of teachers. When answering questions about how they were doing with learning, by the end of the year evidence offered to support their beliefs tended to focus on examples of things learned or feedback received in Math, Science, Social Studies and STEAM. In Language Arts, students often cited work habits as evidence of achievement.
Anna: Since Spring Break in Socials, I have been learning Mesopotamia government laws and culture. I understand everything. My next step is to learn more about the land. In LA I am learning reading reflections. I am doing okay because I usually finish them and do my best work.

Jeff: I have been learning about Terry Fox/reading responses/ drones. I am doing pretty good in LA. I am doing good because I get the terry fox and the reading response. I finish it on time. In math: multiply/divide decimals. I am doing good I can use some practice on dividing. I know this because I can do pretty much every question in multiply x 10 but in dividing I can’t do every question.

Eric: LA: reading response. (What I am learning?) Nothing. I thought I did pretty well because I put all my effort. Next year I hope to get better at it.

Reflecting in my class was done on a regular basis. Students were used to it, particularly in Math. While it is limited, the evidence suggests that perhaps learning to reflect in different areas requires practice in different areas- it isn’t automatically transferable. Additionally, I am not certain whether my partner teacher was as explicit at clarifying learning intentions.

By the end of the year, students identified things they were proud of over the year, challenges that persisted and what learning behaviours helped them be successful. Still, when asked to explain something in two or three sentences, most only used one. There weren’t any significant changes over the time period. Reflections and articulation of learning was superficial
with some exceptions, as noted in this chapter. For the most part, the pictures painted used a limited palette and the stories told didn’t have any significant character development, but there was some change. The trends noted made me want to continue to explore experiences using ePortfolios as a tool for learning.
Chapter Five: A Discussion of the Results

Students in the early years of adolescence arrive in middle school excited and ready to explore new facets of their lives and their education. In my experience, grade 6 and 7 students already had a strong belief that they are “good at” or “bad at” many realms of education. The sense of why they were good or bad was not apparent to them – they just were. A focus of mine was to have students recognize that learning comes with persistence and is incremental. Using formative assessment components outlined by Wiliam (2011) and Davies (2007), I worked to ensure that learning intentions were clear, criteria were defined, and feedback that aided in moving learning forward was given. Students had some opportunities to self-assess. Still, they struggled to articulate their own characteristics as learners and tell their learning story with any detail. Using ePortfolios as a tool for reflection and learning, I hoped that, with repeated opportunities to formally reflect, to highlight aspects of their learning and to look back over the body of their work and thoughts, students would begin to know themselves as learners, and be able to articulate that knowledge clearly. Throughout the year, the voices of my students provided valuable findings for my research. In the following pages, I would like to share my thoughts on their meaning and significance, the implications they offer and define any possible limitations they brought to my attention.

Experience with Using ePortfolios as a Tool for Learning

One of my research questions was “What is the learning experience of my students when using ePortfolios as a tool for reflective learning?” Overall, my students expressed a positive experience with the ePortfolios. While this seems a simple observation, if the experience was negative, it would have been a challenge to get them to engage in the task of building the ePortfolio. Initially, they were willing to engage in the process simply because it was on the
computer; however, I believe it was their relationship with me that helped them persevere through the technical frustrations. An element of social engagement, as stated by Taylor and Parsons (2011), where everyone is “in it together” was also a factor. Furthermore, it was possible for me to maintain their engagement because we had authentic, meaningful relationships where we communicated about more than just school (Wilms, 2009). Throughout the process, most were fully academically engaged. While students needed support using the tool and building skills, they required very little re-direction when completing an ePortfolio task.

On the whole, the students were proud of the work shown on their ePortfolios. They liked that it helped them remember what they had learned and they were more able to show work to their parents. Still, they didn’t make any connections to whether it helped them develop learning characteristics, other than two students who spoke of “just reflecting.” The organizational component was what interested the majority of students in my research. By the end of the school year, it was evident that the students experienced success differently than I did. They were able to recognize their achievements, while I struggled to recognize my own.

Initially, I had planned to have students upload two artifacts per month, which did not happen. Daniel, who was able to upload the greatest number of artifacts, was able to complete the task independently by mid-April and included twelve uploads. Others ranged between five and ten artifacts and reflections on learning. I was very interested to analyze the results of my research, as the ePortfolios were a tremendous amount of effort if they were merely digital scrapbooks! I wanted to make sure they contributed to learning and that there was value in the time invested.

