In What Ways do Two Junior/Intermediate Level Teachers Perceive the Role of Self-Directed Learning for Their Students?

By

Howin Chang

A research paper submitted in conformity with the requirements For the degree of Master of Teaching Department of Curriculum, Teaching and Learning Ontario Institute for Studies in Education of the University of Toronto

Copyright by Howin Chang, April 2016
Abstract

There has been a push for more student oriented teaching and motivating students to learn through authentic learning. One concept that embodies these ideas was self-directed learning for students to explore a topic of interest and develop their own solutions to solve real world problems. However, self-directed learning have been seen more in older students in secondary or post-secondary schools and adults who were trying to learn on their own. This qualitative research placed focus on the concept of self-directed learning in younger students, more specifically in Junior and early Intermediate grades. This was a case study research of two elementary teachers in the Toronto District School Board that have taught in the Junior and Intermediate divisions who used self-directed learning for their cross curriculum culminating activities or project. Each participants shared their experiences and views on self-directed learning in their own classroom through a semi-structured interview. The idea of self-directed learning revolved around implementing strategies to give the students a purpose to motivate them and allowing autonomy of their own choices. Teachers need to be aware and overcome the barriers in self-directed learning such as their comfort with less control then the outcomes would be incredible for student cognitive development and preparedness for the real world.

Key Words: Self-directed Learning, Strategies, Benefits, Inquiry, Motivation, Critical thinking
Acknowledgements

I wish to acknowledge and thank my cohort JI-132 and friends in Master of Teaching for all the advice, insight, laughter and encouragement in these past two years. Thank you all for keeping my sanity and spirit up during the stressful times and low points. Special thank you to Amanda Hedmann, Aparna Sethuraman and Max Applebaum for spending your own time to help me edit parts of my MTRP. Thank you Anu Kanagasabai for always keep our cohort up to date and on task. This MTRP would not be where it is at without you all.

I would also like to thank all my Associate Teachers that I had the pleasure of being placed with and Professors in the Master of Teaching Program for sharing your knowledge and help shape the research and kind of teacher I would be. To my Associate Teachers, the observations I have made in a real classroom have helped put some personal perspective onto my own research. To my professors, theories and research we discussed have been very informative and helped me refine my literature review and approach to this research. Special thanks to Dr. Mary Reid for support my cohort and I through these past two years. You have given us great feedback and have acted as a voice for us all in the program.

Finally, I would like to acknowledge and thank Dr. Patrick Finnessy for his support and feedback in developing my chapters 1 and 2. Dr. Arlo Kempf for support and feedback on chapter 3 over the summer. Erin Sperling and Peter Joong for teaching and refining of my data and themes in chapters 4 and 5. Without all your professional feedback, this MTRP would not have been possible.

I am grateful for all my family, friends, associate teachers and professors who I have met and have had a hand in the completion of this MTRP.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>i</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>ii</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>iii-v</td>
</tr>
<tr>
<td>Chapter 1: Introduction</td>
<td>1-6</td>
</tr>
<tr>
<td>1.0 Background, Purpose and Significance of the Study</td>
<td>1-3</td>
</tr>
<tr>
<td>1.1 Statement of the Research Problem</td>
<td>3</td>
</tr>
<tr>
<td>1.2 Background of the Researcher</td>
<td>4-6</td>
</tr>
<tr>
<td>1.3 Limitations of the Research</td>
<td>6</td>
</tr>
<tr>
<td>Chapter 2: Literature Review</td>
<td>7-20</td>
</tr>
<tr>
<td>2.0 Introduction</td>
<td>7-8</td>
</tr>
<tr>
<td>2.1 Social Cognitive Theory</td>
<td>8-10</td>
</tr>
<tr>
<td>2.2 Self-Directed Activity</td>
<td>10-13</td>
</tr>
<tr>
<td>2.3 Critical Thinking</td>
<td>14-16</td>
</tr>
<tr>
<td>2.4 Self-Esteem</td>
<td>16-19</td>
</tr>
<tr>
<td>2.5 The Delivery of Self-Directed Activities</td>
<td>19-20</td>
</tr>
<tr>
<td>Chapter 3: Research Methodology</td>
<td>21-28</td>
</tr>
<tr>
<td>3.0 Introduction</td>
<td>21</td>
</tr>
<tr>
<td>3.1 Research Approach &amp; Procedures</td>
<td>21-22</td>
</tr>
<tr>
<td>3.2 Instruments of Data Collection</td>
<td>22</td>
</tr>
<tr>
<td>3.3 Participants</td>
<td>22-25</td>
</tr>
<tr>
<td>3.3.1 Sampling Criteria</td>
<td>22-23</td>
</tr>
</tbody>
</table>
Chapter 4: Research Findings

4.0 - Introduction

4.1 - The Early Need for Self-Directed Learning

4.2 - Benefits of Self-Directed Learning

4.2.1 - The Effects on Students

4.2.2 - Learning Skills

4.3 - Barriers of Self-Directed Learning

4.3.1 - Challenges of Self-Directed Learning

4.3.2 - Challenges to Teaching Self-Directed Learning

4.4 - Strategies to Using Self-Directed Learning

4.5 - Conclusion

Chapter 5: Implications, Recommendations, and Conclusions

5.0 - Introduction

5.1 - Overview of key findings and their significance

5.1.1 An Early Need for Self-Directed Learning

5.1.2 Benefits of Self-Directed Learning

5.1.3 Barriers of Self-Directed Learning
CHAPTER 1: INTRODUCTION

1.0 Background, Purpose and Significance of the Study

Students in junior grades are starting to be given more opportunities to learn independently and develop their critical thinking skills with many self-directed activities. This is seen in the revisions of the curriculum documents for several subjects, such as the 2013 revision of the Social Studies, History and Geography curriculum document which is focusing more on inquiry and critical thinking. Self-directed learning is an important part of inquiry and an essential skill in school settings that motivates the students to come up with their own questions and use the many resources available to them to solve problems. Students are experiencing different levels of inquiry through engaging activities in class and in their daily lives. As students reach a higher level of inquiry and less instructions are given, teachers turn to self-directed activities that task the students to design their own methods and follow through with their own inquiry. The activities can range from researching information, creating their own design, or an experimental lab investigation in science textbooks.

Theoretically this should be promoting more independent learning and foster ownership of students’ own critical analysis. I have experienced this myself and seen other students often get stuck in a loop of confusion on not knowing how to begin or designing their own methods. I believe that this could potentially create a negative stereotype towards self-direction in junior students if implemented too early or incorrectly. This could hurt students' self esteem towards self-learning and self-efficacy. The plethora of possibilities in self-directed activities can be overwhelming to students but at the same time this was what makes self-directed activities so attractive to teachers for encouraging critical thinking. Guidance for such activities can be given
in forms of a rubric or a list of success criteria but would it still be considered independent learning if the student just follows the guidelines and do not expand beyond it? According to the Social Cognitive Theory, humans as social animals learn by observing the behaviours of others and replicating such behaviours. We do not solely try out new behaviours. This theory seems to say that students are dependent on the teacher to learn how to become self-directed. Are students just replicating what the teacher has done previously but will not try out their own designs? So how do we encourage students to go beyond and create their own methods and questions to investigate; to inquire more than what teachers have to offer?

This research investigated how teachers implement self-directed learning and how this may affect student’s self-efficacy as learners at a junior level. The merits of independent learning and effectiveness of self-directed learning were looked at and considered throughout the research.

The new curriculum focuses more on students’ critical thinking and more student involvement. One way to get students more involved in their own learning is to have self-directed content and independent studies. More specifically in science textbooks where there are many self-directed experiments that require the students to design their own procedure to investigate a theory. Being self-sufficient and being able to be independent in research is very valuable in academia for students to be successful and resourceful. This could potentially allow students to go beyond what school teaches and facilitate a widening their knowledge.

The development of self-learning and being independent can be tricky in the junior levels, especially if the students were not exposed to designing their own learning style and methodologies. Students need some sort of guidance in order for them to learn; yet textbooks and materials more or less throw many types of self-directed learning activities at them. As a teacher
In What Ways do Two Junior/Intermediate Level Teachers Perceive the Role

candidate I am very intrigued by how students learn to be more independent at a junior level and this research enlightened my questions of when should students start using a higher level of inquiry. The highest level of inquiry is when students come up with their own questions, design their own methods, and investigate to find their own solutions.

The purpose of this research examined how teachers implement self-directed content into their lessons and its effects on students' self-efficacy in school. Feedback about the use of self-directed assignments, experiments and projects from teachers and their reflections on the class's success shed light to this research. This research attempts to identify what works and what does not in a junior classroom setting. Was it possible for the students to fully understand and successfully complete self-directed learning activities at the junior levels or will it only serve to lower their self-efficacy when they are unsuccessful? I hope my research may be insightful to new teachers and myself in creating lessons that will facilitate self-directed learning.

1.1 Statement of the Research Problem

The over-arching question of this research was:

- In what ways do Junior/Intermediate teachers perceive the role of self-directed learning?

The follow sub-questions were also investigated to identify what the affects of self-directed activities were:

- How do Junior/Intermediate teachers implement self-directed learning in their classroom?
- How can self-directed learning promote the development of the student?

These questions will frame the research and be used to investigate the effects of self-directed activities on students in the junior and early intermediate grades. The research will investigate the consequences of successful and unsuccessful results of self-directed learning.
1.2 Background of the Researcher

Throughout elementary and secondary school, I always had troubles starting my assignments and it was a hassle going through self-directed activities. Not only did I not want to bother with creating my own designs but I actually did not know how to create my own design until I saw many exemplars. The beginning of a writing assignment always took the longest because I was unsure of how to begin. This also applied for designing projects or deciding on an idea or topic that I wanted to work on. It wasn't until the latter half of high school when I was more comfortable with starting assignments and felt self-directed designs were easy. This made me wonder when it would be appropriate to implement self-directed learning and when exactly did I become more self efficacious in independent studies.

I graduated from the University of Toronto with an Honours Bachelor of Science with a double major in Biochemistry and Psychology. In the field of biochemistry I have experienced many labs and had the privilege of working in an organic chemistry research lab. I had to design my own procedures and was very familiar with the levels of inquiry needed to be self sufficient in research. This was where my understanding of the difficulties of creating my own designs had led me to the topic of this research on creating designs in self-directed learning. I have experience with quantitative research but I also had the chance to experience qualitative research in my psychology background. I have written a research proposal for a behaviour psychology topic on attitudes and behaviours towards different modes of transportation, which involved intensive designing processes involving observation and analysis of the collected data. I have also done qualitative surveys and scored data quantitatively. My knowledge in the psychology
field had me looking at the relationship between self fulfilling prophecies of the students and researchers, the teacher's expectancy biases and student's self esteem.

I have also worked with children in the elementary level during extracurricular activities and, as of writing this research paper, currently tutoring mostly high school students from grade 9 to 12 in Mathematics, General Science and Chemistry. Across all my experiences, I have noticed that students were always worried about expectations and criteria rather than going further and beyond the scope of what they need to do. I found this limits their learning which can negatively impact self-directed learning and deeper exploration of content. Compared to myself when I was younger, I believe that without a clear purpose or set end goal that it was hard to direct myself to find a solution to reach it. There were times that I was infatuated with an idea and would spend hours exploring it to find out more. The times that I went and explored something was very self-directed because I was motivated to satisfy my need to find out more. I had a purpose or goal I wanted to reach. I wonder why it was that when given assignments in school where I had to go out and research on my own, I would be stuck and take an extra long time to start. Perhaps I was just not motivated or interested in self-directed assignments in school.

