TOWARDS A PARADIGM OF LEARNING TO LEARN FOR LIFELONG LEARNING: VANCOUVER SCHOOL BOARD TEACHERS’ CONCEPTUALIZATIONS AND PRACTICES

by

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ABSTRACT

What does 21st century learning look like? What are the skills and attitudes needed for lifelong learning in our present world climate? Today's climate of globalization and constant technological change presents new challenges to an education system founded during the industrial revolution on a world and way of learning that in many ways is no longer representative of current times. Learning to learn is a widely-discussed concept, deemed a necessity for lifelong learning, but few attempt to define it in any concrete terms. Even fewer have made practical attempts to implement and integrate learning to learn concepts into the curriculum of school systems. This study analyzes how a group of Vancouver elementary school teachers conceptualize learning to learn, how they attempt to implement learning to learn skills and dispositions in their classrooms, and how they feel our present school system helps and hinders the development of lifelong learners. It furthermore compares and contrasts between these findings and the best practices on learning to learn culled from the literature.
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Some things we set out to do happen so naturally they are like an extension of our daily lives. Other things take a great deal of care in the planning and hard work and effort in their execution. Still other goals, due to circumstance, can seem unobtainable at times. This thesis was an example of the later for me. There are many people that I must acknowledge for their support and belief in me through the time I worked on this research.

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1.0 INTRODUCTION

1.1 Lifelong Learning and Learning to Learn

"They know enough who know how to learn", claimed Henry Brooks Adams (1838-1913). More than a hundred years ago, Adams put his finger on what it is that we need, yet still have been unable, to put into widespread practice in education. Certainly there is more to know now than there has ever been before, but we do not always focus our education systems on the primacy of teaching the skills and dispositions of learning in tandem with the acquisition of content. Though in the late 1800's, “[t]he important thing [was] not so much that every child should be taught as that every child should be given a wish to learn” (John Lubbock 1834-1913), today we still focus on teaching and assessing curriculum content above all else. Now more than ever, it is crucial to equip people with the ability and desire to learn how to learn in order for them to be able to overcome life’s emerging challenges by learning throughout life.

Indeed it was lifelong learning (LLL) that drew me into my M. A. in Adult Education at UBC. When asked during the application process to name my chosen topic for Masters research, I expressed my interest in analysing how developments in brain research over the last two decades might positively affect the discourse and conceptualizations around learning that promotes higher student success and affects overall participation in LLL. I began to explore this topic in my first class’ major paper. However, the more I examined the issues of brain research, LLL, adult learning, and learning in general, the more I realized how much more there was to know. Focusing on LLL, I jumped at the opportunity to participate in a summer course entitled Issues and Trends in Lifelong Learning.

This course provided me with the opportunity to look at education policy in various areas of the world, as well as current academic literature about LLL. It was through this course that I was first, and repeatedly, exposed to the term learning to learn (LTL). I was instantly enamoured with the phrase and all that I felt it encompassed. It spoke to the feelings of frustration I had as a teacher striving doggedly, year after year, to get through an ever-increasing curriculum, while simultaneously feeling I was missing the bigger picture of
the learning needs of my students. Having spent countless hours with my colleagues discussing what we felt a school education should instil and cultivate in individuals, I was bewildered at never having run across this brilliant term before. L21 was now before my eyes everywhere I turned, though neither through my peers or professional development had I ever experienced it before. My naivété regarding L21 was finally addressed by an article written by Ian Cornford, depicting L21 as a set of strategies or toolkit that would allow an individual to learn faster and more effectively (2002).

I began to look more closely at the policies and literature speaking to the concept of L21. Through my research I discovered that it was not only my colleagues and I who did not have access to, or an understanding of the definition of L21. In reality, no one seemed to have a true understanding of its essence, least of all education policy-makers. The more I hunted, the more it seemed that L21 was an undefined phrase. The concept seemed merely to be seducing us into the idea of learning throughout life in order to be successful in this new knowledge-based society. Believing there had to be more to L21 than a set of cognitive and metacognitive skills that would assist learners in treading through the rapid flow of constant knowledge demands, my search for a true understanding of L21 lead me to this particular study.

While L21 remains an undefined term in most literature, it is a concept that individuals such as Guy Claxton have spent the majority of their careers trying to define and implement successfully in the formal education system. L21, as a more broadly-defined concept encompassing the development of skills and dispositions that allow for successful learning, has begun to catch on in the U.K. and Australia. Various associations are making attempts through books, conferences and the like, to “translate the rhetoric of L21 into reality” through the development of L21 “beyond simplistic approaches” (Claxton, 2003). However, the implementation of L21 does not seem to have caught on to the same extent in North America. L21 is not yet a catch phrase with the Vancouver School Board (VSB) teachers with whom I interact, or a topic of professional development seminars. Certainly though, some aspects of L21 are valued and implemented by my colleagues. A desire to discover how these teachers’ theories on learning might include L21 and how
their implicit and explicit understanding of 121 affects their teaching became of great interest to me. As a teacher and learner, my experience supports the view that there is more to 121 than developing skills for learning abstract concepts “more quickly” and “processing information more effectively” (Cornford, 2002, p 358) and it is this belief that lead me to this current research.

My thesis examines this concept, learning to learn and its application to the field of education in our contemporary, dynamic global context. Specifically, this study concentrates on how the process of 121 facilitates 111. Moreover, this study explores the skills and attitudes that published researchers and practicing teachers feel contribute to 121 and consequently 111. I will also explore the various components of our education system that either facilitate or hinder the development of 121.

The present is a time of rapid and continuing economic, political, social and technological change. Truly we live in a global, competitive, knowledge-based society. Change, dynamics, and adaptability frequent the pages of policy documents around the world. L11 is promoted universally in education policy as a vaccination against the threat of an obsolete workforce, as well as a way for the individual to cope with the uncertainty and insecurity that inexorable, destabilizing changes bring. In order to keep up with the extraordinary expansion of knowledge and remain flexible when faced with the demands of work, family, and the community, individuals must become accustomed to the idea of learning throughout their lifetimes. Elementary schools are an essential building block for future informal and formal learning. According to the OECD, “if the early foundations are not properly mastered, it will serve little purpose to develop a learning society that targets adults” (1996).

While there has been great emphasis on the significance of 111 as the primary goal of education policy, there has been limited discussion regarding the nature of learning required to address the needs of contemporary society. Instead, another catchphrase, ‘learning to learn’, is utilized in education policy without much elaboration on its intended meaning. The European Union Commission speaks of a shift from teaching to
learning that will put the learner at the centre and enable “people to learn how to learn” (EUC, 2001, p23). Delores, in the UNESCO education policy states “the only way to satisfy [the need for lifelong learning] is for each individual to learn how to learn” (Delores, 1996, p. 22). Yet neither policy attempts to provide a definition of l2l, leaving its interpretation to critical analysts and individual educators, as well as entrepreneurs hoping to earn their riches by developing so-called ‘l2l programs’.

Brookfield identifies l2l as one of the four major areas of post-war adult learning research, citing Smith as one of the major contributors (Tuinjman, 1995). Yet Smith does not attempt to offer a concise list of the components of l2l in his work beyond saying that, as a process, l2l refers to “both the acquisition and the fostering of attitudes, understandings, and skills associated with effective participation in education and the carrying out of learning-related tasks” (Smith, 1990, p.10). Longworth, a prominent researcher in lll, identifies l2l as just one of the many basic skills and competencies needed for lll, describing it generally as “staying open to new knowledge and new learning techniques” and “identifying and using sources of knowledge” by “relating learning to personal objectives” (Longworth, 2003, p. 80). When attempts are made to define or explain l2l in more concrete ways, it is often defined narrowly as a set of cognitive (thinking) skills, and/or metacognitive (thinking about thinking) skills that will enable the learner to learn ever more material faster and more efficiently.

Using ‘l2l’ as the descriptor for an internet search results in hundreds of sites, on-line learning courses, books, manuals, and even camps and retreats, asserting their ability to provide the skills needed for fast and efficient absorption of knowledge. However it is becoming an increasingly vain proposition that education can provide young people with the knowledge, skills and understanding that they will need in order to function well in adult life (Carr and Claxton, 2002). Our role as educators is to equip learners with something worthwhile. I argue here that the ‘something worthwhile’ is the process of l2l; the ability and desire to address complex problems throughout life.
With rapid technological advances and radical changes in the nature of work, we cannot be certain today of the skills and knowledge that will be needed in the future. Therefore, we need to shift from teaching people what they need to know to teaching them how to learn what it is they need to know in any given situation. We need to move from the “Know Zone,” or mastery of knowledge, to what Claxton (Lucas & Greany, 2000) refers to as the “Grow Zone”, where learners are comfortable with ambiguity, working through the unknown and unmastered. In response, more recent education literature on IIL expresses the need to develop attitudes as well as aptitudes that will equip people to not only function, but thrive under conditions of complexity and uncertainly, so that they will be effective learners within the current and future climates (Carr and Claxton, 2002).

Unfortunately, there is little common agreement on what attitudes and aptitudes are needed for IIL, let alone consensus on its meaning. Terms such as learnability, habits of the mind, and learning power are used interchangeably, making concept-development, as well as research on the topic, even more challenging. Adherents of the socio-cultural perspective of learning who feel that the role of context is central to learning claim it is impossible to identify a finite list of fixed attitudes and aptitudes that would be transferable to all learning situations.

There is also a large body of research in adult learning discussing myriad situational, dispositional, and institutional factors that influence participation and success in learning as an adult. These include socio-economic class, social and cultural capital, access to learning situations, time commitments, monetary costs, and motivation for learning (Cross, 1981). The reality of the learning context cannot be overlooked when attempting to develop a culture of IIL. For even if we were to agree upon the necessary skills and attitudes needed to sustain IIL, fostering these components in learners would only benefit society as a whole if larger portions of the learning population were motivated to learn and even more of the society at large became participating members of the community of learners in the first place. It stands to reason then that we need more learner-specific ways to engage people of all ages in applicable and creative learning strategies. I argue in this thesis that IIL might be one such tool.
1.2 **Context of the Study: Scope and Limitations**

I am aware that L2l cannot be adequately explored without some understanding of the various theories of learning and the beliefs, values, and histories associated with each. It is also important to give some background on the history of L1 and the purpose of schooling, as one’s beliefs regarding the purpose of schooling will affect one’s stance on L1 and, thereby, the skills and attitudes needed for L2l. These issues will be a necessary, yet minor component of the secondary research for this study.

Before anyone tries to define L2l the logical initial task would be to discover the meaning attributed to L2l by practicing teachers. While I agree with Brookfield (Tuinjman, 1995) that developing a capacity for L2l is too difficult to be assumed as the sole responsibility of primary and secondary schools, for the purpose of this study I have chosen to interview elementary school teachers. These teachers are the initial formal educators and formational models of learning. I would like to gain insight into the skills and dispositions that elementary school teachers feel are helpful, if not necessary for L2l. This description of L2l will not, I am sure, be presented to me neatly, like a formal school curriculum with its objectives, outcomes, assessment tools, and suggested resources all neatly arranged in one package. I expect the meaning people give to L2l will be as varied as peoples’ philosophies and perspectives on learning itself, making it challenging to identify the particular essential elements/essence of L2l. However, it is from our beliefs about, and experiences with, learning in general and L2l specifically that we teachers make choices about what and how to teach. Our perspectives dictate what and on whom we focus when planning and implementing curriculum, as well as what we focus on when assessing whether or not our learners have met our learning objectives. Therefore, in this research I am also interested in how teachers’ teaching practices, including their approach to curriculum and assessment affect the development of L2l in their students. That is, I want to know how they attempt to cultivate and assess these skills on a daily basis.

My study will also include research on the dispositions and skills deemed critical for L2l by experts in the field. L2l cannot be fully understood and discussed without a base-case interpretation or definition from which to work. Therefore, I will use my literature review
to explore and synthesize what research in the field tells us about 121 with the intent that the literature review will not only help set the stage for my empirical research, but will contribute to answering the research questions of this study. I will address the work of Guy Claxton and his concept of Learning Power as well as the subsequent work on Learning Power through ELLI research as a specific example.

Finally, I will outline the possible barriers to implementing 111 strategies as expressed by teachers and literature, and how curriculum, present institutional belief systems, approaches to teaching and learning, and assessment practices can help or hinder the development of a love of learning and the motivation to learn throughout life.

While it goes without saying that learning takes place in numerous contexts and in many forms, this study will be limited to the development of 121 in the formal schooling system and will not take into account informal, non-formal, self-directed, or workplace learning. My context is that of the teacher and the students within a classroom, school community and, more specifically, the elementary school environment.

Also indisputable is the importance of the development of effective skills in reading, writing, communicating, and numeracy. I will not speak to the importance of developing these essential skills other than to assume they should be taught in tandem with the skills and attitudes of 121 through the content of the curriculum. I will not attempt to itemize what the curriculum content should include. While an in-depth study of provincial and national education policy approaches to 121 would be valuable for further study into the implementation of 121, it is not required in answering my research questions.

This thesis is also not about the history of learning. Any reference to the history of schooling, learning, or 111 will be in relation to 121 and will be used to lay the groundwork for incorporating the development of 121 into the purpose of schooling.
1.3  Purpose and Significance of the Study

The purpose of my study is to describe the meaning of L2L through the experiences of elementary school teachers and how L2L informs their teaching practices. The discussion will be framed and further developed by the larger body of work being conducted around L1L and L2L.

While this research does not intend to develop an independent definition of L2L, it is hoped that the descriptive nature of this study will help to illuminate the essential applied features of L2L. It is through these descriptions that I hope to enhance our understanding of the term L2L and help fill the void left by those who use the term without reference to, or examination of its meaning.

Furthermore, when attempts are made to define L2L, two key categories are generally identified. These include a), aptitudes or skills and b), attitudes or dispositions towards learning. Within these two broad camps, there is little agreement as to exactly which skills and dispositions are needed for L2L, or whether it is even possible to develop a finite, transferable list. Through this study, I hope to find out if teachers identify specific attitudes and aptitudes as essential elements of L2L, and if so, which ones they see as most imperative.

As the initial model of formal learning, elementary school teachers have an enormous impact on the development of the child as student and lifelong learner. Little research describes teachers’ experiences and conceptions of L1L and more specifically, L2L. If L2L is being proposed in literature as a key to promoting L1L, I feel it is important to get a sense of the meaning that practitioners in the field give to it and to the role that this meaning has in the classroom.
1.4 Research Questions

By illuminating the essential features of 121 for even a small group of teachers, we can offer heuristic insight and contribute to the general knowledge of the meaning of the term. Through accumulated knowledge of this sort, we can hope to improve teaching practices by enhancing understanding of that practice (Rossman and Rallis, 2003). While it is important to examine the components of 121 for practicing teachers, comparing these findings with features expressed by published researchers contributes to the larger scale analysis and widens the scope and applicability of this study. Thus, in an effort to contribute to this body of knowledge, the three key questions that this thesis will answer are:

- What does the literature tell us about 121 and the barriers and aids to implementing it in schools?
- How do Vancouver School Board Elementary School teachers understand learning to learn, and how does this understanding of learning to learn inform their daily teaching practices?
- What do Vancouver School Board teachers feel helps or hinders the development/application of learning to learn?

At this stage in the research, 121 will be defined generally as developing the attitudes and attributes needed for future learning, and “knowing what to do when we don’t know what to do” (Piaget as quoted by Claxton, 2003, p.1).

1.5 Overview of Thesis

In this chapter, I have introduced the topic of the thesis, the interests and queries that led me to my primary research questions, the basic rationale and purpose, and the research questions. In Chapter 2 I review and draw findings from the extensive literature that directly and indirectly informs this topic of study and creates a background for this research. The methodology of the study is outlined in Chapter 3. Chapter 4, Findings, describes the participants in the study and their interview responses. Chapter 5 presents the comparative analysis of the interview data and research findings. Finally, in Chapter 6, I present a summary, implications, and recommendations arising out of this research.
2.0 LITERATURE REVIEW

2.1 Why L2L: L2L as a key to III; The Complex World of Formal Education

L2L cannot be analyzed in isolation. Clarifying the meaning of L2L and the factors that influence its application in schools means analyzing historical and current literature on the key issues of learning in general and III in particular.

Consensus on the meaning of L2L is affected by many factors. It is difficult to navigate the variety of components making up L2L. This is particularly attributable to the breadth of concepts within L2L. These include:

- the spectrum of interpretations of III;
- the variety of learning theories;
- the influence of motivation;
- the role of assessment;
- the role of curriculum;
- the role of the teacher.

There are also various other issues that interact when someone chooses to actively participate in a learning experience and, to a larger extent, a learning society.

Learning itself is a contested issue. There are many theories explaining when, where, why, and how learning happens. While there is some overlap between these perspectives, there are often very elemental differences between them. Since everyone has participated in learning in some form or other there are many stakeholders. From education theorists, politicians, government bodies and world organizations, to those more directly involved such as educators, parents, employers and learners themselves, all these stakeholders have a vested interest in and an opinion on how and why learning should take place.

With so many different people, cultures, perspectives, and purposes for education and learning, it is no surprise that the changes needed to maximize the effectiveness of education systems in the current world climate are very difficult to implement.
In the following sections I will highlight and discuss the relevant, identified areas to this study. I will also assess the key issues that help or hinder the definition and application of L2L. Since L11 is at the core of this research, I will present the reasoning behind its relevance. In order to study the components of a potential model of L2L and how L2L might be implemented and assessed, I will explore Learning Power, which was conceptualized by Guy Claxton and further developed by ELLI research.

2.2 A Brief History of LLL and its Impact on the Development of L2L

L2L has been developed through decades of discussion centred on L11 as a means of moving towards a ‘learning society’; a society that promotes learning for all throughout life.

L11 is not a new concept. Plato’s Republic speaks to the importance of continuous learning throughout life. Lindeman (1926) articulated the importance of lifelong education in both formal and informal settings very succinctly with his assertion that education is life and not merely the preparation for life. Many other prominent writers at the time, including R. H. Tawney, John Dewey, and Basil Yeaxlee affirmed the need for universal and lifelong education for personal development, social service, and the noble cause of democracy.

In recent decades there has been a terminology shift from lifelong education to lifelong learning to distinguish between the process of learning and the act of education. This gives recognition to the internal cognitive processes of learning and the fact that it can happen both incidentally or informally, without the need for concrete planning or institutional involvement, and intentionally, in formal and non-formal systematic, organized environments. Still, the belief that continuous learning throughout one’s life is essential continues to be upheld. However, as with learning, L11 is envisaged in many different ways. The discourse around L11 takes on a variety of different foci regarding its purpose. The motives for L11 have undergone much socio-political analysis. In adult education, L11 has been espoused as a necessity, based on social-democratic or
emancipatory reasons. In most education policy however, III is promoted from an economic rationale.

When III was discussed under the term ‘lifelong education’ in the late 60’s and 70’s it was within an emancipatory, socially-democratic, and humanistic focus and was viewed as a way of promoting citizenship, community, and holistic learning. At the same time it was espoused as a way of ensuring that there is “education for all” as an equalizer between social classes along with the goal of maintaining and improving both individual and communal quality of life (Freire, 1968; Faure, 1972, Cropley, 1980, Edwards, et al., 2002, Tuijnam and Boström, 2002). This discourse is still actively upheld in III literature.

Concurrent with the lifelong education discussion, which took place prolifically through UNESCO’s Institute for Education, the OECD was exploring the concept of ‘recurrent education’ as a precursor to lifelong education (Tuijnam and Boström, 2002). While there were some commonalities between the two terms, recurrent education was more limited in its scope. It focused more on promoting adult education, the relationship between education and work, and the link between education policy and labour market policy.

This more pragmatic, rational, economic progress approach to learning throughout life can still be seen in present III discourse. In this worldview III is said to help people cope with changes in labor market demands. Drawing on human capital theory, III is presented within the utilitarian framework of skill development and lifelong training necessary for personal, national, and global competitiveness. This neo-liberal rhetoric would have us believe that if we continue to learn throughout our lives, not only can we get ahead personally, but we as a nation can stay ahead internationally. While we might personally acquire and maintain the careers and lifestyles for which we each strive, this plan cannot work internationally if/when all countries share the same strategy.

With the change in semantics from lifelong education to III came an implied shift in responsibility away from the institution and onto the individual. Thus, the fulfillment of III and all that it endeavors to offer relies on the abilities, resources, and motivations of
the individual. The formal learning structures and governing bodies of nations can thereby be released in large part from the responsibility to offer and fund III endeavors. The same is often true for workplace situations that have moved to 'just in time' workforces, whereby individuals are hired on as consultants or freelance workers who are expected to keep themselves current and employable (Rifkin, 1995). With this focus on individual responsibility as opposed to communal responsibility, a strictly economic perspective leaves many people using III as a form of control that excludes a large portion of society, reinforcing the powerful hegemonic inequalities amongst socio-economic classes. If this neo-liberal perspective on III were left to dominate the discourse, policy, and learning opportunities, individuals with limited skills and/or access to regular updating would find it increasingly difficult to find paid employment, further weakening their capacity for ongoing learning and skill-development. We can easily extrapolate that the working poor of the future would not be the illiterate, but those who have not been given the tools or opportunities for III (Toffler, 1980). The gap between the haves and the have-nots would continue to grow.

"The overall result is a paradox. 'A shift in the responsibility for developing learning opportunities for adults from the state to individuals and employers is taking place at the very same time that there is a growing recognition of the need to move towards the notion of III'" (Raggatt et al 1996, p. 1).

There is great irony in the discourse originally conceived to promote equity being usurped and used as a tool to further the economic divide within countries.

Regardless of the paradigm, all camps feel that III is a necessity and that there are strategies, skills, dispositions, habits, and knowledge that will assist us in learning throughout life. Everyone will benefit if we can develop a school system that engages students in learning with "enthusiasm, resilience and resourcefulness" (Claxton et al, 1996, p. 6).

In essence, the rationale behind III is a function of any given proponent’s paradigm of III. Because there are many conflicting worldviews behind the push for III, very different
components of 21 are supported. On one side are the supporters of individualism, utilitarianism, and economic gain. The other side sees those supporting holistic, qualitative, humanistic, and community-based objectives, whose ultimate goals are global citizenship and the democratization of education. These conflicting paradigms muddy the debate around 21, making clarification and analysis difficult. When it comes to 21, depending on one’s epistemological framework/orientation, as well as hierarchical standing within society, a person will weight some skills or dispositions over others, and furthermore, will completely omit some attributes and attitudes either without consideration or as unnecessary.

