

Introduction

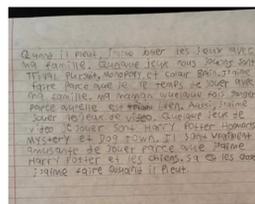
The Multilingualism and Literacy Lab is a developmental psycholinguistic lab, led by Dr. Xi Chen, which focuses on the development of languages in multilingual children, both within and across languages. This poster will overview the purpose, methodology, results and implications of all the MLL current projects. These projects include:

1. The International Bilingual Education (IBE) project
2. The IBE stakeholder study
3. The Digital Reading project
4. The Online Learning project
5. The Componential Model of Reading study
6. The Writing Modality study
7. The Reading Impairment project

The Writing Modality study

Comparing the effects of transcription mode on the quality of written French narratives produced by French L2 learners.

According to the simple view of writing (Berninger et al., 2002), transcription is a component of the writing process that is expected to influence the quality of children's texts. Yet little is known about the influence of transcription mode (i.e., handwriting vs. keyboarding) on the quality of writing among second language (L2) learners. In the current study, we compare the effects of transcription mode on the quality of French narratives produced by French L2 learners. 150 Grade 2-4 students from low and high SES neighborhoods enrolled in French immersion children participated in the study. The prompts in the Written Expression subtest of the WIAT (Weschler, 2005) were used to elicit narratives in French, one using pen and paper, the second using a keyboard. Prompts were counterbalanced across the writing conditions. The scoring scheme has been recreated as per standardized procedures to assess students' spelling and punctuation, text structure, vocabulary and grammar. The analysis compares their work across the two transcription conditions and selected writing prompts. Thus, the current study will extend the body of research examining transcription mode effects to an English-French bilingual population and will examine a broad range of indicators of quality in L2 narratives. Within the new literacy framework, use of digital communication technologies is part and parcel of becoming literate (Leu et al., 2013). Therefore, it is important that writing quality in a digital environment be examined. Our study will generate novel data revealing if and how transcription mode influences the quality of L2 written narratives in the context of French immersion.



The IBE Stakeholder Summary

Interviewing parents, teachers, and administrators on the accessibility of French Immersion for diverse students.

In an increasingly multilingual world, the demand for language immersion programs has increased significantly (Barrett DeWiele & Edgerton, 2020). Since immersion programs can be challenging, parental involvement is essential for student success (Selvachandran et al., 2022). However, for parents who do not speak the target language of the program, there is often a breakdown in communication between parents and the school (Tarasawa & Waggoner, 2015).

In Canadian French Immersion programs, which are publicly funded and designed for non-francophone students, there is an increasing number of English language learners who enroll (Sinay et al., 2018). By design, this means that very few guardians speak the language of instruction (French), and some have low proficiency in the school and community language (English). For many ELL students, they speak their L1 at home, English in the community, and French in school with little overlap across contexts. This study therefore investigated the access to and availability of support in French Immersion programs, particularly as it pertains to the bridge between the school and home environments.

1. How do home factors (e.g. language status, socioeconomic status) affect access to and support within the FI program?

In this study, we interviewed 8 parents, 2 teachers, and 1 principal. They were selected from a larger study involving 6 home schools. All parents filled out a demographic questionnaire, and then participated in a semi-structured interview with two graduate students. Results show that participants were highly concerned with the limited access to resources, including assessment, French support at home, French resources in school, costs of resources as well as differences across schools and programs. This project shows that the relationship between home and school is critical for successful target language acquisition.

International Bilingual Education (IBE) project

Evaluating the efficacy and accuracy of phonological and orthographic specificity as predictors of reading ability in emergent English-French bilingual children.

According to the lexical quality hypothesis, word identity consists of phonology, orthography, morpho-syntax, and meaning (Perfetti & Hart, 2002). Phonological specificity, the ability to distinguish between words that differ only on one acoustic phonetic feature (e.g., bear-pear), has been shown to play an important role in emergent literacy (e.g., Krenca et al., 2020; Van Goch et al., 2014). However, little is known about how specificity of other representational properties, such as orthography, influences literacy development. The present study explores the contribution of orthographic specificity to word reading and reading comprehension in English-French bilinguals.

