**Using Multimedia to Overcome the Language Transition Struggle
Experienced by French Immersion Students**

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Abstract

This paper is set within the context of my life journey as a student and as a teacher in the French Immersion program in Canada. Through my journey as a French Immersion middle school teacher and as a student of the Master of Education program, I have come to recognize the language struggles that my French Immersion students experience when switching from French to English subjects in middle school. The struggle comes from the shortfall of support during the language shift. This paper claims that teachers should be utilizing multimedia tools from images and videos to interactive web-based lessons to facilitate a positive environment for students as they navigate this transition to strengthen their success. First, multimedia tools promote a connection between language and visuals. Second, multimedia motivates through a learner-centred approach. Finally, multimedia tools cater to the inclusiveness of the students. The application of multimedia tools within lessons can decrease the language struggle for French Immersion students during the transition to English language-based courses. The implication is that teachers with the intention to support the smooth language transitions of the French Immersion students, teachers can utilize this tool to break down the language barrier in the students' path.

Keywords: French Immersion, transition, language struggle, multimedia tools, learner-centred, inclusiveness.

Chapter One: Introduction

Chapter One introduces how my journey through the Master of Education program at Thompson Rivers University and how my personal experience through the French Immersion program has developed my interest in the language transition struggle of French Immersion students. It will also introduce the argument of multimedia use to overcome this language struggle.

My Master of Education Journey

Throughout my journey in the Master of Education program at Thompson Rivers University, there were a few notable themes. In 1989, Kimberlé Crenshaw Williams coined the term intersectionality which is defined as the intersection between multiple identities. In the Diversity: Constructing Social Realities course, I reflected on teachers' and students' identities and how everyone brings in multiple cultures and perspectives into the school. Teachers especially must be aware of their own complex identity that is brought into the classroom. With the diverse identities of the student body, it is important to get to know the students, so their background is recognized to establish their strengths and weakness. Learning about Nel Nodding's Ethic of Care in the Philosophy and History of Education course played a major part in this theme. She emphasized on moral education and states that education is more than just academics, that teachers "need more time for interaction and understand what the students' needs and wants are" (ThePublicVoiceSalon, 2018). To boost this relationship, a child-centred mindset can reinforce learning that is related to the student's interests and experiences. When teachers make accommodations in the lessons to the interests of the students, they can stimulate the students' curiosity which facilitates critical thinking. Additionally in the Philosophy and History of Education course, John

Dewey's Notion for Learning Through Doing also accompanies this theme (Gutek, 2011). Learning by doing allows students to explore and express themselves creatively according to individual capabilities.

Taking Noddings' and Dewey's philosophy into my lessons, my M.Ed. journey has provided a different perspective on how establishing this relationship with students and affirming their interests will provide the teachers with tools for a more equitable and inclusive environment. A teacher's role in creating a positive environment is emphasized in the Principles and Process of Educational Leadership course. My journey has also provided insight into methods and tools that can facilitate this effective atmosphere. Multimedia tools can range simply from images and videos to more involved hands-on learning such as web-based interactive games. The tools that I explored in the Designing Multimedia for Curriculum course demonstrated how the lessons can be modified to the diverse needs of the students. They also promoted hands-on learning which allows for more engagement. The area where I want to build up my students stems from my interest and my identity as a student and teacher of the French Immersion program.

Developing my Interest in this Topic

My interest in this topic originates from my struggle as a student in the French Immersion program. Now a teacher in the French Immersion program, I have observed similar language transition struggles in my students.

My Experience with the Language Struggle as a Student

I grew up speaking Chinese at home and then I was enrolled in the French Immersion program from kindergarten to grade 12. I learned English through play with friends when I started attending school at five years old. From kindergarten to grade three,

all subject matters were taught in French. Later in elementary, in grade four, the curriculum introduced English grammar, vocabulary and spelling in English Language Arts class which is standard in Canada (Gov of BC, 2021). This was the first time I read or wrote formally in English. I struggled as I did not have a solid foundation in English. When I went to high school and English Language Arts classes were included in my schedule, I had a challenging time. My sentence structures were backward, I did not know how to spell correctly, and my reading level was low. Then to make things harder, my math and science classes transitioned to English Language-based in grade 10 and I found it difficult to grasp the new vocabulary as well as the new concepts. During my high school years, I did not feel like the teachers knew or understood that there were students in their class that struggled with English reading and writing because of their French-language foundation. The lessons and the teachers did not support the language struggle of the French Immersion students and I felt left behind.

My Observation of the Language Struggle in my Current Students

As a French Immersion math and science teacher for students in grades 8-10, I know my curriculum is very vocabulary dependant. For one of the biology lessons, the class did a video conference with a science museum to learn about genetics. The presenters spoke English, but the concept is the same in any language. My students have been studying this concept for a few lessons now and they were excited to get some hands-on demonstration. However, as the presenter was speaking and asking questions, my students were silent with confused looks on their faces. I realized that my students did not know the terms in English. I asked the presenters to pause the presentation so I can translate the vocabulary words into French for my students. There were sighs of relief and as the class continued the

presentation, my students were able to follow along and engage with the presenter. It was this situation that made me realize that my students struggled with the language barrier. I teach them all the vocabulary and content in French, but many experiences come in English. Furthermore, they will continue these subject matters in English when they are in grade 10 and finally many of them will continue onto the English language-based working environments. My students who are competent in the content feel lost with the language barrier, and I recognize that I am not setting them up for success.