At the end of the research period, students were still engaged with the process when it was something the whole class was completing. Students were not independently engaged. Artifacts were only uploaded at my request. Additionally, there was very little connection
outside of school. While several stated that it was easy to show parents their work on the ePortfolios, there is little evidence of parent voice in the comments. There were a few who commented on the first entry and the few parents that attended the second student-led conference were able to see the ePortfolio, but there are no comments later in the year. As mentioned in Chapter 4, the parents did not add an additional voice of feedback, as hoped. In summary, with respect to the experience of ePortfolios for learning, students called them “Their ePortfolios” and employed them as a way of remembering past work; however, they were still a part of “school learning” and didn’t yet demonstrate evidence of owning them as they did other online media.

**Building Metacognition Through Reflection and Self-Assessment**

My second research question was “*How do ePortfolios influence my students’ abilities to reflect upon and articulate their own learning?*” First, it was important to note that the influence is not sudden. After one school year of ongoing focus on reflection, there was no evidence of deep reflection. However, there was evidence that consistent practice at reflection, using ePortfolios, did result in progression in all of the students. Throughout the year, students developed their ability to answer three reflections questions, modified from Hattie and Timperley’s (2007) feedback questions:

- What are you supposed to be learning?
- How are you doing at it?
- What are your next steps?

At the beginning of the year, most students needed assistance answering the first question. They progressed to being able to look through their books to determine what they were supposed to be learning and some were able to independently write without looking back. As noted, students were able to answer the second question with one or two words, usually featuring “bad” or
“good.” This coincides with beginning stages of metacognitive knowledge, where students can determine understanding from non-understanding (Flavell, 1979). As demonstrated, most progressed to being able to discern accurate information from inaccurate information by citing how they knew how they were doing. This was especially apparent when students were introduced to Pappas’ Taxonomy of Reflection (2010) in January. It took too long to use all the time, but after several attempts, most students were able to offer some evidence to support their understanding without the framework. The third question, “What are your next steps?” was not consistently well answered by any participating students at any stage during the year. This is not surprising, because, in order to plan where you are going with learning, it is necessary to have a solid understanding of where you currently are. Students were just beginning to be able to identify how they were doing with their learning, using evidence. As that skill developed, planning further steps, beyond “getting better at” something would be possible.

Teaching within a reflective framework enables students to be more aware of themselves as learners. They become more able to define learning goals and their progress towards them over time (Bransford et al., 2000; Davies, 2001; Joseph, 2010). Using the reflective framework of ePortfolios, I hoped to see these skills develop over time. During their initial reflection, the students in my research were able to identify some of the learning behaviours they possessed as strengths. Additionally, they could identify some areas of challenge, primarily focus and readiness to learn. Based on my knowledge of the students, their understanding of themselves as learners was accurate but simplistic. It is interesting to note that while reflective thinking was on the list of learning behaviours on the School District #72 rubric, it was not acknowledged as a strength or a challenge by anyone. By the end of the year, this was still generally the case.
Intellectual engagement is when a cognitive and an emotional commitment is made to learning, including using higher order thinking skills to deepen learning (Willms et al., 2009; Preciado Babb et al., 2013). There was evidence that students were somewhat intellectually engaged in their learning and in the process. They connected many learning successes to effort and perseverance, and several made written commitments to achieving their goals or getting help when they were stuck. However, when asked to use two or three sentences to identify growth or change with respect to earlier reflections, all students in the study only responded with one sentence. To be sure, the sentence did reflect accurate self-knowledge, but it was very superficial and without evidence. Their independent choices of artifacts they selected to highlight their learning journey also showed some awareness of themselves as learners; perhaps this would have been clearer if we were able to complete more independent uploads. I am uncertain if they are not able to identify the details of themselves as learners, or they are just not able to articulate it clearly yet.

In conclusion, the students were beginning to develop a stronger ability to reflect on learning and self-assess based on criteria by the end of the year. Most could identify what they were supposed to be doing and beginning to give some detail with respect to how they were doing at the learning. Identifying next steps was still a challenge and reflecting in a deeper way was not evident. Wiliam (2011) noted, the first steps at reflection and self-assessment are not insightful or useful. I would argue that they weren’t particularly useful when referring to current learning, however; over the long term each attempt aided the development of the skills.