2.3 Are schools achieving their purpose? What should be the criteria for success?
The purpose of this research is not to assert that our current education system is a complete failure. There are plenty of data that point to the successes of our Canadian School System. Our dropout rates have decreased significantly over the years from 16.7% in 1990/1991 to 9.8% in 2004/2005 (Bowlby, 2005). Another example of Canada’s educational success is that we continue to place in the top 10 or better internationally in math, reading, and science (Brown-Ruzzi, 2006). Also significant is that we are doing well at ensuring our schools achieve high standards for quality and equity in math in particular, while there is below average impact of socioeconomic background on student performance. Therefore, Canadian parents can rely on high and consistent standards of performance on international tests across schools. As a nation we are also noted as one of the countries that does very well in value for money invested in education. Many other countries invest a great deal more on education and achieve less successful results on standardized international tests (Ibid).

However, taking a look at these successes more closely, we can see there is still obvious room and need for improvement in our education systems if secondary completion rates and international testing of basic skills are indeed considered the measures of success. The question then becomes how to improve, rather than whether or not we need to

1 We are seeing above average results in math, science, and reading in international testing (Brown-Ruzzi, 2006).
improve our system. For example, even though the dropout rate in Canada has declined to roughly 10%, it still means that over 200,000 young Canadians between the ages of 20-24 have not obtained their high school diploma and are not enrolled in school, classifying them as dropouts according to the definition used to calculate rates through the Labour Force Survey data. These data have been used in the last decade and a half to look at trends in dropout rates (Bowlby, 2005). In 2002, we hovered in the middle of the pack of 25 countries that the OECD assessed for dropout rates (ibid). Nine countries faired better than us in high school completion.

A decrease in dropout rates can be attributed to many factors, such as the development of second chance education options for youth who did not successfully complete their degree by 18, alternate programs, as well as other supports for those students who are not experiencing success in the regular system. This decrease cannot be solely attributed to the schooling system, but must also take into account social and workforce changes that require an individual to have, at minimum, a secondary school diploma in order to obtain work beyond a low skilled/low paying option. Even though they know that a school education is imperative to obtaining viable employment, close to 10% of students still choose to dropout. Why could this be? Is it because they are discouraged from their failures to be successful in the school system?

According to results from the Youth In Transition Survey of 2000 this is not the only explanation, as they found nearly half of all dropouts had at least a B average in school and less than 5% reported grade averages below 50% (Bowlby, J., & McMullen K., 2002). When asked why they left school, many respondents stated disaffection with school and a desire to get into the labour force and have a sense of purpose. It would seem, for young males who fail to complete high school in particular, that school is not engaging, does not provide relational support, and does not appear as meaningful as the alternative of obtaining work (Bowlby and McMullen, 2002). This might leave one to question how we can make the school experience more engaging and meaningful, and how we can help build supportive relationships and connections amongst learners, teachers, and the community at large.
One way of responding to the expressed interest of youth in having more practical learning experiences is the concept of apprenticeship. The 21st Century Learning Initiative (year unknown) speaks of the need to re-induct the process of cognitive apprenticeship into societal practices as a natural way of passing on the skills and values from one generation to the next. Removed from societal norms by the industrial revolutions’ invention of compulsory secondary education, cognitive apprenticeship involves older community members modeling and scaffolding various life skills and talents.

"Yet, it was the breakdown of apprenticeship caused by the transfer of industry from a craft to a factory process in the late 19th century. This followed closely on the need to provide an alternative to the control of parents whose future employment was to be within large factories rather than in the home, the small shop, the farm or the artisan workshops. Suddenly, theoretical assumptions about how people might learn had to be shaped to provide a framework for the newly emerging universal school system, which would from that time forward involve all children" (21st Century Learning Initiative, p 9).

Now let us take a look at the international tests in which we succeed as a nation. They primarily focus on the core subjects. They display that we are doing well in teaching basic knowledge and skills, particularly in reading. But even one of these international tests, the Program for International Student Assessment (PISA), believes there is more to education than mere knowledge and skill transfer. This test, administered every three years, goes beyond relaying academic results by surveying students to discover their perspectives on their schools’ climate, motivation, and engagement, as well as a number of other factors that have been proven to affect student success in school (OECD, 2001).

According to the OECD, as communicated through this PISA test, education must, therefore, encompass more than the knowledge and skills sets inherent in the math, science, and reading curricula in countries around the world, and our assessment of whether our school system is successful needs to look beyond content knowledge and basic skill development.
"These findings suggest that strategies to improve teaching and learning techniques need to do more than just offer students a learning tool-kit. Students will only use learning tools if they feel motivated and believe in their capacity to learn. So measures to improve learning techniques must go hand in hand with measures to nurture stronger attitudes to learning" (OECD, 2001).

The assertion that effective education includes skill and attitude development is becoming more prevalent. The opinion that we must find ways in school to address the development of the whole person and not just the academic mind is growing. Nations around the world seem to be experiencing a disconnect between what employers in the workplace are stating is required of learners and what is being promoted in school systems. The misdirection of energy and resources in schools is encapsulated in the accountability movement prevalent worldwide, which calls for further standardization and measurement of academic achievement above and beyond all other measures of success.

"The rules for work are changing...These [new] rules have little to do with what we are told was important in school; academic abilities are largely irrelevant to this standard. The new measure takes for granted having enough intellectual ability and technical know-how to do our jobs; it focuses instead on personal qualities, such as initiative and empathy, adaptability and persuasiveness...This is no passing fad, nor just the management nostrum of the moment. The data that argue for taking it seriously are based on studies of tens of thousands of working people, in callings of every kind." (Goldman, 2000, p. 3)

Again, this thesis does not aim to diminish the successes Canada’s formal education system is experiencing internationally, nor does it mean to minimize the extensive efforts and commitment to the success of students of the many talented professionals who put in countless hours beyond the school day. What is called into question is the way that we choose to measure success in formal education. Students are found to become less creative and more dependent as they move through the formal education system (Deakin Crick, 2006). Is this what we want our schools to achieve?
"What are the dangers of education? There are three that are particularly consequential for the way we live on the earth: (1) That formal education will cause students to worry about how to make a living before they know who they are, (2) That it will render students narrow technicians who are morally sterile, and (3) that it will deaden their sense of wonder for the created world" (Orr, 1994, p 24-25).

Granted, we need learners who are equipped with the basic building blocks of learning, but in order to be prepared for 21st century learning, they need to be equipped with much more. Changes must be made to our values systems and practices if schools are to fully contribute to the development of confident, effective, and flexible learners. Present and future challenges are/will be met only through adaptive and flexible solutions. The following section outlines some of this new changing global context.

"If we change our representations of intelligence, learning, and teaching, we can change the interactions between students and teachers in the classroom...[we] may have to change our representation of what classrooms and schools should look like. We may have to get over the idea that good schools should be like the ones we attended." (Bruer, 1994, p. 289).

2.4 **Education for the Future: How are we doing?**

"...learning to learn has been and continues to be Homo Sapiens' most formidable evolutionary task"  


We are well into the ‘information age’ where we can, and are expected to, instantly access any relevant knowledge or information, regardless of where it originates. Our present system of education is built on the outdated industrial model and this hasn’t reflected current reality for decades (Rifkin, 1995). Education with the purpose of imparting and acquiring subject-based knowledge has been proven inadequate and unrealistic (Smith, 1990, p 346; Rifkin, 1995). Education reforms that push for improving the absorption of knowledge in order to produce a more polished end product are missing the mark. We cannot expect to produce successful learners, ready for a life of learning, adaptation, and dynamic thinking if we continue to push them through a broken system,
regardless of whether or not they have managed to figure out the rules of the formal education game. Many learn these rules simply in order to achieve “success”, while others decide not to play the game at all.

Rifkin (1995) speaks to a further need in education. Beyond ensuring that learners are prepared for the market and government sectors, we must ensure that learners are prepared for the civil sector. Current national unemployment levels and increasingly over-qualified workers make it clear that there will not be enough “traditional” work for people in those first two sectors. Growing employment sectors illustrate the need for more creative skills in the workforce (Senge, P. 1990).

Since it is clear that we live in a time of rapidly increasing change, the one surety learners are faced with is the need for adaptability. An education system that doesn’t facilitate the development of adaptability is one that is manufacturing obsolescence in its students. New knowledge and information comes online daily. Different cultural perspectives come to light, changing the way that business and politics are conducted. New and complex environmental/ecological problems arise for which the solutions require rethinking old paradigms. The “steady-state” theories of economics and ecosystems truly no longer apply to reality (Holling, 2001). Learners (people) need to be equipped with skills that allow them to react to new situations and contexts in positive, holistic, and constructive ways throughout the course of their lives (Senge et al, 2000, Rees; 2003).

Today the abstract knowledge and hard facts with which students leave formal schooling are only useful as foundational building blocks for future learning, not as the central skill sets they will use for gainful lifelong employment. Applying background knowledge effectively in problem-solving is the basic component of adaptability. Linear thinking, championed during the industrial revolution, no longer applies to today’s complex workplaces. An education system therefore, that doesn’t build the skills, tools, and attitudes that learners will use to adapt to changing contexts will leave these people behind, unable to apply their rote learning (Senge et al, 2000).
"One result [of formal education] is that students graduate without knowing how to think in whole systems, how to find connections, how to ask big questions, and how to separate the trivial from the important. Now more than ever, however, we need people who think broadly and who understand systems, connections, patterns, and root causes" (Orr, 1994, p. 23).

Based in the scientific revolution, linear, mechanistic thinking was incredibly successful at arranging simple systems, i.e. an assembly-line, an internal combustion engine, a hydroelectric dam (Capra 1982, Rees 2003). Because it was mechanistic, the scientific worldview saw problems and systems in isolation as opposed to being interconnected. As a result of its own success, this mechanistic paradigm has given birth to increasingly more complex problems. With the assembly line, we became so efficient in the 1920’s and 30’s at producing things, the people who used to be necessary components of production became redundant. Viewed as extraneous, many people were removed from the assembly line, job losses were huge. As a direct result, the overshoot in production and lack of capacity for consumption caused the Great Depression, an unforeseen result of increasing efficiency on the assembly line (Rifkin, 1995).

The ongoing advancements in the present technological revolution promise to continue to improve our efficiency in all production fields, ever decreasing the need for human labour. Jobs in the industrial workforce will continue to be eliminated as manufacturing becomes less and less labour intensive. We must therefore prepare individuals for work in the information workforce rather than the industrial workforce that our present school systems cater towards (Rifkin, 1995; Senge, 1990; Senge, 2000).

2.4.a Outdated Education Paradigms vs. Emerging Complex Problems.

The hydroelectric dam example is particularly illustrative of how complex problems develop out of simple human solutions (Rifkin 1995). The simplification of ecosystems through anthropogenic, linear engineering has created ever more complex problems (Holling, 2001). When faced with the challenge of creating electricity from the potential energy in a flowing river, mechanistic thinking tells us to dam the entire river, create a
water storage facility upstream and then guide the flow of water over turbines, which turn resistors to create electrical current. What the mechanistic worldview could not possibly forecast as a consequence came as an indirect result of damming the river. Slowing down the current of major rivers throughout Africa and South America has allowed for the introduction of certain species to those rivers; animals and plants that could not tolerate fast-moving water. Among those animals introduced to the major rivers was a small snail. With it came the schizont worm, a tiny invertebrate that begins its larval existence in the body of that snail. After hatching, the Schizont worm swims free in the water, looking for a warm-blooded host to live out the course of its life. Findings humans as suitable hosts, the worm burrows into the skin and makes its way through the host’s body. Sparing some of the details of this process, the result to the host are diseases we have diagnosed as ‘schistosomiasis’ or ‘bilharzia’ (Wikipedia, 2007).

The inadvertent result of building dams for hydroelectric generation in many countries of the developing world was the massive increase in schistosomiasis, or bilharzia. In order to address the high rates of infection health workers had to analyze the lifecycle of the schizont worm in order to understand the cause and effect of slowing down the rivers and the resultant infections of schistosomiasis. For today’s engineers, a core predication of building hydroelectric facilities in tropical countries is to analyze the biophysical responses to the various upstream and downstream “side effects” of construction. Without being able to trace the problem of schistosomiasis back to the dam, health workers would never have been able to address the problem. The ability to see the interconnection between these, seemingly unrelated things, comes from an education that reflects more than the outdated industrial model’s teachings. The analysis demands complex problem-solving skills, abilities to comprehend unintuitive interrelationships, and tools for thinking laterally, looking “outside the box” for solutions (Senge, 2000, Claxton, 2002).

Because anthropogenic systems and structures like these create entirely new conditions, there is no rote way of addressing or forecasting the associated problems. The type of problem-solving required relies on the skills and tools developed by people in response to
emerging problems. These skills and tools, and the dispositions needed to continually want to learn and problem solve are requirements for successful citizens in the 21st century.

2.5 Perspectives on learning
There are a great number of things that either facilitate or hinder whether or not a learner engages effectively with a learning process/activity. It is important to discuss and clarify what these enabling and hindering things might be. Whether it is the underlying paradigm of the teacher, the effect of motivation, or assessment, etc, we must understand them before we can make recommendations on how to best gear the learning situation to facilitate 21.

2.5.a Behaviourism and Cognitivism
Our current system of education has been largely influenced by both behaviourist and, in turn, cognitive theories of learning. Behaviourism, with its emphasis on rote learning, rewards the reproduction of 'approved' responses rather than creative or critical thinking. Behaviourists study overt behaviours that can be viewed quantitatively and ignore the possibility that thought processes may occur in the mind (Mergel, 1998). The end product or the observable outcome is of the utmost importance. Reaching the observable outcomes as efficiently as possible is stressed over the process of learning.

When cognitive science replaced behaviourism's influence on instructional design, largely in the 1970's, a shift was made away from practices that emphasized external, observable behaviour over those processes taking place in the mind. Educators became concerned with the internal mental processes of the mind and how they could be developed to promote more effective learning. But both Behaviourism and Cognitivism adopt an objective view of the nature of knowledge and what it means to know something. The goal of instruction therefore remained the communication or transfer of knowledge to learners in the most efficient and effective manner possible (Bednar et al., in Anglin, 1995).
Both theories support the act of breaking tasks down into manageable chunks. Behaviourism for the sake of efficiency, and Cognitivism in order to effectively store and retrieve information to integrate it with prior knowledge or schemas. Both theories also establish objectives and measure success based on those objectives. There is strong evidence that Behaviourism and Cognitivism are alive and well in our education system (Mergel, 1998). Our curriculum objectives/outcomes and many of our summative assessment practices\(^2\) demonstrate the reliance on Behaviourism and Cognitivism. Behaviourism is also evident in the practices of many teachers who make use of rewards and consequences in an attempt to motivate students. The grading system used in schools is the most obvious and consistent example of this form of external motivation. The influence of Cognitivism in our current education system is apparent in the use of advance organizers, mnemonic devices, metaphors, chunking information into meaningful parts, and the careful organization of instructional materials from simple to complex.

In both theoretical frameworks, the teacher is the orchestrator of learning situations. Ideally, he/she disseminates expert knowledge effectively and efficiently to students and then assesses student recall of this relayed knowledge. The learner should be able to articulate his/her understanding by talking, writing or displaying this knowledge in some observable way. If the learner can’t perform to the pre-determined standard, he or she has either not learned, or has not properly/fully learned the material.

Certainly we cannot be aware of all that takes place inside the learner when he/she is attempting a novel activity. Often even the learner is not fully conscious of his/her own learning. Behaviourism and Cognitivism can act as reminders of the importance of teaching metacognitive strategies so that learners will not only be more aware of their own thinking, but will be better equipped to share their thinking with others. The cognitive thinking strategies listed above, such as the use of graphic organizers and chunking of information, can also benefit learners when they take in new information and attempt to organize their thoughts.

\(^2\) These inform us of how well students have mastered the specific outcomes at the end of a unit of study.
2.5.b Constructivism/Social Constructivism

The basic premise of constructivism is that the individual constructs meaning through his or her learning experiences. In this framework, learning is an active process. Learners actively make sense of present learning situations by using past learning and the knowledge, beliefs, schemas, and attitudes obtained from previous learning as a point of reference for new learning. New knowledge is either assimilated into existing schemas, or the learner’s views are altered to accommodate the new learning (Bruner, 1973; Piaget as cited in Sandwell, 1995). Through constantly restructuring thinking to fit new experiences, one adapts to his or her environment and continues to learn. Learning requires that the learner be meaningfully engaged with authentic activities and resources in his/her environment in order to process and make sense of experiences (Nuthall, 1997).

Social constructivism builds on the concepts of constructivism. Also embedded in this perspective is the idea that learning is inherently social. It does not take place in a vacuum, or strictly in our heads, but is mentally constructed through our interactions with others and in the context in which the experience is situated. In this way, social constructivism is closely linked to socio-cultural perspectives of learning. Teachers can’t make assumptions about what students take away from learning experiences. Each learner constructs his or her own knowledge through the ways in which he/she engages in the activities and with the resources available to him/her. They are constantly interpreting and making sense of their environment by relating it back to their prior learning, negotiating meaning with others and either building onto their prior knowledge, or reconstructing it (Nuthall, 1997).

The teacher’s role is to provide a rich environment in which the students explore curriculum content. A classroom filled with interesting things to explore encourages students to become active constructors of their own knowledge. It’s also important that the students feel comfortable enough to take risks in their learning environment. As far as actual teaching is concerned, the instructor needs to be aware of the students’ understandings or misconceptions of the content so that he or she can best help the student develop. The task of the instructor is to translate information to be learned into a
format appropriate to the learner's current state of understanding, while ensuring that it is presented in the contexts in which it will eventually be used (Pratt, 1998). Curriculum is organized in a spiral manner, whereby the student continuously builds upon what he/she has already learned. The teacher tries to encourage students to discover principles by themselves through the sharing of the multiple perspectives of their peers. The ultimate goal is to enable students to be independent learners and not regurgitators of the knowledge imparted by the teacher (Pratt, 1998).

2.5.c Socio-Cultural Perspective/Situated Learning

According to the socio-cultural perspective, social interaction is a critical aspect of learning. As learners participate and interact together, they form a community of shared beliefs and behaviours and construct knowledge/understanding collaboratively (Wenger, 1998). One cannot separate what is learned from how it is learned and used (Brown et al., 1988). It is through the culture in which people are immersed that they learn what and how to think (Vygotsky, 1978). Context is a critical factor in learning. Unfortunately, in most classrooms, learning involves knowledge that is presented abstractly and out of context rather than giving the learners an idea of the big picture or cultural context in which the knowledge will be used. Educators following a socio-cultural perspective pay attention to the activity selection and context as they structure understanding of the content. The knowledge the students gain is a result of the activity in which it's produced (Brown et al., 1988).

Though participation is a key ingredient of learning, there are still structured processes for promoting learning and ensuring it is indeed occurring. The goal is not only to create a group that can co-operate, but to create a community of learners. This denotes that members not only participate, but develop shared learning and shared practices. They learn to challenge each other's perspectives in effective, constructive ways and spur each other on to learn more. They have a shared purpose for their learning (Wenger, 1998).

3 "A community of practice is an intrinsic condition for the existence of knowledge ...Thus, participation in the cultural practice in which any knowledge exists is an epistemological principle of learning (Lave and Wenger, 1990. P.98)." As the beginner or newcomer moves from the periphery of a community to its center, they become acculturated and assume the role of expert or old-timer (Lave and Wenger, 1990).
Learners naturally turn to others to share their experiences, check their understanding, and ask for guidance. Together learners form a shared understanding of the concept about which they are learning. Active engagement is a key ingredient in effective learning.

Students first learn things through their interaction with the materials, resources, and activities around them (Vygotsky, 1978). One type of resource is the people with whom they interact. Once a shared understanding is developed, the learner can internalize that understanding, giving meaning to it through personal experience. Also critical to learning is the role of the teacher, as expert, to model positive engagement with the content.

The teacher is responsible for setting a climate in the classroom that is conducive to good learning; a space where all opinions are valued and supported and where students feel they can turn to each other, as well as to the teacher, as resources. The educator strives to know what the students can do independently and then work with them to increase their level of competence. The teacher does this through a process of modeling appropriate thinking, or working skills in the classroom and guiding the learner with less and less specific direction until he or she can work more independently (Vygotsky, 1978).

2.5.d Phenomenography

Phenomenography is based on studies of the phenomenology of learning, studying people's specific conceptions or experiences of learning. According to this perspective, there are variations in the way different individuals experience or learn from situations. Learners differ in their awareness of the concept being taught. Their awareness varies according to what they hold in focus and what they miss or let fall to the background. The quality of their learning depends on how many parts of the whole experience they can discern and hold in their mind simultaneously in order to manipulate the material to suit the needs of the situation (Marton and Booth, 1997).

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4 Vygotsky (1978) called the difference between what a child can do with help and what he or she can do without guidance the "zone of proximal development" (ZPD). Scaffolding is a Vygotskian instructional technique whereby the teacher models the desired learning strategy or task, then gradually shifts responsibility to the students (1978).
Learners mentally construct their own understanding. The main job of the learner is to strive to change his/her relationship with the material or phenomenon so as to experience it more like an expert of that content would. Learning is about moving up a ladder of depth in understanding a concept in order to reach as deep an understanding as the experts. This requires that the learner not only reflect on the content, but also on his/her relationship with, and understanding of the concept. The learner needs to be reflexive about his/her learning. The task of the teacher is to enable the learner to develop different ways of seeing or experiencing the world. Studies show that teachers tend to focus more on the activity utilized in a learning situation than they do on the content that the activity is supposed to teach. Therefore, the student, in turn, focuses more on the activity than the content; and surface rather than deep, learning is encouraged (Marton and Booth, 1997). As with constructivist and socio-cultural perspectives on learning, active engagement is a key ingredient for effective learning.

The purpose of an activity, which holds true for any L2L activity, is made apparent to the students and is geared towards developing student understanding, rather than the acquisition of information. Teachers should not treat content as self-evident or as a given. This can happen when students are asked to focus on the demands of the activity rather than the content or skill they are meant to be learning (Marton and Booth, 1997). The students are taught to reflect on their thinking in order to develop deeper understanding.

It is the job of the educator to define the topic's key concepts that need to be understood. Once those key concepts are distinguished, the teacher needs to assess the students' experience of the concepts in order to establish the variation in the ways that his or her class understands the concept. From there it is important to identify the critical differences between the various ways of understanding and then teach to these differences. To improve student understanding, the teacher must be clear about his or her expectations and where the learning tasks will lead. Students need to feel that activities are relevant. They need to be able to make sense of how the activities are structured (Marton and Booth, 1997).
2.5.e Multiple Intelligences

Gardner's (1991) multiple Intelligences, simply stated, are different approaches or ways of learning and demonstrating ability. His theory states that we may have a predisposition for one approach to learning over the others, whether that be a spatial, musical, linguistic, bodily-kinesthetic, logical-mathematical, interpersonal, or intrapersonal approach. However, while one learning style or intelligence may be more dominant than the others, people utilize a combination of learning styles during their learning careers (Gardner, 1991).