Significance of the Topic

The transition from middle school to high school is an important growth period. Students are using their foundational skills to find their path to success. When there is a language struggle, it can create an additional obstacle to their progress. Middle and high school content relies heavily on vocabulary and English reading and writing skills. Math, science, and social studies have extensive vocabulary throughout their content. Researching for science requires a strong reading level. Writing essays in English and social studies demands proper grammar and sentence structure. All subject matters revolve around English reading and writing skills such as persuading others, recording information, expressing feelings, and exploring the meaning of events and situations (Graham, 2018). When the French Immersion students' subject matter transitions from French language-based to English language-based, many students struggle with the language shift; the sentence structure and grammar are backwards, and they must re-learn vocabulary words. There is a lag in their English reading and writing abilities that affects their capabilities (Lazaruk, 2007). This issue is significant because in an already difficult transition, with a lack of support, this struggle can have a severe impact on a student's

success. The teachers are responsible to facilitate a positive and successful transition. There are many ways a teacher can help students overcome the experience of language struggle. The significance of the multimedia tool focus is that it caters to the diversity of 21st-century learners to create the equitable and inclusive environment the students need.

Presenting my Argument

In this paper, I claim that teachers should utilize multimedia tools from images and videos to interactive web-based lessons to aid French Immersion students' transition from French language-based courses to English language-based courses. I make this claim because multimedia tools can facilitate a positive environment for French Immersion students to strengthen their success as they navigate the transition. First, multimedia tools promote a connection between language and visuals because people "learn more deeply from words and pictures than from words alone" (Mayer, 2014, p. 385). Information in the verbal channel and pictorial channel are organized together as the active processing makes a network to prior knowledge to store in their long-term memory (Mayer, 2014). This ties into the second point that multimedia motivates through a learner-centred approach that John Dewey argues and that "it is not the particular subject studied that is important but how it is studied" (Noddings, 2005, p.41). Finally, multimedia tools cater to the inclusiveness of the learners as it provides alternative methods of learning (Johnson & Fox, 2003). For example, alternative methods of representation include visual, oral, or kinesthetic. Alternative methods of expression allow students to demonstrate their understanding by graphic or audio. Alternative methods of engagement can range from minimal to additional support. The strategies offered by multimedia will create a smooth transition for the French Immersion students.

Paper Outline

  In this paper, I argue that multimedia tools can facilitate a positive environment for French Immersion students to strengthen their success as they navigate the transition. Chapter two will look at literature that has been previously published on the reasons behind the struggle during the French to English transition and how multimedia offers strategies to offset this obstacle in three themes. Chapter three will highlight two multimedia tools that can be applied for this approach. Chapter four will conclude the paper by providing a summary and further implications for this practice.

Chapter Two: Literature Review

The literature review begins with Mayer's Cognitive Theory of Multimedia Learning as a theoretical framework. This is followed by background literature on how French Immersion students perform in English reading and writing. Next, the review presents the main argument and reviews in-depth the literature that examines the effects of multimedia in the classroom to support vocabulary and learning acquisition. This section is broken down into three main themes: promoting a connection between language and visuals, motivating through a learner-centred approach, and catering to the inclusiveness of the learners. The literature review concludes with a summary as well as highlights areas where further literature is required.

Theoretical Framework

Mayer's (2014) Cognitive Theory of Multimedia Learning is the basis for multimedia instructions and its principles are referred to throughout the literature review. The theory is based on how people learn from words and pictures. The first principle, the dual-channel principle, is based on Paivio'a 1986 dual-coding theory which states there are two distinct channels for processing visual and verbal information (Mayer, 2014). Each channel has a capacity on the amount of information it can process at a time which leads to the second principle, the limited capacity principle. The third principle is the active processing principle, which states that meaningful learning depends on a student's cognitive process during the time of learning. Mayer's science of multimedia instruction is "consistent with research evidence and grounded in cognitive theory" (Mayer, 2014, p. 395). Mayer (2014) describes the next step is to further study to what degree each multimedia learning principle applies to the different ways of learning in different learning contexts.

Many other researchers have examined the effective use of visual and audio multimedia in the classroom. For example, Ljubojevic et al. (2014) investigated the addition of video content and Carter (2012), the inclusion of sounds. However, this literature review uses Mayer's theory as its framework because the three principles apply to all aspects of multimedia, audio, visual and kinesthetic. According to Siemens et al. (2015), there is a new generation of educational technology that is emerging that distributes adaptive learning, while Bates (2015) states that "the key component is the intervention of the teacher" (Bates, 2015, p. 198). Teachers are utilizing this tool to support the diversity of their students in the classroom.

Mayer's cognitive theory of multimedia learning will be referenced throughout this literature review. The focus will be on how multimedia helps vocabulary acquisition to strengthen a French Immersion student's transition to English language-based courses.

Background Literature

There is literature present that reviews how the French Immersion program affects the English reading and writing ability mainly at the primary level in Canada. Following the timeline of a student's academic career, there are mixed findings of when the English language is affected. Lam (2017) suggests that by grade two, French Immersion students have not had enough exposure to the French Language to disrupt their English development. However, the administration of the Canadian Language Benchmark/Niveaux de competence linguistiques canadiens (CLB/NCLC) to grade two students saw that students in the English-stream outperformed their French Immersion peers in narrative language and attributed this finding to students' lack of formal schooling in English (Burchell et al., 2020). In addition, schools in Ontario also "note a lag in grade 3 EFI [Early

French Immersion] student's English literacy performances" (Lazaruk, 2007, p.614). These two cases demonstrate the experiences of elementary-age students who are not enrolled in English Language Arts class right at the beginning of their academic careers. This is corroborated by Jared (2008)'s finding that French Immersion students have weaker performances on English tests due to the fact that they "get less practice reading in English than regular program students" (Jared, 2008, p.4).

Moving into intermediate elementary, formal English Language Arts class is introduced in grade 4 and there is a rise in students' English proficiency where it is found to be on par with their peers by end of elementary school. (Lazaruk, 2007). Bialystok et al. (2012) also saw by grade 5, their "performance on English-language proficiency tasks were maintained by French Immersion children throughout in spite of schooling being conducted in French" (Bialystok et al., 2012, p.1). Skipping ahead to a grade 11 math class, students described the transition from French to English as a brief period of difficulty when learning new terms but the main source of anxiety stem from "concerns about leaving the 'comfort zone' of learning mathematics in French" (Culligan, 2010, p. 433). And in some schools in Canada, there are findings that French immersion does not impede English language and literacy skill development (Au-Yeung et al., 2015). However, there is a need for more research concerning this in Canada about the French Immersion program and its effect, particularly at the middle school and high school levels. The curriculum at this level is where content becomes more advanced, and language vocabulary is a big factor in comprehension.

