

# Student outcomes in one-way, two-way, and indigenous language immersion education

Kathryn Lindholm-Leary and Fred Genesee

San Jose State University / McGill University

This article examines international research on student outcomes in one-way, two-way, and indigenous language immersion education. We review research on first and second language competence and academic achievement in content areas (e.g., math) among both majority and minority language students. We also discuss the relationship between bilingualism and student outcomes and whether more exposure to the first or second language is associated with better outcomes. In addition, we highlight student background, methodological, and assessment issues and concerns, and suggest additional avenues of research on student outcomes.

Additional abstract at end.

**Keywords:** dual language education, language proficiency, academic outcomes, bilingualism

## 1. Outcomes for majority language students

In this section, we review outcomes for students participating in one-way or two-way immersion programs who speak the majority language of the community in which they live; one-way immersion programs are the most common in this review. We consider students to be majority language students if they speak the socially dominant language even though they may be members of a minority ethnic group; for example, we consider children of Mohawk, Jewish, or Hawaiian descent who speak a standard or non-standard variety of English exclusively or predominantly at home majority language speakers. For some groups (e.g., Mohawk and Hawaiian), the second language (L2) is an indigenous language; these programs aim to ensure indigenous language survival.

A primary concern in evaluations of immersion for majority language students is whether they maintain levels of L1 competence that are comparable to those of majority language students attending mainstream<sup>1</sup> monolingual programs. Similar concerns are expressed about whether they can attain the same levels of achievement in academic domains despite significant use of the L2 to teach non-language academic subjects. There has also been interest in the actual levels of L2 competence that students achieve in immersion in comparison to monolingual programs with traditional L2 instruction and in alternative types of immersion. We have organized our summary around key issues related to L1 competence, academic achievement, and L2 proficiency. There is a preponderance of reference to research in Canada because so much varied research has been carried out there.

### 1.1 First Language outcomes

#### 1.1.1 *L1 competence in immersion vs. mainstream programs.*

Evaluations in immersion programs have examined whether majority language students acquire the same competence in their L1 as students in mainstream programs. Results have consistently shown that in the long run, there is no significant difference between their skills and those of majority language peers in mainstream programs (for example, see Genesee, 2004, for evidence from Canada and Downs-Reid, 2000, for evidence from the U.S.). The same results have been reported in evaluations of immersion-type programs for students in other countries<sup>2</sup> — for example, in Japanese-English immersion programs in Japan (Bostwick, 2001), Russian-Estonian immersion programs in Estonia (Mehisto & Asser, 2007), Swedish-Finnish programs in Finland (Björklund & Mård-Miettinen, 2011), and Spanish-English bilingual programs in the U.S. (Lindholm-Leary, 2001). In the case of evaluations of early total immersion in Canada and two-way immersion in the U.S., it has been found that students often score significantly lower than non-immersion students in English (their L1) during the primary grades, when all or most instruction is in the L2, on tests of reading and writing in English; they demonstrate no such lags in speaking and listening comprehension (e.g., Genesee, 2004). Not all researchers report such a lag (Björklund & Mård-Miettinen, 2011), and lags that have been reported typically disappear within one year of receiving instruction in English. The rapid catch-up in reading and writing in English that early total immersion students experience is often attributed to the transfer of reading and writing skills in the L2 to the L1 and the fact that students have extensive exposure to the L1 outside school.

Of additional note, research on students in indigenous language programs indicates that they can achieve grade-appropriate levels in reading assessed in the L1, and they acquire high levels of proficiency in oral and literate domains of the

indigenous language (e.g., Slaughter, 1997). They also report favorable attitudes towards the indigenous language itself and towards using it, important outcomes for the survival of the language (May, 2013; McCarty, 2003). Studies of students in indigenous programs have shown further that they acquire much higher levels of proficiency in the indigenous language than students in non-immersion programs (May, 2013; McCarty, 2003).

### 1.1.2 *Amount of instruction in the L1 and L1 outcomes.*

Research in Canada on one-way immersion students (English-L1) has demonstrated that they acquire the same levels of competence in English as non-immersion students regardless of when instruction in the L1 begins (early vs. delayed or late) and regardless of how much instruction they receive in the L1 (50% in the beginning or none) (Genesee, 1981). In other words, the reduced and in some cases delayed exposure to English that majority language students in some immersion programs get does not jeopardize development of competence in that language. To the contrary, there is evidence that, in some cases, the L1 skills of immersion students are superior to those of students in monolingual non-immersion programs despite reduced exposure (see Björklund & Mård-Miettinen, 2011, in Finland; Lambert, Genesee, Holobow, & Chartrand, 1993, in Canada). This advantage has been attributed to extended exposure to the L2 in immersion, which, in turn, is thought to have additive effects on students' L1 development.

