Oral proficiency development of K-4 learners of the Swiss two-way immersion program FiBi (*Filière Bilingue*) in a highly multicultural context

Melanie Buser & Giuseppe Melfi

Published online: 14 Oct 2019.

Submit your article to this journal ⬈

View related articles ⬈

View Crossmark data ⬈

Routledge
Taylor & Francis Group

Oral proficiency development of K-4 learners of the Swiss two-way immersion program FiBi (*Filière Bilingue*) in a highly multicultural context

Melanie Buser [a,b] and Giuseppe Melfi [c,d]

aUniversity of Teacher Education BEJUNE, Delémont, Switzerland; bUniversité de Montréal, CRIFPE, Montréal, Canada; cUniversity of Teacher Education BEJUNE, Biel/Bienne, Switzerland; dUniversité de Neuchâtel, Neuchâtel, Switzerland

ABSTRACT

The *Filière Bilingue* (FiBi) is a Swiss public two-way immersion program integrating French-speaking, German-speaking and allophone learners (having neither French nor German as an L1) in each class. Located in the bilingual city of Biel/ Bienne, the *diglossic* situation represented by the use of Swiss German and standard German results in francophone students learning both the dialect and the standard language up to a certain degree. In school, standard German is gradually introduced and exclusively used to teaching from Grade 1 on. Our longitudinal study reports findings from statistical analyses of FiBi learners' oral proficiency development in French and German ($n = 138$) and their monolingually taught peers ($n = 94$) by means of 1173 interviews during their first four years (K-4). Findings show that FiBi learners' performance in their registration language is significantly higher than in control classes during Kindergarten. Allophone learners' performance of both groups impressively increases but FiBi allophone learners' performance appears to be significantly higher compared to their monolingually taught peers. Regarding the partner language, performance in French of K-4 German-speaking FiBi learners impressively improves. Probably due to the *diglossia*, performance in German of French-speaking FiBi learners also significantly increases although less impressively. To conclude specific pedagogical implications are discussed.

1. Introduction

This study provides an analysis of the oral proficiency development of learners attending the two-way immersion program in the Swiss public school *Filière Bilingue* (FiBi). Located in the French-German bilingual city of Biel/Bienne, the composition of the FiBi classes appropriately reflects the linguistic landscape of this multilingual city which has a growing number of immigrants. Within this highly multicultural context, the FiBi is a choice-based educational alternative that integrates French-speaking and German-speaking learners and strives to promote bilingualism and biliteracy in addition to grade-level academic achievement and intercultural competencies for all emergent multilinguals (Christian 1996; Lindholm-Leary 2001; Buser 2019). The term 'two-way' refers to the linguistic background of the learners' population in each class since there are approximately equal numbers of native speakers of both languages. This provides opportunities for learners to communicate with native-speaker peers, creating linguistic and

CONTACT Melanie Buser melanie.buser@hep-bejune.ch; melanie.buser@umontreal.ca

intercultural benefits for both groups (Meier 2012). More specifically, each FiBi class is composed of one third of *allophone* learners having neither French, nor German or Swiss German as a first language. The amount of instructional time is equal in (Swiss) German and French at all grade levels (50/50 program model). Standard German is gradually introduced and exclusively used to teach from Grade 1 on (Buser 2014a).

In this study, we refer to a 'registration language' and a 'partner language'. The former has to be selected at the beginning of scholarship not only by parents of learners attending the ordinary monolingual cursus but also by FiBi parents. The chosen language should be the one the child was most in contact with before entering school (French or German). The latter is called here 'partner language' (for FiBi learners).

In general, this study's focus is on the development of oral proficiency, or the ability to use languages of schooling communicatively, of FiBi learners during their first four years of schooling (K-4). More specifically, we examine why learners attending the two-way immersion program – and therefore receiving only half the input in each language of schooling compared to their monolingually taught peers in schools with one language of schooling (control group) – are *not* twice as far behind the latter concerning their oral proficiency development.

2. Theoretical framework

2.1. Construct analysis

For the sake of clarity, we start by defining the core concepts of this study, namely oral proficiency or language ability. In line with Bachman and Palmers' definition of oral language ability, the terms *language ability* and *proficiency*, like language itself, refers to a complex, multifaceted, global construct (Bialystok 2001; Kohnert 2013; Bachman and Palmer 2010). Language proficiency can be used as a synonym for 'skill in performance, adeptness in using language in comprehension or expression'. Francis renders more precisely his definition by explaining that 'in discussing proficiency we usually need to be specific – that is, to talk about skill or ability in using language for a specific purpose: reading, writing, listening, or speaking in L1 or L2' (Francis 2012, 3). Language ability can generally be defined as 'the ability to use language communicatively' (Bachman and Palmer 2010, 43). More specifically, oral language ability can be considered as comprising two components, namely language knowledge and strategic competence (Bachman and Palmer 2010).

The first of its two components, namely language knowledge, includes two broad categories: organizational knowledge and pragmatic knowledge. The former involves how utterances, sentences or texts are organized by potentially multilingual speakers (*grammatical knowledge* and *textual knowledge*). Pragmatic knowledge, on the other hand, describes how utterances, sentences or texts are related to communicative goals of language users and to the features of the language use setting (*functional knowledge* and *sociolinguistic knowledge*).

The second of the two components of language ability, namely strategic competence (metacognitive strategies), refers to the procedural knowledge of learners, including their ability to accomplish complex real-world skills. Furthermore, procedural knowledge allows for the efficient and goal-directed solution of task-based problems to which the interviewees need to develop individual approaches in order to find a solution (Bachman and Palmer 2010).