Participants included 130 Canadian children in grades 1-3 (ages 6-9). All children were enrolled in French Immersion schools. They were exposed to English at home and in the community and were learning French as a second language at school. Following the paradigm used in Van Goch et al., (2014), we designed computerized learning games which required children to refine their orthographic specificity by distinguishing between orthographically similar words (e.g., leek-leak) in English and French across different trials. In addition, children were tested on phonological awareness, vocabulary, word reading, and reading comprehension in both languages.

Preliminary analyses indicate that dynamic orthographic specificity predicts word reading above the contributions of static orthographic awareness, in both English and French, after controlling for non-verbal reasoning, working memory, vocabulary and phonological awareness. These results provide empirical support to the lexical quality hypothesis among bilinguals. Furthermore, computerized learning games may be effective in increasing children's word knowledge.

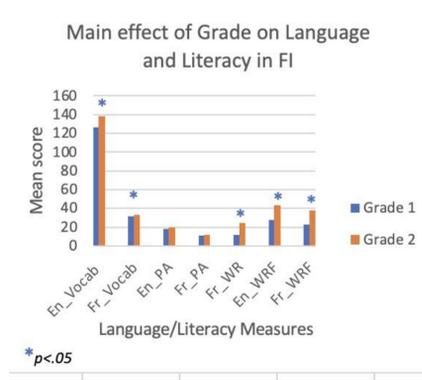
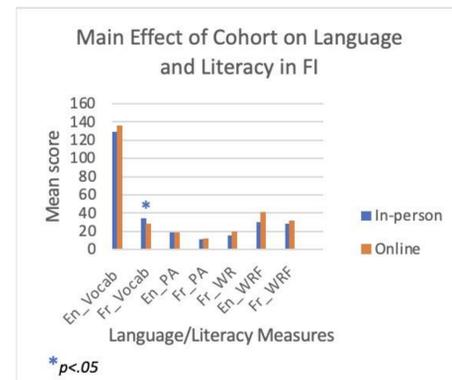


The Online vs. In-person Learning project

Investigating the impact of online schooling during the pandemic on language and reading in English and French among elementary French immersion (FI) students.

Children have experienced interrupted learning since the onset of the COVID-19 pandemic. Evidence is emerging that the pandemic negatively affects the reading performance of monolingual students (Engzell et al., 2021, TDSB, 2021). The purpose of the present study is to evaluate the impact of the pandemic on language and reading development among French Immersion (FI) students, learning French as a second language. Reading comprehension is the cornerstone of academic achievement. It is supported by a variety of cognitive and linguistic skills, including phonological awareness, word reading, word reading fluency and vocabulary (e.g. Au-Yeung et al., 2015; Hoover & Gough, 1990). Thus, the present study focuses on these componential skills in English and French among children enrolled in Canadian French immersion programs.

The participants of the present study belong to two cohorts of FI students from two ongoing longitudinal studies. The in-person cohort consists of 72 Grade 1 and Grade 2 students, who were tested in-person before the pandemic. The online cohort consists of 63 students from both grades who were tested online during the pandemic. ANCOVAs were carried out to assess the effects of grade and cohort on vocabulary, phonological awareness, word reading and word reading fluency in both languages, with guardian education as a covariate. Analyses revealed that students in the in-person cohort performed significantly better on French vocabulary than students online. The grade effect was generally significant, with grade 2 students outperforming those in grade 1 in vocabulary, word reading and word reading fluency in both languages. Thus, the pandemic negatively impacted bilingual children's L2 vocabulary development, though they still experienced growth on language and literacy measures in both languages during this time.



The Reading Impairment project

Investigating the impact of reading in the home language (English), for school-aged children with reading impairment who attend French school, on a battery of English and French language and literacy measures.