### 1.1.3 *Linguistic similarity.*

Immersion-type programs have been implemented in a variety of languages in communities around the world, including languages that are typologically different; for example, Mohawk-English (Jacobs & Cross, 2001), Japanese-English (Bostwick, 2001), Hebrew-French-English (Genesee & Lambert, 1983), Chinese-English (Lindholm-Leary, 2011), Estonian-Russian (Mehisto & Asser, 2007), and Swedish-Finnish (Björklund & Mård-Miettinen, 2011). Some of these language combinations also entail different orthographies (e.g., Japanese-English and Chinese-English). There is no evidence from evaluations of these programs that typological differences, with or without orthographic differences, influence student outcomes significantly.

### 1.1.4 *Academic outcomes in immersion vs. monolingual mainstream students.*

Evaluations of immersion students' achievement in their non-language school subjects indicate that they achieve the same levels of competence as comparable students in mainstream programs — in mathematics, science, history, and other subjects (e.g., Essama, 2007; Genesee, 2004; Genesee & Lindholm-Leary, 2013; Jones, 2005; Lindholm-Leary, 2001; Lindholm-Leary & Howard, 2008). Parity

with non-immersion students is often exhibited even in early total immersion programs when students receive all academic instruction through their L2, provided the assessment is conducted in the L2 and modifications are made to take into account that full competence in the L2 has not been acquired. Parity with students in mainstream programs has been found even in the case of secondary school students in Canada who were studying advanced level mathematics, science, physics, and other school subjects in their L2 (Genesee, 2004). Similar findings have been reported in other countries; moreover, immersion students have higher secondary school completion rates and report more favorable attitudes toward school (Björklund & Mård-Miettinen, 2011; Lindholm-Leary & Howard, 2008). For a discussion of the academic and linguistic outcomes of immersion students in relationship to academic ability, see Genesee and Fortune (this issue).

## 1.2 Second Language outcomes

### 1.2.1 *Level of L2 competence of immersion students.*

The L2 proficiency of immersion students has been examined extensively in a number of different communities (for example, see Campbell, Gray, Rhodes & Snow, 1985 and Fortune & Tedick, 2014, in the U.S.; Harris, Forde, Archer, Nic Fhearaile, & O’Gorman, 2006, in Ireland; and Lyster, 2007, for a review of Canadian results) and in a variety of ways, using between-group comparisons, standardized norm-referenced tests, detailed linguistic analyses, and proficiency benchmarks (Center for Applied Second Language Studies [CASLS], 2011). It has been found that the L2 proficiency of immersion students, regardless of which program type they are in, is significantly better than that of non-immersion students in mainstream programs who have had conventional L2 instruction, as one would expect given the extended L2 exposure afforded by immersion. This has been found in all domains of language — speaking, listening, reading, and writing. Comparative evaluations of Canadian programs have shown that immersion students often score at the same level as native speakers of French on tests that assess comprehension skills — listening and reading in French. Their performance on tests of language production, such as speaking and writing, are generally very impressive — they are able to understand and make themselves understood in all school contexts, and they demonstrate an uninhibited and creative use of French for communication that is seldom achieved by students in conventional French-second-language programs. Conclusions from Canadian studies pertain primarily to the use of French in school settings and do not necessarily generalize to non-academic settings, although findings reported by CASLS, which were based on a scale comparable to the ACTFL Proficiency Guidelines (2012) also indicate that students in immersion in a number of states in the U.S. with a number of different

target languages were “able to handle many everyday communicative tasks in the target language” (CASLS, 2011, p.2).

Detailed linguistic analyses of the L2 competence of immersion students has found that it is often less than native-like; more specifically, (a) they often use non-native forms due to transfer from English, both with respect to vocabulary and grammar; (b) they often have simplified vocabulary and grammar; and (c) their usage is non-idiomatic (see also Björklund & Mård-Miettinen, 2011, in Finland; Lindholm-Leary & Howard, 2008, and Potowski, 2007, in the U.S.; for reviews see Lyster, 2007 and Lyster & Tedick, this issue). These weaknesses have led to discussions of how best to integrate language and content instruction to maximize L2 development, a point we return to later (e.g., Lyster, 2007). More research is needed to identify gaps in students’ L2 competence and, moreover, if and how best these gaps can be eliminated or reduced through pedagogical interventions (see Lyster, 2007, for example, for more discussion of this topic).

