CANADIAN PARENTS FOR FRENCH
FRENCH SECOND LANGUAGE RESEARCH UPDATE

TEACHING MATH IN FRENCH IMMERSION PROGRAMS
Compiled December 2015

REFERENCE	SUMMARY/ABSTRACT	URL
Barik, H., Swain, M.(1978) Evaluation of a French immersion program: The Ottawa study through Grade five, Canadian Journal of Behavioural Science 10(3), 192-201	Assessed a Canadian French immersion program in which English-speaking pupils attending English schools are taught partially or completely in French. The program involved nearly 33% of the children who entered the Ottawa public school system in kindergarten. The sample included 4 representative classes at each of Grades 3, 4, and 5 from the immersion program and 4 similar classes from the regular English programs. The 2 groups were matched according to socioeconomic status characteristics and were generally from a middle to upper-middle-class background. Students were administered several measures including the Canadian Cognitive Abilities Test and Canadian Tests of Basic Skills. Only Grade 5 students were given the Metropolitan Science Test only. French immersion pupils were given a set of achievement tests in French and tests of reading comprehension in French. Results indicate that immersion group students were in general on the same level with or ahead of the regular English in most academic areas considered (e.g., work-study skills and mathematics) and were performing satisfactorily in French	PDF $12 http://psycnet.apa.org/index.cfm?fa=buy.optionToBuy&id=1980-01934-001
Barwell, R. (2010) Tensions in Teaching Mathematics Through a Second Language, ACIE Newsletter 13(3), CARLA, University of Minnesota	It should not be assumed that learning mathematics through an L2 is necessarily detrimental to students' success. Evidence from immersion programs suggests that students can achieve similar scores in mathematics as students enrolled in regular English programs (Lapkin, Hart & Turnbull, 2003; Swain & Lapkin, 2005; Turnbull, Lapkin & Hart, 2001). In some cases, students in immersion programs outperform students in regular English programs in mathematics (e.g., Bournot-Trites & Reeder, 2001). However, other cases have been documented in which partial immersion students underperform (de Courcey & Burston; 2000).	http://www.carla.umn.edu/immersion/acie/vol13/no3/may2010_rr.html

REFERENCE	SUMMARY/ABSTRACT	URL
Bournot-Trites, M., Reeder, K. (2001) Interdependence Revisited: Mathematics Achievement in an Intensified French Immersion Program; Canadian Modern Language Review 58 (1) p 27-43	This study examines the effect of teaching mathematics in French on mathematics achievement evaluated in English. In this context it analyzes the effect of increased intensity of bilingual education on mathematics achievement. It also analyzes the effects of language of testing in the context of French immersion at the intermediate level. The participants in the study are two cohorts of French immersion pupils followed from Grades 4-7. The treatment group received 80% of the core academic curriculum, including mathematics, in English. The comparison groups received 50% of the core academic curriculum in French and 50%, including mathematics, in English. Achievement in mathematics was measured for both groups at the end of Grade 6. Analyses of covariance showed an advantage in mathematics for the 80% French groups compared to the 50% French group. These results provide further evidence for Cummins' threshold hypothesis and interdependence hypothesis. [941]	No free PDF available online. CMLR has given CPF free access - see Nicole for instructions
British Columbia Ministry of Education (2000) British Columbia Foundation Skills Assessment 2000: Provincial Results Report; BC Ministry of Education.	FI students outperformed English-program students in tests of math and English at grades 4, 7 and 10	
Dicks, J.et al (2008) Open Letter to the Honourable Kelly Lamrock, Minister of Education, Second Language Research Institute of Canada, Fredericton,	This letter provided a critique of the proposed changed announced by the Department of Education, in particular the elimination of early FSL programs and EFI. Given that total-immersion and early-immersion students tend to outperform other students on all tests in French and English, EFI is not detrimental to children's L1 learning and ensures the greatest degree of French proficiency among non-Francophone students. In addition, the resources and research already invested in EFI makes it the most tailored program with the best-suited methods and materials. EFI is also noted as being the most accessible immersion program, allowing students with various abilities to succeed at their level when given support similar to that present in English-stream programs	http://www.unb.ca/fredericton/second-language/_resources/pdf/fsleview/letterlamrock.pdf
Dube, L., MacFarlane, A. (1991) Middle immersion: Is it a better option than early or late? Immersion Journal 14(3), Canadian Association of Immersion Teachers, Ottawa.	This article discusses how middle immersion fits into the research picture with regard to effects of immersion on first language development, achievement in subject-matter learning (math, science etc.) social-psychological effects on the student, intellectual ability and success in second language learning. Student L1, L2 and other subject outcomes favoured EFI, MFI and LFI in that order.	http://www.acpi.ca/journaux/V14N3.pdf