Using Multimedia to Overcome the Language Struggle

Multimedia is a representation of information that can include but is not limited to, audio, text, images, video, animation, and interactive presentation or lesson. The following literature reviews how multimedia can support vocabulary and learning acquisition through three main themes: promoting a connection between language and visuals, motivating through a learner-centred approach, and catering to the inclusiveness of the learners.

Multimedia Promotes a Connection Between Language and Visuals

There is extensive literature that supports Mayer's (2014) cognitive theory of multimedia learning where multimedia instruction can help students "learn more deeply from words and pictures than from words alone" in a variety of languages, at any level of education (Mayer, 2014, p. 385). When acquiring vocabulary in a first or second language, having a picture can be beneficial. Kim and Gilman (2008) found in their study that participants that received visual text and added graphics outperformed in vocabulary acquisition compared to others who did not receive the added graphics. The connection between language and visual can be described as an equivalent relationship when text and image communicate similar meanings. This relationship can also be additive, where the text "clarified or added information and ... strengthened the visual representation for communicating" (Fitriani et al., 2019, p. 37). Gruhn et al. (2018) also found that adding pictures to definitions may improve Dutch-speaking fourth-graders in urban and suburban schools with word learning and retention. Ponce et al. (2013) saw students in elementary and middle school in Chile who used graphic organizers (visual) improve on writing and reading compared to traditional methods. Even in university, Thai students learned

vocabulary better when multimedia was used (Yawileong, 2020). Synthesizing from the literature, the connection between the language and visuals is strengthened because as students transfer information from one format to another, their learning is deepened.

Lee and Mayer (2018) tested Mayer's theory with Korean-speaking university students. Those who received instructions through video with printed text rather than only narration learned better. Visual information is processed in the visual channel of the brain while oral information is processed in the auditory channel. Meaningful learning occurs during the active process when one mentally organizes new aspects of verbal and pictorial and integrates them with relevant prior knowledge (Mayer, 2014). This helps create a connection to known vocabulary in a different language that is stored in the long-term memory. Even new technology such as augmented reality (AR) can be used for language learning as animation can help visualize phonological knowledge (Fan et al., 2020). On-screen avatars help direct attention to the important parts of the lesson or guide a student along. This allows for "corresponding verbal and pictorial representation to be held in working memory at the same time so learner can make a connection between them" (Li et al., 2019, p.1391). But when adding visuals, there is a limit as James and Mayer (2018) argue that traditional slideshows are better than game-like apps.

Some disadvantages have been observed with adding a visual aspect. University students stated that having text and narration can be a distraction due to the redundancy principle (Yue, 2013). When the narration and the subtitles are the same, it is repetitive. Additionally, the visual channel and auditory channel have a limited capacity to process information as "on-screen text can cause extraneous processing" (Yue, 2013, p. 274). It is also speculated by Fitriani et al. (2019) and Gruhn et al. (2019) that visuals could also

distract from learning, but this needs further study as to where the line is between effectiveness and distraction.

Multimedia Motivates Through a Learner-centred Approach

There is literature that supports how multimedia can motivate a student to be more engaged with the material and vocabulary through a learner-centred approach. A learner-centred approach means the material is relevant to the student and revolves around their needs and interest (Noddings, 2005). The use of multimedia in language learning is "hugely beneficial in the learning process, making the learning process a learner-centred one which takes cognizance of the individual needs of the students compared to the traditionally oriented instructional methods, which revolves around the teacher as the sole arbiter of knowledge" (Ezeh et al., 2021, p. 103). This advantage of reducing the part of the teacher allows students the opportunity to lead and engage with their interests in the learning process. James and Mayer (2018) describe this as the active learner theory; when a student is immersed with the material, they are more likely to learn and show motivation to learn. Jacobs and Fu (2014) also observed that capturing the motivation for reading and writing of certain learners can be done best using digital tools. The literature established that when the student is the focus, and the process acknowledged their interest, the student is more motivated in their learning when new vocabulary is involved.

Multimedia can offer students the opportunity to practice at their convenience and their own pace. Offering such an experience that stimulates self-activity not only reduces a teacher's workload but helps create a connection to real life to involve meaningful interactions in the culture and language (Leow et al., 2014). Augmented reality is one of the multimedia platforms that can offer that opportunity. It can present "language knowledge

relating to everyday objects or real-world locations in an authentic learning environment"
(Fan et al., 2020, p. 1085). For example, game-like educational apps are intended to boost
learners' motivation (James & Mayer, 2018). Or on-screen avatars with human-like social
gestures can increase a learner's connection to social interactions which can generate more
effort from the student (Li et al., 2019). These literature examples determine that
multimedia can motivate through real-life interactions with or without the teacher as
students react to new methods of gaining knowledge through vocabulary.

However, there is a line between engaging to motivate and overloading the
cognitive process. The cognitive overload theory indicates there could be too much going
on (James & Mayer, 2018). There could be too much stimulation or irrelevant information
that the student must process. Additionally, many educators "fall victim to letting
technology drive the instructional design, rather than looking at the design from the
perspective, and limitations, of the learner" (Tayo & Oluwakemi, 2015, p.34). It is a learner-
centred approach, meaning educators must keep that in mind when using multimedia to
motivate language learning and further literature can be done on the best method for this
approach.