Some immersion programs include three or even four languages (e.g., Genesee & Lambert, 1983). The existing, albeit limited, results of evaluations of these programs indicate that students are able to achieve at grade level in their academic subjects, attain the same level of proficiency in their L1, and acquire advanced levels of functional proficiency in the additional languages. Specifically, Björklund and Mård-Miettinen (2011) reported that students in the Finnish/Swedish/English/German program in Finland scored above grade norms in the third (English) and fourth (German) languages according to compulsory graduation tests in Grade 9.

### 1.2.2 *Relation between academic ability and L2 competence.*

Studies of elementary and secondary school immersion students have revealed interesting and differential effects of academic ability on L2 achievement. Specifically, Genesee (1976) found that below average students in both early and late immersion scored lower on tests of French reading and writing than average and above average students in the same programs; similarly, the average students in both program types scored lower than the above average students. Of particular interest, above average students in late immersion also exhibited advantages on measures of speaking and listening in comparison to average and below average students in late immersion; however, there were no differences between ability sub-groups in the early immersion program on measures of speaking and listening in the L2. Arguably, acquisition of French-as-a-second-language, when it is integrated with academic instruction, is more cognitively-demanding at the secondary than elementary school level and, as a result, calls on the kinds of cognitive skills that underlie differences in academic ability. In contrast, acquisition of L2 skills that are integrated with academic instruction at the elementary school level calls on the natural language learning ability that young learners possess during

their formative years. In any case, these results suggest that early immersion education may be relatively more effective for students with varied levels of academic ability than immersion programs at the secondary level, at least with respect to speaking and listening comprehension.

### 1.2.3 *Relation between L2 exposure and L2 proficiency.*

The relationship between L2 exposure and achievement in immersion programs is complex. On the one hand, Canadian students in *total* immersion programs generally acquire higher levels of French-L2 proficiency than students in *partial* immersion programs (Genesee, 2004; see also Cenoz, 2008). On the other hand, Canadian students in two-year late immersion (grades 7 and 8) have been found sometimes to perform as well as early total immersion students despite the fact that the former have significantly less exposure to French-L2 in school (Genesee, 1981). As mentioned previously, one explanation of these findings is that older L2 learners need relatively less exposure to the L2 because they are better learners overall than younger learners. As well, older learners who are already able to read and write in the L1 are able to transfer reading and writing skills acquired in the L1 to the L2. Students in late immersion are also self-selecting and, thus, highly motivated to do well.

Pedagogical factors are also probably important in accounting for differences in L2 achievement in different programs. Evidence of the importance of instructional factors comes from research that compared two types of late immersion in Montreal — one that was teacher-centered and one that was student-centered (Stevens, 1983). In the teacher-centered program, native English-speaking students spent 80% of their school day immersed in French, while in the student-centered program students spent 50% of their school day in French. Stevens (1983) found that, despite the time advantage of the students in the teacher-centered program, students in the student-centered program scored as well on a variety of French language measures. Stevens argued that students in the student-centered program achieved such impressive French language skills relative to students in the more extended program because their program permitted more active use of French and, as well, learning was more individualized. In particular, students in the 50% program were given the opportunity to choose what they would study and how they would meet curricular objectives.

### 1.2.4 *Age and second language learning.*

Research in Canada has shown, on the one hand, that students in early total French immersion generally achieve significantly higher levels of French proficiency than students in programs with a delayed (middle elementary grades) or late (beginning of secondary school) starting grade (Genesee, 1981; see also

Wesche, Toews-Janzen & MacFarlane, 1996, for a review). Canadian research also shows, on the other hand, that, although students in early immersion tend to achieve higher levels of proficiency in oral language than students in late immersion (Genesee, 1987; Lapkin, Hart, & Swain, 1991; Turnbull, Lapkin, Hart, & Swain, 1998), students in two-year late immersion can sometimes achieve the same or almost the same levels of proficiency in French as students in early total immersion in some domains of language, even though early immersion students begin studying through French earlier and may have had two to three times more exposure to French than late immersion students (Genesee, 1981).