**Implications and Considerations for the Future**

**Building reflection skill and metacognition takes time.** One thing that my research made absolutely clear is that developing skill at reflection takes time. Duke (2010) and Barrett
(2007, 2008) completed studies that investigated reflection and metacognition development in high school students. Duke’s study was six weeks in length and involved 25 grade 9 participants. Barrett’s study was two years long and involved hundreds of students in many high schools. Both concluded that reflection was still surface level at the end of the study and that fewer than 50% of the high school students that were surveyed believed that the ePortfolio helped them think about their learning. It was therefore not surprising that my middle school students demonstrated similar skills and beliefs at the end of one school year. Barrett (2008) expressed her belief that greater than two years is required for deep change but there was evidence that suggested that given further time and teaching, evidence of deep learning and self-knowledge would emerge. I believe that with continued focus on reflection using the ePortfolios, skills would continue to develop and knowledge of themselves as learners would deepen.

**Age versus experience.** The development of metacognition has been found to be related to age. At elementary school ages, students begin to develop metacognition around self-regulation. Children are able to monitor success and correct errors (Bransford et al., 2000; Evans et al., 2007). Reflecting ability is an area that develops in adolescence. My students were between the ages of 10 and 13 during my study. It was evident that reflection was beginning to develop in some, some were more advanced and some were more delayed in the acquisition of skills. I suspect the extra year of brain development in my grade 7 students played a role in why they were stronger at reflection by the end of the year. Their brains were more ready for the new learning.

However, brain development is also shaped by learning experiences provided. During adolescence, when unused or inefficient connections in the brain are “pruned” and more efficient
connections are strengthened, capitalizing on this period of brain development seems essential. Hebert (2001) wrote that when young children are taught reflective language and they use it while developing a portfolio, the development of metacognition is enhanced. Further to this, students learn that metacognition is an internal conversation with reflective thinking practice (Bransford et al., 2000; Joseph, 2010; Riedinger, 2006). They are more likely to develop independent self-appraisal and self-management skills with scaffolded opportunities to reflect. I saw the greatest development in reflective thinking when I broke it into a number of components. I wonder if in the next few years, students who have been building ePortfolios in elementary school will demonstrate an increased facility at reflection as a result of earlier teaching and whether it will translate into earlier development of higher level metacognition.

**EPortfolios and engagement: A place to connect.** Students in middle school seek out connection. Currently, many find connection online, using social media applications. If students can also find elements of that connection using ePortfolios, they may engage with them independently. Barrett (2011) suggested that being able to connect, share, listen and respond as they do on social media, could influence youth engagement with ePortfolios as a tool for learning by capitalizing on Pink’s (2009) elements of intrinsic motivation. As the ePortfolio is celebrated and shared, further experience with feedback is gained. Chang et al. (2014) found that when middle school students were involved with giving and receiving feedback on ePortfolios, they began to think more about their own learning. Still, as the Project Tomorrow (2011a, 2011b) study found, schools still have concerns around privacy and internet safety, as they should. The ePortfolios used by my students were password protected for privacy and safety reasons; consequently, it was not possible for students to add their voices to their peers’ ePortfolios. As
the Scholantis ePortfolio tool is developed further, it would be valuable to find a way for students to be able to connect, share, listen and respond to the other students in their class.

**EPortfolios and engagement: Encouraging ownership.** The Scholantis tool was designed as a Showcase-style ePortfolio, where best work is selected, reflected upon and archived. This format is preferred for elementary students where the ePortfolio is primarily owned by the teacher (Rate, 2009). As students enter middle school and adolescence, a transition to student ownership should begin and the focus of the ePortfolio should be primarily a Process or Learning-style. As School District #72 advances its ePortfolio program, I would encourage them to consider to request further development of the tool that would enable a reflective process that could be linked to the existing Showcase structure at the end of the term or year. Further, building the capacity to personalize the ePortfolio with colour, borders or backgrounds would develop additional incentive to engage and “own” the ePortfolio (Barrett, 2008; JISC, 2008).

**Building a school and district culture of ePortfolio use.** There is evidence that students’ ability to think reflectively and more deeply about themselves as learners is increased in schools where there was greater implementation of ePortfolios throughout the school (Barrett, 2008). I noticed that reflection and self-knowledge was stronger when it focused on areas where they had more consistent practice, in subject areas that I taught. Opportunities are needed to develop the ability to reflect in all areas of learning to increase the likelihood of reflection being a natural part of the learning process for each individual. Davies (2007) added that the opportunities are especially important for students who have little learning support outside school. At the time of my study, there were three other grade 6/7 teachers who were participating in the district ePortfolio pilot. There weren’t any grade 8 teachers involved. The
year after my research, I was transferred to an elementary school; after a year of focus on self-knowledge and reflection, none of the students continued to develop the ePortfolios the following year. I believe that there is an important discussion to be had at the school level surrounding ePortfolio use. The school itself has made a commitment to deeper learning, using many strategies and structures, and has embraced 21st Century learning. Knowing that the benefit of ePortfolios as a tool for learning is not realized in a single year, for true success, they would need to be implemented school-wide.