Multimedia Caters to the Inclusiveness of the Learners

There are as different ways of learning as there is a diversity of students. There is
literature that shows that multimedia creates an inclusive environment as it can cater to
the different ways of learning. Tayo and Oluwakemi (2015) found that multimedia
supports learners of different ways of learning for junior high school students in Nigeria.
The study showed superior potency when using PowerPoint presentations compared to
conventional methods such as oral lectures, but there were no significant differences

between different ways of learning themselves. Other studies have found that multimedia can make interactions with abled and disabled students easier as they learn vocabulary in a new language by reducing challenges and barriers. The accommodations made for the visual or hearing impaired can also be beneficial for abled students (Faiz et al., 2020). Augmented reality (AR) is an example that can facilitate collaboration between verbal and non-verbal students (Fan et al., 2020). There are tools for all different students to use to engage in the learning. An on-screen avatar that displays human-like gestures, movement, eye contact, and facial expressions also increases vocabulary learning for all students (Li et al., 2019). Synthesizing from the literature, multimedia demonstrates the best of both worlds for student inclusiveness; the technology promotes independence but there is still guidance and support for those who need it without the teacher's physical intervention.

Multimedia caters not only to different ways of learning but also to different levels of learning. For example, for students with lower reading comprehension, the "pictorial support effects become stronger" (Gruhn et al., 2019, p. 31) as they can retrieve information without reading. Unfortunately, the retention is not sustained because of the lack of connection made between the verbal and visual information (Gruhn et al., 2019). Jacobs and Fu (2013) also observed that using digital storytelling allowed students with lower writing abilities to complete the writing activity along with their peers without feeling they were disabled learners. Multimedia such as game-like applications can also accommodate students who learn more in a hands-on method (James & Mayer, 2018). The literature shows that the diversity of representation helps all students of different ways of learning and different level of abilities.

Teachers play an important role in incorporating multimedia as a tool to help support disabled and abled students, however, teachers may not have access or the training. Lack of access, training and use is a barrier in high schools in Florida which causes frustration for teachers and students to create an inclusive environment (Larson et al., 2009). Mayer also suggests further study is needed to determine what degree of each multimedia learning principle applies to the different ways of learning (Mayer, 2014).

Summary

The synthesized literature suggests that multimedia provides many advantages when it comes to acquiring vocabulary while learning new concepts. First, multimedia promotes a connection between language and visual stimulus as one learns from a combination of words and pictures. Visuals in the form of pictures, graphics, videos, or animations can provide this support however this is a limit before it becomes a distraction. Second, multimedia motivates through a learner-centred approach. Multimedia encourages the focus to move away from the teacher and onto the student and their interest. When the student is engaged, they are more involved in their language learning. Finally, multimedia caters to the inclusiveness of the learners. Accommodations used to help disabled students learn new vocabulary are also beneficial for abled students. The diversity of representation helps all students of different ways of learning and different level of abilities. Data acquired about multimedia from the literature review can be translated to overcome the language transition struggles of the French Immersion students through vocabulary acquisition, which will be explored in the next chapter.

Mayer (2014) also suggests further study is needed to determine what degree of each multimedia learning principle applies to the different ways of learning in a different

learning context. The literature supports multimedia as a tool in acquiring vocabulary in many different languages, at many different levels. However, there is a deficit of literature involving the education system in Canada. Additionally, further study is needed in the specific context of French Immersion students in a middle and high school setting.

The next chapter will use what was synthesized in the literature review to support the application of multimedia in the classroom setting, more precisely a middle school classroom where French Immersion students are changing over to English language-based subject matter.

Chapter Three: Application

Chapter three describes the application of multimedia tools in a classroom setting to help French Immersion students overcome the language struggle during the transition. The two multimedia categories of application that will be discussed are visual media and interactive lessons. Each application will link back to the literature review of chapter two and the argument of creating an equitable environment for French Immersion students through multimedia tools.

The Setting

The practical setting in which the argument will be applied is in a middle or high school classroom, where French Immersion students have just had their core subjects transferred over to English language-based. The English Language Arts class starts at either grade seven or eight. The major switch happens in grade ten in most Canadian schools, this includes the math and science courses. The curriculum in these subjects continues from and builds on prior knowledge. In addition to learning new concepts, the French Immersion students are also learning new vocabulary in a different language. There are many similar words between the English and the French language because they share many common roots. However, there are enough differences to make the transition difficult for many students.

Visual Media

To help navigate the language struggle of French Immersion students during the changeover, a teacher can apply multimedia in the lesson. Multimedia are forms of communication of information using different content forms such as images and videos.

This section will describe the benefits of adding a visual representation to the lesson, including some examples of application in the classroom setting.

The Context

Images and videos add a visual component that helps a student create a connection with the language. According to Mayer's (2014) Cognitive Theory of Multimedia learning, students "learn more deeply from words and pictures than from words alone" (Mayer, 2014, p. 385). Having an image could be beneficial for French Immersion students as they are re-learning the terminology in English because of the added support of a visual. This is not always necessary because the English and the French language's mathematical, scientific, and academic terms share a common etymology, namely Greek and Latin, for example, *discussion, calculer,* and *personne*. In this case, the connection between language and visuals is equivalent, as it communicates the same information that is already known to the student (Fitriani et al., 2019). Yet, in spite of this common stock of roots, prefixes and suffixes, the inconsistent application of the rules of transliteration and word-formation has resulted in numerous differences which students might not understand, for example, *trouver, chercher,* and *endroit.* Then the connection made between the language and visuals is additive because the visual can help add information that is not already known and strengthen the communication of the language. Additionally, if a student already knows the vocabulary, an image helps fortify the learning. As a result, the corresponding verbal and pictorial representation can be held simultaneously in the long-term memory so a student can make a connection and master the new terminology (Li et al., 2019).