I am curious of how self-directed learning was implemented and fostered in current classrooms and how teachers perceived the idea of self-directed learning. I wanted to know what kind of strategies they used to implement self-directed learning in their curriculum. From my past experience, there were moments when I did self-direct myself but other moments that it was not very effective when I was required to. My research unpacks what current teachers were doing to make self-directed learning effective in their classrooms and what outcomes have they observed in their students. I do believe that self-directed learning is a great idea but maybe it was
not something as feasible to younger students because either I was not very self-directed when I was younger or my classrooms were very teacher oriented. However, I would like to think I am very self-directed now that I am in a Masters program and competent in my abilities.

1.3 Limitations of the Research

This research was done over a two year time period for my Master of Teaching program. Time was the one of the biggest limiting factors because the research project was due within two years from the start of the program and I had other commitments during my studies. Classes, assignments, a part time job, and extracurricular activities were commitments that will take time away from my research. This restricted the number of teachers that I was willing to interview due to time. The number of teachers who agreed to be interviewed was also a limiting factor. Teachers are also busy with their own classrooms and finding scheduling interview times added another layer of complexity to collecting data. The program gave a blanket waiver for interviewing teachers but I would be required to go through the Research Ethics Board if I wanted to interview students or other groups of people. I was not be able to work on an application to the REB because of the time constraints and other commitments that I had to deal with through the duration of the masters program.
CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

Everyone learns and develops differently; some prefer to learn individually while others learn from observing others. Each individual has different learning styles and develops differently at different stages. One of the most important aspects in our growth and living in society is the social interaction that binds us all together. This research focused on the social aspect of how children develop and internalized the observable world. From birth, children learn from observing their caregivers and their interactions with the environment. This has been hardwired into every child from the beginning and has been theorized by Alberto Bandura (1986) as the Social Cognitive Theory.

As students improve and move into higher grade levels, they are given more independent work and many self-directed activities. Independent work requires the students to be motivated and have the ability to self-direct. The teachers could facilitate the motivation but it ultimately needs to transition into what the students could call their own. In theory these self-directed opportunities would inspire critical thinking and encourage the students to strive beyond what they were taught. The goal was to challenge the students to aspire to be more than what was expected; to always reach for a hundred percent. However, what would happen when students fail to succeed independently? Students might start doubting their abilities if they were not able to solve problems on their own and develop an "I can't do it" mindset. Children's self-esteem at the junior levels might be at risk here and develop a feeling of inadequacy. I believe that all students have the capability to be intrinsically motivated and succeed in self-directed activities but would they not first need an environment set up for them to develop such motivation? That
was up to the teacher and those around them. Students at the junior level require guidance from their guardians and teachers to show the skills needed to succeed. In other words, what was expected and what were some criteria to follow when working independently. It takes time for the students to learn and internalize how to work independently, but on the other hand, having a competent mentor means not working independently because direction will always be given by others instead being self directed.

The topics that this research study examines the application of Social Cognitive Theory (SCT) in education, what was the use of self-directed learning, the critical thinking that independent studies inspire and the influences on children's self-esteem.

2.1 Social Cognitive Theory

The Social cognitive Theory (SCT) postulates that individuals learn from observing other's behaviours. They learn the order of behaviours and the consequences of an event so that they can repeat or modify the behaviour in the future. So this means that people do not learn new behaviours by trying them out themselves but instead need to have seen them before in order engage in this newly learned behaviour. SCT for education means that the students are reliant on the teacher to model an assigned task, which can be interpreted as the students needing to first observe the teacher in any new activity and would be resistant in any self motivated attempts.

The idea of students observing a teacher leads us to look at the apprenticeship mentioned in Lev Vygotsky's work. Vygotsky's (1978) Zone of Proximal Development states that in the predevelopment stage the student lacks the competencies needed to learn and perform a task even with assistance from a teacher. Next is the zone of proximal development where the students are able to complete a task with assistance from a teacher who would be giving support
via instructions and feedback. Here is where it overlaps with SCT when it comes to learning from observing others' behaviour or a teacher modeling a task. When a teacher demonstrates a task, the sequence of behaviours will be observed by the students and internalized when given the chance to practice it. The feedback will assist the students in internalizing new behaviours and perhaps modifying them to fit the students to be more successful. The interaction between the student as the apprentice and the teacher as the mentor is the big idea in the zone of proximal development and the interaction was broken down to the students observing what the teacher was modeling in classrooms. O’Donnell et al. (2001) gave an example of a student at the zone of proximal development: a high school student asked to write a persuasive essay with instructions and feedback from the teacher. The concerning fact was that this example for the zone of proximal development was of a high school student. Of course there are probably examples of Junior and early Intermediate students who gain competency in completing a task with feedback from teachers such as writing a persuasive paragraph but how much would they be able to complete it on their own compared to a high school student? The example may suggest that students in high school were more into the zone of proximal development and those in Junior to early Intermediates were not quite at that level of development. If we look at the zone as a continuum then the high school student may be at the early quarter to half way through because even after high school there are many who are still in the latter half to the end of the zone of proximal development. This could suggest that Junior and Intermediate students in elementary and middle schools could be placed either before or only at the beginning of the zone of proximal development continuum. These students have only begun to learn by observing their teachers and will require constant instructions and feedback. A self-directed activity and self-directions might not be such an easy task for these students.
This section examines whether or not students are capable of performing activities such as independent studies with minimal instruction and feedback from the teacher. Ultimately we want to help students improve and move into the Zone of Actual Development so that they can learn from tasks on their own. On the other hand, students need to learn from a teacher through observation, modeling and feedback: a conundrum that will be a recurring theme seen in the following sections. The next section will unpack in-depth what self-directed activities are and what has been investigated in the literature.

2.2 Self-Directed Learning

Self-Directed Learning comes from tasks in which students create their own path to producing a product with minimal to no instructions from the teacher. The students should be led by their own curiosity and initiative to perform the given task independently without constant prompting by the teacher. Students will initiate their own actions in task on their own and self-direct on what to do next, which requires some level of self-motivation. A process that requires critical thinking to ask oneself questions to guide or direct one's actions. A certain level of competence in themselves is needed to have the right motivation to carry out tasks in self-directed activities. These are tasks that students will have go out and find their own solutions: to research or figure out the answer to a problem.

Mitra (2014) described a self organized learning environment or SOLE where teachers should give students something to start with an idea then leave them to it. He says that the assumption about learning was that it required a teacher to make learning happen, but what he observed in his research was that when students were left to their own devices they showed a self-organizing behaviour. A behaviour that resulted in learning when there was minimal
invasion by a teacher. His research describes self-directed learning really well in that learning can happen when not controlled by a teacher but rather when students are free to explore what they want to know. A "minimal invasive" environment was what Mitra had described so students would self-organize their learning. Mitra had found evidence of children in remote areas self-organizing and teaching each other when he left a computer in a hole in the wall with internet.

One specific experiment he had done was leaving a computer behind filled with biotechnology information in English in a southern Indian village with Tamil speaking children. He had gave the children an initial test and they obtained 0%. However after a few months the children were able to teach themselves a little bit of English to read the biotechnology information and were about to get 30% on a test. His next step was implementing a "grandmother's method" where you should stand behind, admire, act fascinated and praise the children for what they did. Without intervening with what the children were doing and letting the children figure it out on their own. He had found that the students were about to get above 50% of a test on information that was ahead of their time and in another language. To promote self-directed learning, Mitra suggested to create these self-organized learning environments that comprised of computers with internet meant for students to work in groups. The children were not told to work in groups but rather there was not enough computers. Interestingly enough students organized themselves in groups and started working together and teaching each other on an assigned topic. One major requirement was that the teacher's role was minimal. The reason why SOLE happens was not fully understood but it was observed repeatedly when students were tasked with material above their expected competency level. Mitra's conjecture was that if students perceive a task that was difficult or impossible, they would work together to increase their chances and discredit getting things wrong. They would begin to self-direct their learning and working together.
Kuhn and Ho (1980) suggest that self-direction in activities plays a crucial role in the construction and development of cognitive processes. They have found that anticipatory schemes help students gain more from their experiences when they compare what might happen to what actually happened. The anticipation comes from the students' own thinking and it motivates them to create theories for different situations. However, how do the students come up with such anticipations? There must be some sort of background knowledge or past experiences that motivate their anticipations. Perhaps observing other's behaviours and the consequences that follow their actions guides the anticipatory schema. It is up to the student to modify or change certain aspects of a behaviour but in the end that also requires previous exposure. In self-directed learning the students will have to independently find their own solutions to real world problems and develop critical thinking. However, they would first need to observe successful solutions to reuse the same or similar processes taught by a mentor. So was self-directed learning really self-directed or was it really just a mentor guided learning disguised as self-directed learning?

Snyder and Munakata (2010) had done three experiments testing children's ability to switch tasks and they found early success requires exogenous or externally provided goals from adults and as they mature, they developed more endogenous or internally driven goals. In other words the ability of abstract thinking and self-reflection needed for any internally driven goals are not developed until early adulthood to adulthood. Moreover, internally driven goals were needed for any form of self-direction and to motivate students to engage in self-directed activities, especially switching from a task to another. The results of Snyder and Munakata imply that self-direction and endogenous goals of children require adults to help scaffold their thinking. Students at the Junior level were still children who required their teacher to do much scaffolding to anchor any exploration to encourage self-direction, but when would it be appropriate for
teachers to give tasks with minimal instructions to students? The optimal delivery and timing of self-directed activities was key to a student's success. If the students were not ready to take on such roles of being independent then this could be detrimental, but when a student is ready then perhaps this might instill critical thinking.

Often, when students were not used to self-direction, they get stuck when given a task. They would not know how to approach a given task and prompt their own critical thinking without seeing a teacher first model or guide them through this task. Teacher guidance at times seem easier and safer for the student, hence the scaffolding to help students consolidate their experiences. Recall the zone of proximal development discussed earlier and how I view it as a continuum where I see high school students to be only around the middle to latter half of the continuum. Even students who were in their first year of undergrad were not all completely out of the zone of proximal development. For junior and intermediate students, it was crucial that they get the guidance needed from a competent guiding figure such as a teacher. Teachers have to be very careful in when to give them tasks that were self-directed. Perhaps teachers should first introduce a self-directed learning activity and try to refrain from helping until the students are really stuck. This back and forth will give students a chance to work on their own and teachers a chance to keep an eye on them, but to a lesser extent to encourage to students to develop a more independent learning habits.