Reading impairment, also referred to as dyslexia, manifests as difficulty decoding words accurately and/or fluently, and deriving meaning from written text (reading comprehension). For children with reading impairment in a bilingual environment, where the home language differs from the language of study at school, it remains unclear if there are benefits to reading in both orthographies. No study to date has examined the effect of biliteracy intervention on word reading and reading comprehension acquisition in the presence of a diagnosed reading impairment. Thus, the aim of this study is to examine if literacy intervention in the home language (reading decodable books aloud in English with a parent providing error correction) for a child with reading impairment, who attends school in a second language and already reads in that language (French), is beneficial or detrimental to word decoding and reading comprehension acquisition, as compared to reading in just one orthography (French at school and home).

Forty school-aged children with a diagnosed reading impairment, in the Montreal, Outaouais and Ottawa regions, who speak English at home but attend French school, will be randomly assigned to either an Experimental (EXP) or Wait-list Control (WLC) group. All children will begin in a no-intervention period (Time 1) to ascertain individual developmental growth. This will be followed by the intervention period (Time 2) for the EXP group, while the WLC group remains in the no-intervention condition. Outcome measures of word decoding, word recognition, fluency, reading comprehension and vocabulary will be compared using repeated measures MANCOVA across conditions (Time 1-2) and within and across groups (Experimental versus WLC). No significant change, or a significant increase in outcome measures from Time 1-2 for the Experimental group as compared to the WLC group would confirm a hypothesis that biliteracy has no negative impact on reading acquisition in either orthography.



Radboud University



Université de Poitiers



The Digital Reading project

Examining the effectiveness of non-verbal vs verbal supports embedded in digital storybooks on French vocabulary and reading among French immersion (FI) students.

This study will examine the effectiveness of non-verbal vs verbal supports embedded in digital storybooks on French vocabulary and reading comprehension among students in Grades 2, 3 and 4. A total of 150 children will be recruited from French immersion (FI) schools in the Toronto District School Board. Stratified random sampling will be used to divide children into groups, with each group containing equal numbers of grades 2, 3, and 4 children. Each child will read three stories, which correspond to three conditions. Condition 1 serves as the control condition (i.e., no supports); condition 2 features text-embedded non-verbal supports (e.g., pop-up images and definitions); and condition 3 features text-embedded verbal supports (e.g., pop up images and definitions with audio). Vocabulary learning and story comprehension will be assessed following each reading using experimenter-developed measures. Statistical analyses will compare performance on measures of French vocabulary and French reading comprehension across grades, stories, and conditions, and examine the interactions among the three factors after controlling for nonverbal reasoning, executive functions, and word reading. The effects of demographic factors (e.g., gender, language status, and SES) will be assessed to identify how learner characteristics influence outcome variables. Overall, the results from this study will provide insights into FI students digital reading development that can be used by educators to improve their teaching practices online and in-person. Furthermore, these results may suggest a need to include more digital supports in the FI classroom.



The Componential Model of Reading study

Examining the contribution of ecological factors to English word reading among Syrian refugee children.

The study investigated literacy and language development in refugee children in Canada, as well as disentangled the variances and effects contributed by ecological factors within families longitudinally. The results of the study showed that the family environment can be counted for almost half of the variances in refugee children's reading development. Individual factors, such as gender and vocabulary skills, showed consistent effect on reading development regardless of family environment. Father's education in years showed significant effects on reading development indicating family environment is critical when explaining reading development.

Results showed that in this sample of refugee children, almost half of the total reading comprehension variances were explained by family-level beyond children's individual differences on cognitive measures. This suggests that teachers need to consider children's family environment when designing suitable curriculum or when evaluating children's reading development. The study also showed that gender and age are significant predictors for reading development and such effects do not vary between families, indicating that cognitive and psychological factors still have major effects on reading development beyond family-level variances. Lastly, evidence of family-level predictors indicated that a father's education is a significant predictor to reading development. These research results confirmed the evidence of the effect of ecological factors on reading development in a sample of refugees resettled in Canada.