As this paper argues, having access to multimedia such as a visual representation for glossary and concepts, the French Immersion students feel empowered with the notion

that they can grasp the knowledge without the teacher's intervention. This learner-centred approach shifts the focus onto the student's capabilities and can motivate the students to learn as they are engaged with the material (James & Mayer, 2018). In addition, having a visual can assist learning for students who learn in different ways and at different rates whether it is in English or French. According to Faiz et al. (2020), images and videos reduce challenges and barriers for students to learn glossaries in a new language. Knowing how students learn best stems from Noddings' Ethic of Care; when teachers take the time to know the students in the class through relationship building, teachers find their strengths and weaknesses to help facilitate the lessons (Noddings, 2005). This includes getting to know which students came from the French Immersion program. When a teacher creates an inclusive environment through multimedia strategies catered to the students and students feel recognized, they will succeed including the French Immersion students during the progression of languages.

In The Classroom

In the middle and high school English language-based math and science class where there are French Immersion students, images that accompany content are beneficial to help grasp the concepts. For example, when learning about slope in math class, a graph with point A and point B that demonstrates slope will provide a visual representation because slope in French is quite different, it is *pente.* Order of operations may differ from one letter in the acronym, BEDMAS vs *PEDMAS*, but a visual representation of the steps is still beneficial for the language barrier and the concept. However, it is not needed for all math definitions as English and French do share many similar vocabularies such as *addition, ordre,* and *graphique.* Another example, in a science class, a visual representation

comparing nature verses nurture traits in a genetic lesson is valuable because the vocabulary is quite different as well; *innée* and *acquis*. A visual representation demonstrating the steps in naming chemical compounds will be worthwhile as the chemical names in French are in the reverse order compared to English. Again, not all phrasing is different but the visual is still constructive for all students to grasp new vocabulary and concepts. This multimedia tool can reduce the barriers that French Immersion students face with the language endeavour and allow them to focus on learning with their peers through an inclusive classroom.

In an English Language Arts class, a visual representation of a sentence structure and grammar rules would be useful as grammar in English and French are quite different. Many French Immersion students tackle writing competently in English, especially in their first year of transition. In essay writing, brainstorming is important, and multimedia allows room for the brainstorming to be done by visual representation as some students learn differently. Another example, when writing competency is not the main assessment, multimedia recognizes different methods of expression to demonstrate understanding, for example, a poster, PowerPoint, or diorama. Additionally, for English reading, having audiobooks to follow along with can assist with English phrasing where French Immersion students might have difficulty pronouncing because of the different sound letters make in the two languages. For example, there is no "t*h"* sound in French. Visual representation is not always adding an image. For example, audio can help one visualize a written story. Audiobooks are inclusive and focus on the student as they are effective for students who learn differently, students who are at different reading levels or provide independence for students (Gruhn et al., 2019). Multimedia such as visual representation might not be

common in the English Language Arts class, but there are many benefits, especially for the French Immersion students when it comes to English grammar. These tools are designed to support all students to create an equitable learning environment.

Having students add in their own visual presentation to words not only helps build the connection for a new internal dictionary but also shifts the focus into a learner-centred approach to empower their learning. Multimedia facilitates the active learner theory that James and Mayer (2018) describe where students are more motivated when they are responsible for their learning. In math, science and English class, there is plenty of room for the creativity of students to include their own visual representation to strengthen their understanding of not only French Immersion students but all students.

Interactive Lessons

Another multimedia tool to apply in the classroom to overcome the language struggle of French Immersion students during the expansion to English language studies are interactive lessons. Interactive lessons can engage students, in particular, they prompt students to engage with content, rather than passively absorb it. Technology plays a big part in interactivity and has changed the lesson dynamic. This section will explain the benefits of adding an interactive component to the lesson to create an engaging learning environment, including some examples of applications in the classroom setting.

The Context

As previously mentioned, Mayer's (2014) Cognitive Theory of Multimedia Learning states that students learn better when there is a visual component. In addition to visual representation, interactive lessons also provide for a more active engagement that reinforces the connections made in the long-term memory (Li et al., 2019,). This is

beneficial for French Immersion students during the evolution of their courses because the more support they receive and are offered a diverse method to make language connections, the more likely they are to succeed. Interactive lessons are becoming more widely used in the classroom. They include but are not limited to, the use of digital technology, social media, augmented reality (AR), games and virtual communication. Interactive lessons shift the focus away from the teacher, who traditionally is known as the sole arbiter of knowledge (Ezeh et al., 2021). Many, but not all, interactive tools use technology which is more interesting for 21st-century students. Providing material and medium that are attractive for the students proves to be more concentrated directly on the students. The advantage of a student being immersed and actively engaging with the material is that they are more likely to learn and show motivation to learn (James & Mayer, 2018). Furthermore, the use of interactive lessons relates to John Dewey's notion of learning through doing as students are interacting and manipulating the resource for learning (Gutek, 2011). This tool is beneficial for French Immersion students as it is for all students to facilitate effective learning.

Interactive lessons recognize that students work at their own pace. For French Immersion students, the independence of learning at their own pace empowers them because interactive lessons give real-time feedback which facilitates proficiency in new vocabulary and concepts (James & Mayer, 2018). It also gives them space to make mistakes and learn the terminology without the attention of the class and teacher intervention, this can help build their confidence. This also opens the environment to be more inclusive to the diverse ways students learn and the different rates at which each student learns. The accommodation provided by interactive lessons is beneficial to all students, not only

French Immersion students (Faiz et al., 2020). They can boost collaboration between different learning styles, verbal and non-verbal and various levels of language abilities (Fan et al., 2020). Again, Noddings' Ethic of Care encourages teachers to take the time to know students through relationship building. This will shed light on their strengths and weaknesses, as well as their way of learning (Noddings, 2005). Interactive lessons through the virtual world or communication also expand the classroom beyond the four walls, these experiences present language knowledge in an authentic learning environment (Fan et al., 2020). Interactive lessons implement inspiring opportunities for all students as they master new vocabulary and concepts.

