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The Language Acquisition of Male Immigrants in a Multilingual Destination: Turks and Moroccans in Belgium

Frank van Tubergen and Menno Wierenga

This study examines the determinants of immigrants' second-language proficiency in the multilingual context of Belgium, which is divided into Dutch, French and bilingual (Dutch–French) regions. Data are from a large-scale immigrant survey conducted in 1994–96 among Turkish and Moroccan males. Binary and multinomial logit regression analyses show that, although immigrants generally invest more in learning the official language of their current region of residence, they generally find it more attractive to invest in learning French, as it is a more international language than Dutch. The study also shows that both Dutch and French skills are higher among those who migrated at a younger age, who have been living in Belgium for a longer time period, who have received more education—particularly education in Belgium—and who live in regions with fewer co-ethnics. Furthermore, second-language skills are higher among immigrants who followed a language course, who intend to stay in Belgium, who are members of voluntary organisations, and who are more proficient in their mother tongue.

Keywords: Language Acquisition; Immigrants; Belgium; Multilingual Country

Introduction

The destination-language skills of immigrants play a key role in their position in the labour market (Shields and Price 2002), in the social contacts they maintain with the native population (Stevens and Swicegood 1987), and in the language acquisition of their children (Alba *et al.* 2002). As a consequence, researchers have shown great

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interest in the determinants of immigrants' 'second'-language (henceforth L2) proficiency (Chiswick and Miller 2007; Esser 2006).

This paper contributes to the literature by examining language acquisition in a *bilingual destination*. Virtually all countries studied in the literature have a single official and dominant language. The few empirical studies on multilingual countries have concentrated on Canada (Chiswick and Miller 1994, 2001). In this paper we analyse the language skills of immigrants in Belgium, which is divided into a predominantly Dutch-speaking population in the western part of the country (Flanders), a French-speaking population in the eastern part (Wallonia), and a bilingual population in the region of Brussels. Theoretically, multilingual countries are interesting to study because the processes of language acquisition often differ from language learning in a monolingual destination. Do immigrants acquire both languages? Or do immigrants learn one language, and if so, which one? And do well-studied determinants of language acquisition, observed in monolingual countries, equally play a role in a multilingual context?

To answer these questions, we use data from a large-scale national survey, collected in 1994–96, among the two largest immigrant groups in Belgium—Turks and Moroccans. Although the survey was conducted some time ago, it provides unique and important information that can increase our theoretical insights in language learning. Thus we examine (1) whether well-studied determinants hold in a yet-unexplored context—Belgium; (2) whether yet-unexplored determinants (i.e. social participation and proficiency in the mother tongue) play a role in language learning; and (3) how language acquisition works in a multilingual context. Furthermore, whereas most studies on the language acquisition of immigrants rely on census data, a unique feature here is that survey instruments were translated into the minority language, that bilingual interviewers were used, and that detailed questions were raised on migration history, integration and language proficiency. We analyse both speaking and writing skills.

Theory and Hypotheses

Standard Theoretical Model

Among researchers from different disciplines (e.g. economics, sociology), there seems to be a consensus that three mechanisms underlie the second-language proficiency of immigrants (Chiswick and Miller 2001, 2007; Espenshade and Fu 1997; Esser 2006; Mesch 2003; Stevens 1999). These mechanisms have to do with L2 exposure, economic incentives and the efficiency with which immigrants learn new languages. Thus, this so-called Standard Theoretical Model (STM) consists of the following three general propositions:

$$\text{L2 proficiency} = f\{\text{exposure (+), incentives (+), efficiency (+)}\}$$

L2 proficiency is determined by the amount of exposure to L2. Opportunities in the environment to hear, speak, write and read L2 directly affect L2 proficiency. People could be exposed to L2 already in their country of origin, when L2 is an official and/or dominant language. Exposure to L2 also occurs after migration, for example through speaking that language with a partner, friends, children, neighbours or colleagues, and by listening to the radio, watching television or reading newspapers. L2 is also an outcome of economic incentives. It takes time and effort to learn a new language, and such (opportunity) costs must be outweighed by economic gains obtained in the future. Finally, L2 proficiency is an outcome of efficiency. People who are more efficient in learning a new language acquire that language more quickly than those who have more difficulty in learning it.