## **2. Outcomes for minority language students**

This section examines outcomes for minority language students enrolled in two-way immersion (TWI) and developmental bilingual education (DBE) programs. Spanish-speaking students are the largest language minority group in the U.S. and, thus, most of the review will focus on this particular language group. Many of these children may actually have learned both the majority and minority language simultaneously or consecutively in the pre-school years (e.g., Hispanic children who grow up in Spanish or Spanish-English homes in the U.S.). There has also been extensive research on this particular group because of the historic and well-documented academic underachievement of Hispanic students. Instruction in these students' primary language along with English during the primary grades has been proposed as one way of closing the achievement gap between these students and native English speakers (see Genesee & Lindholm-Leary, 2013; Genesee, Lindholm-Leary, Saunders, & Christian, 2006; Lindholm-Leary, 2001; Lindholm-Leary & Genesee, 2010, for a detailed explication of the rationale for these programs and more details on their outcomes). Because of the general underachievement of minority language students in the U.S., research on TWI and DBE programs has focused on whether minority language students acquire full proficiency in English and can achieve academically at grade level expectations. We concentrate our discussion on achievement in the majority language (English) because this is the ultimate benchmark against which TWI and DBE programs are judged effective. In contrast, while achievement in the non-majority language (e.g., Spanish or Mandarin or Korean for other language minority groups in the U.S.) is important, it is usually considered to be less important than achievement in the majority language. Thus, this section begins with a focus on L2 (English) outcomes.

## 2.1 Second Language outcomes

### 2.1.1 *Competence in the L2 (dominant societal language).*

Over three decades of research in the U.S. indicates that minority language students in two-way and DBE programs acquire English speaking, listening, reading and writing skills as well and as quickly as their minority language peers in mainstream programs (for reviews, see Lindholm-Leary & Borsato, 2006; Lindholm-Leary & Genesee, 2010; Lindholm-Leary & Howard, 2008). A number of studies also report that, on average, despite less instruction in and exposure to English, most minority language (Spanish-, Korean-, Chinese-speaking) students in TWI programs are orally proficient in English and achieve at or above grade level norms in English reading and writing by Grades 5 to 7, if not sooner (de Jong, 2002; Howard & Sugarman, 2007; Lindholm-Leary, 2001; Lindholm-Leary & Hernández, 2011; Lindholm-Leary & Howard, 2008; Thomas & Collier, 2002).

Length of participation in two-way programs has been found to impact student outcomes, as previously reported for majority language students in immersion programs. More specifically, in a review of research on TWI and DBE programs for minority language students, Lindholm-Leary and Borsato (2006) reported an initial lag of three to five years in English, but noted these students caught up to and sometimes surpassed their comparison peers in mainstream programs by the end of elementary school. Still other studies have found that minority language students even surpass their peers in mainstream programs after several years in a TWI program, despite initial lags in performance (Lindholm-Leary & Genesee, 2010).

### 2.1.2 *Non-language academic outcomes.*

Evaluations of achievement in non-language academic domains have shown that minority language students in TWI programs achieve at similar or higher levels than their peers in mainstream English-only programs; this includes achievement in mathematics, science, social studies, and other content areas (Lindholm-Leary, 2001, 2011; Lindholm-Leary & Borsato, 2006). Additional academic advantages have also been reported insofar as minority language students in TWI are more likely to complete secondary school, to take Advanced Placement courses (college credit courses in secondary school), and to have more positive attitudes toward school than their minority language peers in English-only programs (de Jong & Barse, 2011; Lindholm-Leary & Borsato, 2006; Thomas & Collier, 2002; Thomas, Collier & Collier, 2011).

### 2.1.3 *Relation between L2 exposure and L2 proficiency.*

Many school administrators and educators in the U.S. assume that, for minority language students, less time studying through English in two-way and DBE programs will yield lower levels of language and academic skills in English than participation in English-only programs. However, findings from comparative studies do not support these assumptions. Rather, results are consistent with findings in one-way programs for majority language students in showing that minority language students in full immersion (90% Spanish and 10% English in primary grades and then 50% in each language, see de Jong, this issue) attain the same levels, or higher levels, of language competence and academic achievement than minority language students in partial immersion programs (50% in each language) or in English-only programs (Genesee et al., 2006; Lindholm-Leary, 2001; Lindholm-Leary & Genesee, 2010; Lindholm-Leary & Howard, 2008).