In this research study, I inspect the effectiveness of self-directed learning in getting the students to teach themselves and whether it had positive or negative consequences. I wanted to find out if self-directed learning was appropriate for students in Junior grades and the importance of their role. If self-directed learning was indeed effective then they should inspire critical thinking in students which I will unpack in the next section.
2.3 Critical Thinking

Critical thinking will be defined as a logical reasoning that engages in reflexive and independent thought of how and why we perceive things (Phan, 2009). The thinking process to reach a conclusion that connects all considered ideas from different views is key to engaging an idea or topic at a deeper level. The process or conclusion should also lead to further questions that come from within and stem from one's motivation to find out more information than what was presented. Finally a possible conclusion will come out of this thinking that was well thought out and becomes an appropriate judgment for an appropriate situation. If not a solution then an appropriate next step or call to action.

Previously we discussed self-directed learning activities and their implications on inspiring critical thinking in children, more specifically Junior students. This section will be an extension to the self-directed activities section and look at how self-directed activities can improve and develop critical thinking and whether it was more effective than teacher guided activities. Although self-directed learning expect the students to motivate themselves to search for solutions individually, to go through an arduous thinking process to reach a conclusion, there was the counter argument of students not being able to motivate themselves or have the initiative to even begin. Where can a student begin their thought process on a problem when they have never before seen the problem? Teacher assess students' critical thinking based on success in self-directed activities such as research projects but students could have just taken another's solution or reused the same thinking processes the teachers have shown in classrooms. This suggests that students were observing and learning the behaviours of what looks like critical thinking from their teacher, but were they reaching a deeper level of thinking instead of imitating
the teachers? When do they start to internalize the thinking process needed to make it their own genuine thought? Keep in mind that this research study focused on junior and early intermediate students where feedback and assistance from the teacher is crucial to cognitive development. Could this mean that critical thinking was not developed as much as previously thought from self-direction? In theory it was ideal for students to start to develop and practice critical thinking as early as possible in their lives but junior and intermediate students might not be handling it as well as on their own. I have observed this trend in my first and second practicum placements in grade 8 and 7 classes respectively. They were both given a similar research task about water sources, contaminants and water treatment. They had only taken what was found in their findings at face value and had not really made many in-depth connections with other ideas. In other words, they would only look for one idea and not use it to expand their search using some key terms that they had found. The ability to search for information to support their topic was there but it went no further. I was hoping that there would have been a deeper level of analysis and inference or maybe I was just expecting too much. Often I had to give more prompting questions to seed some key ideas or terms for them to begin their search. This resulted in a switch towards more teacher directed search with more instructions than being a self-directed one.

Yeh (2009) found that pre-service teachers preferred an instructional design in the mastery of critical thinking. The teacher provides directed-instructions to self-reflection and gives guided practice with feedback to foster the students' thinking processes. The idea of teachers' scaffolding was strong and effective when the teacher wanted to support to students to reach the zone of proximal development. There are four phases that were applied to teaching critical thinking according to Eggen and Kauchak (2001) which were: 1) **Introduction and review;** 2) **Presentation;** 3) **Guided practice;** and 4) **Independent practice.** Self-directed
activities would fit in the last phase that would be used improve critical thinking and help students retain what they have learned and transfer it into a different situation. Before self-directed learning can have a positive effect on critical thinking, the teacher must go through three phases of guidance beginning with teacher-orientation then slowly becoming more student-oriented. The teacher will first introduce the topic or unit such as water systems, and then give a lesson to provide more information that allows the student to practice observational learning. The guided practice is where the teacher gives guided activities and opportunities to practice critical thinking with feedback and assistance. The majority of the time is spent not on self-directed activities but independent practice was the most crucial to consolidate critical thinking and give it deeper meaning. However, it seems that critical thinking develops more with guided practice and less self-direction.

When successful in self-directed activities students would have gained more mastery of critical thinking and this in turn will have an indirect effect on the student's self efficacy. In the event that students were unsuccessful in completing a self-directed learning activity and fail to develop critical thinking then there would be an adverse effect on self-esteem. The two concepts of critical thinking and self-esteem operate with reciprocity and were both consequences of critical thinking (Phan, 2009). Self-esteem will be defined and unpacked more in-depth in the following section.

2.4 Self-Esteem

The concept of Self-esteem is an individual's self evaluation and attitude towards their own worth and abilities. Self-esteem can play a large role in the student's ability to learn in a classroom. A student would be motivated to learn and do well in various subjects if they believe
that they have the ability to do so, thus, a positive self-esteem. When student fails to solve a problem correctly then they may associate their own inadequacy in the subject area and develop a negative self-esteem. This was seen very often in the subject area of math for example where students were worried about poor performances. The negative affect that math has on self-focused cognitions interfered with learning and impair performance for grade 6 to 12 students which led to an avoidant behaviour or negative reaction to a subject area (Wigfield & Meece, 1988).

Nonresilient students in middle school seem to have "given up" on a subject or school in the worst case when they were not doing well (Padrón, Waxman, & Lee, 2014). Padrón, Waxman, and Lee's findings were of students and their reading performances in middle school and how it was related to the self-esteem of students. Resilient students would persevere and overcome challenges and difficulties but those who are non-resilient and average tend to avoid the difficulties. Self-reports of grades suggested the degree of self-esteem the students have and those with lower self-esteem have even indicated that they would not take the course or not even plan to finish high school. This could mean that already have predetermined their own future success based on current failures and would sell themselves short by taking an easier path. I do not think that the resiliency of students was set in stone and that the students mindset can change. Much like how many principals and their schools today strive more towards a growth mindset and away from a fixed mindset. Those who have fixed mindsets cannot change and will not put the effort to improve whereas growth mindset individuals have the grit to persevere in the face of challenges and adversities (Hochanadel & Finamore, 2015).
If students already have a lowered self-esteem and were not good at motivating themselves to persevere then they would be at risk to self-directed learning. Especially if it becomes too difficult and they are unsuccessful.

For this research study, the focus on junior students and earlier intermediates was important because at that age children would be at the turning point of competence versus incompetence according to Erik Erikson’s (1963) lifespan development. This age group is when self-esteem, self-efficacy and their competence in school are the most important. Anyone would feel positive about themselves when they are successful. When ready, students would benefit from self-directed activities and create a positive feedback when they succeed and mature in their mastery of critical thinking. However any small failure could be quickly associated to their own inadequacy and result in lowered self-esteem and view school in a negative scope. Hung, Chen and Lim (2009) called this unproductive-failure where the consequences were little learning and low performance. The quick association to the negatives alongside the developmental stage for competence only exponentially magnifies the importance of the consequences self-directed activities have towards self-esteem. Hung, Chen and Lim (2009) also emphasized the importance of self-regulatory processes which can impact learning and instructions because when motivated to improve there was much learning but low performance in what they called productive-failure. This relates high resilient students who already have high self-esteem would be more motivated and learn more from failures. What this means for teachers is that it was important to support the students and set up a learning environment where they were productive even in face of failure.

The self-esteem that the students reach by the end of the junior and intermediate years would go on the affect the type of careers that they strive for. Those with a negative self-esteem would do less self-directed search for careers and would have less interest to explore different
careers because of little to no self-motivation (Bullock-Yowell, Peterson, Wright, Reardon, & Mohn, 2011). The feelings of inadequacy now will cause a ripple effect and divert the students away from their full potential in life if not addressed now. Fortunately, self-esteem can still change depending on the people they encounter, the support they receive and future successes. As a teacher candidate, I would want to address how self-esteem can be maintained at the junior and intermediate levels and help the students build a strong foundation so they would not have to waste precious time and effort later on to correct the paths they choose.

2.5 The Delivery of Self-Directed Activities

The importance of how self-directed activities are delivered by teachers depends on several factors, such as timing, the type of support and the balance between guided and self-directed practice. The timing looks at whether or not the students are ready at the junior and early intermediate levels. In an earlier section, self-directed activities were not given until after three stages of guidance. The students will need ample time to observe a competent mentor in order to learn the behaviours and thinking processes required to perform self-directed learning; the thought process needed for critical thinking and time to create their own procedure to approach researching a topic in-depth. Also with the right amount of support in the three long stages of guidance and time to practice then the students could head into a self-directed learning activity with a good foundation and safely traverse this domain with their self-esteem intact.

The supports are not limited to only the teachers but rather it is very important that the parents are involved. A cooperative relationship between the student and their parents or guardians is very important for high results in the student's development and especially during the zone of proximal development (Chernov, 2009). Chernov studied the development of speech-
language development of junior students in the zone of proximal development and found that a cooperative style between the parent and child was the most effective. Chernov had 7 to 8 year old children learn Russian words and had the parents help the students learn artificial word composition. There was a very high capability to learn when the parents cooperated with the children and learned with them.

On the other hand, too much guidance from the teacher may hinder critical thinking. Too much instruction from the teacher results in thoughts being planted in the students and soon the type of thought process that the students take on would only be ones that the teacher agrees with. Kuusisaari (2014) find that collaborative support further helped the student develop ideas but excess agreement actually hindered successful collaborative support. Kuusisaari’s study suggested that when peers were at equal levels they would create sufficient counter arguments to disagree on ideas and have effective discussions to come to an agreement and have a successful ideation; a successful development of ideas and inquiry questions to further critical thinking.

Current literature suggests that timing, type of support and a balanced amount of guidance was crucial to the delivery of self-directed learning for it to be effective at the Junior and Intermediate level. This research study looked at methods that teachers were currently employing and indentifying what was working and what needed to be improved on. Furthermore, this research also looked at if self-directed learning was as effective as the literature says.
CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

In this chapter I described the nature of this research project and the procedures that was followed. This chapter consists of a discussion of how participants were recruited, the participants and explanation of how the data was analyzed. I also reviewed the ethical implications, the strengths and limitation of the procedure used. Finally, I conclude this chapter with the reasons for the choices I have made specifically for my methodology of this research project.

3.1 Research Approach & Procedures

The nature of the research was that of a qualitative inquiry into the accounts of Junior/Intermediate teacher's perception of self-direction. A qualitative approach was chosen because of its versatility. Qualitative research permits multi-methods and involves the interpretation of experiences in their natural setting on a subject matter (Savenye & Robinson, 2005). The research was informed by the current literature on different aspects that contribute to the success of self-direction for students and from my own curiosity on the matter. The experiences of Junior/Intermediate teachers were collected through semi-structured interviews and transcribed for further analysis. I planned to have face-to-face interviews with each participants unless the participants have requested otherwise. Email follow ups may be used depending on if any clarification would be needed, but that was not the case for this research. The participants were recruited based on criteria discussed in the participants section.
All data used for this study was collected from various resources, however, interviews were the main source and second by literature review. Converging themes will be identified from the interviews and the literature and analyzed to help inform my research question. Recurring themes were further analyzed to determine what worked in helping students become more successful in learning and working independently. Although the sample was small and cannot be generalized, I hope that this can help other pre-service teachers and perhaps even inform current teachers the topic of self-direction.

3.2 Instruments of Data Collection

The data was collected through the combination of a current literature review and semi-structured interviews with willing participants who fit the recruitment criteria. A semi-structured interview allowed the participant to elaborate on their experiences and delve into an idea that the interview questions may not have covered. The semi-structured interviews were the major source of data that was collected for this research project and participants should be given as much opportunity to explain their experiences. Semi-structured interviews provide the opportunity to hear about participants’ lived experiences (Creswell, 2007). The interviews were recorded on an audio-recorder. Additionally, my own field notes were used as a comparison to the data collected and I also referred to the Ministry Curriculum Documents and how recent changes put an emphasis on student oriented teaching.