Consequently, our construct definition includes these two broader components (language knowledge and strategic competence) in each guideline for the conducted semi-structured and performance-oriented interviews used to interview monolingually and bilingually taught learners. Table 1 below shows the different components of the oral language ability construct that have been taken into account.

The concept which lies at the heart of our approach to language(s) used within this study will be presented in the following section.

Table 1. Components of oral language ability (construct analysis) in the ten interview guidelines.

	Components of oral language ability	Interview 1	Interview 2	Interview 3	Interview 4	Interview 5
I	Adeptness in using language / Taking part in a conversation, spoken production, role-playing game (*Language knowledge: Pragmatic knowledge*)	X	X	X	X	X
II	Oral Production / Naming objects, spoken production (*Language knowledge: Pragmatic knowledge*)	X	X	X	X	X
III	Oral Reception / Giving appropriate answers to questions words (who, when, whom, what, with …) (*Language knowledge: Pragmatic knowledge*)	X	X	X	X	X
IV	Oral production / Choosing the correct verbs and objects, structure of sentences, syntax (*Language knowledge: Organizational knowledge*)	X	X	X	X	X
V	Oral production / Finding the correct generic term and pronouncing it correctly, synonyms/ antonyms and homophones (*Language knowledge: Organizational knowledge*)			X	X	X
VI	Metacognition / Language awareness (*Strategic competence*)	X		X	X	X
VII	Syntax (*Language knowledge: Organizational knowledge*)			X	X	
VII	Written reception (Reading) (*Language knowledge: Pragmatic knowledge*)					X
VIII	Intercultural skills (*Strategic competence: Affective schemata*)					X

2.2. Theoretical perspectives on language

The purpose of our study is to draw attention to the learners' dynamic interactive multilingual learning process(es), emerging within a social context through interactions of cognitive, environmental, and neurobiological systems/subsystems across nested timescales (Kohnert 2013). The basic assumptions of a *dynamic interactive processing* approach to language are closely aligned with the emergentist model that has arisen as an approach to language acquisition and sees language as emerging from interactions between biological and environmental processes. Emergentism also operates with principles from systems theory viewing language as 'a dynamic, complex, non-linear system where the timing of events can have a drastic influence on the developmental course and outcomes' (Ellis 1998, 642). Instead of measuring a current level of achievement in the learners' two languages of schooling, process measures used in this study provide a broader picture, including variations in performance over time and documenting the emergent multilinguals' dynamic process of becoming proficient in the two languages.

From this perspective, the two languages are not treated as separate or autonomous language systems. Grosjean (1985, 2008) suggested a more holistic view in order to consider bilinguals *not* as the sum of two complete or incomplete monolinguals, but as 'competent speaker-hearers who have a unique linguistic profile' (Grosjean 1989, 3). Or as García points out: 'Bilingualism is not monolingualism times two' (García 2009, 71). Accordingly, the bilingual is a fully competent speaker-hearer who uses the two languages for various purposes, in separate areas of life and with different people (Grosjean 1982, 1985, 1989, 2008; Baker 2007, 2011; Heller 2007; Moore and Gajo 2009; García 2009; Cook 2012; Cenoz 2013; García and Li 2014; Buser 2014b, 2017, 2019).

2.3. Review of existing literature

Our study expands on a previous study that provides research-based information on the oral proficiency development of K-4 FiBi learners in their two languages of schooling, analyzing their outcomes with a mixed-method approach (Buser 2019). With regard to the field of European two-way immersion education learners' development of oral communicative performance, no previous study with focus on the development of the two languages of schooling in a diglossic context exists.

However, there are a few larger and very recent studies (Baumert et al. 2016) focusing on two-way immersion but not explicitly on oral proficiency development in a two-way immersion context. In the U.S. context, a large-scale study has used the SOPA interviews for language proficiency assessment (Howard 2004) in order to document oral language development in a English-Spanish immersion context. Native Spanish speakers 'experienced a subtle shift from slight dominance in Spanish in grade 3 to comparable scores in English and Spanish by the end of grade 5, while the NES students [Native English Speakers] were always clearly dominant in English' (Lindholm-Leary and Howard 2008, 186).

Many studies on oral proficiency of learners participating in two-way immersion models show that there is *no* evidence to support the belief among some educators that there are few specific characteristics of learners that should limit participation in two-way immersion programs because of positive outcomes in the partner language (Lindholm-Leary 2001; Howard 2004; Lindholm-Leary and Howard 2008; Padilla 2013). Nevertheless, some studies have revealed limited acquisition (Stipek 2001; Kovelman 2008; Tedick and Young 2014).

The next section presents the detailed research design of this study.

3. Research design

3.1. Study purpose and research questions

There are different ways to quantify language ability in two-way immersion learners as being emergent multilinguals who are in the beginning stages of moving along a bilingual continuum (García 2009). Categorizing those emerging multilinguals is difficult since they learn languages in diverse ways, under diverse conditions, and to varying degrees of relative proficiency (language ability) in each language of schooling. Throughout this study, FiBi learners are *not* identified by the attainment of some *a priori* level of proficiency in French or German. On the contrary, the classification will include learners who have already learnt two (or more) languages at home as well as those who learnt a single language from childhood and a second language after entering the FiBi as we will see in the next section. First, the two research questions of this study are presented:

Q1. Despite the fact that FiBi learners receive half of the language input in their registration language compared to learners of the monolingual control classes, how does oral proficiency in the registration language develop in allophone and non-allophone FiBi and control class learners?