The perspective of multiple intelligences, or other learning style theories aims to remind teachers that they cannot view their students as a “featureless mass...rarely vary[ing] their teaching methods, thinking that the method by which they were taught is best for everyone” (McKeachie, 1995, p. 1). In following this perspective, teachers are called on to teach to all learning styles, avoiding the over-reliance on linguistic and logical-mathematical learning styles in traditional schooling. While students have preferred learning styles, these learning styles are not fixed or inherent. ‘Learning styles’ are preferences and habits of learning that have been learned...everyone is capable of going beyond the particular ‘style’ preferred” (Ibid). We can build on students’ strengths, while at the same time more fully developing alternate styles through practice and perseverance.

2.5.f Inquiry-based Learning

*He who is afraid of asking is afraid of learning*

Danish Proverb

*“Intelligence is not always knowing the answer. It is always asking the question”*

Maya Angelou

Founded on the work of John Dewey, inquiry-based learning is promoted as a more effective way of addressing the ever-growing volume of knowledge that one might be expected to acquire. If we are in agreement that one can never learn all that there is to know we can conclude that it does not make sense for schools to try to teach solely what
we collectively already know, but rather to focus on how we come to know and understand (Thirteen Ed Online, 2007).

According to inquiry-based learning, inquiry, or questioning, which is often discouraged in traditional education, is key to the development and transmission of knowledge. In a contemporary education system, content must become a means to an end and not the end itself. By approaching learning as a process for solving questions/problems that are engaging for and relevant to the learner, we can create a climate of active learning. Concurrently, we should be teaching an understanding that learning often leads to new questions. Inquiry can help us develop a relevant and cumulative framework for learning (Ibid).

The history of inquiry-based learning is deeply entwined with constructivism and the belief that the learner actively constructs knowledge through his or her engagement in tasks. The more interested and engaged the learner is with the activity, the deeper the learning that can take place. This denotes the importance of maintaining student-centred learning.

Originating in the field of physical sciences, proponents of the theory believe that an inquiry-based approach to learning is successful in all disciplines. It can be incorporated into lectures, group work, and other formats for learning beyond laboratory work. The scientific method can be applied beyond the natural sciences (Ibid). Learning is initiated by a desire to answer questions. These questions vary in type including inferential, interpretational, transferal, and predictive (Wolf, 1987). They require the learner to make decisions or develop a plan of action. Reflection and further questioning play key roles in deepening and broadening the learning that takes place. According to Wolf and her concept of an arc of questions (1987) teachers should ensure that questions come from the learners as well as the teacher and should be enabled to run their course until new insights emerge.
Information-processing and the development of critical thinking and problem solving skills, rather than content, are the foci of inquiry-based learning. The focus is not on finding the right answer, but on finding resolutions to questions on key issues. Indeed this is how learning is approached in the workplace and in life in general (Thirteen Ed Online, 2007).

The teacher’s role in inquiry-based learning is to support, facilitate, and coach the learner in the quest for answers to key learning questions, and to ensure that he/she does not get sidetracked on the journey. Rather than posing most of the questions, the teacher attempts to develop a questioning and curious nature in the learner stretching beyond the walls and resources of the classroom. Any questions that are posed by the teacher are more open and reflective and are meant to help the learners clearly identify their true questions. The teacher presents information in a relevant context to ensure that learning is purposeful and will lead to deeper understandings by making connections with other perspectives and disciplines. Learning is approached in a holistic way in order to help learners see patterns and relationships so that knowledge will be transferable to varied situations. Assessment practices focus on the development of learning skills and habits of mind alongside the deepening understanding of content. These skills and habits are what will enable the learner to continue to learn throughout life (Ibid).

2.6  The Decision to participate in learning endeavors; Motivation

The decision to engage with a learning activity is not a simple process that can be reduced, as it often is, to a conscious decision. It is often mistakenly assumed that the learner merely has to choose to put in the effort needed to be successful in the task. Likewise, disengagement is often viewed strictly as the result of laziness.

Claxton (Claxton et al, 1996) suggests that the decision to participate in a learning situation involves a complex cost-benefit analysis that includes many personal, emotional, and vocational considerations, most of which are unconscious. The learner might consider which of their personal goals may be advanced by the learning opportunity, other priorities they have at the time, and how participation in the learning
challenge may impact these other priorities. He or she may also consider the support or resources available to complete the learning activity, or the costs and risks inherent in the task. Cross (1981) also speaks of a multitude of institutional, situational, and dispositional factors that can act as barriers or instigators to participation.

A similar, but more pointed, analysis is Feather’s *expectancy x value* theory for explaining the role of motivation in learning (Brophy, 1988). According to this theory, people will apply themselves to a task if they believe they will be able to perform the task successfully and if they value the rewards that successful completion of the task brings. If one of these elements is missing, the individual will expend little or no effort. People generally do not want to waste time trying to learn something they believe they either cannot learn, or they feel holds no value (Ibid). But the more the learner values the learning to be acquired and feels it is attainable, the more highly motivated he/she will be to learn. In fact, when the activity itself is meaningful to the learner, he/she is more likely to become rapt with it. This absorption, or flow in an activity is inherently motivating (Claxton, 2002, P 21).

Ryan and Deci (2000), whose research is guided by Self-Determination Theory, speak of three psychological needs that, when satisfied in a social context, increase self-motivation. These three needs, also partially addressed in Feather’s *expectancy x value* theory, are competence, autonomy, and relatedness. Learners will be more likely to internalize motivation and be authentically motivated, even if the initial motivation for completing the activity was external, if they believe they can be independently successful, experience a sense of choice and freedom from external pressures or controls, and have a sense of belonging and connectedness with others in the environment. When individuals are authentically motivated rather than externally controlled/influenced, they are likely to be more interested, excited, and confident, which helps to increase performance and encourages persistence and creativity (Ibid).

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5 The concept of ‘flow’, developed by Mihaly Csikszentmihalyi is discussed later in this chapter under Claxton’s concept of resilience.
In this light, there is nothing wrong with opting out of some learning activities. In fact, it is a wise decision in some cases to say no to learning opportunities if they don't coincide with our learning needs. By focusing on the learning opportunities that help us work towards our personal or career goals we are more likely to achieve personal success. The risk lies in learners completing inaccurate cost-benefit analyses that would have them opt out of potentially beneficial activities, or the reverse, opt into activities that would be of little benefit to them.

Much of adult education literature speaks to the necessity of keeping the learner and his or her personal goals and interests at the centre of all education activities. However this is often based on the assumption, identified by Knowles (1980), that the learner is self-directed and knows what he or she wants to learn and how he or she wants to learn it. This is a somewhat inflexible and inaccurate description of the adult learner for two reasons. One is that learners of all ages are not always aware of exactly what they hope to gain from the learning experience, or they have a narrow or limited view of what they may be able to learn, especially in new contexts. Secondly, self-directed learning is not an accurate description of how learners can or should act at all times. Learning is inherently social. Negotiation and collaboration become essential tools of the learning process. Cherin (as quoted by Smith, 1990) prefers the concept of developing self-managed learners because it is more flexible. This implies that the individual can "direct, collaborate, confer, request, and instruct", taking on a "wide range of established management roles in the course of learning" (Smith, 1990, p. 270). Rather than always dictating our younger learners' activities, or assuming that more mature learners are self-directed, we can explicitly teach the skills necessary to manage learning, while also teaching the content of that learning. This implies a shift in emphasis from the planning of the course prior to starting, to a more collaborative exchange between learner and leader to ensure that the learning remains learner-centred and does not become content-centred.

The influence of emotions on motivation cannot be overlooked, for learners often opt to save face over thinking if at first we don't succeed.... This speaks to the need to establish
a supportive and secure, yet challenging classroom climate for learning. Group cohesion and a sense of relatedness and belonging between the learners and the teacher are important in creating a climate that promotes risk-taking and divergent, creative thinking (Bennett, 2000; Ryan and Deci, 2000; Vela, E., visited January, 2007). This cohesion can be developed through such activities as class meetings, predictable schedules, training in collaborative work, and recognition of individual efforts to support the group. Students' viewpoints should not only be heard, but respected and built upon. Perseverance becomes a quality that is cultivated and recognized in the class and learning is talked about as being learnable, even though at times it requires hard work. When mistakes are seen as opportunities to learn and grow, true learning can take place (Claxton, 2002).

Research also shows that the level of challenge inherent in a task is strongly tied to a learner's motivation to engage in learning. Bazeli,(Smith, 1990), Lambert and McCombs (1998), and Ryan and Deci (2000) agree that both diligence and motivation increases if students believe their success can be attributed to their own efforts in challenging learning tasks. Learning tasks that are viewed as too easy, therefore, can have as negative an affect on motivation as those exercises that are too difficult, even if the learner experiences success with the task. Students cannot be supported in their quest to persist in the face of obstacles if obstacles are always eliminated for them. This speaks to the need for adaptation and modification in the classroom for students in order to ensure that activities are just outside of the learners' reach, or at their instructional level and not their independent level, and thus working within the learner's zone of proximal development (Vygotsky, 1978). In order to learn to cope with challenges, learners should struggle through a manageable amount of difficulty. When successful at such tasks, the students will then be encouraged to take on further challenges (Dweck, in Claxton, 2002).

But a 'one-size fits-all mentality will not accommodate the needs of a heterogeneous group of learners. The most obvious way to ensure that the activity is at an individual’s instructional level is to ask him or her and acknowledge his or her feelings and opinions. Allowing for choice and self-management in the skills or dispositions on which the individual feels he or she needs to focus, along with the guidance and conferencing of the
teacher, allows for personal investment, autonomy, and internal motivation (Claxton, 2002; Deakin Crick, 2006).

"Students don't have any say about going to school, or being in a particular class. Giving them choice within the class is an important sign of trust and respect and supports the development of identity and responsibility" (Deakin Crick, 2006, p 46).

The abilities to be reflexive regarding their learning and to accurately self-assess must be taught to learners and what better skills to develop in lifelong learners? Allowing for variety and choices of the individuals in our rooms may be important strategies if we are in fact hoping to create individuals in our communities and society.

### 2.7 The Purpose, Practices, and Effects of Assessment; the tail wags the dog.

"...although they might have learned to be taught, they have not yet learned to learn".

Author unknown

The activities we select to teach the content, the strategies we call upon our students to use, and the methods we utilize for assessment, as well as what we choose to assess all combine to develop the learner (Broadfoot, in Claxton et al, 1996). Our assessment strategies influence the extent to which learning situations offer the opportunity to develop learning ability itself, rather than simply assessing ability.

There is no denying that in our present education system assessment drives learning. Thomas and Falchikov (Rawson, 2000) suggest that educators should not be surprised by the deep effect of assessment on students' approaches to learning. It determines the content, skills and attitudes that learners will adopt (Broadfoot, in Claxton et al, 1996). People develop their ideas about learning, at least in part, from the teaching they are exposed to and the assessment strategies used to evaluate their learning efforts. They pick up on contextual clues to figure out the demands of the instructional situation (Becker et al, 1968; Miller and Parlette, 1974). If they do not opt out of the learning activity because they are unable to see its worth, students will adapt in order to be successful. So if rote,
uncritical memorizing brings them success, they will continue to call on these skills and develop a strong predilection for rote learning. If, on the other hand, their experiences have shown them that more critical, analytical and interpretive strategies are what are valued, they will, if given the guidance to develop these strategies, employ them to experience success (Smith, 1990).

Historically, assessment in education has played a metric role. The present measurement paradigm underpinning assessment has been dominant in education for over a hundred years. In an attempt to use assessment as a fair process for selecting who should be educated, standardization of curriculum, tests, and grades took place in order to develop a common basis for interpreting results and judging merit. This thinking dates back to the Enlightenment period, and the belief that we can objectively measure a person's level of competence or ability. This assumption underpinned the belief that assessment could be detached from context and ignored the fact that learning takes place in many forms, some of which are more measurable than others. Assessment later moved to intelligence-testing, which led to an underlying belief in innate learning ability, and this focus on ability versus learnability has had long-lasting effects on our system of education (Broadfoot, in Claxton et al, 1996, Claxton, 2002).

Though there is growing acceptance among education professionals around the world of learning-centered theories of assessment that develop learning capacity rather than just measuring capacity, measurement practices have acquired such legitimacy over their years of use that we seem to be gripped in the "inertia of habit" (Broadfoot, in Claxton et al, 1996, p 38). Politicians play a key role in this. It is still an effective electoral strategy to talk about increasing standardized testing and accountability in order to raise standards in education. There persists a preoccupation with league tables, performance-indicators, and standards of measurement without the necessary focus on how such desired performance might be effectively encouraged. It is also devoid of acknowledgement of the well-documented deficiencies of traditional assessment practices. Hence, we continue to see standardized tests used; the purposes for which are not always valid.
The use of high stakes testing across provinces, states, and nations is increasing. The concern with these high stakes tests is that important decisions, such as promotion to the next grade level, graduation, or receipt of school funding often hinges on one test, which is at best, a snapshot of a student’s learning. How could this not create a situation of high tension and anxiety for both learners and educators? In Canada we may not have moved to the high stakes testing employed by other nations, but we still have examples of highly contentious tests such as the Foundation Skills Assessment (FSA) tests in grades four and seven in British Columbia. These tests continue to be delivered year after year with little consideration of how they are impacting the learners emotionally and shaping their learning experiences. The results are reported out to parents and the community and used to rank schools against each other (see the Fraser Institute’s Annual Report Cards on BC Elementary Schools). It is not uncommon for parents to use these school rankings when selecting which school their child will attend.

“Last year, 73,000 copies of the 2006 elementary school report card were downloaded from the Fraser Institute website. School officials admit, with dismay, that the report cards are consulted by parents in choosing schools,…Real estate agents say many families use the report card in deciding where to buy” (Steffenhagen, 2007, p. L 1).

This use of the test to compare schools against each other is particularly questionable. Information such as who each school is NOT having write the tests, as well as discussions regarding which schools and teachers are ‘teaching to the test’ and which are actively boycotting any preparation as a form of protest are not made public.

The detriment attributed to an overemphasis on measurement or grades above other forms of feedback is not restricted solely to tests, but is equally damaging to projects and assignments. Research has shown that simply receiving a score or a letter grade on a page is demotivating for all but the highest achievers (Black & Wiliam, 1998). While this may not be particularly surprising, the finding that providing comments, no matter how copious, along with a grade is no more motivating may shock those dedicated teachers who spend countless hours including written feedback on assignments. In fact, if a grade is attached, the comments that accompany the score are rarely absorbed. The best way to
give educational feedback is to provide specific criterion-referenced points for improvement without attaching any score whatsoever (ibid).

Over the years we have witnessed the ways in which assessment practices and the overall experience of schooling seem to be having a negative effect on the dispositions of students as lifelong learners. These practices have made students more dependent on the teacher, less creative, and less self-motivated as they progress from grade level to grade level (Tew, et al., 2004, Deakin Crick, 2006). High achievers in school are not necessarily good real life learners. They can often be quite fragile, and lack the resilience to take the needed risks to grow as learners. They also often lack the confidence and patience to persevere when learning becomes difficult (Claxton, 2002).

Assessment is perhaps one of the most powerful influences on motivation. The persistence to continue with a learning task is largely the result of how successful the learner feels he or she can be (Bandura, as sited in Claxton et al, 1996). In 1986, Dweck (as cited by Claxton et al, 1996) shared how negative assessment results can lead to the development of ‘helpless prone’ learners who are so frustrated by their experiences that they withdraw their commitment to learning activities. This reaction is a result of perceiving ability as a fixed trait, regardless of the context, rather than viewing learning as learnable. Assessment strategies that speak to how we can grow as learners help learners see learning as something that can be accomplished with regular exercise or practice, just as physical fitness can be achieved through participation in a regular and varied exercise regimen. The longer we focus on assessment practices, standardized or otherwise, that pit students against each other rather than compare them to shared criteria, and summative assessment for measurement and grading rather than formative and summative assessment that will support future learning, the longer people will struggle to internalize their motivation to learn and develop a true love of learning (Claxton, 2002).

“A clear distinction should be made between assessment of learning for the purposes of grading and reporting, which has its own well-established procedures, and assessment for learning which calls for different priorities, new procedures and new commitment In the recent
past, policy priorities have arguably resulted in too much attention being
given to finding reliable ways of comparing children, teachers, and
schools. The important message now confronting the educational
community is that assessment which is explicitly designed to promote
learning is the single most powerful tool we have for both raising
standards and empowering lifelong learners” (Assessment Reform
Group, 1999, p. 2).

Deakin Crick (2006) outlines a number of key points to keep in mind in order to assess in
a way that cultivates learning. First, since learning is an active and ever-evolving process,
formative (ongoing) assessment honours the process of learning. Black and Wiliam
believe that formative assessment is critical to learning because it provides the
opportunity for effective feedback to learners and allows the teacher to adjust their
practices according to the needs evident from the assessment (Black and Wiliam, 1998b;
Assessment Reform Group, 1999). Any summative assessment is a snapshot of a
learner’s development and not a statement of fixed ability. Secondly, Deakin Crick
(2006) states assessment should take place informally as well as formally, so that students
have a sense that all stages and examples of their learning are of merit. Thirdly, Deakin
Crick (2006) and Black and Wiliam (1998b) believe learners of all ages must be involved
in all aspects of their learning, including the assessment process. When we engage
students in discussions regarding curriculum goals, allow for their input in project
development, and encourage them to set learning targets or action plans, we create a
purpose and internal motivation for learning. Training students in and encouraging
valuation of self assessment equips them with the skills of self-monitoring that will serve
them well in later learning. For once they become more self-aware of their own learning,
they can begin to take more ownership of their learning process, with the goal of the
learner taking responsibility for his or her own learning journey (Deakin Crick, 2006).

“Assessment for learning is the process of seeking and interpreting
evidence for use by learners and their teachers to decide where the
learners are in their learning, where they need to go and how best to get
there” (Assessment Reform Group, 2002, p. 1).
Fortunately, many examples of assessment methods that support the development of 21st century attributes and dispositions are being utilized in professional and vocational training, helping to bring these practices into the mainstream of educational discourse (Broadfoot, as cited by Claxton et al., 1996). Modeling positive assessment structures with adult populations/learners provides an opportunity to break the cycle of obsolete practices that are detrimental to the 21st century context. The more we discuss these alternatives to the measurement paradigm and promote assessment for learning, the more effectively we will encourage ill in our students.

2.8 The Role of Teachers

Traditionally, the role of the teacher was one of transmitting knowledge to a passive audience. As the local expert, the teacher's knowledge was rarely questioned as he or she focused on conveying content to learners as efficiently and effectively as possible. A teacher was considered successful if most of the students could communicate their understanding of the material in an observable format.

Now the role of teacher is not as straightforward. At times, the teacher will still need to directly and explicitly teach content or skills. At other times, a teacher's role may be one of mentorship. At still other times, students may need a coach or facilitator to support their learning objectives or a collaborative partner in the learning process (Jones, B., Valdez, G., Nowakowski, J., & Rasmussen, C., 1994).

It is tricky to know what to do in all situations, especially when many teachers have only experienced learning under the direction of a more traditional teacher. Teaching becomes a balance of striving to know all that can be known about learning strategies, content, and the students in one's classroom, while balancing this knowledge with how best to use it. In supporting a learner in constructing his or her own knowledge and developing his or her own learning quests, the teacher needs to have a firm understanding of where that student is at developmentally, the curriculum to be explored, and the learning strategies that will be effective in helping the students in solving their authentic learning problems.
Although many teachers feel they do teach cognitive and metacognitive skills effectively, research confirms that little explicit teaching of strategies and specific skills that foster the development of ill skills occurs (Hamman et al, 2000; Moely et al, 1992; Candy, 2000; Cornford, Ian, 2002). In a study of teachers’ coaching of strategic learning in middle school, Hamman et al (2000) found that teachers spent 60% of their time communicating task-related information and only 9% of their time coaching student learning.

Resources that encourage the use of methods, strategies, and approaches that facilitate ill are becoming more widely available. Theoretical knowledge is being translated into practical resources for teacher implementation. It is our job, as active lifelong learners, to continuously seek out this information.

2.9 Curriculum

Just as reading and writing are ideally learned and mastered at a young age so they may be applied to future learning, it is of great benefit to develop l2l skills early on. Compulsory education seems the best time to teach l2l skills as it is the only opportunity to ensure consistency between that which individuals are exposed to. If we were to leave l2l for later in life, not only would individuals have been unable to practice and improve on lll strategies, but they may miss the opportunity to learn them entirely, depending on the learning path they take beyond secondary education.

Weinstein and Meyer (Cornford, 2002) state that we can teach l2l through adjunct (add-on) or meta-curricular (along with curricular content) approaches. Situated learning research informs us that knowledge, presumably including knowledge of l2l strategies, must be contextualized in order for effective learning and transfer of learning to occur (Brown, et al, 1989). Therefore, l2l must be taught in tandem with subject content. Cornford (1999) suggests that a third approach, which calls for a blend of the adjunct and metacurricular approaches may be most effective at embedding l2l skills, but ensuring that they can be made explicit when necessary. This ensures that students are consciously
aware of the skills they are learning and how these skills might be further applied and transferred to other contexts.

This shift from an almost exclusive focus on content knowledge to a focus that is inclusive of the development of 21st may have major implications for the amount of content that will be successfully manageable, as well as the way the content is approached. Curriculum will need to be addressed more holistically, so that interdisciplinary connections can be made. A learner-centred approach to content must be adopted where we start with past learning and build upon it in meaningful inquiry-based ways. This suggests an interdisciplinary, holistic approach to content. In order to make time to practice and master 21st skills and develop positive dispositions or habits towards learning, a reduction in the content may need to take place, at least initially, or only superficial/surface learning will take place. But once 21st strategies are part of a learner’s repertoire, it is realistic to believe that further content may be covered more efficiently, making up for any lag in content coverage earlier in one’s learning process (Cornford, 2002).

2.10 An Exemplar: Guy Claxton’s Learning Power and the Four Rs

Building Learning Power (BLP) is Guy Claxton’s book describing his framework for conceptualizing and implementing 21st. Claxton’s framework, which he also refers to as “learning power” is intended for application in our classrooms, schools, and our society as a whole, so that individuals are supported in becoming better learners through the development of the skills, understandings, and dispositions needed for 21st. In the words of Claxton and his co-researchers, learning power is:

“A complex mix of dispositions, lived experiences, social relations, values, attitudes and beliefs...[that] coalesce to shape the nature of an individual’s engagement with any particular learning opportunity” (Deakin Crick et al, 2004, p247).

In BLP, Claxton suggests there are four broad learning dispositions that are key to helping individuals become lifelong learners: Resilience, Resourcefulness,
Reflectiveness, and Reciprocity. He beguilingly refers to these as the "four Rs of learning", not seeing them as a replacement for the necessary skills of the traditional three Rs of reading, writing, and arithmetic, but critical additions that need to be implemented in schools if we are going to build a society of lifelong learners. Each of these four Rs of learning power is an umbrella term that encapsulates a number of related skills or attributes that the individual attempting to build learning power will strive to develop in tandem with acquiring the knowledge in the school's mandated curriculum. A closer look at each of these dispositions sheds light on the robust nature of Claxton's framework.