3.3 Participants

In this section, I reviewed the criteria used to recruit participants and possibly how participants were located. Then a description of each participant was given.
3.3.1 Sampling Criteria

The participants were selected based on the following sampling criteria:

- Must be a teacher who taught at the Junior/Intermediate grade level;
- Have implemented a long term project for students that required them to design their next steps and self direct their own progress;
- Willing to reflect and share their experiences on implementing self-directed projects to students.

My research question focused on teacher perception of self-direction on Junior/Intermediate students and how they implemented long-term projects that required the students to independently progress through with their own design. These long-term projects should last over a month or longer and spans across multiple subject areas. Lastly the participants needed to be willing to share their experiences, successful and failures, and reflect upon it. I welcome varying years of experience because any differences in perception based on ages or years of service may be important as well.

3.3.2 Sampling Procedures

I employed different methods of recruiting participants for this study, such as attending conferences associated with STEAM, teacher education programs, professional associations, scouting participants through my own observations and word of mouth. For convenience, the participants I recruited were based on teachers who I have observed and word of mouth from other teachers throughout the past year. The participants were mainly from Junior/Intermediate teachers in the Toronto District School Board. However, I did not limit myself to only teachers from the TDSB but also search the York Region District School Board.
I had contacted the participants that I had in mind verbally and through email inquiring about their willingness to participate in the future. I provided them with an overview of my research project to give them an idea of the type of topic we would be discussing or to pass on the information to another teacher who they think fit my recruitment criteria.

3.3.3 Participant Bios

Christopher

Christopher was a grade 7 teacher in TDSB at the time of the recruitment and interview. He had graduated from the University of Toronto with a double major in history and ancient civilizations. He completed his teacher's college at Lake Head University with a Bachelors of Education. Christopher had been teaching for five years and had taught a range of classes from grade 6 to grade 8. He had taught grade 7 core the most and have taught grade 8 science and grade 6 physical education on rotary. He had grown up with his parents always imparting the idea that he needs to be prepared and was responsible for his actions. His parents were very supportive of him when he was younger and often times encouraged him to talk to his teachers and other adults when he had an issue. This had transferred to his ability to communicate with others well and with confidence. His father was also a high school teacher who taught geography, history and physical education and he remembers his father asking him to try a basic math problem or complete a writing work before going out to play. Throughout his life, he had learned to set smaller achievable goals to reach the end goal. An idea that was instilled on him from learning and playing hockey. He had said:

When you start off with a hockey team you don't learn everything at once, it's sorta smaller chunks, you know how you learn to skate, how to shoot, how to play defense, how to play offense, power play, penalty kill, everything is chunked into little section.
Nancy

Nancy was a grade 8 TDSB teacher that taught homeroom that did science on rotary. She has experience teaching for 14 years ranging from grade 7 and 8, either core or science on rotary. In the recent years she had added an additional qualification for primary grades and have taught some grades 1 to 3 art and media literacy. Nancy completed her post-secondary education at University of Toronto and majored in human biology and economics. She completed her teacher's education at Ontario Institute for Studies in Education (OISE) in the Junior and Intermediate division with teachable in science. When she was younger, she disliked any independent study units (ISU) and self-directed projects because there was a creativity component and having to think of her own steps. She preferred to being told what was needed exactly and having a structured assignment then completing the list of tasks instead of designing her own structure. She does admit that when she had a purpose, such as learning to write an email or using technology then she would self-direct herself to learn from it. She said that she would be the one to initiate on figuring things out and solving problems in her family.

3.4 Data Analysis

The interviews were recorded and transcribed myself for further review for commonalities and differences in each participants account of self-directed activities with their students. The participants perception of, execution of and facilitation of self-directed activities helped inform my analysis of what works and what does not. Recurring phrases and keywords to help me identify these common ideas were coded then grouped together into categories then into overarching themes. Qualitative research was concerned about descriptive details and may also capture the differences in experiences in the natural setting on a subject matter. However, the
data analysis was a thematic one where the data will be revisited multiple times to review different aspects and check for specific themes (Hayhow & Stewart, 2006). Overlaps and differences were also noted as they as just as important as having separate themes. Perhaps the differences would form another theme in and of itself. Once each individual transcripts are analyzed, I compared what one participate may have said that the other did not to attempt to draw some inferences from their differences.

3.5 Ethical Review Procedures

The blanket approval to interview school board educators for the Master of Teaching program has allowed me to contact and to interview teachers for this research. The Participants were informed that the data collected will only be used for this research and that the data may be seen by anyone with access to T-space and my course instructors. They were assured that the data would not affect their lives and any recording will be deleted after the data analysis was completed. Pseudonyms were used to protect their identity from this research. The participants were given a chance to review the transcript of their interview before I analyzed it. This informed them whether or not they feel the need to withdraw from the study or make an clarifications to my understanding.

All participants were required to sign a letter of consent (Appendix B) which described the nature of the research and its purpose. They were asked if they were willing to partake in an approximately 30-45 minute semi-structured interview that may or may not have a follow up email afterwards for clarification and accuracy. I clearly explained that they could stop the interview at any given time and they could pass on questions that they feel uncomfortable answering. I clearly expressed the fact that they had the right to withdraw any time during the
research study, before or after the interview. Both participants had agreed to be interviewed and were satisfied with their responses. Besides a brief description of where they received their education and childhood experience, I chose not to use any dates to ensure that their identities would not be compromised.

3.6 Methodological Limitations and Strengths

There were many limitations due the nature of this qualitative study such as the sample size of my participants and how each participant's experience was specific to them. There would not be enough evidence to create a generalized perception of the roles of self-directed learning on Junior/Intermediate students and how teachers used it in their teaching. A phenomenon such as this would require a much longer time than the two year allotted time for this Master's research project to really see the outcomes of how these participant's approach to self-directed learning for their students. Another concerning factor about reliability of the data collected may be low due to the fact that the data collected were experiences specific to each participant.

I chose to only interview teachers as that was the most convenient, however, if given another chances later on I would very much like to interview students to get both perceptions. Teachers would have their views and values on self-directed learning and how they could implement it. Students would give voice on receiving a self-directed task and actually going through the self-directed process from their point of view. That way both the voices of teachers and students can be validated and considered in analyzing for converging themes. This would imply that a ethics board review will be needed and that will be a viable task but a very time consuming one. Also due the busy schedule of the researcher and participants that there was only
one scheduled interview. Nonetheless, there were noticeable themes that came up from my data collected from each participants.

3.7 Conclusion

In this chapter I described the use of a semi-structured interview as a major source of data collection of Junior/Intermediate teachers who use long-term projects to teach and promote self-direction. A semi-structured interview was chosen because it allows me to ask key questions as well as potentially capture additional data that I may have overlooked by permitting the participants to freely elaborate on their experiences. The participants were chosen from those that I have observed or through word of mouth for convenience, however, I was willing to reach out further if needed. Due to ethical reasons and convenience, I have only chosen to interview teachers, but if I had the chance I would very much like to get the voice of students on this topic. The interviews were reviewed to identify converging themes and also the differences for a more thorough data analysis. I acknowledged that the nature of this research project will not generate any generalizing results but rather helped further inform the topic on self-direction. The participants’ experiences were valuable in helping pre-service teacher implement projects for students that require self-direction and how to execute it successfully for them. The data will be analyzed and reported in the follow chapter 4.
CHAPTER 4: RESEARCH FINDINGS

4.0 Introduction

In this chapter, I discussed the findings from interviews with two Junior/Intermediate teachers from the Toronto District School Board (TDSB). I described what I gathered, surprises, convergences or divergences from my literature review in Chapter two. The interviews provide varying perspective on self-directed learning (SDL) where some points were in agreement while some were different approaches to self-directed learning. Although, I understand that the sample size was small, the nature of this qualitative study focuses on the lived experiences of two teachers in the TDSB. Christopher was a young teacher who was five years into his teacher career and Nancy has been teaching for over fourteen years. Christopher taught grades 6 to 7 homeroom and geography and Nancy taught grades 7 and 8 homeroom and science. Each participants used long term projects to implement self-directed learning in the classroom. These long term projects were cross curricular and had elements of self-directed research on a topic of interest. In one of Christopher's major projects he had his students redesign the city of New Orleans from the ground up. He had also had his students build a shed in the school's atrium and model house earlier in the year. Nancy had her students warm up with a water filter designing project then followed by a water issue action project in their community. The themes that I have came up with from my interviews were: 1) An early need for SDL; 2) Benefits of SDL; 3) Barriers of SDL; 4) Strategies for SDL. These themes were obtained from a series of categorization and grouping of codes from my interviews to what I felt like were recurring motifs. My literature review in chapter 2 had informed me more on the types of benefits and effects SDL has on students, hence the benefits is separated into sub sections of effects and
learning skills. From here on, the terms self-directed activities, assignments and projects will be used interchangeably.

The findings revolve around my research question on the teacher's perception of the role and/or impact of self-directed learning on students, the challenges of self-directed learning, and effective ways of using self-directed learning. The first theme was the need for self-directed learning in the classroom. Each participant voiced their views on how it is needed based on what they have seen in their students and from their past experiences. This theme sets up the tone for the following themes and put them into perspective. The second theme discusses the benefits of self-directed learning for students that the teachers have perceived in their own class. This theme unpacks the results of using self-directed learning in the classroom and focuses more so on the successes each participant had. Moreover, the results from self-directed learning lends its hand to learning skills and a plethora of life skills which was grouped with the third theme. However, everything good must have challenges and self-directed learning was not an exception. The third theme discusses the challenges each participant faced and their views on future integration of self-directed learning. The fourth theme included strategies that was used to implement self-directed learning in their classrooms and what activities they had used. I have chosen to group these themes as key points in my findings, however there were many overlaps which was to be expected.

4.1 The Early Need for Self-Directed Learning

I had defined self-directed activities as tasks where students guide their own actions and motivate their own learning. These tasks are usually seen as long term projects requiring students to self-direct their process and research on topics of interest. The use of self-directed learning can
provoke vast opportunities for self reflection for students to learn about themselves and cognitive and emotional growth in respect to critical thinking, motivation, and self-esteem. More specifically when they were asked to reflection on feedback and to come up with their own strategies to improve (Duijnhouwer, Prins, & Stokking, 2012). Both participants agreed that self reflection was a big part of self-directed learning because students explore different choices and methods to solve a problem as they learn about themselves as learners. Both Christopher and Nancy observed their students figuring out what type of learners they are through the roles they had taken and problem solving methods. Through conferencing with their students they found that their students were identifying what really motivated their learning from the amount of time, interest levels and energy committed to an idea. Both participants raised the issue that there was not enough self-directed learning occurring because Junior/Intermediate grades have their focus shift to other more social interests such as the media, Instagram, Twitter, Facebook, Snapchat and relationships. The subjects becomes more content heavy, especially science, history, geography in preparation for high school. Christopher advocated that self-directed learning should definitely be used earlier in junior grades and perhaps in primary grades. He said, "it should be earlier, like I think starting grade 6 or 7 is late... kids can amaze you with how they can solve problems". Nancy talked about there being inquiry based learning in full day kindergarten, but the daunting task of teaching content in the curriculum has caused a shift more towards teacher oriented instruction. If appropriate teaching strategies for self-directed learning were initiated in earlier grades, students would transition into intermediate grades more aware of their learning styles and have developed cognitive processes required to solve problems. The push for an earlier use of self-directed learning would be beneficial for developing young minds at the junior/intermediate age range to be critical thinkers. Mitra (2014) had found children of ages
from 6 to 8 were learning materials that were a decade ahead of their time when left to learning it on their own.