Q2. Are there significant improvements in oral proficiency over time in the partner language (French or German) among the learners of the FiBi classes?

The next section provides further information about the sample size, the effective dates and numbers of interviews in treatment and control group as well as the measurement tool.

3.2. Study sample

The study sample is composed of learners of both FiBi and control group classes (three cohorts) having started their first year of schooling in 2010, 2011 and 2012 (see Table 2). In each FiBi class, allophone learners represented approximately one third of learners. More than 40 different Indo-European, Slavic, African and Middle East languages are represented among the first languages of allophone learners.

Concerning FiBi learners, their classes are organized so as to have a balanced distribution of same-age individuals from a range of different socio-economic and ethnic backgrounds, language biographies, immigration histories as well as diverse cognitive and linguistic abilities.

With regard to learners of the control classes in this study, the average percentage rate of allophone learners in French-monolingual control classes corresponds to 42%, and the one of allophone learners in German-monolingual control classes to 76%. However, we may assume that these

Table 2. Number of effectively conducted interviews in treatment and control group.

Cohorts		Categories	Interview 1 (t_1)		Interview 2 (t_2)		Interview 3 (t_3)		Interview 4 (t_4)		Interview 5 (t_5)		Subtotal
			German	French	German	French	German	French	German	French	German	French	
Cohort of 2010	FiBi Classes	**GRL**	16	14	14	15	15	15	14	13	13	13	**426**
		A-GRL	3	3	3	3	3	3	4	3	4	4	
		FRL	10	10	10	10	10	10	10	9	9	9	
		A-FRL	19	19	14	16	15	15	15	15	13	13	
	Control Group	**GG**	3		3		3		2		3		**134**
		A-G	11		12		11		10		11		
		FF		10		10		2		10		8	
		A-F		5		5		5		5		5	
Cohort of 2011	FiBi Classes	**GRL**	17	15	16	15	17	15	18	17			**273**
		A-GRL	1	1	1	1	1	1	1	1			
		FRL	9	8	7	9	6	5	12	12			
		A-FRL	9	9	9	9	9	6	8	8			
	Control Group	**GG**	3		3		2		2				**114**
		A-G	13		12		12		12				
		FF		7		7		6		6			
		A-F		8		8		7		6			
Cohort of 2012	FiBi Classes	**GRL**	16	16	17	17							**169**
		A-GRL	2	2	2	2							
		FRL	13	13	12	13							
		A-FRL	11	11	11	11							
	Control Group	**GG**	4		3								**57**
		A-G	7		7								
		FF		11		10							
		A-F		8		7							
Total of interviews			337		324		194		213		105		**1173**

structural differences do not affect the validity of the methodological approach since allophone learners (in both monolingual French-speaking and German-speaking classes) are almost always fluent in their registration language.

Given the linguistically diverse learners in the three cohorts, our intentionally broad definition to categorize learners for this study is functional and needs-based (no *a priori* level of proficiency in French and/ or German are considered) and leads to these four categories of FiBi learners:

(1) **FRL**: emergent multilinguals with **F**rench as a **r**egistration **l**anguage.
(2) **A-FRL**: **a**llophone learners who are emergent multilinguals with **F**rench as a **r**egistration **l**anguage.
(3) **GRL**: emergent multilinguals with **G**erman as a **r**egistration **l**anguage.
(4) **A-GRL**: **a**llophone learners who are emergent multilinguals with **G**erman as a **r**egistration **l**anguage.

With regard to the control group, we define the following four categories of learners:

(1) **FF**: monolingually taught **F**rench-speaking learners with **F**rench as a language of schooling.
(2) **A-F**: **a**llophone learners who are in monolingual **F**rench control classes.
(3) **GG**: monolingually taught **G**erman-speaking learners with **G**erman as a language of schooling.
(4) **A-G**: **a**llophone learners who are in monolingual **G**erman control classes.

We now introduce the measurement tools used to assess oral proficiency development of those learners.

3.3. Measurement instruments and quality criteria

3.3.1. Interview guidelines and variables

Consistent with a *dynamic interactive processing* approach to language as described in the theoretical framework of this article, we used dynamic assessment procedures in the evaluation of the multilingual development of language learners. The chosen method is a semi-structured and performance-oriented interview, including an attempt to quantify the oral language ability of learners with regard to their communicative performance in their two languages of schooling. This language-based processing measurement aimed to gain insights into the FiBi learners' development of French and German over time, including rates and direction of change in their language abilities. Overall, 1173 semi-structured and performance-oriented interviews (868 interviews in the treatment group and 305 interviews in the control group) were conducted with learners from the *Filière Bilingue* and age-matched peers from monolingual control classes (learners with the same school-entering-year). Each interview lasted between 20 and 30 min.

The five interviews included items that referred to the various components of oral languages (for a detailed overview of how the interview guides were developed, including the presentation of the five interview guides: see Buser 2019). An exemplary task in interview 5 consisted, e.g. in reading the instructions of a 'motor game' and points were assigned according to how many correct instructions were correctly carried out. The row scores obtained in each interviews were then computed by adding all subtests scores, and finally the row scores of the five interview assessments have been re-normalized in order that each assessment score appears in a theoretical range from 0 to 100.