**Technical Hurdles**

In order for a school to implement ePortfolios, the many technical challenges involved with learning to use the ePortfolio tool would need to be lessened at the very least. My research hinged on completing the year of study so I was not able to quit when I was so frustrated with the technology and time commitment. If the process is not smooth, teachers will not invest the time when results may not be apparent for several years to come. At the developer level, the adaptations that would enable a Learning-style ePortfolio are recommended. In the time since I completed my research, the uploading process has become more simplified. Additionally, school district infrastructure is being upgraded, so the speed of uploads should increase. More students have personal devices that can be used for a variety of uploads, and a new student-use policy is being written within the school district. As teachers and students increase their knowledge around using the ePortfolio too, the focus could shift away from the technical aspects to the learning earlier in the school year, especially at grade 7 or 8. It would be exciting to teach in a school where reflective conversations were happening in class and online. Students would know where they were in their learning journey and where they were going next.
Limitations

There were nine students/families in my class of 26 that consented to being a part of my study. There was a fairly even split between male and female participants, as well as students in grade 6 and grade 7. Still, this is a small sample size and therefore, the generalizability is limited. In order to increase the ability to make larger conclusions, the study needs to be expanded to include students in grade 8, as well as other middle schools, perhaps in School Districts #72 and #71 (Courtenay) as they both use the Scholantis ePortfolio tool.

In order to expand the data surrounding student engagement and their experience using the ePortfolio tool, I would like to have conducted interviews with my students. Studying the developing reflection skill of my students needed to done using the written reflections themselves, as was done. Looking back, I believe that giving students the opportunity to speak, rather than write about their experience would have provided rich data in that area.

There were time and technology constraints on my research. The computers were not available during the November crash, the month of December and towards the end of the year, when other classes were using the labs more. Also, each upload always took far longer than anticipated. Consequently, there were fewer artifacts uploaded and fewer reflections to analyze.

Conclusion

Students in middle school are driven by curiosity, passion and connection. They have interests, strengths and challenges that make each one unique. Yet a trait most appear to have in common is a difficulty articulating who they are as learners. This research study examined whether practicing the skill of reflection, using ePortfolios, over a school year would enhance the development of metacognition skills in grade 6 and 7 students. Additionally, it investigated
whether using digital technology would be a motivating factor at a time when many adolescents’
curiosity and passion moves away from the learning that is done at school.

The ePortfolios of my students demonstrated that with consistent, scaffolded practice,
reflection skills do develop over time. Students became more able to identify with some detail,
how they were doing at their learning. However, after a school year, students’ ability to write
about their passions, or traits that were strengths or challenges remained largely superficial. One
year did not appear to be enough time to make a substantial difference; still, progress identified
in the ability to reflect leads me to conclude that with additional time and focus, this too will
develop.

The use of the ePortfolios themselves did appear to engage my students at the outset.
They were interested in the digital archiving possibilities and the ability to look back at their
accomplishments. Their emotional engagement and relationship with me helped them persevere
through the ongoing technical challenges. Some students were beginning to see the value as a
tool for exploring their own learning, but that too, needed more time to develop. Modifying or
adding to the existing tool to enable a blog-type reflection, the ability to share with friends and
personalize the look of the main page could add to the degree of engagement and ownership, as
well as enhance metacognition skills.

On the whole, using ePortfolios as a tool for learning is a positive step in communicating
with students about their learning. As with most change, the progress is slow, but appears to be
steady with consistent practice. As students find their voices through reflection, and observe
their growth, metacognitive ability should deepen. Time and teacher support can enable
ePortfolios to function as a tool for engaged, reflective learning.
References


Appendix A

Date: __________________

The Learner in Me

My name is ______________ and I am ______ years old. I am just beginning grade _____.

I think that my strengths as a learner are:

If you asked my parents, they would say my strengths are:

I think that my challenges as a learner are:

Something that I do that helps me when I'm stuck is:

If you really want my undivided attention, you should mention:

Other things I love to learn or do are:
Appendix B

<table>
<thead>
<tr>
<th>Name: __________</th>
<th>Date: __________</th>
</tr>
</thead>
</table>

**Term 1: Reflecting on My Learning**

Several things that I have done well this term are:

One thing that I need to work harder at is:

Something that I am proud about this term is:

In 2 or 3 sentences, reflect on how your strengths and challenges as a learner have grown or changed when compared with The Learner in Me entry.