Christopher and Nancy's past experiences with self-directed learning were quite different, but both felt that prior experiences of self-directed learning had a strong correlation to their preparedness in secondary education, post-secondary education and the adult world. Christopher grew up with his parents influencing him to go out and figure things out for himself. He had observed his family and friend's successes and acquired what worked to solve problems later on. Being more self-directed and independent was "something [his] parents imparted on [him]" and gave him a positive experience when he reflected on this during our interview. He had never thought of it that way, the reason why he was comfortable using self-directed activities to promote self-directed learning in his classroom. The activities he had used were building a model house and then designing and building a model city later in the year. He found students who had never done self-directed projects, such as the model building were overwhelmed and were unprepared to self-direct themselves. Christopher believes that this happens due to a lack of prior exposure and success to self-direction in the primary grades and teachers in junior/intermediate grades expect students to be ready for it. He understood that self-direction was most prominent at the post-secondary level and believed he was preparing his grade 7 class to be more self-directed in high school and for the years to come. With this in mind, I also wonder why do we not instruct our students to be self-directed learners even earlier if it is a skill they will need to master in post-secondary educator and their careers? I believe that if students were exposed to self-directed learning in primary grades they would theoretically be better prepared in the junior/intermediate grades through the building of skills needed to be to self-directed. Again, Mitra (2014) found evidence of a twelve year old girl learning English so she could understand DNA replication.
Nancy had a rather negative experience with self-directed learning in school because she would rather be given explicit instructions instead of being creative. She wanted a structure that she could follow and check off the list instead of coming up with something unique herself. Her experience with independent study units (ISU) back in high school was what led her to believe that self-directed learning needed to be reinforced earlier because she said that she often had troubles starting and self-directing her study of the unit. She also believes that in high school students have become less enthusiastic about learning and more interested in other aspects of life, such as socialization mentioned earlier in this section. Nancy believed "[Students] need to learn about themselves as learners, like what's going to keep them going, what's going to light their fire for the next ten years of their lives" and "success is redefined when it's self-directed learning, it's redefined to what the group or that student can achieve". I found this point very powerful because it places a relative perspective on what is successful learning depending on the student strength and ability.

Their responses have left a strong message for the need for self-directed learning and that the earlier it begins in a student’s school career, the better. Christopher explained, "Good teaching is if you're not having students memorize and regurgitate information to you, if you're giving them rich assessment tasks that forces them to do critical thinking on their own". He believes that good teaching is to motivate students earlier so students would be more engaged with self-directed learning; they would have been more prepared for self-directed activities and more success in intermediate grades, secondary and post-secondary school. Snyder and Munakata (2010) found that motivation, internally driven goals are needed for any form of self-direction and student engagement. The findings support the notion of an earlier need for self-
directed learning help students with being self-directed, defining what success is and learning about themselves as a learner to be successful member of society.

4.2 Benefits of Self-Directed Learning

4.2.1 The Effects on Students

Self-directed learning had a significant effect on how students learn the curriculum and their cognitive development seen through the teaching experiences of Christopher and Nancy. Self-direction requires motivation and a sense of purpose as to why the student should bother solving a problem as well as the student having a genuine interest in the topic (Snyder and Munakata, 2010). Once students have a reason for completing a task, they would come up with their own theories or possible solutions and test them through trial and error. Nancy explained for the water documentary project, "it is about content for sure but it's more skills driven, like the skills of inquiry, the skills of like design, trial and error, testing and retesting, making modifications, how does that whole engineering process works". The process of critical thinking to question what worked and what did not would be guided by past experiences and background knowledge (Taylor, 1990). The logical reasoning of trial and error invited further questioning to quench their students' interest for more information and reflective perception of greater success and competency in what Phan (2009) had described as critical thinking. As mentioned before, self-directed learning redefined success for students where they would have more successful accomplishments, resulting in higher self-esteem. Both Christopher and Nancy have observed their students developing an increased notion of self-esteem and becoming more competent throughout their self-directed activities. Nancy "felt like it was really good for self-esteem because um it didn't matter the caliber of the project, every single person had some degree of
success" because success was redefined differently for each student. Nancy observed a higher level of independence and self-sufficiency once the students became aware of their own strengths and developed the cognitive processes of figuring out the solution when given a challenging task.

Christopher saw that after his students completed his house building project they started to understand the reason why shapes were taught in math or why they had learned about ancient civilizations. During the planning phase students realized the reason why they had learned about geometric shapes and geometric nets and were then able to apply their learning to an authentic task. Christopher said:

We built a shed for the atrium, kind of in the same way a house is go up, you build the base then you the side all come up [using geometric] nets. That was the purpose of us creating those um geometric nets, once you explain that to a student and they're like, oh that make sense, why we do nets. And so doing that really kind of opened their eyes.

The authentic task in this case was the house building project where students had to apply the concepts of shapes and measurement to designing a house and how each piece would fit together. The active engagement of self-directed learning helped students produce their own understanding of why they had to learn geometry and they were then able to make connects between math curriculum and application building design and planning in the real world. This new sense of purpose generated further interest in the use of geometry to create more complex model houses. From what I understand, this meant that the students were more engaged with the curriculum content when they understood why they had to learn a certain topic. Christopher gave his students "the opportunity to go off on their own to experiment and do it themselves" which encouraged them to take risks. He said that this gave them the "go ahead" to explore and "be less
scared of being wrong”. Thus, a cycle of mini successes and failures developed into critical thinking to solve a problem and with each cycle students increased their competency.

Nancy was surprised at how well her water issue documentary project peaked her students' interests and increased their self-esteem. Nancy shared ecstatically:

My water docs project was an example, that was the best project for self-esteem because there were students in my class who previously were not even on the radar, just like wall flowers and that project really brought them out and really helped them to display their talents.

Every student had a chance to display their talents and learn more about their own strengths and became more aware of their competencies and abilities. Each group had picked an issue they were interested in and purposefully put into motion an action campaign to make a difference in their community. Similar to Christopher's project the initial task provided students with a worthwhile purpose.

The examples of self-directed activities that Christopher and Nancy used in their classroom was crucial for to students development of critical thinking, self-esteem, confidence and mental capacity. Their observations agrees with the concept that self-directed activities played a crucial role in developing cognitive processes suggested by Kuhn and Ho (1980). Self-directed learning had a tremendous effect on the students' perception of learning as they began to understand why they had to learn what was taught seen through the lens of Christopher and Nancy. Self-directed learning had an impact on the development of student's cognitive abilities noted by both participants when they compared the work from students before and after their projects. They found that students were more capable to think of multiple solutions, critical analysis and revise their plans to problem solve.
4.2.2 Learning Skills

Self-directed learning was also a great way for Christopher and Nancy to assess their students' learning skills. Both stated that initiative, collaboration, organization, independent work, responsibility, and self-regulation are all an integral part of self-directed learning. Using self-directed activities fostered many different life skills important future success in society. Some of these skills include leadership, time management, conflict resolution and being diplomatic when working in groups. Christopher focused on transferable skills that were valued by society and Nancy focused more on leadership and the skills involved in collaborative work. Christopher had mentioned about a resource called "Employability 2000+ skills" that describes useful skills for potential careers.

The groups that Nancy deemed as successful were those with a leader or had students that exhibited leadership characteristics because "when no one in that group has leadership skills that group fails and when I mean fails they're not able to achieve as much as they would have". When it comes to being self-directed, the projects required students to have strong learning skills and work habits in order to meet deadlines and expectations. Students were forced to be organized in their roles for the project because that was their responsibility to the group and they were being held accountable by each other. The students divided up the work amongst themselves and had set up deadlines for themselves to manage their own progress. Nancy felt she had more time to gather evidence of each student's learning skills and to provide support to each group as she did not have to focus her time on classroom management as each student was engaged in their learning activity. An example of delegation explained by Nancy:

One group of seven students organized three students to work on social platforms, two students to create and distribute posters, one student to record their campaign, another
student to write letters and lastly a leader that ensured their group met the deadlines they had previously agreed upon.

Although they worked in groups, they were given a chance to exercise their own learning and further developed their skills to work independently, manage their time efficiently, and solve problems. The groups that were not initially successful learned to become successful from observing what the other groups were doing correctly, but it was up to them to take the initiative to change for the better.

Christopher had his students communicate with other groups so that the plans for road, streets, facilities and land zoning for the city all connected functionally. Different groups handled different regions of the city and utilities that had to work cohesively. The skill that Christopher had his students learn was to elect a representative to have a discussion in a meeting with other representatives. Similar to how a work place environment requires different departments to work together, the groups were representative of the departments and the students were simulating a real world situation using real world skills. I was very surprised and impressed that rather than deciding to have a lesson on effective collaboration and communication Christopher immersed the students in a situation where they had to develop the skills quickly to accomplish a task. Christopher simulated a conference meeting experience in order to understand the problem and what was required of them individually and collectively which give a reason to develop and apply these skills. I had the chance to observe this and reflected on what I perceived as students genuinely wanted to get the work done right and were motivated to do so.

A common skill that both participants noticed was the ability to confront others to resolve a conflict. More specifically, keeping others accountable when they were not fulfilling their responsibilities. However, students who lack the leadership and initiative to do so were afraid of
hurting others feelings and end up remaining silent. Nancy said "they feel like oh he's not going to be my friend anymore, I'm going to hurt his feelings if I tell him that he like he's lazy so they don't say anything". These students end up either doing everything themselves or the group gets nothing done. Another common skill was learning through observation of others successes and failures or observing your own consequences to learn from mistakes. Nancy's water filter project had a wide range of successes with complex filters to rather simple ones. Each were successful in their own rite, but when students "observe others success" with the same results of purifying water with less materials provoked reflective learning. Nancy also mentions, "They're learning from the youtube video which is what adults do, we look at what other people's success are and we build on them", even if it seems like copying, it was type of learning accomplished through observing others. Christopher stated that observation skills were to pay attention to what worked, "like a pattern we should replicate" and what we should avoid or change.

4.3 Barriers of Self-Directed Learning

4.3.1 Challenges of Self-Directed Learning

The challenge of implementing self-directed learning is dependent on the teacher’s feelings towards the strategy. The first challenge would be a prior poor experience with self-directed learning that would have an adverse effect on implementing self-directed learning. For example, the lack of structure and the end goals being too open ended really overwhelmed a student. Now that student is a teacher and would not want to have their students feel the same way (Urrea, 2010).

Conversely, the lack of structure gives the teacher less control and teachers may have a hard time giving up control. If a teacher does not release control it undermines the purpose of
student self-directed learning. Nancy finds that teachers need to "breaking down [their] own need to control everything, as soon as you think I have to address all the points in the curriculum then now you're not letting the students direct their learning anymore".