In The Classroom

In the middle and high school English language-based math and science class where there are French Immersion students, there are many opportunities to include interactive lessons that help strengthen vocabulary and concepts. For example, math practice can be done using online games such as Prodigy or Mathletics, where it follows the curriculum and students must have an account that the teacher creates. Students get to work at their own pace and teachers can set which level each student is assessed and monitor their progress. Students have fun while they receive instant feedback and collaborate with their peers in the classroom. They can even interact with other students around the world. This platform gives the French Immersion student space to learn new speech and concepts in a safe environment because they obtain non-direct support. Math projects can also be done using real-world situations through interactive multimedia. For example, students can collect data that the International Space Station makes available for math calculations in an algebra or geometry unit. Interactive lessons give meaning to learning which is beneficial

to all students as they facilitate lessons that are of interest to the student. Another example, in the science class, the class can take a virtual field trip to a museum that is in a different city. Being immersed is valuable to all students and has many advantages, they have the opportunity to go beyond the classroom for learning with an expert while having the audio and visual connections being made for French Immersion students and students who learn differently. Or collaborate with a classroom across the world about climate. French Immersion students have the potential to communicate with someone who speaks French and demonstrate the asset of their ability and feel empowered. Interactive lessons advocate for the spotlight to be on the student to motivate and enable the students which supports the main argument of creating and inclusive environment.

In the English Language Arts class, interactive lessons can help support writing with tools such as speech to text. This multimedia tool can be useful for French Immersion students so they can hear and see if they make grammar mistakes since French and English grammar structures are opposite in many ways. Additionally, when French Immersion students are still learning new expressions in English, speech to text can support students in spelling (Gruhn et al., 2019). Another example is using digital storytelling to allow students to complete the writing activity with support using a different format other than paper and pen. Interactive lessons can also help support reading with audiobooks and audio files by helping French Immersion students hear how English words are pronounced if they are having difficulty sounding out some letters and different sounds. These tools might not be necessary for all French Immersion students, but it is present for those who need them, including those who learn differently that are not from a French Immersion background. Another example is a tool called HP5. It has a large resource of interactive

lesson templates where a teacher can upload text, images or video and students need to complete activities to assess comprehension before moving on. This can represent materials in different ways to include all students for a more inclusive environment. An on-screen avatar provides guidance by highlighting important concepts or offering feedback during comprehension assessment. This could be more comfortable for French Immersion students if they are still uneasy with the adjustment if they are struggling. Interactive lessons in a language class present information in a diverse manner for the inclusiveness of French Immersion students as well as other students who learn in different ways or at different rates.

The range of interactive lessons is vast, there are diverse resources available to overcome the language conflict and enrich students' experience in the classroom. Interactive lessons can bring a science lesson alive, a math project more connected to real life and English lessons more diverse. They also enable students to work at their own pace or have guidance, but the teacher does not need to physically intervene. These advantages support the language trials of the French Immersion students while boosting their confidence and can be used for all students.

The Limitations

The best practice of multimedia tools stems from Noddings' ethic of care. Teachers must take the time to know their students, to know who was in the French Immersion program, who struggles, who needs enrichment, how does each student learn and what their interests and needs are. Teachers might not always make time for this important step, but it is essential for the multimedia to be appropriately utilized to help students become successful.

As there are many advantages of multimedia as a tool to overcome the language undertaking of French Immersion students during the transition, there are also some disadvantages and limitations. Having access to technology is not a given for all schools, especially in the rural parts is one big limitation while the lack of training that teachers receive is another frustration (Larson et al., 2009). However, multimedia does not necessarily need technology, visual representations can be handmade such as posters and interactive lessons can be a hands-on science experiment. Even if a teacher has access to technology and training, there is still a shortage of time allotted for the development of these lessons. In that time frame, teachers also need to consider online safety for the students. When teachers utilize multimedia, they must ensure to not let the technology drive the instructional design but rather the student and their needs (Tayo & Oluwakemi, 2015). Multimedia is only favourable if used correctly.

Summary

In the practical setting of a middle or high school classroom, where French Immersion students have just had their core subjects converted to English language-based, multimedia tools such as visual media and interactive lessons can be used to overcome the language struggles. The best way to know if students were in French Immersion is to get to know them. This is Noddings' Ethic of Care of building a relationship to know the students and their strengths and weaknesses. This is not only useful for French Immersion students but for all students as teachers can also recognize how each student learns.

Multimedia such as images and videos add a visual component that helps a student create a connection with the language. An image can improve grammar structure in English Language Arts class as the sentence structure in English is opposite to that of French. A

video can also assist with concept mastery in math and science classes. Additionally, it represents the material in a different manner for students who learn differently. Another multimedia tool representation includes interactive lessons. Active engagement reinforces the connections made in long-term memory. Interactive lessons can bring a science lesson alive or a math project more connected to real life. And in English Language Arts, have a more diverse method to demonstrate understanding. Multimedia empowers learning fixated on the student, giving them the freedom to learn at their own pace with instant feedback and guidance without the teacher's physical intervention for a varied level of engagement. Multimedia reduces challenges and barriers for students who are from the French Immersion program, who learn differently and who learn at different rates to learn vocabulary in a new language while mastering new concepts to create a positive environment for all.

Chapter Four: Conclusion

In this paper, I argue that multimedia tools can support the language struggles and barriers of French Immersion students as they transition their course to English language-based in the middle and high school setting. This final chapter will summarize chapters one through three and how they are connected, concluding with the success of the argument and further implications it will have on the scholarly and practical world.

Summary

French Immersion students have a hard time when it comes to learning the curriculum in English when they have been in French Immersion for an extended period of time. I present in this paper some multimedia tools that can be adopted to bolster their learning of terminology and concepts for their success during the changeover. My interest in the language struggles of French Immersion students originated through my life and school experiences as discussed in chapter one's introduction. Wanting to know more about this topic, the literature review of chapter two found previous work from others for and against this argument so that all perspectives might be presented. With this evidence, the application chapter demonstrates how to apply it in a classroom setting to strengthen the French Immersion students' success.