With regard to the dependent and independent variables, German and French language ability assessments (scores) represent the dependent variables. The registration language (French or German) served as independent variable as well as the dichotomic variable of *treatment* vs *control group*. Data to measure oral language proficiency were collected on a yearly basis for the first three FiBi and control class cohorts (see Table 2). This resulted in five measurement waves for the

first cohort at the end of this study. Subsequently, each additional program cohort had one measurement wave less than the cohort entering the program the year before. Quantitative analyses, including reliability measures by means of Cronbach's α, were conducted by using SPSS (IBM Corp. 2013). However, there were a number of general methodological challenges we faced in this study, that created limitations and biases discussed below.

3.3.2. Limitations of the method and sources of bias

First and foremost, methodological challenges included the very young age of newcomers to the two-way immersion program whose oral proficiency development was difficult to assess. Moreover, encouraging the interviewees to cope verbally in situations in which they faced linguistic difficulties due to a lack of competence was no easy task for the interviewers.

Moreover, another bias was the challenge to assess very young children which implies that emotional components can play an important role and limit their outcomes. As a consequence, there are obvious limitations in the interpretation of outcomes of oral interviews with very young children in that they can do well one day and poorly on another day depending on their well-being.

Furthermore, other general limitations included the oversimplification of the chosen categories that prevented us from considering each emergent FiBi multilingual as a unique individual with distinct personality traits, strengths, weaknesses, and educational needs that influence his/her success in the documentation of her/ his oral proficiency development in varied ways.

Lastly, the greatest limitation of documenting the development of oral proficiency in the two languages of schooling of FiBi learners was the fact that it would require an adaptation of the assessment method: instead of showing the learners' performance in French and in German interviews separately, a bilingual mode could be used for their assessment. For example, questions may be put in one language of schooling while responses may be expected in the other (García 2009). In doing so, learners of the two-way immersion program would *not* be asked to perform as two monolinguals (in two monolingual interviews), and more holistic ways in multilingual assessment could be adopted. A further limitation was the self-selection bias, that is, that the *Filière Bilingue* is an opt-in model since parents have a choice.

3.4. Data collection

A first interview at t_1 (first point in time of data collection) concerned learners at the beginning of their first year of schooling. Subsequent interviews (at t_2, t_3, t_4 and t_5) were done at the end of each school year (K-4). Globally, 232 learners were interviewed for a total of 1173 interviews. Table 2 displays the number of learners assessed in FiBi and control classes at each grade level. Note that FiBi learners were interviewed in both French and German.

For each interview, the reliability of the interviews 1–5 was measured using Cronbach's α coefficient to compare the sub-sequences of each interview in both languages of schooling ($n = 1173$). The achieved reliability coefficients can be judged to be satisfactory to good for the type of research undertaken in this study (Nunnally and Bernstein 1994) because the coefficient was above 0.5 in every interview, suggesting that the sub-sequences were reliably correlated. The Cronbach alphas are summarized in Table 3 below.

Table 3. Reliability of the German and French interviews and their Cronbach alpha's.

	German	French
Interview 1 (t_1)	0.748	0.752
Interview 2 (t_2)	0.555	0.768
Interview 3 (t_3)	0.926	0.838
Interview 4 (t_4)	0.918	0.799
Interview 5 (t_5)	0.822	0.581

4. Major findings

In this part of the study we will present the main results of the analysis of the quantitative data.

4.1. Registration language performance in FiBi and control classes

When we compare performance in the registration language of FiBi learners and those of the control group (see research question 1), the difference in performance, tested with a t-test for independent samples, is significant for t_1, t_2 and t_3 as can be seen in Table 4 below. This significant difference in favor of FiBi learners is probably due to different average percentage rates of allophone learners in the two groups. However, it is interesting to note that no significant differences were found between Grades 3 and 4 (t_4 and t_5) as shows Table 4 below.

These significant differences partly remain when we restrict the summary only to non-allophone learners. In Table 5 below, performance of non-allophone learners is not significantly different between learners of FiBi and control classes, apart from the performance measured on t_2.

One cannot avoid considering that in their early years, many allophone learners in the control group are not familiar with their language of schooling, whereas we may assume that allophone learners in the FiBi classes are more acquainted in at least one of the two languages of schooling, so their supposed abilities in the registration language are closer to their native-speaker peers (for a detailed documentation of their oral proficiency development: see Buser 2019). Nevertheless, oral proficiency in allophone learners of both FiBi and control classes (in their registration language) increases from t_1 to t_5: whereas mean scores of allophone FiBi learners increase from 68.40 to 94.76, those of allophone control class learners impressively raises from 60.98 to 89.86. Accordingly, strong correlations were found when measuring performance of allophone learners in treatment and control classes on t_2 and t_3 as shown in Table 6.

Note that average performance at t_5 for allophone FiBi learners is significantly higher than the average performance of allophone learners in control classes ($p < 0.05$). However, it is important to emphasize, as mentioned in the description of the participants of this study (cf. 3.2 Study sample), that in this study the number of allophone learners in the control classes is higher than in FiBi classes.

This result appears to be in accordance with recent research results in neurolinguistics and psycholinguistics regarding the strong interaction between the languages used by multilingual speakers (Cenoz and Gorter 2011) in which multilingual speakers were analyzed considering the way they

Table 4. Performance means (M_{FiBi} and $M_{Control}$) and sample sizes (n_{FiBi} and $n_{Control}$) across time (t_1 to t_5) of learners in their registration language for both FiBi and control classes learners.

t	n_{FiBi}	M_{FiBi}	$n_{Control}$	$M_{Control}$	Δ
1	126	**82.23**	90	**72.27**	−9.95***
2	121	**89.52**	87	**79.44**	−10.09***
3	72	**89.43**	48	**81.46**	−7.96***
4	81	**92.31**	53	**90.40**	−1.91
5	39	**94.87**	27	**92.01**	−2.87

Note: The last column represents the difference of performance means (***$p < 0.001$).