Again it is important to note that these characteristics or dispositions of learning power are meant to shadow or supplement the formal curriculum, not replace it, and are applicable to all subjects and disciplines in the classroom and beyond.

2.10.a Resilience

"It's not that I'm so smart, it's just that I stay with problems longer".

Albert Einstein

Claxton summarizes resilience as "being ready, willing and able to lock onto learning-knowing how to work through difficulties when the pressure mounts or the going gets tough" (Chambers, et al, 2004, p4). Claxton identifies four aspects of resilience that allow learners to stay engaged with their learning despite internal or external distractions. One aspect, absorption, speaks to the ability to be completely engrossed in learning. Absorption can be paralleled to what Csikszentmihalyi refers to as ‘flow’. Csikszentmihalyi is quoted on Brain Channels (Visited March 27, 2006) as stating that flow is "being completely involved in an activity for its own sake. The ego falls away. Time flies. Every action, movement, and thought follows inevitably from the previous one, like playing jazz. Your whole being is involved, and you're using your skills to the utmost."

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Managing distractions, the second component of resilience, involves the conscious effort to recognize and reduce interruptions to learning. Noticing, really seeing, and sensing the details and underlying patterns that are out there, and perseverance, or stickability and tolerance of the feelings of learning, whether they be positive or negative, make up the other two dimensions of resilience. If a learner is resilient, he or she will get absorbed in, and stick with the learning, regardless of distractions or uncomfortable feelings such as frustration or confusion. If the flow of learning is lost, he or she will quickly recover from failed attempts and recommit to the task, knowing and accepting that learning is often challenging (Carr and Claxton, 2002; Claxton, 2002). Claxton is not alone in his belief that resilience is a key disposition for learners. Resilience has been mentioned as a central characteristic to ‘learning’ (Dweck, 1991), ‘mastery’ (Ames, 1992), and ‘task-involvement’ (Nicholls, 1984). It is tied closely to an individual’s learning history and core beliefs on learning. If the learner believes that experiences of difficulty in learning are a manifestation of lower ability, he or she will become more defensive when faced with frustrations in learning. The learner in this instance may eventually tend to select less challenging learning tasks than an individual who understands that learning takes effort to develop our ‘learning muscles’ (Dweck, 1999).

2.10.b Resourcefulness

“He (sic) who is afraid of asking is ashamed of learning”

Danish Proverb

“I use not only all the brains I have, but all I can borrow”

Woodrow Wilson

The second R in Claxton’s framework is Resourcefulness; “being ready, willing, and able to learn in different ways-using both internal and external resources effectively, calling on different ways of learning as appropriate” (Chambers, et al, 2004, p4). Components of resourcefulness include questioning, making links, imagining, reasoning, and capitalizing. Questioning involves being curious, filled with a sense of wonder. It is as much about having the desire to ask questions as it is about being skilled at questioning. Good learners want to get below the surface of what they are learning to a deeper
understanding. They don't simply accept what they are told, or even what they personally think about uncritically. They know how to effectively question themselves and others, as well as how to 'play' with materials or ideas as a way of questioning to see what will happen (Claxton, 2002). Claxton describes questioning as some others describe critical thinking.

*Making links* is the skill of finding patterns and relationships amongst learning instances. As with questioning, making links is not just about the ability to find patterns and relationships, or connections amongst things, but the desire to do so. Making connections between new experiences and that which we already know is a key part of meaning-making. These connections might be made within a subject area, across subjects, or between new learning and personal goals or interests in life outside of school. Connections are also made between learning and personal opinions and beliefs so that new learning can actually change our perspective on life (Claxton, 2002). Good learners are interested in the big picture and how new learning helps to bring that big picture into focus.

Another key component of resourcefulness is *Imagining*. Imagining includes being able to look at things in different ways; taking on different perspectives in order to discover new possibilities. Claxton speaks of two types of imagination: active and receptive. With active imagining, we deliberately chose to partake in mental rehearsal or visualization in order to better prepare ourselves for the task. With receptive imagining the imagining takes on a daydreaming state as we let our mind play with ideas without trying to control them. Many great ideas develop from this 'creative intuition', and both of these forms of imagining have to be cultivated because they are key to the development of any new ideas, whether scientific or creative (Claxton, 2002).

*Reasoning* is also an aspect of resourcefulness. Reasoning is not an uncommon element of schooling. In fact, Claxton suggests that schools sometimes emphasize this logical, analytical, disciplined kind of thinking to the detriment of other elements of thinking (Claxton, 2002). This is where Claxton would situate a lot of the 'learn better' skills-
building momentum in the l2l discourse. A learner effective at reasoning is able to build logical arguments, use graphic organizers and other learning tools appropriately for the context in which he or she is working. The key to building reasoning is giving students practice using these skills to solve real-life problems. Learners will be more apt to apply new skills outside of a formal learning environment if they have experience in real world applications. Yet another aspect of resourcefulness is *capitalizing*, which involves the ability to identify materials, resources, and forms of support that can help solve the current learning problem.

2.10.3 Reflectiveness

"By failing to prepare, you are preparing to fail"

Benjamin Franklin

Self-knowledge and self-awareness are crucial to the effective learner. According to Claxton, reflectiveness is “being ready, willing, and able to become more strategic about learning - taking a longer-term view by planning, taking stock, and drawing out your experiences as a learner to get the best out of yourself” (Chambers et al, 2004, p4), rather than acting solely on impulse or intuition. He breaks reflectiveness down into the four components of *planning, revising, distilling, and meta-learning*. Teachers know all too well that *planning* is a key part of learning because we spend countless hours planning the learning activities for our students. Claxton promotes teaching the individual to take ownership of some of this planning by helping him or her to think about the problem he or she hopes to solve, the actions or route he or she takes to solve it, the time and resources he or she feels will be needed for the task, from where they can be accessed, and the anticipated obstacles that will be encountered along the way.

A second step in the reflective process following planning is *revising*. It is important to practice flexibility in our planning, which is where revising enters. We cannot foresee all obstacles or predict all the circumstances with which we will be dealing when planning an activity or project. Therefore, it is important to regularly monitor and review how things are going in order to look for new possibilities or opportunities and to revise our
plans accordingly. Donald Schon distinguishes monitoring from reviewing by stating that monitoring is ‘reflection in action,’ and reviewing is ‘reflection on action’ (Claxton, 2002, p. 33). Both are needed in order to keep on our planning course. Distilling, Claxton’s third component of reflectiveness, is the process of contemplating your learning experience for the purpose of extracting the essential aspects, lessons-learned, or generalizations that can then be applied to future situations. The main function of distilling is to develop the habit of deliberately thinking about those things in your learning process that can be applied to new contexts. Without taking the time to do this, our new learnings can remain trapped in the subject matter in which we learned them.

The last aspect of reflectiveness, meta-learning, is often considered the only component of reflecting. Claxton breaks meta-learning into two parts. The first part of meta-learning is the ability to talk about the learning process as it happens. It entails having the vocabulary needed to talk about learning. The better learners are at communicating their learning, the more likely they will be able to apply that learning to new situations. The second part of meta-learning is about knowing one’s strengths and weaknesses as a learner, and how one learns best. Knowing oneself as a learner allows one to better plan the course of action in a learning challenge. It also enables the learner to hone in on specific learning skills or dispositions he or she still needs to cultivate.

2.10.d Reciprocity
The last component of BLP is closely related to the research on socio-cultural issues in learning, including situated learning and social development theory to name just two. Reciprocity is “being ready, willing and able to learn alone or with other people - using a sense of independent judgment together with skills in communication and empathy” (Chambers et al, 2004, p 4). It involves building relationships with other people and the abilities to listen, take turns, and understand the viewpoint of others with whom one doesn’t initially agree (Claxton, 2002). Interdependence, Collaboration, Empathy and Listening, and Imitation are the aspects that Claxton outlines under the umbrella of reciprocity. Interdependence, Claxton claims, is not the opposite of collaboration, but is, instead, dependency (2002). Effective learners can balance between interacting with
others and learning independently. Even when collaborating with others, they are able to take responsibility for their learning and make their own choices and judgments. Collaboration is a second aspect of reciprocity and it deals with being able to learn effectively with others through sharing and good communication. Empathy & listening make up the third component of reciprocity. We learn a great deal from listening to others, trying to take on their perspective and stepping into their shoes. Claxton believes that Listening, which is vital to empathy, can be taught. The last ingredient of reciprocity is imitation, or being able to emulate and internalize the learning strategies and habits of learners we admire. Imitation is an indispensable tool for learning and is what Vygotsky’s scaffolding and zone of proximal development are based on (Vygotsky, 1978). As teachers we must always strive to be great models of learning for our students.

2.10.e What is the teacher’s role in BLP?
In order to develop the four Rs in our students Claxton believes a teacher’s main role is to be a good model of a lifelong learner. The teacher is always displaying the dispositions of learning power to his or her students and making the dispositions and language of learning power explicit. Implementing the BLP approach takes a teacher who lives the life of a learner inside and outside the classroom everyday. Specifically, Claxton has outlined what he refers to as the ‘teacher’s palette’, which includes four broad ways that teachers can work with their students to expand on students’ learning capacities (Chambers et al, 2004; Claxton, 2002). Teachers can introduce the four Rs of learning power explicitly to learners and train them in the use of these skills. Claxton refers to this teaching behaviour as ‘explaining’ (Ibid). Teachers can also help develop learning dispositions by ‘orchestrating’ learning activities, the environment, and the resources in the environment so they enhance one or more aspect of learning power (Ibid). Teachers who ‘commentate’ informally and formally with students and parents on the progress their students have made in strengthening their learning dispositions also help build learning power. These teachers also act as ‘models’ of the process of being an effective learner which is a key role of the teacher (Ibid).
2.11 BLP in practice through ELLI Research

In the introduction to his book, Building Learning Power, Claxton claims that his learning power framework varies from some of the earlier approaches to III that were "appealing but unsatisfying" because "they were built on shaky scientific foundations, and they did not lead to cumulative growth in students’, real-life self-confidence, or ingenuity" (Claxton, 2002, p. 3). In contrast, Claxton claims that BLP is "firmly grounded in both solid science and practical experience" (Claxton, 2002, p. 3). This "solid science" that validates Claxton’s framework takes the form of ELLI, a learning disposition assessment tool that is currently building its user base and credibility.

In 2000 at the University of Bristol, Claxton, along with Broadfoot and Deakin Crick undertook a scientific research project to identify the values, attitudes, and dispositions of effective lifelong learners in order to develop an instrument for assessing learners in relation to these qualities. Such an instrument would allow for the practical implementation of years of research on learning power because educators would have a tool to track and assess the dispositions of I2I, which in turn would support the development of effective learning power in schools (Deakin Crick et al., 2002a). For, in order to foster the development of learning power in our students, we must first raise awareness around the qualities or components of learning power and validate the effort needed to develop them by assessing these dispositions.

Initially inspired by the life work of Claxton on Learning Power and Broadfoot on assessment, these researchers developed the Effective Lifelong Learning Inventory (ELLI) assessment tool through both extensive review of literature and empirical research. They have now gathered data on nearly 10,000 learners from the age of seven through to adult from a variety of formal institutions in order to generate the components of learning power that the instrument could reliably assess (Deakin Crick, 2006). Successive statistical operations resulted in a “tried and tested” profile of the key dimensions of learning power. ELLI is designed to find out how learners categorize themselves in relation to the seven dimensions of learning power identified in the research. These seven dimensions include: Changing and Learning, Meaning-Making, Critical Curiosity,
Creativity, Learning Relationships, Strategic Awareness, and Resilience. These dimensions are related to each other and together represent the learner as a whole. Thus, the learner profile that results from ELLI represents the interconnections of these dimensions through a web depiction of the learner’s present learning power⁶. The overlap between these seven dimensions and Claxton’s four Rs becomes evident upon comparison (see Figure 1).

**Figure 1:**
Comparison Between ELLI, Seven Dimensions of Learning & Claxton’s Four Rs

<table>
<thead>
<tr>
<th>ELLI</th>
<th>CLAXTON 4 Rs</th>
<th>CLAXTON 4 Rs</th>
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<tbody>
<tr>
<td>Changing &amp; Learning</td>
<td>Perseverance</td>
<td>Resilience</td>
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<tr>
<td>Critical Curiosity</td>
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Adapted from *Learning Power in Practice* (Deakin Crick, 2006) and *Building Learning Power* (Claxton, 2002).

⁶ For further details regarding the findings of their empirical study please refer to Deakin Crick et al, 2002a &b.
Upon completion of an ELLI questionnaire, a profile of the strengths and areas for
development for the learner is established. It is important to note that since these profiles
are developed from personal responses, they represent not simply the learner's learning
capacity or skills and dispositions that he or she makes use of when learning. They also
incorporate the individual's learner identity, or how he or she thinks and feels about him
or herself as a learner. The quality of the learning relationships that the student has and
his or her learning story, which includes memories and experiences as well as hopes and
aspirations for future learning, also tie into a learner’s profile (Deakin Crick, 2006).
These profiles can be used as diagnostic and formative tools for students and teachers.
Students can work to cultivate their dimensions of learning and take more responsibility
for their learning. Teachers, who can obtain individual student profiles as well as group
or class profiles, are able to see the impact of their teaching on the development of real-
life learning in their students. They can then adapt or modify their teaching practices as

Once this reliable inventory was developed, a second part of the research for ELLI
involved school-based research. Sixteen teachers across three schools received learning
profiles for individuals in their classes and the average profiles for the whole class. The
teachers used this information to structure learning experiences and forms of assessment
that would help develop the weaker dispositions of their students. Over the next two
semesters, students' learning power did improve. The students self-reported that they
became more resilient and more strategically aware of their own learning and less
dependent and fragile. There were even some examples of students achieving better
results on standard learning outcomes. The study included a control cohort and this
cohort actually became weaker on the learning dimensions during the study (Deakin
Crick et al, 2002b).

ELLI is available on-line and the use of this assessment tool to identify and develop
learning power in students continues to grow, particularly in the UK and Australia. From
the work and successes of other educators and students who are making use of this
assessment tool, we can gain insight into teaching and assessment strategies that help to
develop learning power in tandem with attainment of content knowledge and understanding.

2.11.a Curriculum and Implementation

Deakin Crick introduces the metaphor of the 'double helix of learning' (2006, p. 4) to propose how learning power should be approached in the school system. Just as a double helix of DNA has two strands that are held together and run parallel, so too should effective learning. Research and practice on effective learning indicates that there are twin purposes to schooling. Continuing the DNA metaphor, these include attainment of knowledge, skills, and understanding on one strand, and “personal development and preparation for adult life, including active citizenship and enterprise” (Deakin Crick, 2006, p 3) on the other strand. Development of learning power, key to both purposes, can be visualized as “the energy that runs through the middle of the double helix of learning” (Deakin Crick, 2006, p 5) and holds the two strands together.

As teachers we not only teach content, we also affect how our students feel about learning. The way we teach, what we do, and our own attitudes towards learning help to form learning attitudes, values, and dispositions in our students. By focusing on the development of learning power in our students, we are able to rebalance the dual purposes of education and work towards a learner-centred curriculum that sees learners taking responsibility for their own learning. Neither curricula nor the dimensions of learning can be seen as add-ons, but must be taught in tandem. The development of knowledge and understanding of content does not lessen in significance. Rather, the approaches to teaching content and the assessment strategies used adapt in order to allow for deeper understanding and the development of the learner as a whole person.

2.11.b Effective teaching practices

ELLI research in practice in many schools informs us that there are specific teacher practices, approaches, and values that promote strong motivations for learning. The themes that have manifested from the learning interventions at various schools where learning power has been a key focus include:
• Teacher’s learner-centred vision and values
• Creating healthy learning relationships characterized by trust, affirmation and challenge
• Developing a language of learning including the use of metaphors and similes to support understanding
• Holding quality dialogues about learning
• Being a learning role model and encouraging imitation
• Time for reflection on the learning process
• Assessing for learning including self-assessment
• Providing challenge and choice
• Creating a stimulating learning environment
• Creating challenge through re-sequencing the content so that knowledge can be uncovered rather than imparted

(Tew et al, 2002; Deakin Crick, 2006)

There is no single formula for success. Each individual teacher will have a unique approach. The learners in the room, as unique individuals, will also contribute to the environment of learning. But the above strategies truly stand out as important aspects in the development of an ecology of learning.

2.11.c Assessment

ELLI was developed as an assessment tool that would shed light on how students perceive themselves as learners. The content of the questions on the inventory and that the inventory is completed by the students themselves, rather than by their teachers, speaks to the ideology of assessment that this tool is meant to promote. Simply stated, ELLI strives to assess what we value and not only value that which is easy to assess (Deakin Crick, 2006). “Assessment strategies should serve the purpose of learning and growth, rather than only labeling and grading” (Deakin Crick, 2006, p 23). If we believe that learning power is important to the development of students as lifelong learners, then we must find ways to formatively assess it and encourage the personal awareness of these traits in our learners so that they can take ownership of further-developing these dispositions of learning.
In assessing the characteristics of learning power, the perceptions of the learner are critical. Teacher perceptions can really only be affirmed by what the learners themselves think and feel. Therefore, the development of accurate self-assessment skills in the learners is paramount. For until the learner is aware of where they are and how they can improve, he or she will be unable to take ownership and responsibility for his or her own learning. The learning profile becomes the record of a learner’s learning power self-assessment and reflection becomes a tool for encouraging growth as a learner. Selecting personal targets for learning will help the learner to improve on specific learning dimensions.

Beyond ELLI are other key factors of assessment for 121. Active involvement of the learner in all aspects of his or her learning, including assessment, becomes imperative in encouraging future learning. The learner must have a clear understanding of the learning objectives and the standards he or she is aiming to meet and as much as possible should be involved in the establishment of such criteria. Students’ self and peer assessments should be balanced with formative assessment practices by teachers that provide positive and constructive feedback. Finally, assessment should be an integral part of classroom activities, observations, learning dialogues, reflection, questioning and decision-making, and should not always take the form of a separate task (Tew et al, 2004).

### 2.12 Discussion and Synthesis

As a teacher and citizen, I have a vested interest in ensuring that our education system is effectively preparing learners for the 21st century. It is my belief that while we are successful in equipping students with the skills that are traditionally referred to as the basics of learning, including reading, writing, and mathematics, we can no longer ethically deny the necessity for schools to adapt in order to meet the needs of the contemporary student and the current global context. In this chapter I have provided research that confirms the need to make concrete, systematic changes to our school system in order to foster the kind of learning that is required in today’s world. In the following discussion, I will highlight some of the adaptations/changes that, according to
current research on education, need to occur, and how this literature informed my research.

2.12.a Lifelong Learning’s Effect on Learning to Learn

The ethical debate between paradigms of ill can leave one at a standstill, disillusioned with the concept of ill and uncertain how to proceed. We cannot overlook the overall social and cultural influences on our education systems any more than we can overlook the social and cultural capital that our students bring with them to school. We cannot avoid the contrary, if not conflicting viewpoints on how schools should best prepare learners for the future. The skills, personal qualities and habits that we feel are-needed to experience ‘success’ in the world are, to some extent, directly related to how we measure that ‘success’. I therefore posit that it is important to explore what the teachers I interview feel is the purpose of education, and how these teachers feel the elementary education system is meeting this purpose. I am curious to discover how these teachers feel the education system may/should promote ill and what skills and attributes they try to promote in their classrooms and school communities.

2.12.b A Closer Look at How Learning Perspectives can be Applied to the 21st Century

Behaviourism/Cognitivism

In my mind, perhaps the best application of behaviourist learning theory to the present climate of learning and the development of ill is to demonstrate how our education system ended up where it is today. Behaviourism can help expose those unconscious belief systems regarding learning that we must challenge in order to develop a system of learning that is better suited for the 21st century. As outlined earlier in this chapter, the beliefs that learners should passively assimilate the knowledge of experts, that knowledge is absolute, always conscious, and always observable are the result of a system built on the linear rationality of the scientific revolution. Questioning this paradigm is one of the major challenges in front of our current education system. Understanding the underlying beliefs of the status quo is the crucial first step to challenging these foundations. The new
context for education, reflective of current global influences, must be made relevant through education policy. If we are to better reflect this new context in education practice, we must be able to understand why the old beliefs no longer reflect current ‘reality’ (Senge et al., 2000).

Through my interviews, I am curious to see how teachers speak to these long standing practices in school. I hope to hear about how they challenge the status quo through their teaching practices, but will also keep an ear tuned to any expression of how their beliefs, unconscious or overt, may help to maintain what I believe to be an obsolete paradigm.

2.12.c Lessons Learned From Learning Perspectives

It is my belief that L21 requires an education system that equips individuals to think and learn like an expert does, instead of a system that teaches learners what the experts already know. This requires a shift in the roles of teachers and learners, as well as a change in focus from being content laden to the development of skills, habits, dispositions and knowledge. In order to make this possible, we must keep in mind the following lessons taught by the various theories of learning:

- There are strategies and skills that can be taught that help students learn content more efficiently.
- Individuals involved in the current education system, as well as individuals at large, act under the influence of unconscious belief systems regarding learning. Necessary changes to our education system will not take place until we challenge these long-held beliefs.
- Learning must be learner-centered.
- Content is not the be-all-end all, but a key component of the learning process.
- Students should be encouraged to actively and explicitly explore L21 strategies in conjunction with, or as an integral part of a natural learning endeavour, and not as a detached or appending activity.
- Learning is inherently a social process where meaning, beliefs, and behaviours are negotiated through interactions with others in our learning community. Positive relationships amongst teacher and students and amongst the students themselves that foster learning incorporate trust, affirmation, and challenge (Deakin-Crick, 2006).
- Learning is an active process. Students should be actively involved in all stages of learning from planning to assessment.
- Deep learning is developed through a holistic, interdisciplinary approach.
Reflection and reflexivity must be built into learning practices.
Learning builds on past learning and we must therefore validate the past learning of all students.
Learning does not always have to be, nor can it be, neat, orderly, and sequential, or linear.
The learning process thrives when there is meaningful engagement with authentic activities and resources.
Learning should be rooted in authentic inquiry while approaching real life problems in relevant contexts.
Effective questioning is a key to deep learning. Questioning should be a staple in a successful learning environment and should be shared between the teacher and the class as well as between students with all members of the classroom posing questions. Questions should ask the learner to infer, interpret, make connections, predict, and reflect. Questions must move beyond a stimulus-response mode with the exchange of questions running their course until new insights emerge.

Our perspective on learning greatly affects our teaching approach. Therefore, I feel it is important to question my interviewees about their beliefs on learning and how these beliefs may foster learning. However, sometimes our actions betray our best intentions. Though we may cognitively acknowledge certain learning theory, habit, routine, experience, and lack of insight may cause us to act against that theory. It will be valuable to hear how teachers put their perspectives into practice. In analyzing my interviewees' responses, I will cross reference their comments with the above list of lessons I have taken away from research on various learning perspectives.