## 2.2 First Language outcomes

There is limited research on the L1 proficiency of minority language students in TWI programs, and extant research is based on teacher ratings and results on standardized language tests. The available evidence shows that Spanish-speaking and Chinese-speaking minority language students in two-way programs attain relatively high levels of L1 proficiency (Gathercole, 2002; Howard, Christian, & Genesee, 2004; Lindholm-Leary, 2001, 2011; Lindholm-Leary & Hernández, 2011). Furthermore, adolescent minority language Hispanic and Chinese students who had participated in two-way programs for six to eight years reported that their L1 skills were highly functional and that they had the necessary skills to participate in a variety of classroom and social exchanges (Lindholm-Leary, 2003, 2011; Lindholm-Leary & Hernández, 2011). However, Potowski's (2007) observations of Grade 5 and 8 students in a Spanish-English two-way program indicated that they often reported more proficiency and/or greater facility in English than Spanish even when Spanish was their native language. There is very little research on students' competence with respect to specific aspects of their L1, such as use of verbs, complex sentence grammar, etc. (Gathercole, 2002; Potowski, 2007); thus, we have little detailed information about the linguistic competence of students in two-way programs.

## 2.3 Student background factors

Student background factors are of particular importance in understanding student outcomes in two-way and DBE programs because many of these students, in addition to being members of an ethnic minority, also experience low social

capital (low income, lower parent education), and some have special education needs. These are all risk factors for low or under achievement; as a result, some educators, policy makers, and parents are hesitant to admit minority language students to two-way or DBE programs that provide instruction through any language other than English at the elementary level. There has been some research, although limited, on TWI programs to examine these concerns. Many background characteristics have been examined: including socioeconomic status (SES), parental education, literacy in the home language, gender, age, competence in the home language, length of time in the country); we focus here on socioeconomic status. However, learning challenges are another student background factor that has concerned educators, who believe that students who are already at risk for underachievement ought to focus on learning one language, the societally dominant language. See Genesee and Fortune (this issue) for a review of research on the students in content-based language instruction programs who have special learning challenges.

Many minority language students in TWI and DBE programs come from low-income families; thus, it is difficult to discern the true effect of SES since there is limited variation in SES among some of the samples that have been examined (Genesee et al., 2006). Notwithstanding this caveat, most studies that have examined the link between SES and achievement among minority language students in both TWI and DBE language programs report significant positive relationships between SES and school outcomes — that is, students from higher SES backgrounds attain higher levels of achievement than students with relatively low SES backgrounds, as is expected and also reported in non-immersion contexts as well. Nonetheless, studies that hold SES constant report that two-way immersion students perform at least as high, if not higher, than their same-SES background mainstream peers (Lindholm-Leary, 2001; Lindholm-Leary & Block, 2010; Lindholm-Leary & Howard, 2008; Thomas, Collier & Collier, 2011).

## 2.4 Impact of bilingualism on school outcomes

Some researchers have examined the impact of bilingualism on students' academic achievement, their self-ratings of language proficiency, and/or their attitudes. These studies have consistently shown that there is a positive correlation between level of bilingualism and minority language students' academic achievement and their level of proficiency in the dominant societal and/or target language (de Jong & Barse, 2011; Lindholm-Leary, 2001, 2011; Lindholm & Aclan, 1991; Lindholm-Leary & Hernández, 2011).

### 3. Conclusions and suggestions for future research

Evaluations of the outcomes of students in alternative forms of bilingual education over the past four decades have consistently shown that both majority and minority language students can clearly benefit from participation in quality immersion and indigenous language programs. Although there are some noteworthy differences between the program models and student participants in the research reviewed here, nonetheless, research is consistent in showing that:

1. students generally achieve as well as, or better than, their peers in mainstream programs;
2. majority language students in one- and two-way immersion programs develop normal levels of proficiency in their L1 and advanced, although not native-like, levels of proficiency in a L2, L3 and L4, depending on the program.
3. minority language students in TWI and DBE programs are as or more likely to be proficient in the dominant societal language, and they acquire such proficiency almost as quickly as their peers in mainstream programs; moreover, they develop higher levels of proficiency in their primary language than their peers in mainstream programs;
4. students from different ethnic minority and socioeconomic groups and students who have learning challenges can all benefit from these programs, demonstrating levels of L1 proficiency and academic achievement that are at least as high as their peers in mainstream programs;
5. more exposure to the societally-dominant language does not necessarily result in higher language proficiency or achievement in that language, for either minority language or majority language students; however, more exposure to the minority language often results in higher levels of proficiency in that language for both groups of students;
6. there is a positive relationship between bilingualism and achievement for both minority language and majority language students.

While the research demonstrates clear positive student outcomes in these programs, there are some challenges and future research needs that would provide more clarity in how to promote stronger student outcomes.