Table 5. Performance means (M_{FiBi} and $M_{Control}$) and sample sizes (n_{FiBi} and $n_{Control}$) across time (t_1 to t_5) in the registration language of non-allophone FiBi learners and non-allophone learners of the control classes.

t	n_{FiBi}	M_{FiBi}	$n_{Control}$	$M_{Control}$	Δ
1	81	**89.91**	38	**87.74**	−2.18
2	79	**92.65**	36	**88.59**	−4.07**
3	47	**89.44**	13	**87.81**	−1.63
4	53	**93.79**	20	**93.37**	−0.42
5	22	**94.96**	11	**95.12**	0.17

Note: The last column represents the difference of performance means (**$p < 0.01$).

Table 6. Performance means (M_{FiBi} and $M_{Control}$) and sample sizes (n_{FiBi} and $n_{Control}$) across time (t_1 to t_5) in the registration language of allophone FiBi learners and allophone learners of the control classes.

t	n_{FiBi}	M_{FiBi}	$n_{Control}$	$M_{Control}$	Δ
1	45	**68.40**	52	**60.98**	−7.42
2	42	**83.64**	51	**72.98**	−10.66***
3	25	**89.40**	35	**79.11**	−10.29***
4	28	**89.51**	33	**88.60**	−0.91
5	17	**94.76**	16	**89.86**	−4.90*

Note: The last column represents the difference of performance means (*$p < 0.05$; ***$p < 0.001$).

communicate in everyday life. The results of our study indicate that multilinguals of different ages develop resources that allow them to use their languages of schooling communicatively by making use of their whole linguistic repertoire. Cenoz highlights that 'in spite of these differences between monolinguals and multilinguals, the communicative skills of multilingual speakers have traditionally been measured from a monolingual perspective against the yardstick of the ideal native speaker of each of the languages involved' (Cenoz 2013, 11). This monolingual bias in multilingualism research does not take into consideration the characteristics of multilinguals, neither at the cognitive level nor insofar as multilinguals can use their languages as a resource so that the languages reinforce one another by navigating between languages in real communication (Cenoz 2013). This monolingual norm has focused on languages and on native speakers using monolingual norms so as to see how they differ from language learners who have been considered deficient. A holistic approach to multilingualism does not look at each ideal native speaker of each of the languages, but at the multilingual person as a whole (Moore and Gajo 2009).

4.2. Performance of FiBi learners in the partner language

The second research question which aimed investigate the FiBi learners' oral proficiency development over time in their partner language (French or German). The FiBi learners' performance across the time in the partner language is globally summarized below (see Table 7). A paired two-sample t-test has been used in order to evaluate the progression of the mean scores across the time.

As one can see, mean scores progressively increase from 23.51 to 68.32, with statistically significant improvement in the first three years of schooling ($p < 0.01$). Improvements across years remain statistically significant also when German interviews and French interviews are analyzed separately (see Table 8). Interestingly, when we separately analyze the French interviews of GRL and A-GRL learners and German interviews of FRL and A-FRL learners, we get different degrees of improvement according to which of the two interview languages are analyzed.

Statistical data analysis of the performance in French of GRL and A-GRL learners shows that they get an 87.15 score at the end of fourth grade, whereas FRL and A-FRL learners get only a 54.87 score in German after four years of schooling.

With regard to GRL and A-GRL learners of the FiBi and their oral proficiency development in French (other language than their registration language), Table 8 interestingly shows that mean performance

Table 7. Performance means M_t across time t in the partner language of FiBi learners.

t	n	M_t	M_{t+1}	Δ
1	113	**23.51**	**36.73**	13.22038***
2	70	**40.28**	**47.01**	6.73**
3	67	**47.57**	**67.09**	19.52***
4	36	**67.08**	**68.32**	1.24

Notes: Here the mean is computed including both French interviews scores for GRL and A-GRL learners and German interviews scores for FRL and A-FRL learners. Sample sizes of paired comparisons appears in column n. The last column represents the score improvements at each of Grade 1, 2, 3, and 4 (**$p < 0.01$; ***$p < 0.001$).

Table 8. Performance means M_t across time t in the partner language of FiBi learners.

German interviews for FRL and A-FRL learners

t	n	M_t	M_{t+1}	Δ
1	63	**19.71**	**26.67**	6.96***
2	38	**27.05**	**30.72**	3.67
3	37	**29.52**	**52.64**	23.12***
4	21	**55.89**	**54.87**	−1.01

French interviews for GRL and A-GRL learners

t	n	M_t	M_{t+1}	Δ
1	50	**28.29**	**49.39**	21.10***
2	32	**55.97**	**66.36**	10.38***
3	30	**69.82**	**84.91**	15.09***
4	15	**82.75**	**87.15**	4.40*

Notes: Here the mean is computed separately for French interviews scores with GRL and A-GRL learners and German interviews scores with FRL and A-FRL learners. Sample sizes of paired comparisons appears in column n. The last column represents the score improvements at each of Grade 1, 2, 3, and 4 (*$p < 0.05$; ***$p < 0.001$).

is significantly improved during each of the four two-way immersion years of schooling ($p < 0.001$ during the first three years and $p < 0.05$ during the fourth year).