My learning goal for next term is:

Throughout the term, you have used an ePortfolio to showcase and reflect on your learning. In several sentences, share your experiences and/or feelings about using the ePortfolio as a tool for learning.

Has using an ePortfolio helped you reflect upon or develop characteristics of a learner? Please explain in one or two sentences.
Appendix C

School District 72 Behaviours for Successful Learning Rubric Sample

<table>
<thead>
<tr>
<th>Behaviours For Successful Learning</th>
<th>Not Yet Meeting Expectation</th>
<th>Meeting Expectations</th>
<th>Fully Meeting Expectations</th>
<th>Exceeding Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Self Control</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Consistently</td>
</tr>
<tr>
<td>Engaged, focused, and following directions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhibiting a Positive Attitude</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Consistently</td>
</tr>
<tr>
<td>Interested in / open to learning, has an 'I can do it' attitude, participates fully</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Thinking / Active</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Consistently</td>
</tr>
<tr>
<td>Engagement in Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Makes connections; is curious - asks thought-provoking questions and poses problems (I wonder what would happen if...), generates ideas, imaginative, creative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perseverance</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Consistently</td>
</tr>
<tr>
<td>Has the attention span to stick with activities, finish projects and to work through challenges</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Striving for Accuracy</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Consistently</td>
</tr>
<tr>
<td>Takes great care to stay organized and strives to do his/her best; refers to criteria and examples to complete and improve work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflecting on Learning</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Consistently</td>
</tr>
<tr>
<td>Identifies what he / she knows, understands and can do based on criteria and examples; sets goals and identifies next steps</td>
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</table>
APPENDIX D:
Research Consent for Parent/Guardian

Using ePortfolios as a Tool for Learning and Reflecting with Middle School Students

(Date)

Dear Parent/Guardian:

As you may be aware, in addition to being one of your child’s teachers this year, I am also completing the second year of the Masters in Educational Leadership program at Vancouver Island University. Currently, I am organizing my action research project for my final project/thesis where I will be looking at the experiences of students when using ePortfolios to enhance learning. The purpose of this study is to explore whether or not developing a strong awareness of learning strengths and challenges helps learners build their confidence and their ability to learn new skills.

Throughout the year, all students will reflect on themselves as learners, and on work that they have completed. A selection of these reflections will be used to create a personal ePortfolio on the School District 72 website (a secure web space that requires username and passwords to access). Additionally, students will create artifacts (for example: work samples, photos, videos) that represent or demonstrate their learning and upload them to the ePortfolio. At the end of the school year, as a researcher, I will be examining the ePortfolios of those students whose parents give consent for them to be participants in my action research project. I will be looking for evidence of their knowledge of themselves as learners and for evidence of their learning growth.

I am seeking your permission to use the ePortfolio so that I can examine students’ awareness of themselves as learners and look for themes that occur. To help ensure that all consent is fully voluntary and anonymous, I am asking you to return this form to an envelope located in the school office whether you consent or not. Mrs. Robertson, the school’s Administrative Assistant, will keep the forms in the school office until May 2015. I will then open the envelope to reveal the names of the students that have consented to have their work used for research.

Please be assured that your child will not be treated any differently whether or not he or she participates in my research since I will not know who is participating until the end of the school year. Although your child’s name will not be used in my research, with your permission, I may use your child’s comments, reflections and examples from his or her ePortfolio in my final written report or other study publications. As a result, it is possible that your child may be identifiable based on information he or she provided.

There are no known harms associated with your child’s participation in this research. Your permission is voluntary. If you choose not to grant permission for me to use your child’s ePortfolio reflections there will be no repercussions for you or your child, and you have the right to withdraw your permission until I begin the data analysis part of the research process.

All records of your child’s participation will be kept strictly confidential, such that only my supervisor and I will have access to the information. Data will be stored in a locked filing cabinet within my
Any paper data will be shredded at the end of the project, within approximately 3 years of completion. The ePortfolio created by your student will stay on the School District 72 website until he/she finishes grade twelve. Your child may continue to develop the ePortfolio for the rest of his or her enrollment in School District 72. The results from this study will be reported in a final written research report submitted to Vancouver Island University, and may be shared with my professional learning community within the Campbell River School District. Information about the project will not be made public in any way that identifies individual participants.