1. Methodologically, immersion programs are not always clearly defined with respect to the amount of instructional time devoted to each language, the duration of the program, or what instructional practices were used, and this can make it difficult to compare results across programs or to replicate results and program models. This is especially true for programs for minority language students where local schools have considerable autonomy in designing their

own programs. In addition, larger and more systematic research programs that are longitudinal in nature are needed to address the variety of factors that impact student outcomes.

2. There are many challenges in assessing the achievement of students, especially minority language students, with respect to language learning and achievement in non-language academic domains. For minority language students, the norming samples for many commonly-used standardized tests (language and non-language) can seriously underrepresent student achievement, rendering norm-referenced scores on these tests invalid. This is also a critical issue in research on indigenous language immersion students who are learning academic content through a revitalized minority language (e.g., Hawaiian, Māori). With respect to the assessment of achievement in non-language domains, if students cannot demonstrate their academic knowledge due to limited proficiency in the assessment language, test results are not valid because they reflect students' language skills rather than or along with what they actually know and can do in academic domains. In a related vein, additional research would be useful to understand how bilingualism impacts student outcomes. Further, to address many of these issues, we need more extensive studies of language development that go beyond quick teacher rating measures.
3. Limited research has examined student outcomes in Chinese and other Asian languages (Japanese, Korean) despite the popularity of these programs; however, there is not much research on other immersion languages beyond Spanish or French either. There exists a particular need for oral language and literacy development in these non-English languages for both native and non-native speakers.
4. Little research has examined pedagogical issues in relation to student outcomes and, in particular, outcomes of students with special learning needs. More specifically, we need empirical evidence concerning pedagogical strategies that optimize language outcomes (L2 especially) while ensuring high levels of academic achievement (see Lyster, 2007; Echevarria & Short, 2010, for some important work in this area).
5. Further research is required to elucidate the characteristics of high quality programs and how programs of different quality impact student outcomes. This is particularly important as content-based language programs increase in popularity and, thus, become more widespread.

## Notes

1. We use the term “mainstream” to refer to the typical, traditional class in which students would participate if they were not enrolled in an immersion program. In many countries, these mainstream programs provide instruction only (or largely) through the societally dominant language.
2. We include Estonian immersion programs for Russian-speaking children living in Estonia because, despite the fact that they are a numeric minority in Estonia, Russian is a high status and useful language in the region, which borders on Russia. Similarly, immersion programs for English-speaking students in Quebec are included here for the same reason — although, strictly speaking, they are a numeric minority in Quebec (about 10–15% of the total population); English is a majority language in the country as a whole.

## References

- American Council on the Teaching of Foreign Languages. (2012). *ACTFL proficiency guidelines 2012*. Alexandria, VA: ACTFL. Retrieved from <http://actflproficiencyguidelines2012.org/>
- Björklund, S., & Mård-Miettinen, K. (2011). Integrating multiple languages in immersion: Swedish immersion in Finland. In D.J. Tedick, D. Christian, & T.W. Fortune (Eds.), *Immersion education: Practices, policies, possibilities* (pp. 13–35). Bristol, UK: Multilingual Matters.
- Bostwick, M. (2001). English immersion in a Japanese school. In D. Christian & F. Genesee (Eds.), *Bilingual education* (pp. 125–138). Alexandria, VA: TESOL.
- Campbell, R.N., Gray, T.C., Rhodes, N.C., & Snow, M.A. (1985). Foreign language learning in the elementary schools: A comparison of three language programs. *The Modern Language Journal*, 69, 44–54. DOI: 10.1111/j.1540-4781.1985.tb02526.x
- CASLS. (2011). *What levels of proficiency do immersion students achieve? Report of the Center for Applied Second Language Studies, July 17, 2011*. Eugene, OR: University of Oregon.
- Cenoz, J. (Ed.). (2008). *Teaching through Basque: Achievements and challenges*. Clevedon, U.K.: Multilingual Matters.
- de Jong, E.J. (2002). Effective bilingual education: From theory to academic achievement in a two-way bilingual program. *Bilingual Research Journal*, 26(1), 65–84. DOI: 10.1080/15235882.2002.10668699
- de Jong, E.J., & Bearse, C. (2011). The same outcomes for all? High school students reflect on their two-way immersion program experiences. In D.J. Tedick, D. Christian, & T.W. Fortune (Eds.), *Immersion education: Practices, policies, possibilities* (pp. 104–122). Bristol, UK: Multilingual Matters.
- Downs-Reid, D. (2000). Using English achievement data to promote French Immersion. *ACIE Newsletter*, 3(2), 1–4 (insert).
- Echevarría, J., & Short, D. (2010). Programs and practices for effective sheltered instruction. In *Improving education for English learners: Research-based approaches* (pp. 251–322). Sacramento, CA: California Department of Education.
- Essama, L. (2007). Total immersion programs: Assessment data reveal achievement in reading and math. *ACIE Newsletter*, 11(1), 1–8 (insert).