However, regarding FRL and A-FRL learners of the FiBi and their oral proficiency development in German (other language than their registration language), ratings of oral proficiency development in German were only significantly higher during the first year of Kindergarten and in Grade 3 ($p < 0.001$). A possible explanation for this difference could lie in the diglossic situation in German-speaking Switzerland, which results in FRL and A-FRL learners acquiring both standard German and Swiss German. The two final dates of survey (t_4 and t_5) refer to the end of the third and fourth grade, in which standard German is the norm for teaching. Accordingly, FRL and A-FRL learners are instructed in standard German but show a natural use of Swiss German as an 'out-of-school' language and in conversations with their German-speaking peers of the same classroom. The diglossic situation in the German-speaking part of Switzerland was considered by operating with a double scale of criteria in the German interview guidelines: correct answers (content) in Swiss German allowed learners to receive partial scores.

5. Discussion and interpretation

A first issue of these results suggests that oral proficiency development of FiBi learners in their registration language may *not* lag behind after four years of schooling compared to learners of monolingual control classes. Contrary to initial concerns about the possible detriment to the development of the registration language of FiBi learners, the two-way immersion program appears not to be penalizing the achievements of oral proficiency even though they receive half of the input in their registration language compared to learners attending the monolingual control classes. Rather, there is no statistically significant difference of K-4 FiBi learners compared to their monolingually taught peers. However, it is important to emphasize again that the average percentage rate of allophone learners in the control group of this study reflects the demographic reality of the city of Biel/ Bienne and considerably exceeds treatment group. Moreover, our central concern is to point out that we will *not* play monolingually taught against bilingually taught learners. On the contrary, this study's focus is on the treatment group of K-4 FiBi learners in order to show their development of languages of schooling. The idea behind the first research question was to find answers as to why learners of the *Filière Bilingue* who receive only half the input in each language of schooling compared to their monolingual peers are *not* twice as far behind them concerning their language development as a contribution to the emerging database that documents oral proficiency development of bilingually and monolingually taught learners (Gardner-Chloros 2000; Comeau 2010; Fortune and Tedick 2015).

With regard to oral proficiency development in the partner language of German-speaking FiBi learners (GRL and A-GRL), they achieve higher levels in French than their French-speaking FiBi peers (FRL and A-FRL) in German along the four years of schooling. The multilingual development of these learners in the partner language is impressive despite the subtle difference with regard to the rates of development in these two groups: whereas FRL and A-FRL learners' scores of development in German increase from 19.71 at t_1 to 54.87 at t_5, their German-speaking peers' scores in French start from 28.29 at t_1 and reach a remarkable score of 87.15 at t_5. This could be due to the diglossic situation in German-speaking Switzerland (standard German and Swiss German) that represents an additional difficulty for French-speaking learners.

It also appears that allophone learners of both treatment and control group (A-FRL/ A-GRL and A-F/ G-F) achieve performance levels in their registration language at t_1 that are lower than the performance of their non-allophone peers but the differences impressively decrease from t_2 to t_5. Interestingly, allophone FiBi learners achieve at t_5 similar performance as non-allophone FiBi learners. A possible explanation is that allophone learners entering in school have already acquired one or more languages as first language(s) at home and are instructed in French and German as languages of schooling from the beginning of their school careers on. Performance of allophone learners of the control classes with regard to oral proficiency development, however, is at t_5 significantly lower than the performance of allophone FiBi learners.

Some general limitations of this study concern, on the one hand, the elaboration of the interview guides that would have necessitated much more time and resources, and, on the other hand, a monolingual bias appearing in that communicative skills of multilingual FiBi speakers have been measured from a monolingual perspective against the yardstick of the ideal native speaker of each of the languages of schooling involved. Accordingly, the guides do not consider that multilinguals can use their languages as a resource so that the languages reinforce one another or the way multilingual speakers navigate between languages in real communication. This monolingual bias in the interpretation of data embodies a number of assumptions that cloud a full appreciation of outcomes of the emergent FiBi multilinguals.

Moreover, another limitation consists in the fact the present study suffers from a short time perspective in that it documents the FiBi learners' oral proficiency development over a period of only four years.

6. Specific pedagogical implications of the Reported study

Although more long-term studies to document oral proficiency development are needed, this study shows the potential of this model with two languages of schooling to support learners' attainment of oral proficiency in the two languages even in a highly multicultural context like in the FiBi. Even though especially young learners may face communicative challenges in two-way immersion contexts that can result in guilt which may cause rejection or silence (Blackledge and Creese 2010), their outcomes in this study suggest that K-4 two-way immersion learners' oral proficiency development is a *dynamic interactive process* that may support calls for encouraging teachers to use a more intentional and systematic approach to use language communicatively and develop language ability. This implies that teachers can make use of both proactive and reactive strategies within the context of subject learning to enhance learners' development of the two languages of schooling at appropriate levels based on their individual needs (Lyster 2016). Consequently, two-way immersion teachers should be able to identify appropriate language/ literacy/ culture objectives that meaningfully correspond to subject matter and proficiency level of their learners. When developmentally appropriate, they can also strategically promote cross-linguistic transfer and metalinguistic awareness across the two languages of schooling by replacing the idea of isolated linguistic systems with approaches that take multilingual speakers and their linguistic repertoire as a reference.