If you have any concerns about the treatment of your child as a research participant in this project, please contact the VIU Research Ethics Officer, at 250-753-3245 (ext. 2665) or by email at reb@viu.ca

If you have any questions about the nature of this research study, or would like more information about your child’s participation, please contact:

- Andrea Ritchie, Classroom Teacher/Researcher, Phoenix Middle School

Thank you in advance for your consideration.

Sincerely,

Ms. Andrea Ritchie
Grade 6/7 teacher Phoenix Middle School
Student in the Masters of Educational Leadership Program, Vancouver Island University
CONSENT FORM
Using ePortfolios as a Tool for Learning and Reflecting with Middle School Students

I have read the attached letter and understand the nature of my child’s participation in this action research project. Further, I understand that I/we can ask questions at any time.

(Please return this consent form to the Phoenix School Main Office- attention Mrs. Robertson, Administrative Assistant)

Please check the following that apply:

☐ I give permission for my child’s ePortfolio to be used in your final written submission.

☐ I give permission for quotes from my child’s ePortfolio entries to be used in your final written submission.

☐ I do not give permission for my child’s ePortfolio to be used in your final written submission.

____________________________
Child’s name

Parent/Guardian(s):

<table>
<thead>
<tr>
<th>Print Name and Date:</th>
<th>Signature:</th>
</tr>
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</table>
Using ePortfolios as a Tool for Learning and Reflecting with Middle School Students

(Date)

Dear Student:

As you may know, as well as being one of your teachers this year, I am also working on the second year of the Master’s Degree at Vancouver Island University. I am organizing my action research project for my final project where I will be looking at the experiences of students when using ePortfolios. I want to discover whether or not students’ being aware of their learning strengths and challenges helps the build confidence and develops their ability to learn new skills.

I will be asking all of my students to create ePortfolios on the School District website. Throughout the year, students will be reflecting on themselves as learners and on work that they have completed. In addition, students will be uploading work samples, photos or videos that represent or demonstrate their learning. As a teacher, I will be supporting you in this process and looking at the ePortfolios to help me guide your learning. For my research, I will be looking at the ePortfolios of those students whose parents give consent.

I am asking your permission to use your work as data for this study. I want you to know that this is completely voluntary for you to participate in. I am asking you to return this form, along with your parent’s form, to Mrs. Robertson, in the Main Office. She will keep the forms in an envelope until May 2015, at which time I will open it to find out who will be part of the project. Even if your parents agree to allow your ePortfolio to be included in this study, you can still decide that you don’t want me to use it, and I respect that. Since I will not know until May who has given me permission to use their work, there are no consequences to you whether you decide to let me use your work or not.

Whether or not you decide to participate will have no effect on your achievement or on how you will be treated in our class. If you give permission, I will not be using your name anywhere in my research. I will make up a name for you so no one will know for sure that it is you. I might use your comments, reflections and examples from your work in my final written project. There is a chance that someone reading my work may recognize your words and be able to identify you.

There are no known harms to participating in this research. Your ePortfolio will continue to exist until you complete grade 12 in Campbell River. Any other pieces of work and data will be kept private. I will be writing the results of my study in a final report for Vancouver Island University.

Thank you for considering being a part of this project.

Sincerely,

Ms. Andrea Ritchie
Grade 6/7 teacher Phoenix Middle School & Student in the Master Program at VIU
Student Assent Form

Using ePortfolios as a Tool for Learning and Reflecting with Middle School Students

I have read the student letter and I understand how I may participate in this action research project. I also understand that I can ask questions at any time.

(Please return this assent form to the Phoenix Middle School Office – attention Mrs. Robertson, Administrative Assistant)

Please check the following that apply:

☐ I give permission for my ePortfolio to be used in your final written submission.

☐ I give permission for quotes (my exact words) from my ePortfolio entries to be used in your final written submission.

☐ I do not give permission for my ePortfolio to be used in your final written submission.

Student:

| Print Name and Date: | Signature: |
Appendix F

Sample of Student Participant ePortfolio Homepage

Hi, my name is [Name]. I am attending Phoenix Middle School where I am in Grade 7. My favorite subjects in school are math, science, arts and P.E. In my spare time, I really like to dance and go swimming. My dream job when I grow up is to be a Vet. A goal I have for this year is to do better in L.A. My favorite foods are pizza and donuts.

June Passion Project

June year end reflection

April Science

March Math: Multiplying decimals

February Reflecting on Learning

February Social Studies: Early People