- Fortune, T.W., & Tedick, D.J. (2014). *Oral proficiency development of K-8 Spanish immersion students*. Manuscript submitted for publication.
- Gathercole, V.C.M. (2002). Grammatical gender in bilingual and monolingual children: A Spanish morphosyntactic distinction. In D.K. Oller & R.E. Eilers (Eds.), *Language and literacy in bilingual children* (pp. 207–219). Avon, UK: Multilingual Matters.
- Genesee, F. (1976). The role of intelligence in second language learning. *Language Learning*, 26, 267–280. DOI: 10.1111/j.1467-1770.1976.tb00277.x
- Genesee, F. (1981). A comparison of early and late second language learning. *Canadian Journal of Behavioral Science*, 13, 115–127. DOI: 10.1037/h0081168
- Genesee, F. (1987). *Learning through two languages: Studies of immersion and bilingual education*. Cambridge, MA: Newbury House.
- Genesee, F. (2004). What do we know about bilingual education for majority language students? In T.K. Bhatia & W. Ritchie (Eds.), *Handbook of bilingualism and multiculturalism* (pp. 547–576). Malden, MA: Blackwell.
- Genesee, F., & Lambert, W.E. (1983). Trilingual education for majority language children. *Child Development*, 54, 105–114. DOI: 10.2307/1129867
- Genesee, F., & Lindholm-Leary, K. (2013). Two case studies of content-based language education. *Journal of Immersion and Content-Based Language Education*, 1(1), 3–33. DOI: 10.1075/jicb.1.1.02gen
- Genesee, F., Lindholm-Leary, K.J., Saunders, W., & Christian, D. (2006). *Educating English language learners*. NY: Cambridge University Press. DOI: 10.1017/CBO9780511499913
- Harris, J., Forde, P., Archer, P., Nic Fhearaile, S., & O’Gorman, M. (2006). *Irish in primary schools: Long-term national trends in achievement*. Dublin: Department of Education and Science.
- Howard, E.R., Christian, D., & Genesee, F. (2004). *The development of bilingualism and biliteracy from grades 3 to 5: A summary of findings from the CAL/CREDE study of two-way immersion education*. Santa Cruz, CA: Center for Research on Education, Diversity & Excellence and Center for Applied Linguistics.
- Howard, E.R., & Sugarman, J. (2007). *Realizing the vision of two-way immersion: Fostering effective programs and classrooms*. Washington, DC: Delta Systems and ERIC Clearinghouse on Languages and Linguistics.
- Jacobs, K., & Cross, A. (2001). The seventh generation of Kahnawà:ke: Phoenix or Dinosaur. In D. Christian & F. Genesee (Eds.), *Bilingual education* (pp. 109–121). Alexandria, VA: TESOL.
- Jones, C.T. (2005). Spanish immersion and the academic success of Alamo Heights students. *ACIE Newsletter*, 9(1), 6–7, 14–15.
- Lambert, W.E., Genesee, F., Holobow, N., & Chartrand, L. (1993). Bilingual education for majority English speaking children. *European Journal of Psychology of Education*, 8, 3–22. DOI: 10.1007/BF03172860
- Lapkin, S., Hart, D., & Swain, M. (1991). Early and middle French immersion programs: French language outcomes. *Canadian Modern Language Review*, 48(1), 11–41.
- Lindholm-Leary, K.J. (2001). *Dual language education*. Avon, UK: Multilingual Matters.
- Lindholm-Leary, K.J. (2003). Dual language achievement, proficiency, and attitudes among current high school graduates of two-way programs. *NABE Journal*, 26, 20–25.
- Lindholm-Leary, K.J. (2011). Student outcomes in Chinese two-way immersion programs: Language proficiency, academic achievement, and student attitudes. In D.J. Tedick, D. Christian, & T.W. Fortune (Eds.), *Immersion education: Practices, policies, possibilities* (pp. 81–103). Bristol, UK: Multilingual Matters.