2.12. Motivation

Motivation theories and knowledge about decision-making processes effecting participation in learning challenges can and should inform our teaching practices in order to promote learning. Research states that it is important for learners to be fully engaged and informed in choosing learning opportunities so they are not dismissing learning activities that would benefit them, nor being forced into learning activities that are inappropriate for where they are currently situated. As stated earlier, much of the process of deciding whether or not to participate in a learning activity is unconscious. Often the learner's conscious rationale is limited to a feeling of “not for me” or “not right now”, or of being excited or overwhelmed by a prospect.
I want to explore how the teachers I interview perceive the role that motivation and choice play in learning. It is my prediction, based on conversations that I have had with colleagues in the past, that motivation is strongly equated with effort. I will ask my interviewees why some individuals appear to be more active lifelong learners than others in the hopes of tapping into the interviewees beliefs around motivation.

2.12.e Assessment
In order to promote 121 in formal education, we must take a very close look at the purpose of our current assessment practices. Due to the stresses of larger class sizes, fewer funds, and an ever-increasing curriculum to cover, and the current accountability movement, summative rather than formative assessment is often stressed. This leaves us with assessment of learning rather than assessment for learning. Assessment becomes strictly a function of accountability. The learner is compared, labeled, and graded. Without consultation, this leaves the learner feeling judged rather than feeling aware of his/her own learning, or graded instead of empowered or encouraged to improve (Deakin Crick, 2006).

Since research and experience informs me that assessment practices and what we choose to assess has a strong influence on learning, I believe that assessment will naturally emerge in interviewees discussions around how we can encourage 111. However, rather than leave this important discussion topic to chance, I will pose the question, “How do you know, or what evidence is there that knowledge or skills are acquired?” If the interviewee suggests using assessment, I will then pointedly ask which forms of assessment he/she employs.

2.12.f Role of the Teacher
Perhaps one of the best ways of supporting this new 21st century learning initiative is for teachers to model 111 for their students. They must become comfortable and committed to change and learning. The teacher can develop and use a language of learning, model his or her capacity to reflect, and publicly complete personal evaluation and target setting, thus creating a context for self awareness (Claxton, 2002; Deakin Crick, 2006). The
teacher should also strive to build positive relationships with and among learners and make the importance of learning capacities-development explicit.

"Apart from the need for major curriculum revision to support their teaching, the chief obstacle may remain the lack of understanding of the importance of learning-to-learn skills by teachers at various education levels" (Cornford, 2002).

Teachers themselves didn't likely gain exposure to these 21st strategies in their own schooling. Without personal experience and positive modeling to call upon, many teachers likely feel ill-equipped to teach these skills to their students. The knowledge and skills needed to teach 21st must be explicitly taught to new teachers. Considerable professional development and in-service assistance will need to be provided to ensure that new teachers entering the profession, keen to teach these skills and dispositions do not lose their momentum upon realizing that many experienced teachers are not explicitly teaching 21st strategies.

I strongly agree that teachers have an important and somewhat vulnerable role to play as models of 21st. To attempt to address the role of the teacher in promoting 21st with a specific research question, I will ask my interviewees, “How should we equip students for 21st beyond formal education?

2.12.g Curriculum
Research suggests that 21st should be embedded in the content of curriculum. This may require that teaching professionals gain a better understanding of 21st strategies. It may also require that teachers be provided with more diagnostic tools, allowing them to observe and assess their students’ learning strategies and dispositional-development in order to discover their strengths, weaknesses, and readiness for further learning.

I am curious to hear about teachers’ opinions of our current curriculum and how it helps or hinders the development of lifelong learners. I want to hear how they go about developing 21st skills and dispositions in their students, as well as which skills and dispositions they attempt to instill in their students through curricular implementation. I
will pointedly ask teachers if they feel it is the role of formal education to prepare children for lifelong learning. I will also ask them how we should go about preparing students for Ill, and what helps or hinders them as teachers when trying to develop lifelong learners.

2.12.h Learning Power

Guy Claxton and the further work of the ELLI research team suggest a framework for l2l that they refer to as Learning Power. Within this framework, learning dispositions are identified, as are strategies and tools for implementing Learning Power and assessing its development in students. Learning Power is the most comprehensive handling of the concept of l2l that I found in my research. As a developed model that is based on research and further developed through teacher and student responses to its implementation, I think that it would be valuable to use learning power as a standard of comparison. I will therefore complete a comparative analysis of teacher interview responses to the concepts and strategies outlined in Learning Power.
3.0 METHODS

3.1 Research Design and Methodology

Just as there are different perspectives on learning, there are also different perspectives on how one goes about researching or assessing a person's understanding of a concept. Not having conducted research before, deciding on a method for gaining insight into peoples' understanding of L21 appeared as an ominous task. Having taken an introductory course on research methods, I was aware that my research interests were better suited to qualitative rather than quantitative research. However, I was not sure which of the many forms of qualitative research would be the most effective for my study.

My research interests were consolidated into specific research questions through the analysis of existing literature on the topic of L21. Once I had formulated my three central research questions, I began to search for a research methodology that would best assist me in answering my questions. In the end, I decided that my methodology would include both secondary and primary research. I developed the most appropriate research methods to address the research questions through participating in a course on qualitative research designs. In order to answer my three research questions I chose to proceed in two ways: 1. I used a synthesis of what the literature tells us about L21 and what helps and hinders its development to answer my first question, and 2. I conducted individual in-depth interviews to gain the most appropriate, specific qualitative data related to research questions two and three. I supplemented these findings with a comparative analysis of teachers' responses and an existing exemplar from the literature by Guy Claxton, Learning Power.

Practical L2L Application Exemplar

Partnered with the Interviews and in conjunction with the literature review, I pursued Guy Claxton's Building Learning Power (2002) and the further development of the concept of learning power through ELLI as an existing example of the application of L21. When reviewing existing research on L21, Claxton's body of work continued to surface as a prominent contribution to this field of study. I therefore chose to use his work as a
practical application of many of the 21 concepts that I had uncovered through my research. I included this exemplar as part of my analysis in Chapter 5.0. Through description and comparison, I tried to draw out the shared characteristics of 21 from this exemplar and my primary research findings to determine the overlap between the practices of Vancouver School Board teachers and Guy Claxton’s work.

Why interviews?
Conducting in-depth, in-person interviews with teachers is the most logical method of addressing my research questions. Through interviews, I am able to tap into the knowledge, experiences, and perspectives of practitioners in the field of education, learning, and 21. For, as Kvale (1996) states, “If you want to know how people understand their world and their life, why not talk to them” (p. 1)?

I was interested in exploring the richness of the daily experiences and understanding of 21 as jointly conceptualized and interpreted by elementary school teachers. To this end, I selected a semi-structured hermeneutic interview approach that was loosely based on the ideas of Heidegger, Gadamer, and van Manen (Kvale, 1996; van Manen, 1990). I selected the hermeneutic research interview as an appropriate methodology for my study because the interview enables the researcher to take an in-depth look at a concept as seen through the eyes of the interviewee.

In his research, Heidegger strove to get beyond ‘individualism’ towards ‘intersubjectiveness’ because he was interested in explaining a phenomenon in the broader sense in order to make the implicit explicit and reveal the meaning of the concept as it is experienced by human beings. Gadamer also speaks of working towards consensus through rationale discourse or conversation (Kvale, 1996).

The work of Max van Manen builds on Heidegger’s ideas and offers further insights for this study. I especially like van Manen’s (1990) notion that research should seek pedagogical competence as the outcome to any human science research as I too hope that
my research be viewed as useful in building our understanding of L21 and how it should be approached and fostered as a new pedagogy in formal schooling.

Further, the hermeneutic circle bespeaks the ways in which individuals transform each other's ideas through their exchange in a conversation (Love, 1994). Gergen (1988) uses "the dance" to describe the ever-changing and continual movement of partners, their connectedness and their reasoning in social interaction. I relate to his idea of conducting my interviews as a dance where both members were willing participants responding to each other's comments and ideas with the goal of creating a flowing and united conceptualization. However, I also felt it was important to acknowledge myself as the lead in this dance, for even though I was searching for understanding of the ideas and experiences of my participant, I was in a position of influence in the interview. Through my questions and responses, I was ultimately in control of the interview process. Though I was controlling the interviews, in many ways I strove to turn authority over to my interviewees as experts in their classrooms. It was the perspectives and experiences of my interviewees about which I was most interested in discovering.

Selecting a Research Sample

Believing that future experiences with education and learning are based, in part, on past experiences, I wanted to look at how elementary school teachers, as the initial formal educators of learners, experience and understand L21, and how their conceptions about L21 inform their teaching practices. In order to do this I decided to use criterion sampling (Cresswell, 1998) to select 7 elementary school teachers in the Vancouver School Board (VSB) who have experienced L21 and could articulate their daily experiences with this phenomenon. I selected 7 teachers as my sample size in order to keep the detailed, in-depth data that I would collect manageable.

My criteria for participation required that the participants add to a sample that included men and women (though not necessarily in equal numbers as this is not representative of the majority of elementary schools), primary and intermediate elementary school teachers, and experienced (5 years or more), and veteran teachers (20 plus years). As
most elementary school teachers in the district are generalists who teach all subject areas, I was also looking for teachers who practiced as generalists, even if they have a specialty. For the sake of convenience, I recruited teachers from the Vancouver School Board, of which I am a member.

Recruitment
Prior to recruiting participants, I obtained permission from the UBC Human Ethics Review Board to conduct my research.

Teachers volunteered for the study after reading through the description and purpose of the study that was circulated at various schools in the district. Two of my interviewees were referred to me by other participants. From this self-selection process, enough interested teachers that met my criteria for sampling volunteered to be interviewed by sending in completed free and informed written consent forms.

Data Collection
To carry on the analogy of the interview as dance; when preparing for the collection of data I thought of myself as the choreographer of the dance. I was the one to introduce the topic and then observe what the interviewee had to contribute. While the interview would be a conversation of sorts, the reciprocation of a typical conversation would not be present, as I did not share as much of myself as I expected from the participant (Kvale, 1996). Instead, I would oversee and sometimes accompany them in responding to the interview protocol by probing, testing, and negotiating meanings.

It was important that I develop an open-ended protocol so I could hear how the interviewees understood I21 without limiting their responses to the knowledge that I had on the topic. I wanted my questions to allow the interviewees the freedom to express their ideas and experiences while maintaining focus on the key aspects of I21 that have been established by experts in the field and the questions on which I based my research. My analysis process began at the conceptualization of questions for the research study and

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7 see the consent form and description of the research in the appendix
continued as I worked reflexively throughout my data collection, transcription, and interpretive analysis of the research.

The in-depth, individual interviews were conducted face-to-face and lasted from 25 to 100 minutes. The interviews took approximately 3 to 4 months to complete. Individual interviews were mainly held at the home schools of my interviewees.

At the start of each interview I explained the purpose of the interview and reviewed issues of confidentiality and consent and informed the individuals of how they could get in touch with me later if they wanted. I answered any questions they had before starting and asked for permission to record the interview. The interviews followed a standardized, open-ended interview protocol that allowed for flexibility and spontaneity. As suggested by Patton (1990), I started my interview with ‘warm-up’ factual questions about the present, such as their present teaching position, before delving into feeling or value questions. I strived to ensure that my questions were short, open-ended, as neutral as possible, and worded clearly. I refrained from ‘why’ questions that infer a cause-effect relationship and ask the participant to intellectualize rather than describe their experiences of 121. Instead, I attempted, through the wording of my questions and active listening, to facilitate reflection on the topic. I used interview styles suggested by both Kvale (1996) and Krueger and Casey (2000). In particular I asked introductory questions such as, “In your opinion, what is the purpose of formal education?” and then allowed the participant to share as much detail as possible. I also asked probing questions such as, “Is our current education system meeting that purpose”? I posed structuring questions to transition from one topic to another. Finally, I tried to keep in mind the role of silence for reflection and furthering the interview. My ultimate goal was to exhibit, what Kvale (1996) refers to as, ‘deliberate naïveté’ by which the interviewer exhibits openness to new and unexpected phenomena rather than ready-made categories of interpretation. As Kvale (ibid) states, the “interviewer uses...herself as a research instrument” (pg. 125). It was my goal to conduct effective interviews by being knowledgeable about 121, actively reflexive in how I listened and responded to the participant, and respectful of answers. I

See the appendix for a copy of the interview protocol.
used active listening in order to follow-up on expressed ideas appropriately and clarify and verify my interpretations throughout the interview.

**Data Analysis**

As stated earlier in this chapter, my analysis process began long before I conducted a single interview and continued during and after all of the data collection. Analysis started with hermeneutical readings of existing literature on I2I in order to prepare for the interviews. For, as part of the hermeneutical circle, one can only know what one is prepared to know. In order to truly prepare to hear, understand, and interpret what my participants had to say about I2I, I needed to be able to ‘foreunderstand,’ and anticipate what my interviewees might choose to talk about (Lye, 1996). Of equal importance, I needed to be very clear about what it was I wanted to achieve through the research, to ensure that my questions posed during the interviews reflected these interests. I also had to become clear of the process I would use to analyze the many pages that would accumulate as a result of transcribing the interviews.

I developed my interview protocol through three practice interviews. These interviews assisted me in determining what to ask and how to ask. I gained knowledge of the influence of my word choices, as well as the timing of probing or clarifying questions and interpretive summaries (Kvale, 1996). I continued with this analytical stance throughout the actual interviews, striving to conduct “self correcting interviews” where I gained insights from the descriptions of my interviewees and reflected back my condensed, interpretations to give my participants the opportunity to respond to my understandings (Kvale, 1996, p. 189).

After interviewing my participants, I had the interviews transcribed, after which I double-checked them myself following the transcription method and key outlined in Appendix II. I ensured that the transcription of the words and utterances was verbatim from the tape. I then inserted specifics regarding tone, volume, pauses, silences, overlapping talk, interruptions, continuers, and humour. Finally, I cross-referenced my transcriptions with
handwritten notes from the interview in order to fill out the story with observations and non-verbal communications.

In order to analyse my transcripts, I used Giorgi's (1985) empirical phenomenological method of data analysis, as outlined by Kvale in his description of “Meaning Condensation” (1996, p. 193-196). Kvale outlines five steps to this analysis:

1. The transcript was read in its entirety a number of times in order to get a sense of the interview as a whole.
2. Meaning units, as naturally expressed by the interviewee, were determined. Significant statements relevant to learning to learn were separated by natural breaks into units, giving equal value to all statements.
3. The theme expressed in each natural meaning unit was stated as simply as possible while trying to remain true to the viewpoint of the interviewee.
4. Statements were analyzed with regards to the purpose of the study in order to interpret meaning.
5. Finally, the essential, non-redundant themes of the interview are tied together into a descriptive statement.
6. Analysis went a step further to compare teachers' understanding and their implications for L21 with recommendations and structures found in literature.

After following these steps and developing a summary statement for each interview, I attempted to write the structural experience of L21; that is, how L21 is experienced by individuals in the study (Cresswell, 1998). This involved seeking all possible meanings, divergent perspectives, and varying frames of reference (imaginative variation). From these descriptions, I constructed an overall description. My aim was to develop a brief description of L21 that typifies the experiences of all of the participants in the study and thus expresses the essentials of the L21 experience.

3.2 Limitations

The research questions, methods, and sample size selected for this study are limiting in that the findings of this research cannot be readily generalized to other contexts or individuals. However, it is hoped that this study will be rich enough in detail to illuminate the concept of L21 as experienced by the teachers involved in the study, making it a useful comparative tool for other settings. The findings of research like this are primarily
3.3 **Credibility and Rigor**

In order to ensure that my study was credible, useful, and rang true for my participants I implemented the following standards of practice and strategies gathered in part from Rossman and Rallis (2003):

1. **Truth Value:** Is the research a trustworthy, honest and dependable account of the participants' experiences and understandings of learning to learn?
   
   Strategies used to establish truth claims of my research included: completing member checks to ensure that participants agreed with my emergent findings, and triangulation of methods used for data collection.

2. **Rigor:** Was the study competently conceived and conducted according to stated research designs? Would an outsider concur with the results of the study, given the data collected and displayed? Are interpretations sound and grounded in data? Is the process of analysis clear and coherent?

   Strategies used to claim rigor included: carefully documenting the process of gathering, analysing and interpreting the data, keeping a journal throughout the research study, and using an expert to debrief and serve as an “intellectual watchdog (Rossman and Rallis, 2003, p 69)” as I modified design decisions and developed categories and themes in my data.

3. **Usefulness:** Is the description of the research design, process, and findings rich enough to determine similarities and differences between this and other situations or contexts? Do those within the LII and L2I communities of practice see logic in the interpretations I have made? Does this research add to the current understanding of L2I?
Strategies used to claim usefulness included: providing complete descriptions of my methods and process, giving thick descriptions of what I have learned, and engaging in critical discussions with my advisor who is a knowledge expert on Ill and learning in general in order to explore my emerging ideas on the essence of I2I.

3.4 Ethical Considerations

I did not foresee any ethical dilemmas resulting from my topic of study. However, I took precautions to attempt to ensure that such dilemmas did not occur. First, I obtained consent to conduct my study from the UBC Human Ethics Review Board. I also obtained written informed consent for participation in the study from all of my participants. Participants signed a copy of the consent form found in the appendix that outlined the purpose and audience for the study and clearly stated that participation in this study is completely voluntary and could be withdrawn at any time without repercussion. Finally, participant privacy and confidentiality was maintained. No identities, names, or specific roles were used in the study write-up. Participants were made aware that my research committee and I were the only individuals with access to their identities and taped interviews other than the professional transcribers who would not have access to their names.
4.0 FINDINGS

Author’s Note: For the sake of simplicity in reporting, female pronouns will be used to connote both sexes.

4.1 Interviews with VSB Teachers

I interviewed seven teachers all working for the Vancouver School Board; two males and five females, ranging in experience from twelve to thirty two years. Three of the teachers have predominantly primary experience and four have spent the majority of their teaching careers at the intermediate level. Three of the seven teachers have been, or are currently, in a mentorship role in the district. The intent of these interviews was to answer my final two research questions: How do Vancouver School Board Elementary School teachers understand learning to learn, and how does this understanding of learning to learn inform their daily teaching practices?, and, What do Vancouver School Board teachers feel helps or hinders the development/application of learning to learn?

Therefore, specific key objectives of the interviews included:

- Determining attributes of l21, as perceived by the interviewee.
- Determining the essence of l21 from the teacher perspective.
- Building on my understanding of l21.
- Discovering how a practitioner promotes or facilitates l21?
  - How it relates to l21?
- Determining how the interviewee’s concept of learning incorporates or omits l21, or rather, discovering how l21 fits into the interviewee’s learning paradigm.

The interview questions were intended to elicit responses specific to the above objectives. In posing the questions, I was working under the assumption/bias that teachers should have firsthand knowledge of what l21 means, as there should be a strong link between policy, highlighting the need for l21 to support l21, and practice. Policy should be written such that it promotes best practices. Current analysis in the literature of best practices
must be communicated to practitioners in a user-friendly format in order to make research applicable/practical.

Through my interviews with the seven VSB teachers, a number of prominent themes emerged:

- Specific L2L skills and dispositions needed for LLL;
- The role of the teacher and the approaches to learning or strategies that should be utilized to support LLL;
- The environmental elements that support L2L and LLL;
- Things that help or hinder the development of a love of learning and influence the likelihood that a learner will continue to seek out opportunities for future learning beyond compulsory education.

I will look at each of these themes to describe how the interviewed teachers understand and work towards promoting L2L and LLL in their classrooms. The intent in interview-documentation was to be faithful to the participants when describing, rather than explaining their expressed ideas. Direct quotes from participants are used to illustrate points.

4.1.a The Skills and Dispositions of L2L

In discussing the skills and dispositions needed for LLL, all the interviewees stressed that teaching was not just about the content, but about providing students with the strategies, tools, or frameworks to allow them to feel confident in their own thinking. Dominant attributes that were repeatedly mentioned by the teachers included skills in collaboration, problem-solving, critical thinking, questioning, researching, being resourceful, and metacognitive skills so that learners were able to reflect on their thinking and make connections, visualize, infer, and synthesize information. These skills were mentioned as being additional to the skills such as reading comprehension, math, and writing, which were implied to be the foundational skills of education.

"...know[ing] how to go about... finding an answer when they need to find an answer... a systematic way to approach solving a problem... They would need to know how to research, you know, using information, being
able to find information, in this day and age...and then knowing which information is relevant and which information is not relevant” (Interviewee # 2).

Along with 21 skills, the interviewed teachers also highlighted a number of dispositions they felt were important for the development of 21i. These included an ‘I can do it attitude’, where the learner sees learning as a challenge or opportunity that he/she can work though if he/she perseveres, a thirst, desire or drive for knowledge, and a willingness to take risks.

“It [failure] shouldn’t be seen as a huge thing. It should be seen as a way of learning...One of the things that we can do for kids is give them the problem-solving strategies. Help them understand that there is not growth without problems...there has to be a building of confidence” (Interviewee #5).

The teachers also felt that lifelong learners are curious, inquisitive, flexible, open and reflective. These learners are confident, independent and show initiative.

4.1.b The Role of the Teacher and Approaches to Learning

Among the teachers I interviewed, the predominant teaching perspective was social constructivism. This perspective greatly influenced how these teachers described the roles and responsibilities of a teacher who effectively promotes 21i. For example, the three teachers who have taken on a mentoring role in the district made specific reference to the idea that teachers need to act as positive models of learning:

“I think a lot of teaching is modeling and kids have to have different models for doing things and knowing that there are different ways of doing things...models at home and at school... a lot of it is modeling...if teachers say, “You have to do it that way”, well that’s not a very good model. Model openness” (Interviewee #5).

Two of these teachers made specific reference to teachers modeling 21i:

“If we want our students to be lifelong learners we also have to realize that we need to be lifelong learners” (Interviewee # 6).
"I guess if I’m wanting, if my goal is to have the children in my class be lifelong learners I guess I want to model that for them. I mean that’s probably one of the most important things in terms of a teacher who wants to inspire in their kids is to be talking about that in their classroom and... to demonstrate to the children that, you know, I also read, and I also made this mistake, and so when I made this mistake I tried to think about why this happened, and then, so just modeling all that... showing them how to find the answers themselves” (Interviewee #7).

Respondents stressed the need for opportunities to practice and apply what we learn in order to construct meaning and take ownership of our learning. Many of the teachers spoke to the need to scaffold content and skills so that there is a “fragile release of responsibility” (Interviewee #6) whereby the learners can take on more ownership of their learning and become more independent.

“You model it, you guide their practice. You work through... give them time for independent practice and look at how they apply it to real life situations” (Interviewee #6).