Another challenge was that in higher grades the students are less enthusiastic and the curriculum becomes more content heavy. Nancy explains that "they're not as enthusiastic about learning as they are in the primary division" which also agrees with the earlier theme on earlier use of self-directed learning. Using self-directed learning was very time consuming and required a great amount of time for planning. According to Nancy you want to "keep your eye on the big ideas, the main ideas but [not] all of the specific [expectations], touch on them if you do, but if you don't then you don't". The amount of resource and content could be overwhelming for the teachers as explained by Nancy:

You actually need to know a lot about it, but the thing is, if you don't have knowledge about the topic, if you're not comfortable with classroom management, if you don't have good knowledge of the curriculum, if you don't have good knowledge of the resources then you can't really [facilitate] their learning.

4.3.2 Challenges to Teaching Self-Directed Learning

The last challenge was teaching teachers to be use self-directed learning in their classrooms and what Christopher had described as "an oxymoron". It seems as though it is more a method of learning that is student oriented, rather than teaching. The challenge is not to teach what self-directed learning is, but rather good teacher practice. The practice of creating an environment that encourages risk taking, teacher facilitation, content knowledge and being able to transfer some control. Nancy said that self-directed learning would be a topic of discussion after learning about classroom management, after being knowledgeable about the content and
having some form of experience in the classroom. If anything, it could be in the second year of a teaching program or an additional qualification, acting like a layer on top of what you already know; the metaphorical icing on the cake or the cherry on the top.

4.4 Strategies to Using Self-Directed Learning

Using self-directed learning in the classroom can be a very daunting task and if planned incorrectly can be detrimental to the students' learning and development. The lack of structure such as having an end goal and a purposeful starting point could be frustrating for students similar to Nancy's past experience with ISU's. This frustration would manifest into failure when the students are stuck and give up. This would lead them an averse experience with self-directed learning which should have many beneficial effects for student's development of critical thinking, confidence and learning skills.

Self-directed learning needs to have a purpose and a clear end goal so students will understand what they ultimately need to achieve. Students were able to achieve educational objectives when given access to internet and left unsupervised (Mitra, 2014). Using a challenging problem or scenario to frame the self-directed learning in a backwards design was key to Christopher and Nancy's projects (McTighe & Wiggins, 2004). Nancy presented a challenge to her students and gave parameters to follow, but allowed them to find their own method to reach the end goal. She would have a success criteria predetermined, but would discuss with the students what they believed the criteria should be to accomplish their goals. She guided her class to create a success criteria collaboratively in order to provide her students with a sense of control of what they would be doing and to reinforce the idea that it would be their own individual project. As the success criteria was made, she would check off ones she had planned
and ask about ones that were not mentioned. This was her way of fostering student interest, accountability and a clear purpose for her students.

On the other hand, Christopher preferred to let his students begin the task first. He would allow the students time to brainstorm and play around with ideas to accomplish a challenge that he presented with no parameters. Some students develop a general idea of what parameters they might need while others did not, but he saw this failure as a good learning opportunity for the students. He chose to generate a success criteria after they had the project for a few days because he found that students had a better idea of what was to be expected after having had time to think about the end goal. This allowed students to explore and decrease any ignorance so they would be more informed when creating the criteria similar to Donald Campbell’s Blind Variation and Selective Retention Theory (Simonton, 2013).

The long range projects would have been overwhelming if different components were not broken down into smaller mini tasks. It was more manageable for students to scale down the large project into smaller parts so they could focus on specific parts of the problem. I had called this chunking during my discussion with the participants, a grouping of different smaller goals that would eventually lead up to the end goal. Christopher had described chunking in terms of learning the positions on a hockey team:

When you start off with a hockey team you don’t learn everything at once, it’s sort of [in] smaller chunks, you know how you learn to skate, how to shoot, how to play defense, how to play offense, power play, penalty, everything is chunked into little sections.

Like learning different skills and positions on a hockey team, there’s a logical step to self-directed learning that make the project more manageable. Nancy liked to set checkpoints to help
keep her students on track and "check in with them when [she] expects them to hit certain points".

The presence of a teacher facilitator was a factor that encouraged self-directed learning throughout the process. There were some students who did not self-direct themselves and that was when Nancy had to step in to take away some choices by assigning specific steps for those students to complete by a check point. The key point was taking choices away, but not taking control away from the students; control must still be in the student's hands in order for it to be self-directed. This was similar to Mitra's (2014) grandmother method of not intervening or controlling what the students were doing but rather give feedback and praise. She had often given out self-assessments to give the students a reminder of what they have done and what still needed to be accomplished. If she found that multiple students have the same issue then she would give a mini lesson to provide clarification. Students felt safer to explore and experiment different solutions when the teacher was present to guide.

In order for students to feel safe to take risks, an environment that encourages risk taking had to be established by the teacher. Nancy expresses that the best teacher would not reject an idea, but rather point to an alternative if the idea was not heading into the right direction. Christopher recommended keeping the parents informed and getting them involved in their children's self-directed learning. He found informing parents was a great way to give his students support and encouragement inside and outside of the classroom. He noticed his students were more willing to explore alternatives, be more resourceful and had more in-depth trial and error attempts. At the end of the day, you want to be there for the students, “[to] coach them out because they will be free to take some risks”.
Throughout the duration of any self-directed projects, the teacher plays a more dominate role in the beginning then slowly transfers the responsibility to the students in order to give them increased control over their own learning. Again, Mitra's Grandmother Method. To implement self-directed learning requires teacher direction at the beginning then shifting to guided direction and ending with student oriented self-direction. However, remember that self-directed learning is something that the students have control over the choices they can make and to facilitate is to reduce or take away choices to help the students.

4.5 Conclusion

The findings from interviewing two Junior/Intermediate teachers from the TDSB were grouped into four themes as evidence to determine the perception on the role of self-directed learning. The four themes that have been discussed were: 1) An early need for SDL; 2) Benefits of SDL; 3) Barriers of SDL; 4) Strategies for SDL. The benefits were divided into subcategories of effects for students and learning skills. The barriers was organized by challenges for teachers and students then challenges to teaching self-directed learning. There were are similarities between each theme, but I felt these four were different enough to be on their own and the similarities only strengthen their relations to self-directed learning.

I began describing the need for self-directed learning and how both participants argue that it should be used with younger students to better prepare them for post-secondary school and adulthood. Earlier exposure will provide more opportunity and time for their skills to flourish in time for intermediate grades and be better utilized. The self reflexive nature of self-directed learning helps students understand themselves as learners and what their learning style is to better prepare them for higher grades. Through self-reflection students find what motivates them
to pursue further learning (Snyder and Munakata, 2010). Earlier use of self-directed learning will push students to a zone of proximal development (Vygotsky, 1978) and perhaps into the zone of actual development where students have the competency to learn on their own without help.

The effects on students have been profound from what Christopher and Nancy have observed. The nature of self-directed learning is very self reflective and, therefore, students learn about themselves as learners and develop a more mature cognitive process. (Duijnhouwer, Prins & Stokking, 2012) Through self defined success and making their own choices, the students became more competent and developed their critical thinking skills to come up with theories to test out if something correlates or not (Phan, 2009). Self-directed learning seemed to have given students a sense of purpose and a practical reason why certain content was taught in schools. Christopher and Nancy considered their students’ interests and framed the curriculum content in a purposeful and interactive way.

Using self-directed projects and activities gave both Christopher and Nancy more opportunities to assess students' learning skills and more time to provide support. They weren't too occupied with a lesson and gave students ample time to develop skills such as initiative, collaboration, time management and organization. Self-directed learning also teaches the students to become leaders which was the defining skills in a group's success. Most often students observe a model from the teacher or each other's success and failures, then learn from them. They modify learned behaviours to become more successful similar to what Albert Bandura described in Social Cognitive Theory (1986).

The barriers for self-directed learning revolves around averse past experiences and difficulties for students. Many teachers who had a poor experience with it tend to avoid using it and are not as enthusiastic to use it themselves. Self-directed learning also requires a great
amount of time to plan out and to learn about all the resources available otherwise you cannot
guide the students. Many teachers feel the need to control everything, but instead should practice
loosening the reigns and instead of control, think of it in terms of choices the students have. As
long as they keep the control, it will continue to be self-directed. Self-directed learning is not
something that can be taught and should be something students are made aware of after having
some teaching experience. It could be later in a teaching program, additional qualification or
more professional learning days.

Useful strategies to implement self-directed learning include: considering student’s interests, providing a challenge with parameters, creating an environment that encourages risk
taking, chucking larger tasks and a slow release of responsibilities. Teachers need be present to
provide support, clarification and alternatives for the students to be successful. Even if they do
not present in depth information or a correct solution to a problem, they can still be successful in
their own way and maintain positive self-esteem. It is crucial that the teachers are there to learn
with the students as well similar to Chernov’s (2009) findings that children had higher
capabilities to learn when they cooperated with their parents.

A metaphor that sums up the perception of the role of self-directed learning is like
running a marathon. The end goal is the same, but each individual completes it differently. Some
strive to be first, while others strive to complete it. A level of motivation is required, success is
defined differently for each individual, and you must direct yourself through the process.
5.0 Introduction

My research on the concept of self-directed learning focused on the perceptions of two Toronto District School Board Teachers. Christopher and Nancy are both teachers teaching in the Junior/Intermediate range and have used cross-curricular inquiry projects that required the students to self-direct their exploration on a topic or issue. I aimed to unpack the benefits and challenges of self-directed learning that the participants faced from their lived experience as a student and as a teacher through interviews. Each participants had also shared their own strategies of implementing self-directed learning in their pedagogy. My findings on the perceptions of self-directed learning and how it helps the development of children had a significant impact on my insight of self-directed learning as a researcher and a pre-service teacher.

In this chapter, I began with an overview of the themes surrounding self-directed learning that I came up with based on my interview with two TDSB teachers. After reflecting on the significance of my findings, I began to make connections between the literature and my participants views and what the implications are to the research community and as a practitioner of education. I hope that my findings of two TDSB teacher experiences contribute to shedding light on perceptions and uses of self-directed learning in current TDSB classrooms.

I concluded the chapter with my recommendations to possible changes to teacher attitudes, practices and teacher education to advocate for more self-directed learning practices. I will take the suggestions from my participants and confirm them with what the literature have suggested to discuss some direction to what professional development should focus on followed
by potential areas of further research. If anything, my findings should be used as a starting point for ideas on how to impart self-directedness in teacher practices. A teacher practice that instills the habit of mind for self-directed learning in children at an earlier age, such as in grades 3 to 4 so they would be more prepared in their later years. One of the goals of the TDSB's mission statement was to help students develop the skills valued by society so they could become successful members of society and self-directed learning can create an authentic and meaningful learning of academic and social skills. Further research will only benefit this motion and support new teachers to put self-directed learning into practice.