- Lindholm, K.J., & Aclan, Z. (1991). Bilingual proficiency as a bridge to academic achievement: Results from bilingual/immersion programs. *Journal of Education*, 173, 99–113.
- Lindholm-Leary, K.J., & Block, N. (2010). Achievement in predominantly low-SES Hispanic dual language schools. *International Journal of Bilingual Education and Bilingualism*, 13, 43–60. DOI: 10.1080/13670050902777546
- Lindholm-Leary, K.J., & Borsato, G. (2006). Academic achievement. In F. Genesee, K. Lindholm-Leary, W. Saunders, & D. Christian (Eds.), *Educating English language learners* (pp. 176–222). New York: Cambridge University Press.
- Lindholm-Leary, K.J., & Genesee, F. (2010). Alternative educational programs for English language learners. In *Research on English language learners* (pp. 323–382). Sacramento, CA: California Department of Education Press.
- Lindholm-Leary, K.J., & Hernández, A. (2011). Achievement and language proficiency of Latino students in dual language programmes: Native English speakers, fluent English/previous ELLs, and current ELLs. *Journal of Multilingual and Multicultural Development*, 32(6), 531–545. DOI: 10.1080/01434632.2011.611596
- Lindholm-Leary, K.J., & Howard, E. (2008). Language and academic achievement in two-way immersion programs. In T.W. Fortune & D.J. Tedick (Eds.), *Pathways to bilingualism: Evolving perspectives on immersion education* (pp. 177–200). Clevedon, UK: Multilingual Matters.
- Lyster, R. (2007). *Learning and teaching languages through content: A counterbalanced approach*. Amsterdam: John Benjamins. DOI: 10.1075/llt.18
- May, S. (2013). Indigenous immersion education: International developments. *Journal of Immersion and Content-Based Language Education*, 1(1), 34–69. DOI: 10.1075/jicb.1.1.03may
- McCarty, T.L. (2003). Revitalising indigenous languages in homogenising times. *Comparative Education*, 39(2), 147–163. DOI: 10.1080/03050060302556
- Mehisto, P., & Asser, H. (2007). Stakeholder perspectives: CLIL programme management in Estonia. *International Journal of Bilingual Education and Bilingualism*, 10(5), 683–701.
- Potowski, K. (2007). *Language and identity in a dual immersion school*. Clevedon, UK: Multilingual Matters.
- Slaughter, H. (1997). Indigenous language immersion in Hawai'i: A case study of Kula Kaiapuni Hawai'i. In R.K. Johnson & M. Swain (Eds.), *Immersion education: International perspectives* (pp. 105–129). Cambridge: Cambridge University Press. DOI: 10.1017/CBO9781139524667.011
- Stevens, F. (1983). Activities to promote learning and communication in the second language classroom. *TESOL Quarterly*, 17, 259–272. DOI: 10.2307/3586653
- Thomas, W., & Collier, V. (2002). *A national study of school effectiveness for language minority students' long-term academic achievement*. Santa Cruz, CA: Center for Research on Education, Diversity and Excellence.
- Thomas, W., Collier, V., & Collier, K. (2011). *English learners in North Carolina, 2010*. Raleigh, NC: North Carolina Department of Public Instruction.
- Turnbull, M., Lapkin, S., Hart, D., & Swain, M. (1998). Time on task and immersion graduates' French proficiency. In S. Lapkin (Ed.), *French second language education in Canada: Empirical studies* (pp. 31–55). Toronto: University of Toronto Press.
- Wesche, M., Toews-Janzen, M., & MacFarlane, A. (1996). *Comparative outcomes and impacts of early, middle and late entry French immersion options: Review of recent research and annotated bibliography*. Toronto: OISE/UT Press.

## Summary

In this article, we describe outcomes in the major content-based language education program models highlighted in this special issue — one-way and two-way and indigenous language immersion programs (see Tedick, this issue, for definitions). Our review is organized according to whether students are speakers of the majority or a minority language and separately for first and second language outcomes and achievement in non-linguistic academic domains, such as mathematics. We end with suggestions for future research.

### *Authors' addresses*

Kathryn Lindholm-Leary  
Prof. Emerita, San Jose State University, USA  
285 Mountain Home Dr.  
Grants Pass, OR 97527  
USA  
klindholmleary@mac.com

Fred Genesee  
McGill University  
Psychology Department  
1205 Docteur Penfield Ave.  
Montreal QC  
Canada H3A 1B1  
fred.genesee@mcgill.ca