“You have to teach people how to do things. You know, it’s back to scaffolding... initially you have to give them lots of scaffolds... Give the students what they need to succeed... Challenge, but not overwhelm. Give the type of support that’s needed. It’s going to be different for different people... Different people at different stages are going to be at different levels of coaching... The same person in different situations needs different levels of support” (Interviewee #5).

One teacher spoke of using decreased group size as a way to scaffold for independence:

“Usually I take it from the large groups, they’ll go to smaller groups and have to work together, to an individualized... I always start with the big and then we start getting smaller and smaller where they’re led to go from, you know, a safer place, maybe they don’t know the answers so they’ll listen. Maybe gather some information; from there to a small group where they can talk amongst themselves so they can all contribute and then it’ll probably go to an individualized thing, where okay, now we’ve done this, now it’s safe, you can do this on your own” (Interviewee #1).
All of the interviewees spoke of the need for teachers to develop a community of learners who know how to work together. They acknowledged and respected that people learn effectively from each other. Whether they were speaking of “partners”, “groups”, “mentors”, or “caring communities”, the expressed belief in the importance of relationships highlights the social aspect of learning and the idea that we don’t learn in isolation, but by working with others in developing shared understandings. The teachers expressed this as a natural occurrence; students instinctively turn to others for support and confirmation.

“I think the most positive is talk amongst the group, working as part of a team or part of a group to try to solve something...I think if they’re able to work as part of a group and initiate that on their own rather than just trying to come to me...” (Interviewee #2).

“Oh instantly they turn to each other. I often, if I’m giving them a challenge...I’ll often put them into pairs or in threes or fours...where they each have a task and break the problem down...often they ask, “Can we work in partners, can we work in threes” ’cause they know that they can work better with somebody else that might have different ideas or be able to help them” (Interviewee #3).

Along with these social constructivist views on what good teachers do, other teaching approaches and methods were highlighted. Taking into account the various learning styles of students when planning activities was mentioned by a few teachers, as was the idea that teachers should take an asset-based approach to support learning by working with the interests and strengths of the learners in order to nurture future learning. All of the teachers mentioned they had students working in different groupings depending on the activity and the learning objectives. Sometimes they taught whole class lessons, sometimes small groups were utilized and sometimes the students were expected to work independently. Many of the teachers said they explicitly taught skills using a direct teaching method:

“There needs to be direct instruction, because if I want them to do a certain thing or practice a certain strategy...I need to model those. I need to directly instruct them in how that, what that looks like...[Always] trying to find that balance between direct instruction but also allowing for
the children to find their own ways. But they can't find their own ways without you showing them how to get there” (Interviewee #7).

While this last sentence may sound contradictory, the teacher continued on with this line of discussion, stating that modeling and scaffolding were a way of helping children find their way. The development of children’s learning tool kits should not be left to chance, as this teacher felt it was during the implementation of Year 2000 policy for example (Interviewee #1). Rather, once numerous strategies are shared and mastered the learner can call upon them as required in future independent learning.

The importance of using conversation, collaboration, discussion, and dialogue to promote learning was discussed by a number of the teachers. It was suggested this may take form as whole group discussions, small group collaborative conversations, as well as learning dialogues between the teacher and the student. Developing a language of learning, so they “understand not just what they’re learning, but how [they] can learn” (Interviewee #6), and “talking about the process and honouring the process as much as the product” (Interviewee #7) was also stressed by the majority of teachers.

When discussing assessment strategies, most of the teachers mentioned teacher-controlled forms of assessment. The most commonly-expressed form of assessment was the use of written tests specific to the skill or knowledge that the teacher intends to measure. However, many other forms of assessment were mentioned that included examples of formative, as well as summative assessment strategies and informal, as well as formal assessment practices. These assessment strategies include: standardized tests, written tests, oral tests, pre and post-tests, performance standards, rubrics, conversations with students, observations, anecdotal reports, running records, projects, practical tests/assignments, work samples, and noted independence with increasingly difficult material. While all of the respondents mentioned numerous teacher-controlled assessment strategies, only two commented on the importance of involving the students themselves in the assessment process through setting shared criteria, keeping reflection journals, or completing self assessments.
While two teachers spoke of involving students in all aspects of their learning, including the assessment practices as a way of giving the students a voice and motivating and empowering the learners, others spoke of motivation as more of a personality trait:

“Basically it’s in their personality. It’s in their character. They just want to learn...have motivation. They have the interest; they have the drive. They just want to learn. You have those that just sit back and just have no interest at all and then there’s others that are constantly asking you questions, they’re inquisitive, they’re just, you know, crazy for information” (Interviewee #1).

“I think human nature being what it is, some people are more apt to be complacent and...just sit back, and there are people that are more motivated than other people” (Interviewee #2).

4.1.c Environmental Elements that Support L2I and LII

In describing an environment that supports L2I and LII, the teachers focused predominantly on the emotional environment and the actions taking place in the classroom rather than on the physical environment. Many of the teachers spoke of creating an environment where the students felt safe and comfortable taking risks and where mistakes were seen as learning opportunities. Conversations and questioning would be evident. Two teachers said the environment should make students feel empowered, where their voices were heard and what they had to say was valued.

“An environment where it would be okay to be wrong and where we’re encouraged to at least try...an air of openness... where the importance wasn’t so much on being right or wrong, but more about, you know, trying to be right and not worrying about what’s going to happen if you’re wrong, and then, you know, being able to then learn from that...discussions. A lot of discussion... a lot of class participation... lots of hands up and people willing to make mistakes, willing to stretch themselves out of their comfort zone... really risk” (Interviewee #4).

Many teachers also spoke about the resources in the room:

“Books that you want to read, things the kids have done, neat things that interest you, things you want to ask about, real life
tasks, neat fun activities, projects, lots of books, computers, access to the internet...” (Interviewee #5).

Three teachers expressed the need to look beyond the classroom to create an environment that supports the development of lifelong learners. Families and communities need to take a role and be accountable for the healthy development of children.

“It has to be a team effort. It can’t just be the classroom teacher. You have to be in communication and understand what is happening in the home. You have to be aware of what is happening with their friends...now we’re teaching social responsibility, we’re checking to see whether they’re being fed...for basics in terms of life...I don’t think that we as one can equip them. I think it has to be, you know, they say it takes a village to raise a child, well I firmly believe that it’s not just one person. It has to be colleagues, it has to be friends of the children, it has to be family, it has to be everyone” (Interviewee #4).

“I think we really have to spend more time working on the other 18 hours...the rest of the picture...the community should be looking more on what is happening for that child outside of the school. And if people really think that schools are that important, they have to pay more than lip service to them” (Interviewee #5).

“Accountability has to go both ways...in the sense that we need children to actually be here. We need them to be here on time. If they’re fed that would be wonderful too so that they’re ready to think. Umm, you know, just the simple things like evening reading with them 10 minutes or 15 minutes a night can really make a big difference...there has to be some big picture of accountability. The part of being a lifelong learner is not within 5 hours of a classroom every day” (Interviewee #7).

4.1.d What helps or hinders the development of a love of learning?

A number of topics, some of which have been discussed above, were mentioned by the interviewees as having the ability to help or hinder the development of 121 and 111. We will look at what the teachers had to say about the effects of assessment, curriculum, learning histories, and the teachers themselves on learning.
Assessment strategies were mentioned specifically by teachers as having an effect on the development of lifelong learners. A few of the teachers discussed how an overemphasis on the end product of learning and grades has a negative effect on learning. Students who felt they were expected to discover the one ‘right answer’ that the teacher was privy to and expecting were said to be less likely to take risks; a disposition that all of the teachers mentioned as crucial to good learning.

“My biggest thing with learning and with problem solving is...you don’t have to be right, you just have to think smart. I don’t care if your answer is right or wrong, but the process, okay, that’s my big thing with them...I want to know that there’s been some thought behind it and whether it’s right or wrong, I’ll commend them for it” (Interviewee #1).

Two teachers expressed frustration with grades in that they are not an accurate way to express learning and development to parents:

“They’ll [parents] say, “How are they doing?” Well, your kid’s pulling a C+ because they’re ESL, but look at how hard they’re working. They’ve done their absolute best. [And the parents respond] “So how are they doing?” It’s frustrating...”(Interviewee #3).

Another teacher felt that teachers and parents often communicated to their children that grades were the most important part of school, which created a focus on the end result rather than the process:

“To hinder it (Ill) would be that your education is all about your marks and about achieving a certain end result...obviously there has to be some focus on excellence...and having very high expectations...[But] I’ve had lots of parents whose goal for their children is to have the A report card and how they got there was not important to them but it was the letter grade...the end result was more important than how they got there” (Interviewee #7).

Curriculum was another factor that the teachers felt had the potential to either help or hinder the development of Ill. All of the teachers stated that the purpose of education included more than the acquisition of knowledge in the various content areas. Education is about “learning how to live in the world...teach[ing] skills in a broad sense”
(Interviewee #7), “creating lifelong learners...teach[ing] responsibility” (Interviewee #6), “to become something...personal growth...to have a future” (Interviewee #1). Many spoke of the need to focus on the “journey” (Interviewee #7), or the “process” (Interviewees #1, #2, #6) of learning rather than the end product. Interviewee #2 states:

“It’s not what we’re teaching them, it’s how we teach them, get them educated, give them that framework...those tools, the ability to know how to go about, um, finding an answer when they need to find an answer...a systematic way to approach solving a problem” (Interviewee #2).

“I think one of the biggest things is to look at learning. I think we can get caught up on the academic side of learning, which is important, don’t get me wrong. I want to clarify that...but at the same time I think there is that whole aspect of, um, building collaboration and community...[We] can’t get so narrow...[Teachers need to] take the time to teach those strategies...I think curriculum should guide us, but I don’t think it should be viewed as the end all to everything” (Interviewee #6).

Many of the teachers mentioned that learning suffered when the content of the curricula was seen as paramount and teachers focused more on relaying subject material than on the unique learning needs of the students in their classroom.

“I’m not sure the emphasis is on teaching...so much more focus on getting those kids through those exams [Provincials] and getting them through grade 12” (Interviewee #5).

Five teachers spoke specifically about the pressures to fit such extensive curriculum content into the time allotted and how this can hinder the development of lifelong learners because we cut things that are truly important and don’t “give kids the time that they need to truly internalize something” (Interviewee # 6).

“...no we’re not [preparing kids for Ill in formal education]. We’re trying to, it’s almost like we’re trying to squeeze too much into too little time”(Interviewee #3).

“We’re cutting out things that used to be a priority. But now it seems that other things are being dictated and mandated...what are we losing in order to achieve that?... And I’m guilty of it too...I think all teachers are guilty
of it because we are in such a panic to meet all these requirements and mandates that, we’re seen as bad teachers if we don’t” (Interviewee #4).

Most interviewees made mention of how a person’s learning history, or what Hodkinson and Bloomer refer to as a ‘learning career’ (Edwards et al., 2002), effects an individual’s interest in future learning. A person’s identity as a learner is established through the quality of relationships he/she has in school and the accompanying memories and experiences. This highlights again the need to ensure that all learners experience success along their learning paths for “people who have experienced success are more apt to do it” (Interviewee #5).

“Lifelong learners had connections that they made in their formal schooling, whether it was, “I remember my kindergarten teacher. She was the nicest lady”…From that to, “my grade 6 teacher was the worst person because she said that I couldn’t read”. So it was kinda sad how some were shut off and shut down…we have to have success for these kids if they’re going to progress. Because if you’re always giving them, if you’re always setting them up for failure how are you going to encourage them?” (Interviewee #4).

A final thing that the teachers felt could hinder the development of a love of learning in students was some teachers themselves. In fact, interviewee #1 stated:

“I don’t think that everybody who is teaching should be a teacher, and that’s just something that I struggle with all the time…I think that a portion of the school board should be run like a business. If you’re not cut out for it, or you’re not doing a good job, I think that you should go because it directly affects kids” (Interviewee #1).

Integral to being an effective teacher, according to a number of the interviewees, is the need for professional development. Along with modeling the act of Ill to their students, the teachers spoke of the need for practitioners to authentically participate in Ill through on-going professional development in order to further develop their teaching practice.

“Things change over time…The way I did something, you know, 5, 10 years ago may be very different today because the world is changing at a
very fast pace...We should reflect the communities that the children are living in..." (Interviewee #6).

Three teachers stated frustration with colleagues who did not participate in in-service training:

“I see teachers saying, ‘You know what? I’m a teacher. I know it all.’ And that, it just blows me! Because I think, we’re in a profession where it’s never, it never ends! It absolutely never ends” (Interviewee #7).

One teacher speaking to the lack of participation in professional development also spoke specifically about teachers who were in roles of specialization without the necessary credentials or training:

“We also have a lot of teachers that engage in no real professional development after they start teaching...teachers who are supposed to be specialists in reading or whatever and have no training is not very good and that’s happening...When I was an LAC teacher, we were supposed to have taught regular classes for a few years and you were supposed to have courses you know and now it doesn’t matter what you have...I see a lot of extra bodies in schools but they’re not always very well trained. They give all these workshops at the beginning of the year on being a resource teacher and people don’t have to go to them, so that’s kind of interesting” (Interviewee #5).
5.0 ANALYSIS OF FINDINGS

This chapter includes the comparative analysis of the teacher interviews to the exemplar of Learning Power as described by Guy Claxton and his colleagues involved in the development of ELLI, both of which are included in the literature review.

5.1 The Skills and Dispositions of L2L

While the terminology used may vary there are quite a few skills and dispositions that are commonly considered to be important components of L2L. The importance of learners understanding that we can develop our learning ability just as we might develop our athletic ability and that a learner needs to be ready and willing to take risks was a commonly shared value amongst the teachers and the Learning Power literature. Mistakes are viewed as an opportunity to learn and the teachers stated that they attempt to encourage students to confidently persevere through challenges. There is agreement amongst the teachers and the literature that learners must develop a sense of curiosity and have effective questioning skills. Problem-solving and critical thinking skills are also highlighted by both.

Along with learners being creative, critical thinkers who are flexible and open to learning challenges, the teachers and the literature agree that positive relationships are important to learning. Learners are to be supported in developing both effective collaborative and independent skills as well as a sense of when to use each.

For further comparison of the common L2L skills and dispositions mentioned by both teachers and the Learning Power literature, please refer to Figure 2. It is important to note that the skills and dispositions listed under ‘Teacher Perspectives’ are a compilation of the skills and dispositions mentioned by all of the teachers.
Figure 2:
Comparison of the L2L Components Expressed by Learning Power and Interviewed Teachers

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<th>ELLI</th>
<th>Claxton's Learning Power</th>
<th>Teachers' Perspectives</th>
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<td>Changing &amp; Learning</td>
<td>Perseverance</td>
<td>Risk-Takers</td>
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<td>Flexible, Openness</td>
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<td>Meta-Learning</td>
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Adapted from Learning Power in Practice (Deakin Crick, 2006), Building Learning Power (Claxton, 2002), and interview transcripts from this thesis.
5.2 Learning Power: How Three Interviewees Operationalize the Concept

While all of the teachers communicated a strong regard for 111 and identified numerous 121 skills and dispositions that would help to produce lifelong learners, comments made in the interviews of three teachers stood out amongst the group as going beyond the rhetoric of 121 towards the operationalizing of Learning Power in the classroom. I will analyze the responses of these three teachers more fully against the categories of Learning Power (Reflectiveness, Resilience, Resourcefulness, and Reciprocity) in an attempt to shed light on how we might make Learning Power a reality in our classrooms.

It is important to note that the intent of my interviews was to keep an open mind and ear to the perspectives on 121 that the teachers portrayed through their statements. I made a concerted effort to keep my interview questions open-ended and did not load them with terms or ideas that I had encountered in my research. That said, I found in my analysis of the interviews that comments made by these three teachers referenced the attitudes outlined in learning power. Beyond this, these three teachers also addressed how they attempt to nurture these attitudes in their students.

Reflectiveness

A category of skills and dispositions that Learning Power emphasizes and the three teachers speak to is skills in meta-cognition or meta-learning. People need to develop their reflective skills in order to further grow as learners. Students need to be self-aware and able to assess their own learning in order to be able to make connections in learning, take on the perspectives of others, and become responsible for their own learning. Strategic learning, which, according to Claxton includes planning, revising, and assessing cannot take place without self awareness and the ability to really notice and distill key pieces of information (Claxton, 2002).

"A lot of it [learning] is...not only teaching them different things, but also teaching them how to think, teaching them what strategies to use...using the language, you know, so that they understand not just what they're learning but how you can learn as well...I think part of it is being taught how...if we don't take the time to teach those strategies and

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9 See pages 47 and 48 for information on Reflectiveness

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give them the time that they deserve too so that it’s not just a one shot...that you really go through a fragile release of responsibility where you model it. You guide their practice...Allow them to feel that success that they can do it and that they have the tools within themselves…” (Interviewee #6).

From this statement, we can see that the teacher not only values personal reflection and the development of learning skills that will enable the child to be independent, she also spoke to the need for direct teaching of these skills along with allowing the time to practice these skills and reflect on their development.

Interviewee #7 also spoke of the need for time and venues for reflection.

“I think what would be important is reflection time because I think in order for children to be aware, metacognitive if you want to use the term, I’m trying to. If, if you, if they need some of that awareness, a deeper awareness you need time to talk about it. So to talk about their thinking, ‘Let’s think about your thinking. What was it that worked for you when you built that structure?’ or ‘What was it about that particular passage when you were reading it that, that helped you understand it.’ So giving them the tools and the language so that they can start becoming more aware of their thinking and their thought processes and their, how did they, ‘How did you get there?’ So you know, just reflective writing or having a little meeting, a little meeting and having a sort of a discussion, and um, you know, just, just talking about process. And honouring the process as much as the product. And to have them, yeah, just be, be kind of aware. That’s what it would look like” (Interviewee #7).

Planning, revising, and assessing are all encompassed in these teachers’ idea of implementing reflection as a regular learning routine. Through assessing how things work we can revise our plans. We can also learn how to plan more successfully for future situations. Children in these classrooms learn the language needed to be strategic and reflective and know that reflection is a necessary component of good learning because it is communicated to them through the time and energy that reflective practices are warranted in the classroom.
Interviewee #5 commented on the idea that planning, like any other skill we attempt to foster in students, should be explicitly taught. This teacher gave the example of a class party to depict how any skill will be more readily learned if taught in an authentic context because the motivation is there.

“You have to teach people how to do things. You know, it’s back to scaffolding...Ok, here’s my example. I have kids say sometimes, “Are we having a Halloween party?” And I would say, yeah, if you plan it...I’d say, “Okay, we need to put all this up, we need to have categories of what we need at the party. You need people to clean up, you need, cause I’m not cleaning up the party, and you need to...” You know, so I’d give them some scaffolding, but unless you’re going to do the party, then it’s not going to happen. And I have had times when there weren’t parties because they didn’t plan them. So, if they didn’t get the Halloween party, you can be sure the Christmas party got planned” (Interviewee #5).

Resilience

While most of the teachers talked about the importance of students being willing to take risks and to persevere, these same three teachers addressed ways that we can encourage perseverance. The teachers speak of building perseverance and risk-taking in their students by modeling the uncertainty of learning and the concept that mistakes are a great tool for learning if we are willing to continue to put in our best efforts even when faced with difficulty or frustration.

“...that’s probably one of the most important things in terms of a teacher who wants to inspire III in their kids is to be talking about that in their classroom and that to demonstrate to the children that, you know, I also read and I also made this mistake and so when I made this mistake I tried to think about why this happened, and then...so just modeling. I think if you come across as human and you come across to your children as someone who’s making mistakes and learning from their mistakes and trying new things and pursuing new, you know, aspects of their life. If you’re showing that, if you’re demonstrating that in the classroom and the children see that you’re not this all knowing person who has figured it all out. Because I have not figured it all out. I don’t think I ever will

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10 See pages 44 and 45 for information on Resilience
figure it all out. So by letting the kids in on that, maybe that’s one way that we can help them, inspire them” (Interviewee #7).

“I think what I am saying is failure shouldn’t be a huge thing, it should be seen as a way of learning. You know that old thing if you’re skiing and you don’t fall down then you’re probably not challenging yourself…Sometimes you have to let people fail before they’re able to learn. You know, countless times I’ve heard mainly parents say ‘Oh these kids, this kid has no initiative, they don’t know anything, they’re so lazy,’ but this is often the parent that is doing it all for them…you make people feel like they can’t do anything.” (Interviewee #5).

Absorption, another aspect of resilience that Claxton highlights was also mentioned by Interviewee #5. This teacher spoke at length about motivation and how it is often misconstrued as being related solely to effort. Interviewee #5 shared an insightful understanding of motivation that highlights many of the ideas expressed by Ryan and Deci (2000), Claxton (1996, 2001, 2002), the Feather Expectancy X Value Theory (Brophy, 1988) and in other research on motivation.11

“There has to be motivation…there has to be an emotional component. Apparently Korea, their idea of learning has been both heart and head. I think we acquire knowledge too when we see a need to acquire knowledge. I had a friend who was terrible in math in high school and then she wanted to become an aerial cartographer, map maker, that was it. Suddenly math became more relevant because she needed that Math to do her cartography properly and then she found out she wasn’t that bad in Math at all. Partly because she probably could see a reason for it. (Interviewee #5).

This interviewee uses the example of a friend and math to show how motivation is tied to emotions and how our emotions and sense of purpose affect our ability to focus our energies and get absorbed in learning.

Managing distractions and noticing are two components of Resilience that Claxton outlines that the teachers did not make specific reference to. That is not to say that these skills are not taught by these teachers. They simply did not come up as explicit discussion points in the interviews.

11 Refer to pages 32 to 36 for more information on theories of motivation.
Resourcefulness\textsuperscript{12}

According to Claxton, being resourceful incorporates a wide variety of skills, including questioning, making links, imagining, reasoning, and capitalizing. In analyzing the interviews of the same three teachers, I find that many of these skills are mentioned, though there may not be as clear a delineation between the different skills. This is exemplified by the following comment from Interviewee #7 who is talking about developing resourcefulness in students.

"I think for me it’s trying to teach kids to find their own way...if somehow we can provide children something that’s going to give them the confidence and competence to umm, become independent thinkers and become independent learners, ‘cause to me when I went to school it was all about getting the right answers and I struggled when I got to university because I didn’t know how to think. I really didn’t know how to think. Nobody taught me how to go beyond the answers in the book. And I’m trying to...provide some tools for kids to develop those strategies where they can begin to be confident in their own thinking.”
(Interviewee #7)

While the teacher is not using the term, she is really speaking about creative thinking or imagining. She teacher speaks of learners going “beyond the answers in the book” in order to be “independent thinkers” who can think outside the box.