5.1 Overview of key findings and their significance

Each participants had given a lot of data on their perception on the impact of self-directed learning for students in their intermediate classrooms. Their interview responses were coded based on an idea that was touched on and the codes were categorized with a quantitative analysis of the frequency of those codes. All the categories that I had came up with were grouped into overarching themes which were: 1) An early need for self-directed learning; 2) Benefits of self-directed learning; 3) Barriers of self-directed learning; 4) Strategies to implement self-directed learning in the classroom. I believe that the organization of these themes are significant to my study on the perception of self-directed learning and for practicing teachers.

5.1.1 An Early Need for Self-Directed Learning

The earlier need for self-directed learning is crucial to the student's development. According to Erik Erikson (1963), ages five to twelve is the age crucial for the development of competency. The competency developmental stage is a keystone in children's lives. This is where students develop their position on the industry versus inferiority spectrum. I would also make
note that in Erikson's eight psychosocial stages that ages three to five is the play age. This is the time that is most important for the values of purpose where students develop their initiative to act on their own and have self-directed exploratory behaviour. Christopher said, "it should be earlier, like I think starting grade 6 or 7 is late... kids can amaze you with how they can solve problems". One thing that really struck me was when Christopher put into perspective of how children who were forced to grow up fast learn to self-directed quickly to solve real world problems but adults seem shocked and almost undermine it. Christopher had said:

If you look at kids who are forced to grow up really really fast, in terms of their socioeconomic background or whatever is going on in their home country or different countries around the world. Kids have to grow up very very fast and yet here we seem to be, when I say kid or a young student says something extremely intelligent it's a huge shock.

This made me wonder why adults get so surprised by a smart remark from children because they were young. We should not be surprised and be more supportive to help young students harness this bewilderment and curiosity. Students at this point would get a chance to "learn about themselves as learners, like what's going to keep them going, what's going to light their fire for the next ten years of their lives" as Nancy would put it. The fire that represents their motivation through education to successful achieve their goals because the "success is redefined when it is self-directed" as Nancy had stated. Students become more self-motivated, self-reflective and ultimately understand how to self-direct themselves with earlier exposure to self-directed pedagogy (Snyder and Munakata, 2010). An earlier experience would have the students more prepared for intermediate grades in elementary, secondary and post-secondary school. The
finding is significant to teachers as to how they should become to teach students and that the earlier teachers can reach students to become more prepared for their later education.

5.1.2 Benefits of Self-Directed Learning for the Teacher

The next key finding was the benefits that self-directed learning for the teacher and what they had observed from their students. Nancy "felt like it was really good for self-esteem because um it didn't matter the caliber of the project, every single person had some degree of success" because success was redefined differently for each student. The students found success in failure and success helped boost self-esteem resulting in increased willingness to take more risks. The combination of motivation identified by students and self-esteem helps the students learn more even when they fail. Hung, Chen and Lim (2009) had found that when motivated to improve there is much learning with low performance in what they called productive-failure. The students would not be afraid of failure but rather embrace by learning from their mistakes. The benefits to self-esteem and motivation was significant for teachers to help students construct and develop the cognitive processes of testing out solutions because they have would be more willing to explore new and revise old solutions (Kuhn and Ho, 1980). Student gain a richer understanding when they come up with a theory or an anticipatory scheme as Kuhn and Ho puts it then compare it with what actually happened. Christopher found that giving an inquiry project that requires the students to self-direct themselves helps them create a purpose. A purpose to what was being taught at school. His example was designing a model house, "you build the base then the sides all come up using [geometric] nets, that was the purpose of us creating those geometric nets". The effects of self-directed learning on students as observed by the participants were significant for their cognitive development. It helps the students become more self-reflective, motivated and build their confidence through relative success. They also become more competent and
developed their critical thinking skills to come up with theories to test out if something correlates or not (Phan, 2009). The redefinition of success through self-directed learning nurtured self-esteem and fed into their motivation to explore new solutions.

The other benefit of self-directed learning was on the student's learning skills and how teachers can really get an opportunity to observe their development. Instead of worrying and planning multiple lessons, Nancy would "give [students] a lot of in-class time" and "see what they are doing [and] help them if they need help". It gives the students "a daily interaction, [collaboration] in the classroom" so students really get a chance to practice their communication, leadership, time management and organization skills. Christopher says that the significance of self-directed learning is that the skills that students learn are many transferable skills that are valued by society and useful for careers. Self-directed learning gives students many opportunities to be social learners where they can observe and modify behaviours to be more successful (Bandura, 1986). Children would observe the consequences of each other and adults' behaviours to see what works or not. For example, let's say a child named Bobby saw that friend tripped on a crack on the sidewalk then Bobby would avoid the crack when passing over it. Christopher said that:

You know you see your grandparents, your parents and their brothers and sisters doing kind of the same similar thing and everything seems to be working out, it's like that's like a pattern we should probably replicate it somehow.

5.1.3 Barriers of Self-Directed Learning

However, there are barriers to self-directed learning, such as an unsuccessful experience with it and difficulties students encounter. When teachers had negative experience with it then they be less likely use self-directed learning as a strategy for teacher. Another problem that some
teachers have was the need to control everything. Nancy thought to properly facilitate self-directed learning, teachers needed "breaking down [their] own need to control everything, as soon as you think I have to address all the points in the curriculum then now you're not letting the students direct their learning anymore". If the teachers does not prepare the students with a sense of purpose and an obtainable end goal then most often students become stuck, especially when the teacher was also controlling everything students did. From my understanding, the moment students are asked to self-direct when no purpose or obtainable goal was set and everything was controlled by the teacher previously then they are at a lost. I believe that the significance of these barriers are to bring awareness to the teacher's personal biases towards self-directed learning and to address changes in their pedagogy to implement self-directed learning appropriately.

Another barrier was the fact that self-directed learning is not just an activity. It is a teaching style and concept that teachers need to be aware of but is ultimately up to the teacher to use it as part of their teaching. Christopher said that it should be an idea of the values of self-directed learning should be acknowledge but you cannot force teachers to do a specific self-directed activity because it limits other possibilities. Nancy said that self-directed learning is different for every class and group of students because they all could direct themselves in different directions and end up doing a different activity. Each teacher has their own teaching style and self-directed learning is not something that can be taught explicitly. Christopher says the idea of teaching self-directed learning sounds like "an oxymoron". A contradicting idea of having someone teach about self-directed learning when self-directed learning is meant to learn by oneself. Instead both participants agreed that the strategy to using self-directed learning should have more professional development sessions to bring awareness to it after the fact that
teachers have experience of being in a classroom. It was a "work in progress" as Nancy puts it and the teacher really needs to have classroom management, content knowledge and classroom experience before implementing self-directed learning. If the teacher has not set up a proper classroom environment for students to regulate themselves then that would inhibit the success of self-directed learning.

5.1.4 Strategies to Implement Self-Directed Learning

The strategies that the participants suggested can be grouped to start, during, and end. To use self-directed learning with inquiry projects was to design a unit backwards with the end goal in mind. Plan out what end goal you want the students to reach and this could be discussed with the students. Christopher suggested "having an end goal, something that I know I'm working towards and then break it down sort of into smaller, mini tasks and try to accomplish as many of those as possible, also makes the project more manageable". This goes back to the relative success that Nancy had described about redefining success by creating more manageable mini tasks. During the project, teachers should let the students go explore, try it out for themselves and make mistakes. Both participants agree that teachers should be facilitators and allow the students to take control and make their own decisions, but still have a collaborative dialogue. Children have a high capacity to learn when they cooperate with mentors and each other (Chernov, 2009; Vygotsky, 1978). Another collaborative strategy that Christopher used was to give the students the goal end and parameters to the project as Nancy calls it then let the students "get their hands dirty". Let students play around and explore ideas then they would gain an understanding for the nitty-gritty details of the project. Afterwards, usually a few days, Christopher would co-create criteria with his class so they become accountable and have a sense of purpose and ownership for their work. Similar to Bayraktar's (2013) findings on teacher
having writing conferences with students, when students take authority and actively participate then they would develop a sense of ownership.

The last strategy was to get the community involved. Christopher invited parents to come in as an audience and helpers for his student's projects. Nancy had the students actually create an awareness campaign in their community to make the students more involved in changes in their own community. All these strategies are very powerful to the use of self-directed learning and encouraging self-directed learning through assessment. Self-directed learning revolves around an authentic learning experience that involves solving problems in the real world and in this case allowing students to investigate problems in their own lives and communities (Rule, 2006).

My keys findings on the concept of self-directed learning includes the strategies to use it in the classroom and the barriers that will be encountered followed by the outcomes for the students summarized in **Figure 1**.

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>BARRIERS</th>
<th>OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Give purpose</td>
<td>• Teacher biases and negative past experiences</td>
<td>• Student competency</td>
</tr>
<tr>
<td>• Backwards design</td>
<td>• Student’s unmotivated and no enthusiasm</td>
<td>• Student self-esteem</td>
</tr>
<tr>
<td>• Release of responsibilities</td>
<td>• Cannot be taught explicitly</td>
<td>• Cognitive development (critical thinking, trial and error analysis, etc)</td>
</tr>
<tr>
<td>• Collaboration</td>
<td>• Student unreadiness</td>
<td>• Readiness for secondary and post-secondary education</td>
</tr>
<tr>
<td>• Co-creating success criteria</td>
<td></td>
<td>• Develop transferable skills</td>
</tr>
<tr>
<td>• Create safe environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Encourage risk taking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Use for earlier age group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Self-reflections</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 1. Self-Directed Learning Conceptual Model. To implement self-directed learning, appropriate strategies need to be used in addition to acknowledging and overcoming barriers in order for successful student outcomes.*
My self-directed learning model involves the key strategies that my participants had discussed which were giving the students a purpose or end goal so that they can backward design a solution. For an assessment to be self-directed the teacher has to give the responsibility to the students and not control what the students are doing. Teachers need to facilitate the creation of a criteria that comes from the students to create a sense of ownership and accountability. All of which requires teachers to create an environment that students are willing to take risks and self-direct their own exploration of a topic. However, teachers need to be aware of their own biases and be motivated themselves in helping students become self-directed. Only when these strategies are used and barriers are acknowledged then self-directed learning could be used effectively in the classroom to improve student self-esteem, critical thinking and preparedness for the real world.

5.2 Implication to Educational Research, Teacher Identity and Teacher Practice

5.2.1 Broad: The Educational Research Community

There has been many research on self-directed learning in the recent years and the push for inquiry based learning, but more focused on post-secondary schools. Few of which I came across looked into how students learn on their own in secondary school or with online classes in colleges and universities. There has been some which looked into self-directed learning through the use of authentic assessments in Rule's The Components of Authentic Learning (2006). My research focuses on teacher perceptions and experiences with self-directed learning in the Junior to Intermediate grades because I was not able to find as much research on the lower grades compared to the amount of articles on secondary and post-secondary education that pops up when I search for self-directed learning. Besides there being more focus on secondary and post-
secondary, the research was also very subject specific. Educational research had a vast amount of
data on critical thinking, motivation, and self-esteem separately but not many have tied them
together around the concept of self-directed learning. Research on self-directed learning such as
Hutto's (2009) research on how the balance of learning styles and self-directed learning influence
self-directed learning or others on online courses where adult students had to motivate and direct
themselves to process through the course with no explicit instructions. My research attempts to
create a link on the concept of self-directed learning to how teachers implement in the junior and
intermediate grades. Although my participants were successful with the use of self-directed
learning strategies in their own classroom, they have found that there were still many students in
their classrooms that have not had such experiences before. During my interviews, my
participants had also found out more about their own teaching styles and how their past
experiences had influenced their use of self-directed learning which was a surprise to them and
me. Christopher never thought of how his parents imparting the skills to be self-directed and
being independent affected how comfortable he was using self-directed activities in his own
classroom. Hopefully my research would spark an interest in the use of self-directed learning
more for younger students and perhaps give insight to the current educational system.