As a consequence, the findings of this study call for qualified teachers working in multilingual schools like the FiBi where language and content instruction are integrated face the dual challenge

of teaching the academic curriculum and a second language of schooling at the same time. This clearly has implications for teacher training institutions and the instructors in those institutions who themselves must know and understand this pedagogy. With regard to a professional two-way immersion teacher training, a professional curriculum recently introduced in the region of Biel/Bienne aims to ensure that the goals of an effective two-way immersion education can be met and is dedicated to the professionalization of two-way immersion teacher education (Buser 2017).

7. Conclusion

This study contributes to the emerging database that documents oral proficiency development in two-way immersion learners. However, much current research on two-way immersion programs suffers from a short-term perspective, including the present study. Only a few studies have examined outcomes of two-way immersion programs from a longitudinal perspective on various topics (Shohamy 2011; Breidbach and Viebrock 2012; Conteh and Meier 2014; Buser 2019).

As we have seen, this study suggests that K-4 FiBi learners may *not* lag behind in their registration language with regard to oral proficiency development compared to monolingually taught learners (control classes). Contrary to initial concerns about the possible detriment to the development of the registration language of FiBi learners, the two-way immersion program appears not to be pena-lizing the achievements of oral proficiency in those learners even though they receive half of the input in their registration language compared to their monolingually taught peers. Two-way immersion program may thus make a contribution to the maintenance of the registration language. However, caution needs to be exercised when attempting to draw general conclusions for other two-way immersion programs with the results of this study since the average percentage rate of allo-phone learners in treatment and control group varies in the two compared groups.

With regard to the partner language, oral proficiency development in FiBi learners significantly improves during the first four years of schooling even though there is a subtle difference with regard to the rates of development in these two groups, possibly due to the diglossic situation in the German-speaking part of Switzerland.

In conclusion, oral proficiency development of monolingually and bilingually taught learners appears to be dynamic and involves changes over time because the learners' linguistic repertoire is not fixed and their multi-competence (Cook 2012) is variable. Moreover, the performance-based measurement of oral language ability in this study appears to be consistent with a *dynamic interactive processing* perspective on language, in the sense that it shows how FiBi learners' oral proficiency development is a dynamic process of becoming more and more proficient in their two languages of schooling, including variations in performance over time.

Our analysis has shown that emergent FiBi multilinguals are not substantially delayed in the devel-opment of their registration language as compared to their monolingually taught peers. Exposing learners to two languages of schooling seems therefore not to represent a risk factor for their oral proficiency development neither in their registration language nor in their partner language.

Notes on contributors

Melanie Buser is the developer and coordinator of the two-way immersion curriculum 'Cursus bilingue/Bilingualer Stu-diengang' of the two Universities of Teacher Education HEP-BEJUNE & PHBern located in the French-speaking and German-speaking parts of Switzerland, respectively. She has a solid eight-year experience as a Secondary 1 teacher. She then continued her studies at University of Zurich where she earned her Master of Arts degree in French and English Literature and Linguistics and Philosophy in 2007. In 2015, she obtained her PhD from the University of Sorbonne

Nouvelle (Paris 3) and is now a postdoctoral researcher at Université de Montréal (UdeM) and HEP-BEJUNE in the field of professionalization of teacher education.

Giuseppe Melfi is a researcher in educational science and mathematics. He is responsible of several research projects at the University of Teacher Education BEJUNE and is a lecturer at the University of Neuchâtel as well as the University of Applied Sciences of Western Switzerland. Since the birth of his two children who are raised in a multilingual environment, bilingual education and multilingualism are among his favourite research interests.

ORCID

Melanie Buser http://orcid.org/0000-0002-9537-4675
Giuseppe Melfi http://orcid.org/0000-0002-3374-0318