But in this teacher’s statement we can also see that she is blending a number of the sub-sets that Claxton classifies under resourcefulness. This teacher wants her students to go beyond the text so that they can “begin to be confident in their thinking”. She hopes to provide them with “tools” and “strategies” that they can utilize. This ties in the ideas of capitalizing and reasoning, two other components of resourcefulness, albeit in a fairly generic way. By equipping students with the tools and strategies that they might apply, this teacher is assuming a level of reasoning in her students that will allow them to call on these skills as needed. She also implies that they would have the gumption to capitalize on her experience, the strategies, and any other resources available to them.

\textsuperscript{12}See pages 45 to 47 for information on Resourcefulness
Evidenced here is that, even for the teacher, it is about making links, another aspect of resourcefulness. It is not about distinct sub-sets. The dispositions inter-relate so that learning comes out as a holistic experience, a balance of interdependence with dependence and reasoning with imagining that leads to perseverance and further learning.

Interviewee #5 highlighted an important consideration when trying to encourage imagining/initiative in learners.

"I think that sometimes you have to accept that people are not going to do things quite as you might want them done. My aunt, here's an example of my aunt. She had a new principal and he said, "Your bulletin boards are messy. You need to put up the bulletin boards more neatly". And she said, "These are not my bulletin boards. I don't put up the work, the students do"...I think you have to encourage initiative. So, in a classroom situation, it can't be because the teacher is telling the person to do it. Or, if kids want to try something, then again, you need to encourage that. If the kid said, "Oh, can we write a play"? and you say, "No, you have to do x, y, z", well, the kid's not going to write the play and is not going to show initiative" (Interviewee # 5).

If we are not open to differences in how our students represent their learning it becomes very difficult to encourage imagining or creativity. In fact, the exact opposite may occur and creativity may slowly diminish as the student perceives it as an unnecessary skill for school.

The same teacher spoke of the importance of making links by relaying a counter example. She feels our current structure in many secondary schools makes learning more challenging because interdisciplinary work and relationship building are more difficult to achieve.

"I think the high schools are really overwhelming places for some kids. Plus just the way they fragment learning. The learning is broken up into those kind of, I don't know how long the blocks are, 50 minute blocks or whatever, and um, that's a hard one. You know, if you're going through having 200 different kids a day. What quality of experience are you
getting? It’s quite different than dealing with 60 kids in a week, or even 90 kids in a week. I think you just get lost in things” (Interviewee #5).

This teacher too is commenting on two of Claxton’s learning dispositions in this one statement. She talks about how dividing learning into subjects that are given set blocks of time fragments the learning, making it harder to help the learner see the links between content. She also speaks about the importance of reciprocity and the opportunity to establish caring relationships with students when teachers are responsible for so many different learners each and every day, while the students are faced with numerous teachers, each with different expectations and guidelines. There is often no established mechanism that allows a student’s various teachers to collaborate on how they can show the links between the content they cover, or how they can work together to better meet the needs of a student with whom they all work. Instead, two important aspects that research shows have a major impact on the quality of learning and one’s motivation for learning (*making links* and building relationships) are left to chance.

One of the teachers spoke directly about how she tries to support her learners in *making links* or building on prior knowledge.

“I don’t want to be telling them what the right answer is. I want to be showing them how to find it for themselves and construct, I mean I guess you call it constructivism…but constructing their own meaning, making meaning. To do it on their own, to be able to do it on their own rather than looking for the right answer. I mean hopefully that’s a shift. Because when I was learning that was always about memorizing the facts, it wasn’t about the interactive, it wasn’t interactive, it wasn’t adding a layer of thinking to the text. It was just surface learning. So I think if we can try to help kids get to that place, that will help them beyond main school” (Interviewee #7).

Though she uses alternative wording, interviewee #6 lists the skills of reasoning, *making links*, and questioning as ones that she tries to develop in her students.

“Inferring...synthesizing...being able to see patterns...and not just to, you know, accept everything, but think about what questions does that
bring up, and what kinds of things does that make me think about” (Interviewee #6).

*Capitalizing* is also mentioned when a teacher spoke about how knowledge can be acquired in a variety of ways.

“Um, I think knowledge is acquired over time through various channels. I think you can acquire knowledge independently through your own um reading, your own pursuits, your own interests. And I think you can also acquire knowledge through other people. So being surrounded by knowledgeable people and being associated or being mentored by knowledgeable people” (Interviewee #7).

Reciprocity

According to Claxton, an effective learner is able and willing to learn, both alone and with others, depending on the needs of the learning task. This requires that the learner develop the skills of *collaboration* and *empathy and listening* in order to be able to work well with others. It also requires that students maintain their sense of independent judgment so that they know when to adopt the methods and viewpoints of others and when to stand their ground and debate their views and beliefs. The teachers spoke of designing learning to incorporate a range of activities, from independent, to small group, to whole class so that students would practice independent and collaborative learning. *Interdependence* and *collaboration* were skills about which all the interviewees spoke. Beyond these skills, the three teacher mentors also spoke directly about *empathy and listening*, which, according to Claxton, are also part of reciprocity. They spoke of the need to ensure that all members of the classroom felt their voices were heard and respected.

“...if the classroom, um, is respectful of other people’s thinking, other people’s belongings, other people’s opinions, um, I think that’s going to encourage children to take risks and to, um, feel that their voice is important” (Interviewee #7).

13 See page 49 for information on reciprocity.
"[In a classroom that encourages 121] children are empowered in the classroom...they have a voice in the classroom and their voice is heard...they, um, are a part of the learning process and that learning evolves with the students rather than in spite of them...there's a feeling that all children are valued and what they have to say is valued as well" (Interviewee #6).

It seems clear that, while these three teachers may not have used the terminology of Learning Power, they do hit upon the major categories of the concept. In the classrooms of these three teachers, aspects of the 4 Rs of Learning Power appear to be modeled, discussed, and cultivated on a regular basis.

The major distinction between these three teachers and the others I interviewed was not the expressed philosophy of the teachers or the desire to establish independent lifelong learners. Many of the other teachers identified the same skills and dispositions of 121 that these teachers commented on. The biggest difference in the interviews of these three teachers was the action plan they shared for how to implement 121 in the classroom in practical ways. Not only have they given a good deal of thought to the need to develop skills and dispositions in their students along with knowledge, they deliberated in their interviews on how they proceed in developing 121 or Learning Power in their students.

In his work, Claxton uses the concept of 'the teacher's palette' to describe how teachers build learning power in their students. This palette is made up of four broad components, each of which contains a number of actions a teacher might employ when implementing Learning Power. These four major categories include Modeling, Commentating, Orchestrating, and Explaining (Claxton, 2004).¹⁴

It is quite apparent from the excerpts of their interviews that these three teachers strive to be models of Learning Power. They attempt to share their own learning experiences, warts and all, with their students. These teachers also spoke about the need to commentate on their student's Learning Power through assessment for learning practices

¹⁴ See pages 49 and 50 for further information about Claxton's 'teacher's palette'.
that involve the students in identifying where they are at in their learning journey and how they might improve. Care is taken to ensure the students experience success. Orchestrating, according to Claxton, involves developing an environment and activities that support the development of learning dispositions. These teachers spoke about targeting skills along with content. They also spoke of the need to create a caring environment where students feel their voices are heard. Finally, these three teachers spoke at length on how they must directly teach and scaffold the various dispositions they want their students to develop. Time is given to practicing skills until they are mastered. Explicit language of learning is shared with the students. This falls under explaining on Claxton’s palette.

Deakin Crick, in Learning Power in Practice: A guide for teachers (2006) identifies a number of ways that teachers can support learners in developing their learning power. If one was to look at all the comments made by Interviewees #5, #6, and #7, he or she would see concrete examples of these teachers supporting their students in the following ways:

- Teacher’s learner-centred vision and values;
- Creating healthy learning relationships characterized by trust, affirmation and challenge;
- Developing a language of learning;
- Holding quality dialogues about learning;
- Being a learning role model and encouraging imitation;
- Time for reflection on the learning process;
- Assessing for learning including self-assessment;
- Providing challenge and choice.

(Tew et al., 2002; Deakin Crick, 2006)

5.3 The Successful Application of L21

A number of themes emerge when analyzing how teachers and Learning Power go about implementing L21 in the classroom. Not surprisingly, these themes are recurrent throughout this thesis.
Both the teachers and Learning Power theorists speak to the importance of explicitly teaching 121 skills and dispositions in conjunction with the mandated curriculum. L21 is not viewed as an add-on, but as a critical part of effective learning.

The need to provide a more holistic approach to learning is also mentioned by both. In order to encourage deeper learning, an interdisciplinary approach is highlighted, as well as a need to make connections between content and real life contexts through active, authentic learning experiences. The importance of vertical articulation of the concepts of 121 from grade to grade and from elementary to secondary and post-secondary institutions is also discussed by teachers and in the literature as necessary to ensure the proper and consistent implementation of 121. One teacher spoke to this issue:

“It’s all well and good to ...talk about how we need to change what we’re teaching here in elementary school. The problem is, when they get to high school, their learning the same way... to the same expectations that they’ve had for years. And then if they were to change that, universities have the same expectations that high school... teachers had for many years. So, I think it’s important to be consistent...It would have to be consistent all the way through and I think right now it’s not. We try to tailor a program at the elementary level with the smaller kids to try to individualize learning and individualize instructions and that expectation doesn’t carry through” (Interviewee #2).

An interdisciplinary approach to learning and vertical articulation of 121 would require dialogue and collaboration amongst all key players. It would also be strengthened by the use of a common language of learning in the various classrooms, which is a feature mentioned by teachers and the literature.

“...something powerful is when a school starts to work together and share the language...sometimes when the structure of the environment stays the same, that is actually what allows the creativity to bloom, when they don’t have to constantly be figuring out, you now, where things are and stuff like that” (Interviewee #6).
The need for community involvement is also expressed by all. Teachers stated that the job of developing lifelong learners is too large to be taken on solely by the school system. Learning Power speaks to how a more authentic learning environment can be created when we strive to bring community representatives into the classroom and the learners into the larger community.

"...it is important that as many bridges as possible are built between the school and the outside world. The more permeable the boundaries, the more likely the sought-after transfer is to occur. Some of the relevant areas are: how the school communicates about BLP with parents, and recruits their support; the relationship with the governors; involvement of members of the local community; and networking with other schools and agencies both in person and via the internet" (Claxton, 2002, p. 117).

5.3.b The Role of the Teacher and Approaches to Learning

Being an authentic model of 111 is seen as one of the key roles of the teacher. One teacher spoke to the need to be viewed as a participant on the learning journey, rather than serving as a conduit for answers and knowledge that is fixed, defined, and needs only be communicated.

The literature also speaks of the need, for teachers to model and explicitly teach the strategies and dispositions of 121 in tandem with the curriculum in order for the students to effectively develop these habits. It also highlights how teachers should participate in on-going professional development including collaboration with colleagues in order to keep abreast with best teaching practices. This need for ongoing professional development and viewing oneself as a lifelong learner was also expressed by teachers.

Remaining learner-centred is stressed by Learning Power and was mentioned by three of the teachers. Students should be directly involved in all aspects of their learning, from identifying the focus of inquiry to assessment, in order to build ownership of learning. Providing challenge and choice was discussed in Learning Power and by one of the three teacher mentors as a tool for building motivation for learning.

15 See the comments of Interviewee #6 and Interviewee #7 on page 73
16 See the comment of Interviewee #7 on page 86,
Healthy relationships are seen as critical by interviewed teachers and the literature in the creation of a safe environment where students feel free to take risks and learn from each other. Discussion and dialogue are viewed as successful tools for developing deeper learning. Both Learning Power and the teachers speak of these relationships and past experiences of learning as what make up our learning history, which directly affects our identity as a learner and our desire to continue to learn.

5.3.c Assessment for Learning

Assessment practices that promote future learning rather than ones that simply evaluate learning, and that assess the development of a disposition for learning are highlighted in the literature as keys to developing learning power. The teachers also spoke of needing to use a variety of assessment practices and to assess formative learning along with summative learning. However, only two teachers went into any detail regarding how they utilize the formative assessment results they collect. They commented on the importance of involving the learners in the entire learning process, from goal-setting to assessment of results, including self-assessment practices. The literature states that students who are aware of the objectives of their learning and are helped to see the connections between learning tasks are much more likely to accurately assess their own learning. They are also more able to respond to suggestions for improvement. Even the best formative assessment practices will miss the mark of assessment for learning if they are not used to guide future teaching and learning. In the case of these two teachers’ classrooms, personal reflection and various forms of self-assessment are implemented as ways to increase learner self-awareness that is necessary in order for the learner to take ownership of his or her learning.

One teacher spoke passionately about assessment practices that guide instruction versus assessment for accountability:

"Not that we shouldn’t be accountable, I’m not saying that. But it seems that things are sometimes put down on us that don’t have the meaning. Like, for instance, in the area of assessment, you need to pick
assessment that’s going to be meaningful to you, and meaningful to the students you are working with. So when you have to jump through a hoop of a certain assessment that someone else wants you to do, it may not be as meaningful...not that we’re not willing to assess our kids, because I think assessment is instrumental in instruction, but, here are the things that I actually find effective in leading my instruction and giving me information about the kids that I work with. Not just the number. Telling me that someone, you know, is 2.1 or something really doesn’t tell me if I don’t know what they’re doing within that context of 2.1” (Interviewee #6).

If the assessment does not guide our teaching of the student and does not inform the student of areas of strength and areas on which to focus, how is it specifically supporting learning?

“I remember seeing results of a test that a child had taken and they showed two tests, and in the end it was the same child, but what had happened is they tested her right after the lesson and then there was a bunch of discussion and when she was tested again, she was much stronger....So again, I think that for learning too, the more actively involved somebody is in the learning, the more apt they are to keep it” (Interviewee #5).

This teacher has highlighted how active learning practices, namely discussion, can help improve learning. But beyond this is a lesson in formative assessment. If the teacher did not take the time to check the understanding, or lack thereof, of his/her students and respond by allowing for continuing discussion, the teacher may have moved on in the unit before the student had a good grasp of the material.
6.0 SUMMARY AND CONCLUSIONS

"In times of change learners inherit the earth, while the learned find themselves beautifully equipped for a world that no longer exists" Hoffler, in 21st Century Learning.

"The most important lessons that we can teach our children are the skills and attitudes that will be required of lifelong learners" Cross, 1984, p. 172.

In all our discussions about learning and teaching we might ask ourselves "How much information do we really remember anyway"? It doesn't take too many episodes of Jeopardy, or Are you smarter than a 5th grader? to call into question the current focus on knowledge acquisition in formal education.

Can learning to learn be categorically defined?

Can 121 be categorically defined? Does it matter? These are further questions I am left with after exploring my second research question, ‘What are the skills and attitudes essential for 121’? For, “not only is learning to learn a concept, but it represents a goal, a process, and an area of inquiry” (Smith, 1990, p. 5). As such it may never be categorically defined. It may always be a work in progress and a topic of further research. That does not mean we should hesitate putting into practice the development of imperative skills and attitudes already identified as supporting 111, some of which are outlined in this thesis. That the transferability of 121 skills has been called into question emphasizes the importance of not only focusing on the skills needed for 111, but the dispositions required as well. Students need to be willing to persevere when initial strategies used to approach a problem fail. They need to be confident and flexible in their thinking so they are willing to take risks, fail, and learn from those failings. They need to be resourceful in their approach to problems and open to new learning. In short, students need to activate their 121 capacity when engaging in novel learning contexts.

17 See Figure 1 and 2 for a summary of the skills and dispositions of 121 discussed in this thesis.
Creating an Ecology of Learning

Visualizing learning as *an ecology* is one way of acknowledging the interdependence of all the factors that must be considered when adjusting our education system to a 21st perspective. Sustainability is a concept applied to many fields of study and practice. There is validity in applying this concept to our system of education, as learning relies on the interaction between the many contexts, disciplines, and individuals. Formal education must promote 21st in order to ensure learning is fully sustainable. All learners must be equipped with the skills and disposition of 21st in order to be ready and willing to take on the learning challenges they will face in the 21st century.

Learning is not a simple process, nor is the development of a lifelong learner. Factors exogenous and endogenous to both the learner and formal schooling influence this process. The climate of the classroom effects how learners learn and influences how they think and feel about themselves as learners and how they perceive their capacity to learn.

We must acknowledge the importance of creating a safe environment for risk-taking, as was stressed by both teachers and the literature. Healthy relationships are key. Time must be spent on developing this environment and allowing for supportive relationships to flourish. This speaks to issues of class size and the strategies that allow for smaller group instruction. Motivation must be better understood (effect of grades and assessment practices, need for success, choice, and challenge) by practitioners and students.

I believe that as teaching professionals, we need to first be aware, ourselves, of all the unconscious and conscious factors that may come into play when deciding to take part in an activity and stop brushing it off as an abundance or lack of effort or motivation as many teachers, even some I interviewed, make reference to. We must become more aware, as practitioners, of the importance of building-in success, choice, a sense of purpose, and a sense of belonging to our learning initiatives in order to better motivate our students. We can then help our students identify these contributors to motivation and build the skills of reflective decision-processing in them.
So I think, again, if kids have had positive learning experiences, if they’ve felt success and interest in learning at school, they’re probably more apt to go and take courses later...Learning is based on motivation...to do what your friends do, your peer group plays an important part...sometimes need motivates you. But people don’t continue doing what they don’t feel successful in. There’s a lot about finding success for kids” (Interviewee # 5).

Perhaps most vital to consider when attempting to motivate students to learn is the understanding that, ultimately, it is the perspective of the learner that counts. Of crucial importance however, is understanding that the learner’s cost-benefit analysis may be faulty and biased and most certainly will be largely unconscious. It then becomes the central role of the educator to facilitate the learner in achieving a more balanced view by making more of the decision-making process conscious. The learner can then make more informed, and therefore better, choices when deciding whether or not to participate.

The ecology of learning also includes community involvement/engagement, where authentic learning opportunities are the norm. This would require a holistic approach to real life problems and fully embracing the broader community as a valuable resource and partner in the education of our children.

**Implications for Practice**

Smith (1990) talked about the need for systematic dissemination and implementation of I2I almost two decades ago, yet his suggestions for enabling this to happen have largely gone unheeded. We have reached a critical state in our education system where the need for change is obvious and paramount. I firmly believe that building the capacity for I2I is a key ingredient in catalyzing this change. Therefore, we can no longer postpone the steps needed to make the widespread implementation of I2I a reality. Initial steps must include making changes to our curriculum and our assessment practices, as well as offering professional development options that work for pre-service and practicing teachers and other key stakeholders.
Implications for Curriculum

"The basic skills of learning how to learn should take their place with the basic skills of reading and arithmetic as the keys to a productive lifetime of personal growth" Joyce, 1981, p. 26.

We must build and implement a curriculum that fosters the personal development of our learners along with the attainment of knowledge. Teaching to the development of l21 will ensure this. One of the crucial considerations is that teachers cannot view l21 as an add-on or another ‘swing of the pendulum’, but as an integral process in delivering the existing content. This may require limiting the curriculum content and thinking carefully about what and how we add to the already existing and, at times, overwhelming content.

“As already pointed out, enhancing the quality of learning through improved formative feedback takes time, and is in conflict where teachers feel under pressure to ‘cover’ a statutory curriculum. An important contribution here would be a reduction in the content of that curriculum…” (Black and Wiliam, 1998b, p. 12).

As Cornford suggests (2002), the curriculum may possibly be covered more quickly once students develop the dispositions of l21. One of the teachers I interviewed made the very same observation.

“I think for me, one of the biggest things is to create lifelong learners. And um, I think to create that sense of self that, um, you know, we all have strengths, things that we’re really good at, and things that we maybe have to work a little bit, um harder at. But again, that whole thing, that attitude that I can do it, and that um, thirst for knowledge and wanting to learn about different things. And also I think to learn how to collaboratively be a part of, you know, the community you’re within I think is really important as well. So I think that those are all key. I mean, I think that once those things, the foundations, are there the academics come more naturally” (Interviewee #6).

As educators, beyond limiting the curriculum to make it more manageable, we must also consider how we approach the curriculum. Ideally we would develop an education system that equips learners with the skills, attitudes, and dispositions that would allow

18 See page 43
them to proactively address problems before they arise. Our school systems would be adapted to ensure that l21 was taught in conjunction with the content of the curriculum; content that has dominated our learning since the conception of the formal school system. Concurrently, we would develop a holistic and seamless education system that, in conjunction with the community at large, would value and develop the whole individual.

By explicitly sharing the learning objectives for tasks and the l21 strategies that may be of particular relevance to a situation we help give the task value to the participants. The student is then aware of what and why he/she is being taught or asked to participate in a particular activity. Learning objectives should be related to real world examples, situations, contexts, and the learner’s own purpose and future goals. In short, learning should be learner-centered. It is the role of the educator to keep the learner at the centre of his/her thoughts and actions when planning and executing learning initiatives. This will ensure the learning will be obtainable and beneficial for the learner and seen as such by him/her, not just at the outset, but throughout the learning task. For it is not only at the initial stages of a learning event during which a learner grapples with whether or not to participate, but throughout the learning process. Whether they physically or psychologically do so, many learners opt out of learning midstream through the cost/benefit analysis process described in chapter two.

Assessment For Learning
The 21st century needs learners with transferable skills; people who are adaptable and committed to ongoing learning. We need to ensure that our school systems develop both cognitive and affective capacity in our students. This calls for a different kind of learning that relies on a different kind of assessment to support its growth. Without new assessment strategies that gauge the development of l21 skills and attitudes we will not be able to accurately assess the success of our education systems as a whole or ensure that desired 21st century learning outcomes are being nurtured in the school environment.

If we want to encourage l21 in our students our assessment practices must mirror the objective of developing learning opportunities. If we want to develop reflective, adaptive
learners who can identify and analyze the appropriateness of strategies for various learning situations, then we need to give them time for reflection and self-assessment. We also need to support them through comments, dialogue, and scaffolding in developing and implementing these skills. In short, if we want students to value and internalize the skills and dispositions needed for LlI, we need to show that we too value these skills and dispositions. One way to convey what we value, is to evaluate it.

We need to move from a measurement paradigm of assessment to the use of assessment practices that guide instruction and learning. The use of assessment to encourage self-awareness in learners and to empower them with the information and tools they need to grow must become common practice. Teachers must first understand and embrace the values of L2I in order to assess it, for we can only assess that which we understand. We must then move from assessing what is easy to assess into assessing what we truly value, which is the process of learning and not just attainment of knowledge. This requires the development and implementation of further tools like ELLI that assess the development of L2I and particularly the dispositions of L2I.