Throughout my life, I have experienced the French Immersion program and recognized the language struggle as a student and as a teacher. This struggle is present during the transition of core subject matters to English language-based during middle school and high school. Not only are the students learning new concepts, but they are also re-learning vocabulary in English and that can cause challenges. Using what I have learned throughout the M.Ed. program, Noddings' Ethic of Care played a big part in bringing

awareness of building relationships with the students to know how they learn, including strengths and weaknesses. Along with Dewey's Notion of Learning Through Doing, multimedia emerged as a tool that can be utilized in the classroom to support the French Immersion students in their language struggle. I identify that this topic was significant because it is the teachers' responsibility to create an equitable environment and the French Immersion students might not be known as a group that needed support. With this, I present my argument of multimedia and follow up with a literature review to research what others have found.

Following the literature review focusing on how multimedia can support language learning, three themes were developed to support the argument of multimedia advantages in the classroom for French Immersion students. Using Mayer's (2014) Cognitive Theory of Multimedia Learning as a base, much of the literature emphasizes the asset of the multimedia tool to vocabulary and learning acquisition. The first theme is that multimedia promotes a connection between language and visuals. Researchers such as Kim and Gilman (2008), Gruhn et al. (2018), and Ponce et al. (2013) saw that a combination of words and pictures can support language learning at a variety of levels and languages. However, it is noted that there is a limit before the visual becomes a distraction. The second theme is that multimedia motivates through a learner-centred approach. Ezeh et al. (2021) state that multimedia encourages the focus to move away from the teacher, who is traditionally the main provider of knowledge. While James and Mayer (2018) describe this as the active learner theory because when the student is engaged, they are more involved in their language learning. The final theme is that multimedia caters to the inclusiveness of the learners. Accommodations that benefited disabled students learn new vocabulary are also

valuable for abled students (Faiz et al., 2020). The diversity of representation helps all students who learn differently and at different levels of abilities. Even with the broad scope of the literature review's focus on language learning at different levels and with different languages, I can draw the conclusions that multimedia can support the language learning of French Immersion students as well. With the support from the literature of multimedia and expanding on the literature gap of the effects on French Immersion students, I present applications of multimedia in the classroom setting.

In the middle and high school classes where students have recently switched from French to English language-based, the two main multimedia categories that I apply in my classroom are visual media and interactive lessons. Connecting back to my M.Ed., I refer to Noddings' Ethic of Care to build relationships with my students to get to know them and their diverse ways of learning along with their strengths and weakness. This assisted in creating lessons that are focused on the student for better engagement and are all-embracing. In my application of multimedia, I find success using visual media such as images and videos in the math and science classroom to reinforce vocabulary re-learning and concept mastery. In addition, visual media strongly improves grammar structure in the English Language Arts class to benefit French Immersion students who find writing in English challenging (Li et al., 2019). Interactive lessons successfully bring a science lesson alive and a math project more connected to real life for all students. And in English Language Arts, there is a more diverse method to express understanding. These multimedia applications demonstrate a clear link between the literature and the strategies in action.

In conclusion, with the support of the literature review of the benefits of multimedia tools in language learning and the evidence of successful application of multimedia tools in the classroom, this paper has clearly shown that multimedia facilitates an inclusive environment for French Immersion students. The data also confirms that multimedia empower French Immersion students during their transition.

Implications

Connecting my paper to the scholarly context, the argument to use multimedia tools to overcome the language struggle of French Immersion students contributes to the larger theoretical conversation about inclusiveness. As the diversity of the students grows in the classroom, the lessons and tools need to cater to the wide range of ability levels and ways of learning. This includes students coming from a different background such as French Immersion students. My paper demonstrates the use of multimedia in facilitating vocabulary learning for French Immersion students transitioning to English language-based classes in the middle and high school setting. By creating a learner-centred approach, students are empowered through engagement and independence. Employing alternate methods of representation, expression and engagement, multimedia creates an inclusive environment for the uniqueness of all the students. When teachers embrace the diversity of their students with more comprehensive approaches which multimedia facilitate, students feel recognized. This recognition blossoms into encouragement and motivation. My paper expands on this specifically for the French Immersion students. It provides the support to break down the language struggle so they may have a positive learning environment with their peer in the English language-based classes and a successful progression through the transition.

Further implications of my paper would be to inspire change in the world of education during a growth period beyond high school such as attending university, where the transition experience can be challenging. The strategies offered by multimedia will create an equitable environment for students, such as demonstrated by the smooth transition for the French Immersion students. Noddings' Ethic of Care requires a base practice of getting to know the students and how they learn to facilitate these inclusive lessons. Inclusivity would be adopted by all teachers to emphasize the importance of valuing all students and how they learn. Teachers would also consider Dewey's Notion of Learning by implementing these strategies to engage the students. As a result, teachers would incorporate multimedia tools as a strategy to empower students through learner-centred approach to create a positive and inclusive learning environment.

In conclusion, I am proud that my life experience in the French Immersion program and my M.Ed. journey has brought me here to my capstone paper, adding to the scholarly context of inclusiveness and speaking up for future French Immersion students. I hope this paper inspires teachers in the classroom and opens the conversation for more literature and research into the effects of the French Immersion program through many different levels and topics.

References

Au-Yeung, K., Hipfner-Boucher, K., Chen, X., Pasquarella, A., D'Angelo, N. & Deacon, H.S. (2015). Development of English and French language and literacy skills in EL1 and EL French Immersion students in the early grades. *Reading Research Quarterly, 50*(2). 233-254.

Bates, A. W. (2015). Teaching in a digital age; Guidelines for designing teaching and learning for a digital age. *open.bccampus.ca*. http://opentextbc.ca/teachinginadigitalage/

Bialystok, E., Peets, K. F., & Moreno, S. (2012). Producing bilinguals through immersion education: Development of metalinguistic awareness. *Applied Psycholinguistics*.