5.2.2 Narrow: Your Professional Identity and Practice

The implications of my findings have definitely made be reflect on the way I want to
teach students in my own classroom. Like my participants I would like to use a long term project
that was cross curricular and mimics scenarios of a real world situation to give students a
meaningful learning experiences. However, students will have to self-direct their own learning as
they figure out the process of reaching an end goal using tools taught in different subjects. The
most important part of my findings to me were the strategies of how my participants used self-
directed learning in their classroom. I always thought of how I am going to help my students become more self-directed because throughout my four practicums during my time in the Master of Teaching program, I have observed students struggling to direct themselves. There was that sense of wanting to help but I did not want to help too much because they I would have took control of their project then it would not have been theirs. What spoke out to me was that to be a facilitator for students I had to allow them to take control of their own decisions and be a teacher who has the need to control everything. This puts an implication on how there are teachers who tend to control more than they should and it actually inhibits the students from exploring on their own, hence inhibiting self-directed learning. Even though I do have to address the curriculum expectations, I should cater to student's interests to build a sense of purpose and try to make the expectations fit their needs. I would also advocate the use of self-directed learning and attend as many professional development days to further improve my own pedagogy. Both participants also agree that pre-service teachers should be made aware of the idea of self-directed learning for earlier ages in the latter half of their program or have more professional development days to improve awareness and support for self-directed learning.

5.3 Recommendations

Self-directed learning had a significant impact of the student's social development and cognitive development. The tremendous boost in competency of their own skills and motivation changed their perception of learning for the better. They begin to understand the reason why lessons in different subjects were taught and how they are connected to each other in an applicable manner. The connections that students make themselves become more meaningful to them, such as when Christopher notices his students realizing what the use of nets were in the
real world when building model houses. Christopher and Nancy found that their students work had improved since the beginning of their self-directed activities when compared with the end products. Throughout the process of their activities, they were able to observe a progression in their ability to critically think, creating multiple solutions and revising their plans to solve a problem. They both saw students starting out with no knowledge of how a city was planned or how water was filtered to being able to successfully plan and build a working model city or filtering contaminated water. Both participants agree that there needs to be more awareness for self-directed learning through professional development days or taught in a course in the latter half of teacher's education. Teachers should be encouraged to use self-directed learning in earlier grades to better prepare students in a realistic way for later grades. From my discussions in the Master of Teaching program and with my participants, I believe by teaching subjects in isolation from each other without allowing the students to apply the concepts in a meaningful way then they will only develop an isolated understanding and have a lesser rate of consolidating the information to see it in other areas. Besides helping students be self-reflexive and identifying their motivations, teachers should also reflect on their past experiences and find their motivation and purpose to teach students to be more self-directed. This can address one of the barriers of why teachers may not be able to successfully implement self-directed learning suggested in my model. Similar to how Christopher came to the conclusion that his parents imparted many ideologies of being independent and having initiative steered him towards a self-directed mentality. He had reflected on his past experience and he had learned how and why his teaching style was very student oriented and encouraged students to be more self-directed. Even if the teacher had a bad experience themselves, they could learn of what could have been done better through self-reflection.
5.4 Areas for further research

My research can be expanded to having a larger sample size with more time and into the lower grades as suggested in my findings on an earlier need for self-directed learning. Different types of studies can also stem out of mine, such as a longitudinal student that tracks students from primary and junior grades and up to post-secondary education. Such students could track on the willingness to initiate a project on their own and successfully self-directed their own process to completion. Christopher spoke about preparing for adult life and universities but that was just his views and opinions. I would like to see a longitudinal study to really unpack the preparedness of students in terms of having competency in academic research, communication, critical inquiry, reasoning, motivation, and life skills from an earlier use of self-directed learning. Perhaps even quantitative research to find out the levels of motivation, self-esteem and critical thinking through the activation of the brain to identify just how much self-directed learning helped the students develop cognitively. My research was also limited to interview teachers, but if I had the chance and time then I would want to research the students themselves and collect more data than I had. This would have required more paper work with the Research Ethics Board to allow the work with students and to collect observations, work or survey responses. The two participants were only able to provide their own lived experiences and each teacher will experience slightly different changes in their students depending on how affluent the students are. Also every student is different and each year the classes are different as well. Perhaps an experimental school or class could be set up where the same students have the same teacher for many years in a longitudinal study to see the changes in development of the students. Maybe different criteria can be measured but as long as the teachers were consistent. My research has
focused on one stage of Erikson's eight psychosocial stages and I would like to see how self-directed learning affects the other stages.

5.5 Concluding Comments

This research placed an emphasis of self-directed learning in the junior and intermediate grades. The perception of two TDSB teachers on the role of self-directed classroom in their junior and intermediate classes were discussed with the experiences from their inquiry projects. Projects that spanned across the entirety of one unit or more and students were given ample time to explore different solutions and revisions to their plans before creating a final product. I had questioned the perception of the impact of self-directed learning on students from two participants and had came up with five themes revolving around the concept of self-direction. There needs to be a movement for an earlier need for self-directed learning and how it would be more beneficial to students in terms of being more prepared for later education as suggested by both participants and most important for their development at those ages. The Junior and Intermediate ages overlap with Erikson's (1963) psychosocial stage on competency which primes me to think of self-esteem, motivation and skills developed by the students. In a more recent study, Snyder and Munakata (2010) looked at how motivation was key for student engagement in their own learning which was a pivotal point that Christopher emphasized. He had emphasized on showing students "the why" and reasons lessons are taught in different subjects, such as geometry shapes in structures built by ancient civilizations and how those concepts can be applied to achieve an end goal. By having a reason, it gives the students a purpose that motivates themselves to self-direct an exploration on a topic. An end goal that should be broken down to more achievable goals by redefining success for each student so that student self-esteem can be
fostered and develop a step by step critical thinking style (Phan, 2009). Vygotsky's (1978) zone of proximal development describes the developmental stage where students are able to complete and perform tasks with assistance from a mentor. In this case, one of the key strategies is teachers to ask as facilitators and to overcome the need to control what is being taught and thinking by the teachers. A gradual release of responsibilities should put the onus on the student to control their own decisions. When students are accountable then they would push themselves and have a genuine interest in learning more on their own.

The findings on the perception of self-directed learning is significant to pre-service and newly certified teachers and should push for an awareness for more professional development for older teachers as a more student oriented approach is adopted in contemporary education. My model on self-directed learning suggests strategies but most importantly sheds light on some barriers that may help teachers overcome any hesitation on the use of self-directed learning. The benefits and outcomes should capture the attention of teachers and parents to push for a more self-directed learning approach. Both my participants were from the TDSB and what they were doing in their classrooms with self-directed activities encourage students to develop skills valued by society. The TDSB mission statement states that they wanted to enable all students to reach high levels of achievement by acquiring the skills, knowledge and values to become responsible members of society (Toronto District School Board, n.d.). The implication so this study was that current TDSB teachers were abiding by this mission statement, however, this was only two participants from the numerous about of TDSB teachers.

This research on self-directed learning should serve as one of many teacher experiences and strategies on using self-directed activities in the junior and intermediate grades and spark further research into earlier grades and longitudinal studies. I strived to extract key findings from
my two participants but in the end my study was a qualitative case study of two TDSB teachers. The immediate benefits for students were expressed by the participants but the idea of preparing for later education is another research in itself.
References


Kuusisaari, H., H. (2014). Teachers at the zone of proximal development - Collaboration promoting or hindering the development process. Teaching & Teacher Education, 43, 46-57. doi:10.1016/j.tate.2014.06.001


Appendix A: Letter of Consent

Date: ___________________

Dear ___________________,

I am a graduate student at OISE, University of Toronto, and am currently enrolled as a Master of Teaching candidate. I am studying teacher’s perception on the role of self-directed learning for the purposes of an investigating an educational topic as a major assignment for our program. I think that your knowledge and experience will provide insights into this topic.

I am writing a report on this study as a requirement of the Master of Teaching Program. My research supervisor is Dr. Peter Yee Han Joong. The purpose of this requirement is to allow us to become familiar with a variety of ways to do research. My data collection consists of a 30 - 45 minute semi-structured interview that will be audio-recorded. I would be grateful if you would allow me to interview you at a place and time convenient to you. I can conduct the interview at your office or workplace, in a public place, or anywhere else that you might prefer. There may or may not be follow up emails for clarification to ensure accuracy of the data.

The contents of this interview will be used for my assignment, which will include a final paper, as well as informal presentations to my classmates and/or potentially at a conference or publication. I will not use your name or anything else that might identify you in my written work, oral presentations, or publications. This information remains confidential. The only people who will have access to my assignment work will be my research supervisor and my course instructor. You are free to change your mind at any time, and to withdraw even after you have consented to participate. You may decline to answer any specific questions. I will destroy the tape recording after the paper has been presented and/or published which may take up to five years after the data has been collected. There are no known risks or benefits to you for assisting in the project, and I will share with you a copy of my notes to ensure accuracy.

Please sign the attached form, if you agree to be interviewed. The second copy is for your records. Thank you very much for your help.

Yours sincerely,

Researcher name: Howin, Chang
Phone number, email: (647) 833 - 5478 , kaiyen.chang@mail.utoronto.ca

Research Supervisor’s Name: Dr. Peter Yee Han Joong
Email: peter.joong@utoronto.ca
Consent Form

I acknowledge that the topic of this interview has been explained to me and that any questions that I have asked have been answered to my satisfaction. I understand that I can withdraw at any time without penalty.

I have read the letter provided to me by _______________________(name of researcher) and agree to participate in an interview for the purposes described.

Signature: ______________________________________

Name (printed): ________________________________

Date: ___________________________
Appendix B: Interview Protocol/Questions

Section A: Participant Background

1. What is your educational background?
2. How long have you been teaching?
3. What grades and subjects have you taught?
4. As a student, did you have troubles starting independent assignments?
5. How did you direct yourself in independent projects?
6. Why did you want to become a teacher?

Section B: Teacher Perception and Practice

7. How is self-direction perceived by Junior/Intermediate students?
8. What are some examples of self-directed activities?
9. Do you think it is effective in critical thinking development? Why or why not?
10. How does self-direction correlate to self-esteem?
11. Do you think Junior/Intermediate students are capable of independent studies?
12. How do junior/intermediate students learn independently?
13. Do you use self directed activities? If so, how do you implement them?
14. How would you instruct the students in self-directed activity?
15. What are some challenges students face with self-direction that you have observed?
16. What are some ways you used to facilitate student self-direction?
17. Do you prefer self directed or teacher instructed approaches when exploring new topics?
18. Is it still self-direction when the teacher facilitates?
19. Is there anything you would like to add to this topic?