We must implement assessment practices that are conducive to learning. Assessments for learning methods exist, but require a release of power by the teachers in order to empower the learners. As a society we need to embrace the idea that learners are the best judges of how they feel about their own learning and must acknowledge that how students feel about themselves as learners has a major impact on their future learning. We must implement ways to have students reflect on themselves as learners in order to help them improve. Along with building-in self-reflection and self-assessment we must also involve the students in the development of criteria for success and make our own assessment practices transparent. Finally, we must implement a variety of formative assessment practices in order to ensure that we are assessing the process of learning and not just the end product. These assessment tools should inform learners how they can strive to improve, rather than simply measure their current abilities.
It also requires that we plan our formative assessment strategies as a key part of our lesson plans. We must give forethought to how we will identify and communicate to the student their strengths and areas for further growth, as well as how we might adjust our teaching to support that further development. Effective observation, questioning, dialogue, reflection, and quality feedback are all critical elements of formative assessment – as is active student involvement in the process. The effect that assessment practices may have on the motivation and self-esteem of the learner should never be overlooked (Black and Wiliam, 1998b).

This is not to say that testing, including standardized testing, does not have a place in a well-balanced and well-equipped assessment regimen. Tests, when carefully prepared and used for specific purposes, can lend insight into how well students have acquired the knowledge that was taught and can provide teachers with critical feedback on the success of their teaching methods. Some knowledge and skills must simply be memorized. But tests, in a traditional sense, measure acquired knowledge or skill and do not, in and of themselves, encourage further learning; this measurement intent must always be kept in mind. Tests also do not enable students to display their resourcefulness and ability to capitalize on the resources around them in the same way that a project might allow. Most tests are created in such a way that they simply require the recall of facts or rote application of a learned skill. A 21st Century learner’s success will be measured by his or her ability to work in varying contexts, taking advantage of all the resources available to him or her and not simply their ability to formulate solutions from memory (Claxton, 2002). Not allowing our students to display how they can make use of the resources and supports around them is like expecting David Beckham to perform without a soccer ball or Wayne Gretzky to perform without his hockey stick.

Checking in on student progress through one-to-one teacher/student discussions ensures that the student is on course and allows the teacher and student to develop learning activities that work from where the student is at on his or her learning journey. Specific assessment strategies that have been used successfully with learners include co-developed (by teacher and students) criteria/rubrics for assessment, reflection journals or diaries,
self assessment, peer assessment, questionnaires or inventories that have learners assess their competencies, and portfolios of work.

Implications for Pre-service Education and Staff Development
While many teachers promote the development of components of 121 in their students through their teaching practices, these aspects, especially those that do not involve the development of skills or resourcefulness, are often developed haphazardly, while the focus is centred on the content of the lesson. Students are often not made aware of the components of 121 on which they may be working while studying specific content, leaving the progression of these aspects of 121 to random chance. When planning the learning situations, many teachers do not consciously select 121 skills or dispositions on which to focus in any given situation. If the teacher, as facilitator and mentor, is not consciously aware of the attitudes and attributes that are needed for a given task and future tasks, it is not surprising that the student is often not aware of the need to further develop these traits.

While it may appear on the surface that becoming learner-centred in the classroom poses a threat to teacher authority, it must be repositioned as a teacher-empowerment tool. Teachers are not only the models of 111 behaviours; they are the catalysts of 121. An essential component to the systematic implementation of 121 is the education of teachers. Teachers work under unconscious belief systems about education that were developed through their own experiences and memories as a learner. As stated in the interviews, the majority of the early educators of our present teachers modeled teaching practices that are no longer representative of our contemporary context. We must break this cycle.

Pre-service training of teachers must call on individuals to challenge these beliefs and practices in order to move beyond the status quo of the present education system. This requires they be personally exposed, often for the first time, to a learner-centred approach in their teacher education program. Those charged with the responsibility of coaching our future teachers must be exemplary models of 111. They must actively and explicitly teach
the skills and dispositions of L21 to their students to ensure that their students in-turn become authentic models of L31 for their students when they become practicing teachers.

Developing the capacity for L21 is an on-going process. Teachers must accept responsibility for professional development and be willing to change and grow as learners. They must be prepared to facilitate a love of learning in their students and view the development of L21 in their students as one of their primary goals as a teacher and not as another expectation that has been added to their workload. To validate and support the development of L21 in teachers we must ensure there are ongoing opportunities for in-service training, practice, and feedback on L21. This may take such forms as collaboration with colleagues, team-teaching, and peer mentorship, as well as more formal professional development.

Stumbling blocks that must be overcome in creating this new culture of teaching include the strong forces at work in maintaining the status quo such as the misuse of teacher autonomy, the assumption that experience always denotes expertise and the unquestioning perpetuation of 'traditions' to name a few.

**Implications for Further Research**

One of the great things about learning is that it always leads to further questions. It is not surprising that in answering the research questions of this thesis a number of other questions arose. Further research on L21 could take many directions. A number of these directions are listed below.

Further interviews on the conceptualization of L21:

It would be useful to interview teachers who are new to the profession, teachers working at other levels of education, and/or teachers working within a Middle Years Programme (MYP) school. This would expand our understanding of how L21 is conceptualized by practicing teachers.
Research into Best Practices in L21:

The study of district programs/projects for positive exemplars of L21 such as the Early and Late Literacy Projects, the International Baccalaureate Middle Years Programme, the International Baccalaureate Diploma program, Appreciative Inquiry Projects that work from an asset based model of development, and distributive leadership initiatives, etc. would shed further light on the state of L3 in our district. Assessing current practices that work at applying L21 principles and processes may illuminate existing opportunities and constraints. By analyzing existing practices that display promise we may hone in on what does and does not work and why.

I am currently a Community Schools Teacher working in downtown Vancouver at the three schools where MYP is being implemented. Upon a brief introduction to the programme, I believe it becomes apparent that our downtown MYP schools would make an excellent case study into how we might go about implementing L21 in order to develop lifelong learners.

What is MYP All About?
The Middle Years Programme of the International Baccalaureate Organization (IBO) is an educational framework/plan established in 1994, aiming to meet the educational requirements and unique learning and developmental needs of students between 11 and 16 years of age. Currently MYP is offered at 519 schools worldwide. MYP was developed by IBO, a non-profit, international education foundation, registered in Switzerland and established in 1968. MYP is one of 3 programs offered by IBO, spanning the years from kindergarten to grade 12. These programs can be offered individually, or as a continuum. Currently, the Vancouver School Board offers MYP at the King George community of schools, which incorporates King George Secondary, Lord Roberts Elementary, and Elsie Roy Elementary.

MYP was devised by curriculum developers with a “common concern to prepare young people for the changing demands of life in the 21st century....”, aiming “to help students
to develop the knowledge, attitudes, and skills they need to participate actively and responsibly in a changing and increasingly-interrelated world” (Coordinator’s Handbook, Intro, p 1). This mandate is an obvious match with the discussions in the literature regarding the rationale for implementing I2I in the school system in order to promote III.

Some specific qualities and skills that MYP aims to develop in learners include adaptability, self-confidence, global awareness, the ability to work independently and in collaboration, strong communication and problem solving skills, and respect of the perspectives and opinions of others, with the ultimate goal of building the disposition and capacity for III. “Learning how to learn and how to evaluate information critically is as important as the content of the disciplines themselves” (Coordinator’s Handbook, Intro, p2), while skills and attitudes are key objectives and outcomes of the program, alongside the development of knowledge and understanding of the content.

To this end, the programme is guided by three fundamental concepts: holistic learning, intercultural awareness, and communication. In striving to be holistic in the approach to learning, links between disciplines are emphasized, stressing that knowledge be explored in an interrelated way in order to make content more relevant. Real life issues and queries are explored from a global perspective. Content is explored from a place of inquiry through “guiding questions” and students are challenged to see issues from multiple perspectives in developing intercultural awareness. Communication is stressed as a fundamental skill, for it not only allows understanding and inquiry, but enables students to generate ideas, express themselves, and reflect on their own learning. MYP emphasizes the need to develop and foster multiple forms of expression, as well as efficiency in a second language.

The subjects and the objectives of MYP do not vary much from the BC curriculum. Where MYP may vary from current teaching in BC classrooms is in its approach to this content. MYP strives to keep the learner at the centre of learning. The curriculum is approached through five ‘Areas of Interaction’ (AOI) that provide a framework for learning across the subject areas, making connections among subject areas, as well as

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between subject areas and real life issues. Acting as vehicles for reaching the fundamental concepts of holistic learning, intercultural awareness, and communication, while working with the eight curriculum areas, the AOI are core elements or themes of the program that create a common language for students and teachers upon which they can anchor their inquiry, learning, and reflections.

These AOI include ‘Approaches to learning’ (ATL). Central to the entire program, ATL is an integral part of all learning concerning “learning how to learn” (IBO, 2002a) and the development of the “intellectual discipline, attitudes, strategies, and skills” (Ibid) that will allow for critical, independent, and flexible thinking, problem-solving, and decision-making. In short, ATL challenge and equip the student to reflect and develop beyond the simple acquisition of knowledge in order to be prepared to learn throughout life, both alone and in collaboration, for a variety of purposes and in varying contexts. ATL involves exploring: “How do I learn best? How do I know”? and “How do I communicate my understanding?” (IBO, 2002b).

Another key component of MYP is the ‘Learner Profile’ that is incorporated into the International Baccalaureate Primary Years and Diploma Programmes. The attributes of the Learner Profile identify the type of learner that IBO aims to develop through the three programmes. Thus IBO hopes to support individuals in becoming inquirers, thinkers, communicators, and risk-takers, who are principled, balanced, open-minded, reflective, caring, and knowledgeable. This profile of ten key attributes is meant to represent the profile of the whole person in their development as a lifelong learner, respecting that the development of these attributes will be an on-going, lifelong process. These descriptors can be incorporated into the language of learning in the classroom. Students and teachers can engage in reflection on, and in self-assessment of, these descriptors in order to support their development (IBO, 2006b).

Investigation into assessment; what works and why?
Identification of best practices in assessment for learning as well as concurrent identification of further tools like ELLI that assess L2L, and specifically the dispositions of learning, would be of great value in shifting education practices towards L3L goals. Also, Participatory Action Research (PAR) on the effectiveness of ELLI through field-testing with VSB teachers and MYP teachers would shed further light on this assessment tool’s validity and effectiveness in promoting L2L.

Pre-service and in-service teacher training on L2L:

Research into L2L will always fall short of implementation if it does not become a concept that teachers value and take responsibility for cultivating in their students. Teachers must see L2L as a key to 21st century learning before it will ever become prevalent in classrooms. Only when L2L becomes a priority can we begin to address how teachers may be supported in developing their own L2L skills and dispositions. Therefore, research must be packaged in a way that is easily digestible, and easily implemented by busy teachers in the early stages of implementation.

As a second stage, the development and dissemination of practical strategies that allow teachers to become equipped with the capacity for L2L and therefore enable them to convey it to their students through modeling L3L behaviour would aid the widespread implementation of L2L. Study into how Learning Power and other L2L initiatives go about developing this capacity in teachers and schools would be invaluable. Also, time must be devoted to the collaboration between teachers and teachers must begin to view their peers as valuable resources for learning.

Systematic Planning for Implementation:

Lastly, we must develop further research into mapping out design options for systematic implementation of L2L. This may result in the development of a scope and sequence for L2L skills and attributes that is linked to curricula. Once model strategies are developed and implemented, we would have to complete an honest and open analysis of implementation
issues/constraints in order to acknowledge and address barriers and gain commitment from key stakeholders.
REFERENCES


OECD, 1996.


Senge, Peter. 1990. The Fifth Discipline; The art and practice of the learning organization.


APPENDIX I: GLOSSARY

**Advance organizers:** “advance organizers prepare the learner for the material they are about to learn. They are not simply outlines of the material, but are material that will enable the student to make sense out of the lesson” (Mergel, 1998). See D. Ausubel.

**Behaviourism:** “Based on observable changes in behavior. Behaviorism focuses on a new behavioral pattern being repeated until it becomes automatic. The theory of behaviorism concentrates on the study of overt behaviors that can be observed and measured” (Mergel, 1998). It is “an approach to psychology based on the proposition that behaviour can be studied and explained scientifically without recourse to internal mental states” (Schuman, 1996). See Ivan Pavlov, Edward Thorndike, John B. Watson, and B.F. Skinner.

**Cognitivism:** “Based on the thought process behind the behaviour. Changes in behaviour are observed, and used as indicators as to what is happening inside the learner's mind” (Schuman, 1996).

**Constructivism:** “Based on the premise that we all construct our own perspective of the world, through individual experiences (and/or group experiences if considering the social constructivist perspective) and schema. Constructivism focuses on preparing the learner to problem solve in ambiguous situations” (Schuman, 1996).

**Criterion-referenced:** “a test or other assessment designed to provide a measure of performance that is interpretable in terms of a clearly defined and delimited domain of learning tasks” (Linn R.L. & Gronlund, N. E., 2000, p 42).

**Cultural Capital:** “forms of knowledge; skill; education; any advantages a person has which give them a higher status in society, including high expectations. Parents provide children with cultural capital, the attitudes and knowledge that makes the educational system a comfortable familiar place in which they can succeed easily” Wikipedia, March 3, 2007). See Pierre Bourdieu.

**Enlightenment:** “an eighteenth-century movement in European and American philosophy, or the longer period including the Age of Reason. The term can more narrowly refer to the intellectual movement of The Enlightenment, which advocated Reason as the primary basis of authority” (Wikipedia, May 10, 2007).

**Formal education:** “the highly institutionalized, chronologically graded and hierarchically structured “education system”, spanning lower primary school and the upper reaches of the university” (Coombs & Ahmed, 2002).

**Habits of mind:** The habits of mind are “characteristics of what intelligent people do when they are confronted with problems, the resolutions to which are not immediately apparent” (Costa, 2000, p.21). Many of these “habits of mind” overlap with Claxton’s components of Learning Power including persisting, meta-cognition, thinking flexibly and imagining.
**Human capital:** “a way of defining and categorizing the [knowledge,] skills and abilities of individuals as used in employment and as they otherwise contribute to the economy” (Wikipedia, March 3, 2007). Moving beyond earlier economic theories that refer to it simply as physical labour, the knowledge-based society now emphasizes human knowledge and our ability to expand, transfer, and share this capacity (Wikipedia, March 3, 2007).

**Informal Education:** “the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment – at home, at work, at play; from the example and the attitudes of the family and friends; from travel, reading newspapers and books or by listening to the radio or viewing films or television” (Coombs & Ahmed, as sited by Tuijnam & Botröm, 2002).

**Instructional scaffolding:** “the provision of sufficient supports to promote learning when concepts and skills are being first introduced to students in order to help the student master a task or concept...These supports are gradually removed as students develop autonomous learning strategies, thus promoting their own cognitive, affective and psychomotor learning skills and knowledge” (Wikipedia March 3, 2007). See Lev Vygotsky, Jerome Bruner, and Stephen Krashen.

**L1L:** lifelong learning

**L2L:** learning to learn

**Mnemonic devices:** memory aids that usually serve an educational purpose. “Mnemonics are often verbal, something such as a very short poem or word (which may be made up), particularly lists. Mnemonics rely not only on repetition to remember facts, but also on associations between easy-to-remember information and lists of data that need to be remembered, based on the principle that the human mind much more easily remembers data attached to spatial, personal, or otherwise meaningful information than that occurring in meaningless sequences” (Wikipedia, March 3, 2007). The use of BEDMAS in math to remember order of operations is an example of a mnemonic device.

**Non-formal education:** “any organized, systematic, educational activity carried on outside the formal system to provide selected types of learning to particular subgroups in the population, adults as well as children” (Coombs & Ahmed, as sited by Tuijnam & Botröm, 2002).

**OECD:** “Organization for Economic Co-operation and Development (OECD)...is an international organization of those developed countries that accept the principles of representative democracy and a free market economy. It originated in 1948 as the Organization for European Economic Co-operation (OEEC), led by Frenchman Robert Marjolin, to help administer the Marshall Plan for the reconstruction of Europe after World War II. Later its membership was extended to non-European states, and in 1961 it
was reformed into the Organization for Economic Co-operation and Development...The organization provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and co-ordinate domestic and international policies. The mandate of the OECD is very broad, as it covers all economical, environmental and social issues” (Wikipedia, March 3, 2007).

**PISA:** The Program for International Student Assessment is an internationally standardized assessment that was jointly developed by participating countries and administered to 15-year-olds in schools. The survey was implemented in 43 countries in the first assessment in 2000, in 41 countries in the second assessment in 2003...Tests are typically administered to between 4,500 and 10,000 students in each country. The domains for reading, mathematics, and science literacy are assessed.

**Self-Determination Theory (SDT):** “is a general theory of human motivation concerned with the development and functioning of personality within social contexts. The theory focuses on the degree to which ...people endorse their actions... and engage in the actions with a full sense of choice. Over the past three decades SDT has evolved into a set of four mini-theories that share the organismic-dialectical meta-theory and the concept of basic needs. Self-determination theory has been brought to many applied settings such as education, health care, parenting, work organizations, sports, and mental health” (Wikipedia, March 3, 2007). See Edward L. Deci and Richard M. Ryan.

**Social capital:** a core concept in business, economics, organizational behaviour, political science, and sociology, defined as the advantage created by a person's location in a structure of relationships. It explains how some people gain more success in a particular setting through their superior connections to other people” Wikipedia, March 3, 2007). According to Putnam (2000), social capital is a key component to building and maintaining democracy because it encompasses the collective value of all 'social networks' and the desire to do things for each other. See Pierre Bourdieu and Robert Putnam.

**UNESCO:** "United Nations Educational, Scientific and Cultural Organization is a specialized agency of the United Nations established in 1945. Its stated purpose [in its constitution] is to contribute to peace and security by promoting international collaboration through education, science, and culture in order to further universal respect for justice, the rule of law, and the human rights and fundamental freedoms proclaimed in the UN Charter” (Wikipedia, March 3, 2007).

**Zone of Proximal Development (ZPD):** “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers”(Vygotsky, 1978, p 86 ).
Dear Colleagues,

My name is Maggie Carty and I am a Masters of Arts student in Adult and Higher Education at U.B.C., as well as an elementary school teacher employed by the V.S.B. I am writing to request your participation in my thesis study. For my thesis, I am interested in hearing about your experiences with “learning to learn.” Specifically, my research project involves interviewing Vancouver School Board elementary school teachers in order to explore their experiences and conceptions of learning to learn, and how that understanding of learning to learn informs their teaching practices.

Learning to learn is a term that is often used in education policy documents and literature on lifelong learning without definition. At present, when attempts are made at defining learning to learn, it is commonly defined as a set of cognitive (thinking; knowing) and metacognitive (thinking about thinking) skills that will enable a learner to learn more quickly and efficiently. Carr and Claxton (2002) build on this definition by stating that learning to learn requires the building of attitudes as well as aptitudes towards learning to ensure that individuals will not only function, but thrive as learners in the current climate of complexity and uncertainty. I am interested in your personal views and experiences of learning to learn, regardless of whether or not they mesh with or compliment the definition above.

**Study Procedures:**
The principal investigator for this study is Professor Kjell Rubenson. As a co-investigator I am conducting this study in partial fulfillment for the degree of Master of Arts in Adult Education at UBC. Participation in this study involves sharing information about your personal experiences of learning to learn and how these experiences affect your teaching practices. Participation requires that you are an elementary school teacher with the VSB who has experienced learning how to learn first hand and is willing to share your experiences through:

1. Completion of a basic demographic survey to ensure that a heterogeneous, or mixed, sample is collected.
APPENDIX III: CONSENT FORM

Purpose:
To obtain an understanding of how elementary school teachers experience and conceive of the concept of learning to learn, and how this personal understanding affects their professional teaching practices. This study is being conducted as Maggie Carty’s thesis study as required for the fulfillment of her Master of Arts program.

Study Procedures:
Participation in this study involves sharing information about your personal experiences of learning to learn and how these experiences affect your teaching practices. Participation requires that you have experienced learning how to learn first hand and are willing to share your experiences through:

5. Completion of a basic demographic survey to ensure that a heterogeneous, or mixed, sample is collected.

6. Participation in a 1 to 1.5 hour one-on-one interview about your experiences with learning to learn.

7. Completion of a member check interview or survey (your choice) to ensure my findings accurately portray your experiences of learning to learn.

The interviews will be scheduled at your convenience. All interviews will be audio taped. The whole project will be conducted over four months. If you choose to take part in the project, you will volunteer approximately 2.5 hours of your time through participation in the interview and feedback opportunity listed above.

The final research report of the study will be printed and placed in the library at the University of British Columbia. A summary of the report can also be sent to you upon request. The results of the study are anticipated to be of interest to the Vancouver School Board, the British Columbia Ministry of Education, as well as those with research interests in lifelong learning and learning to learn.

Confidentiality:
Information resulting from the research studies will be kept confidential. Only the researchers will have access to the data. During transcription of the audio taped interviews, personal descriptors will be removed and replaced by alphanumeric codes and nicknames so your identity will not be known. Alphanumeric codes and nickname lists will be kept in separate files in a locked cabinet. Any records kept on a computer hard disk will be kept in a secure folder requiring a password for access. All records will be destroyed upon completion of the study. Participants will not be identified by name in any documentation.
APPENDIX IV: INTERVIEW PROTOCOL

Interview Objectives:
- Determine attributes of the concept of "121", as perceived by the interviewee. What is the essence of 121 from the teacher perspective?
- Build on my understanding of 121.
- How does a practitioner promote or facilitate life-long learning?
- Does it have anything to do with the concept of 121?
- How does the interviewee’s concept of learning encompass learning to learn, or rather, how does learning to learn fit into the interviewee’s learning paradigm?

Questions:
- How many years have you been teaching?
- What grades or subjects have you taught in your teaching career?
- What do you currently teach?
- What was your favourite grade to teach and why?
- How do you think knowledge is acquired? (Learning theory/perspective on learning)
- How do we know or what evidence is there that learning has taken place? (Beliefs on assessment)
- What is the purpose of formal education? (Role of education in our society) Is our current education system meeting this purpose, and should this be the purpose or focus? (Evaluation of current practices) Are we preparing kids as lifelong learners? (Are schools successfully preparing kids for learning throughout their lives?)
- How should we equip students for lifelong learning beyond formal education? That is, once they leave school? (What strategies, skills, aptitudes, attitudes do we want to instill in students?)
- How would you differentiate a lifelong learner from a lifelong student? (What attitudes and aptitudes are needed to be a successful learner vs. a very successful reproducer of learning)
- In your opinion, why are some individuals more active lifelong learners than others? (What is needed to be a lifelong learner and why should people bother?)
- How would you weigh the importance of active lifelong learning?
- What factors, aside from whatever has been mentioned influence lifelong learning? (Summary of skills, attitudes, as well as situations or conditions needed for lifelong learning)
- Describe three different ways you have seen learners react to problems that they don’t immediately know how to solve? (What do you notice/observe people doing when they are stuck?) Which of these reactions do you perceive as positive, why?
- If we define 121 as what to do when you don’t know what to do, what makes some people more successful at learning how to learn? (What habits, interests, qualities, skills and attitudes do they possess? What are the characteristics of learning to learn?)
- What does a classroom that encourages learning to learn look like? (How do we incorporate 121 into our practices?)