Burchell, D., Hipfner-Boucher, K., Selvachandran, J., Cleave, P. & Chen, X. (2020). Evaluating the oral language skills of English-stream and French Immersion students: Are the CLB/NCLC Applicable? *Canadian Journal of Applied Linguistics / Revue canadienne de linguistique appliquée, 23*(2). 118-140.

Carter, C. (2012). Instructional audio guidelines: Four design principles to consider for every instructional audio design effort. *TechTrend, 56*(6). 54-58

Culligan, K. (2010). Pente or slope?: Using students voices to explore program choice and experiences in secondary French Immersion mathematics. *The Canadian modern language review/La revue des languages vivants, 66*(3), 421-444.

Ezeh, N.G., Anidi, O.C. & Nwokolo, B.O. (2021). Media support teaching and learning English language as a second language: Elimination stereotypes. *English Language Learning, 14*(4). 94-104

Fan, M., Antle, A.N. & Warren, J.L. (2020). Augmented reality for early language learner: A systematic review of augmented reality application design, instructional strategies, and evaluation outcomes. *Journal of educational computing research, 58*(6), 1059-1100.

Faiz, Z., Jameel, H.T. & Hamid, A. (2020). Teacher's perceptions regarding the role of information and communication technology in inclusive school environment. *Pakistan journal of distance and online learning, 6*(1). 263-277.

Fitriani, S.S., Erdiana, N. & Samad, I.A. (2019). Visual representations and comprehension: The exploration of image-word relations and types of design. *International journal of language education, 3*(2). 27-40.

Government of British Colombia (2021). French Immersion program. https://www2.gov.bc.ca/gov/content/education-training/k-12/administration/legislation-policy/public-schools/french-immersion-program

Graham, S. (2018). A revised writer's within-community model of writing. *Educational Psychologist*, 53, 258–279.

Gruhn, S., Segers, E. & Verhoeven, L. (2019). Moderating role of reading comprehension in children's word learning with context verses pictures. *Journal of computer assisted learning 36*, 29-45.

Gutek, G.L. (2011). *Historical and philosophical foundations of education: A biographical introduction* (5th ed.). Pearson

Jacobs, P. & Fu, D. (2014). Students with learning disabilities in an inclusive writing classroom. *Journal of language and literacy education, 10*(1). 100-113.

James, K.K. & Mayer, R.E. (2018). Learning a second language by playing a game. Applied

Cognitive Psychology 33. 669-674

Jared, D. (2008). Assessment of reading ability in French Immersion students. Encyclopedia

of languages and literacy development. *Canadian language and literacy research*

network.

Johnson, D.M. & Fox, J.A. (2003). Creating curb cuts in the classroom: Adapting universal

design principles to education. In J.L. Higbee (Ed), *Curriculum transformation and*

disability: Implementing universal design in higher education. Minneapolis, MN:

University of Minnesota

Kim, D. & Gilman, D.A. (2008). Effects of text, audio, and graphic aid in multimedia

instruction for vocabulary learning. *Educational Technology and Society, 11*(3), 114-

126

Lam, K. & Chen, X. (2017). The crossover effects of morphological awareness on vocabulary

development among children in French Immersion. *Springer Science & Business Media,*

31. 1893-1921

Larson, L., Kuhn, C.D., Collins, R.A., Balthazor, G., Ribble, M. & Miller, T.N. (2009).

Technology instruction: Fixing the disconnect. *Principal Leadership, 10*(4). 54-58.

Lazaruk, W. A. (2007). Linguistic, academic, and cognitive benefits of French Immersion.

The Canadian modern language review / La revue canadienne des langues vivantes,

63(5). 605-627

Lee, H. & Mayer, R. (2018). Fostering learning from instructional video in second language.

Applied Cognitive Psychology. 1-7

Li, W., Wang, F., Mayer, R. & Liu, H. (2019). Getting the point: Which kinds of gestures by pedagogical agents improves multimedia learning? *Journal of educational psychology, 111*(8). 1382-1395

Ljubojevic, M., Vaskovic, V., Stankovic, S. & Vaskovic, J. (2014). Using supplementary video in multimedia instruction as a teaching tool to increase efficiency of learning and quality of experience. *The international review of research in open and distance learning, 15*(3). 275-291

Mayer, R. E. (2014). Multimedia Instruction. In J.M. Spector et al. (eds.), *Handbook of Research on Educational Communications and Technology* (pp.385-399). Springer Science + Business Media New York 2014.

Noddings, N. (2005). Beyond the disciplines: A critique of liberal education. In *The Challenge to Care in Schools: An Alternative Approach to Education* (pp.28-43). Teachers College Press, Columbia University

OxfordLearning. (2015). French Immersion in Canada. *OxfordLearning*. https://www.oxfordlearning.com/french-immersion-in-canada/

Ponce, H.R., Mayer, R.E. & Lopez, M.J. (2013). A computer-based spatial learning strategy approach that improves reading comprehension and writing. *Education Technology Research Development 61*. 819-840

Siemens, G., Gašević, D., & Dawson, S. (2015). Preparing for the digital university: a review of the history and current state of distance, blended, and online learning. *Athabasca: Athabasca University*. http://linkresearchlab.org/PreparingDigitalUniversity.pdf

Tayo, O. & Oluwakemi, O. (2015). Educational multimedia and learning style preferences. *British journal of education, 3*(12). 29-42.

ThePublicVoiceSalon. (2018). Nel Noddings on Education for Caring [video]. *YouTube*.

https://www.youtube.com/watch?v=jU_2-4SR-gk

Yawileong, R. (2020). Second language vocabulary learning from viewing video in EFL

classroom. *English Language Teaching, 13*(7). 76-87

Yue, C.L., Bjork, E.L. & Bjork, R.A. (2013). Reducing verbal redundancy in multimedia

learning: An undesired desirable difficulty? *Journal of educational psychology, 105*(2).

266-277