REFERENCE	SUMMARY/ABSTRACT	URL
Erdos, C., Genesee, F., Savage, R. (2013) Predicting Risk for Oral and Written Language Learning Difficulties in Students Educated in a Second Language, Applied Psycholinguistics, Cambridge University Press, UK	This article examined L1 predictors for English-speaking students in French Immersion (FI) and the extent that L2 reading and language impairment can be predicted as a result of struggles in the student's L1. The goal was to explore the feasibility of using L1 indicators to identify L2 students who are at risk. Early identifications of risk for language impairment and reading would help to provide early support and intervention in order to reduce academic difficulties for struggling students. The study also outlined the different types of learning disabilities which may cause a student academic difficulty, such as dyslexia and primary language impairment (PLI). In total, 86 children were tested throughout kindergarten and Grade-1, relying on a wide variety of L1 predictor tests and L2 outcome tests. The results indicated that phonological recoding, phonological awareness and letter-sound knowledge in L1 were significant predictors of risk. Moreover, L1 sentence, phonological awareness and tense making tests registered in kindergarten were the best predictors for L2 and L1 oral language difficulties. [Included to address contention that learning to read in L1 first would allow earlier identification of reading difficulties, currently not done in FI programs until about grade 3]	No free pdf available
Erdos, C. , Haigh, C., Genesee, F. (2010) At-Risk Students in French Immersion, Second Language Learning Research Roundtable,	Study performed tests on grade 1 students to discover how to identify special needs immersion students. For language decoding outcomes, a grade 1 class was predicted to have at-risk students struggle with their phonological awareness and automatized naming abilities. The prediction accuracy was 74% for at-risk students and 71% for typically developing. The spring class predictor's outcomes were 88% for at-risk students and 90% for typically developing students with their English phonological awareness and French letter sound knowledge. The researchers found that for reading comprehension difficulties, at-risk students will struggle with the same predictors in the fall class and spring class. They were found in more typically developing students in the spring. For oral language difficulty, the fall class and spring class both struggled with phonological awareness and accuracy, but more predictors were discovered with the spring class for typically developing students. Therefore, there are differential predictors of oral and reading language difficulties. Grade 1 students can be assessed as early as in the fall, however, spring predictors are more accurate. [Included to address contention that learning to read in L1 first would allow earlier identification of reading difficulties, currently not done in FI programs until about grade 3]	Contact Joan Hawkins for PPT
New Brunswick Dept. of Education (2000) New Brunswick Report Card 2000; Dept. of Education, Evaluation Branch.	Grade 8 students in the Early and Intermediate French Immersion programmes were considerably more successful than regular program students on tests of math and English."	

REFERENCE	SUMMARY/ABSTRACT	URL
Netten, J. (2007) Optimal Entry Point for French Immersion, Revue de l'Université de Moncton, Numéro hors série, 2007, p. 5-22.	Benefit of intensity at start of L2 programs & benefit of teaching French language arts first so students learn French in the same way they learn to read/write in L1.	http://on.cpf.ca/wp-content/blogs.dir/1/files/Optimal-Entry-Point-for-FI-Joan-Netten-University-of-Moncton-Revue-20071.pdf
Netten, J., Germain, C. (2004) Theoretical and Research Foundations of Intensive French, Canadian Modern Language Review 60(3), University of Toronto Press, Toronto, ON	Benefit of intensity at start of L2 programs	http://utpjournals.metapress.com/content/t576871543w1/?p=fa115bfd80444ec4a5be9937589c3ff5&pi=43
Turnbull, M., Hart, D., Lapkin, S. (2003) Grade 6 French Immersion Students' Performance on Large-Scale Reading, Writing, and Mathematics Tests: Building Explanations, The Alberta Journal of Educational Research Vol. XLIX, No. 1, Spring 2003,6-23, Alberta	We analyzed data from Ontario's provincial testing program to ascertain if the reading, writing, and mathematics skills of grade 6 immersion students were comparable to those of regular English program students. Various immersion program designs were taken into account. The analysis confirms the results of earlier program evaluations that any lags in immersion students' achievement in reading, writing, and math disappear by grade 6. We offer two explanations to account for this result. The lag explanation holds that taking reading, writing, and math in French until the end of grade 3 creates a lag in achievement until English is introduced into the curriculum, after which immersion students catch up to regular students' performance. The selection explanation suggests that immersion test performance improves by grade 6 relative to regular English program counterparts because the composition of the grade 6 cohort is more select than that of earlier	

REFERENCE	SUMMARY/ABSTRACT	URL
Wesche, M.B. (2002) Early French Immersion: How has the original Canadian model stood the test of time? An Integrated View of Language Development, Petra Burmeister, Thorsten Piske, and Andreas Rohde (Eds), WVT Wissenschaftlicher Verlag Trier	The author revisits the original St. Lambert experiment and similar early French immersion programs in order to recount their key features as well as their social contexts and outcomes. The question is addressed as to which program features and contextual elements have proven essential for effective school second language learning across settings, and which, while less crucial, have been shown to significantly influence the success of school language learning. The most prominent original program features include earliest possible school starting age, intensive L2 exposure over an extended period, and the use of the L2 to teach the school curriculum. Contextual features such as that learners were majority language speakers and were in the same situation were also discussed. She then moves onto outcomes with comparisons of the different models of immersion and students' proficiency in their English and French and results in other academic subjects as well. Although the outcomes are very positive, the students' French is still below the level of native speakers in terms of a more restricted vocabulary, largely limited to domains experienced in school, overuse of high frequency verbs, and L1 influences in their production grammar. Other forms of immersion with variables in length, starting age, and intensity are explored. Those include partial immersion and the bain linguistique (language bath) experiment, which increased exposure to French from the 120 hour Core French program to 450 hours for one year. The author then talks about immersion models around the world.	www.fmks-online.de/_wd_showdoc.php?pic=865