References

Bachman, L. F., and A. Palmer. 2010. *Language Assessment in Practice*. Oxford: Oxford University Press.
Baker, C. 2007. "Becoming Bilingual Through Bilingual Education." *Handbook of Multilingualism and Multilingual Communication* 5: 131–152.
Baker, C. 2011. *Foundations of Bilingual Education and Bilingualism (Vol. 79)*. Clevedon: Multilingual Matters.
Baumert, J., et al., eds. 2016. *Die EUROPA-Studie - Eine Evaluation der Staatlichen Europa-Schule Berlin*. Münster: Waxmann.
Bialystok, E. 2001. *Bilingualism in Development: Language, Literacy, and Cognition*. Cambridge: Cambridge University Press.
Blackledge, A., and A. Creese. 2010. *Multilingualism: A Critical Perspective*. London: Bloomsbury Publishing.
Breidbach, S., and B. Viebrock. 2012. "CLIL in Germany – Results from Recent Research in a Contested Field of Education." *International CLIL Research Journal* 1 (4): 5–16.
Buser, M. 2014a. Deux plans d'études, une école: Scolarisation plurilingue dans la FiBi de Biel/Bienne. Une école publique basée sur le concept de l'enseignement par immersion réciproque. Portrait de la *Filière Bilingue. Enjeux Pédagogiques (Éditions HEP-BEJUNE), Itinéraires du Plan d'études romand*, N° 23, 31-36.
Buser, M. 2014b. L'hétérogénéité linguistique dans la *Filière Bilingue* (FiBi) à Biel/Bienne: du plurilinguisme à l'école vers un curriculum professionnalisant à la HEP-BEJUNE (chapter 5). In: Arcidiacono, Francesco (ed.). *Hétérogénéité linguistique et culturelle dans le contexte scolaire*. Biel/ Bienne: Actes de la recherche de la HEP-BEJUNE N° 10, 75-101.
Buser, M. 2017. "Vers un nouveau profil des enseignants et des enseignantes au primaire en Suisse: bref portrait d'un futur dispositif de formation initiale entièrement bilingue." *Formation et Profession* 25 (3): 113–115. doi:10.18162/fp.2017.a132.
Buser, M. 2019. *Two-Way Immersion in Biel/ Bienne, Switzerland: Multilingual Education in the Public School Filière Bilingue (FiBi). A Longitudinal Study of the Oral Proficiency Development of K-4 Learners in Their Languages of Schooling (French & (Swiss) German)*. Bern: Peter Lang.
Cenoz, J. 2013. "Defining Multilingualism." *Annual Review of Applied Linguistics* 33: 3–18.
Cenoz, J., and D. Gorter. 2011. "A Holistic Approach to Multilingual Education: Introduction." *The Modern Language Journal* 95 (3): 339–343.
Christian, D. 1996. "Two-Way Immersion Education: Learners Learning Through Two Languages." *The Modern Language Journal* 80 (1): 66–76.
Comeau, L., et al. 2010. "A Comparison of Bilingual and Monolingual Children's Conversational Repairs." *First Language* 30 (3-4): 354–374.
Conteh, J., and G. Meier, eds. 2014. *The Multilingual Turn in Languages Education: Opportunities and Challenges*. Bristol: Multilingual Matters.
Cook, V. 2012. "Multi-Competence." In *The Encyclopedia of Applied Linguistics*, edited by Carol A Chappelle, 3768–3774. Oxford: Wiley-Blackwell.
Ellis, N. C. 1998. "Emergentism, Connectionism and Language Learning." *Language Learning* 48 (4): 631–664.
Fortune, T. W., and D. J. Tedick. 2015. "Oral Proficiency Assessment of English-Proficient K-8 Spanish Immersion Students." *The Modern Language Journal* 99 (4): 637–655.
Francis, N. 2012. *Bilingual Competence and Bilingual Proficiency in Child Development*. Cambridge, MA: MIT Press.
García, O. 2009. *Bilingual Education in the 21st Century: A Global Perspective*. Malden, MA: Blackwell.
García, O., and Wei Li. 2014. *Translanguaging. Language, Bilingualism and Education*. Basingstoke: Palgrave Macmillan.
Gardner-Chloros, P., et al. 2000. "Parallel Patterns? A Comparison of Monolingual Speech and Bilingual Codeswitching Discourse." *Journal of Pragmatics* 32 (9): 1305–1341.
Grosjean, F. 1982. *Life with Two Languages: An Introduction to Bilingualism*. Cambridge, MA: Harvard University Press.
Grosjean, F. 1985. "The Bilingual as a Competent but Specific Speaker-Hearer." *Journal of Multilingual and Multicultural Development* 6 (6): 467–477.
Grosjean, F. 1989. "Neurolinguists, Beware! The Bilingual is Not Two Monolinguals in One Person." *Brain and Language* 36 (1): 3–15.

Grosjean, F. 2008. *Studying Bilinguals*. Oxford: Oxford University Press.

Heller, M. 2007. *Bilingualism: A Social Approach*. New York, NY: Springer.

Howard, E., et al. 2004. *The Development of Bilingualism and Biliteracy from Grade 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.

IBM Corp. 2013. *IBM SPPS Statistics for Windows, Version 22.0*. Armonk, NY: IBM Corp.

Kohnert, K. 2013. *Language Disorders in Bilingual Children and Adults*. San Diego, CA: Plural Publishing.

Kovelman, I., et al. 2008. "Age of First Bilingual Language Exposure as a New Window into Bilingual Reading Development." *Bilingualism: Language and Cognition* 11 (2): 203–223.

Lindholm-Leary, K. 2001. *Dual Language Education*. Clevedon, UK: Multilingual Matters.

Lindholm-Leary, K., and E. Howard. 2008. "Language Development and Academic Achievement in Two-Way Immersion Programs." In *Pathways to Multilingualism: Evolving Perspectives on Immersion Education*, edited by T. W. Fortune, and D. Tedick, 177–200. Clevedon: Multilingual Matters.

Lyster, R. 2016. *Vers une approche intégrée en immersion*. Québec: Les Éditions CEC.

Meier, G. 2012. "Éducation bilingue en Europe et ailleurs: statu quo et itinéraires de recherche possibles." *Synergies Europe* 7: 25–31.

Moore, D., and L. Gajo. 2009. "Introduction–French Voices on Plurilingualism and Pluriculturalism: Theory, Significance and Perspectives." *International Journal of Multilingualism* 6 (2): 137–153.

Nunnally, J. C., and I. H. Bernstein. 1994. *Psychometric Theory*. 3rd ed. New York: McGraw-Hill.

Padilla, A. M., et al. 2013. "A Mandarin/English Two-Way Immersion Program: Language Proficiency and Academic Achievement." *Foreign Language Annals* 46 (4): 661–679.

Shohamy, E. 2011. "Assessing Multilingual Competencies: Adopting Construct Valid Assessment Policies." *The Modern Language Journal* 95: 418–429.

Stipek, D., et al. 2001. "Bridging Research and Practice to Develop a Two-Way Bilingual Program." *Early Childhood Research Quarterly* 16 (1): 133–149.

Tedick, D. J., and A. I. Young. 2014. "Fifth Grade Two-Way Immersion Learners' Responses to Form-Focused Instruction." *Applied Linguistics* 37 (6): 784–807.