In empirical studies, researchers have been unable to directly test the three general mechanisms of L2 proficiency, as there are no direct measures of efficiency, economic incentives and exposure. As a result, they have tested their importance indirectly, by deriving a series of hypotheses on relevant (and observable) individual and contextual determinants of L2 proficiency. In many cases, however, the mechanisms are not one-to-one related to the determinants. For example, the hypothesised effect of education is related to all three mechanisms, not just one. This means that researchers generally treat the mechanisms of efficiency, incentives and exposure as part of a single theory on language learning, the STM.

Standard Empirical Model

In previous research, the STM was used to derive a number of determinants of L2 acquisition. This Standard Empirical Model (SEM) consists of the following determinants (and their hypothesised effects on L2 acquisition):¹

L2 proficiency = {age at migration (-), length of stay (+), education in origin country (+), education in receiving country (+), labour migrant (+), co-ethnic partner (-), ethnic minority concentration (-), settlement intentions (+), language course L2 (+)}

These well-studied determinants have been examined among immigrants in monolingual contexts, like Australia (Chiswick and Miller 1996), Germany (Dustmann 1994, 1999), Israel (Beenstock *et al.* 2001; Mesch 2003), the Netherlands (Van Tubergen and Kalmijn 2009), Norway (Hayfron 2001), the United Kingdom (Dustmann and Fabri 2003) and the United States (Espenshade and Fu 1997). In this paper, we test SEM in a yet-unexplored, multilingual context: Belgium.

We also extend SEM by looking at the importance of two less-well researched factors, on which there is more discussion and less evidence in the literature. First, we look at the role of *social participation*. Organisations such as sports clubs and socio-cultural associations are settings that provide opportunities for immigrants to establish contacts with natives and to be more intensively exposed to L2. In their study on Mexican immigrants in the US, Espinosa and Massey (1997) found that

those who were members of a sports or social club had better English-language skills. Based on these insights, it is hypothesised that membership of a voluntary organisation has a positive effect on L2 proficiency.

Furthermore, we examine the role of L1 proficiency. Immigrants arrive in the host country with different levels of knowledge of L1, depending on such issues as the quality of instruction they received, the time they spent at school, and how well they performed there. We assume that immigrants are more efficient in learning L2 when they are more proficient in L1. The increased efficiency is partly due to higher general ability (related to any type of learning) and partly due to specific 'language skills' acquired when learning L1, and which can be used again when learning a new language. Dustmann (1994) found that, among immigrants in Germany, writing proficiency in L1 had a significantly positive impact on German writing and speaking skills; however, he did not examine the role of L1 *speaking* skills. In this study, we examine the impact of both writing *and* speaking skills in L1 on writing and speaking skills in L2. We hypothesise that L1 proficiency has a positive effect on L2 proficiency. Note that, if this hypothesis is true, L1 skills could partly explain the effect of pre-migration schooling on L2 skills.

Taken together, SEM is extended in the following way:

$$\text{L2 proficiency} = f\{\text{social participation (+), L1 proficiency (+)}\}$$

Language Acquisition in a Multilingual Context

Belgium is a multilingual country, and thereby an interesting case through which to study immigrants' language acquisition. In the region of Flanders, Dutch is both the official and the dominant language. This means that Dutch is the standard language in official settings (e.g. the language of instruction at school), and also dominates in informal settings (conversations at home). By contrast, French is the official and dominant language in Wallonia. Next to the Dutch and French parts of the country, there is also a mixed language region. The capital city, Brussels, is officially bilingual, although French is clearly the dominant language. It is estimated that, in the 1990s, when the survey data were collected, about 85 per cent of the inhabitants of Brussels used French in daily conversation (Coffé 2006). Note that nowadays Belgium is still a multilingual country, as language patterns have only slightly changed.

How does the multilingual nature of Belgium affect immigrants' language proficiency? One argument concerns *pre-migration exposure*. The two immigrant groups studied here are unequally exposed to Dutch (L2_d) and French (L2_f) prior to migration. There is no exposure to Dutch in either Turkey or Morocco. Turkish immigrants are not exposed to French before migration. However, Morocco is a former colony of France, and immigrants would probably have been exposed to French as it is an official language in Morocco, where children learn French in school. Part of the role of pre-migration exposure to French would result in Moroccans clustering in the French-speaking regions. However, over and above the location

choice of Moroccans in Belgium, we expect their L2_f skills to be better than the L2_f skills of Turks. We also hypothesise that the positive effect of pre-migration schooling on L2_f proficiency is stronger for Moroccans than for Turks.

The multilingual context is important for the language investments which immigrants make after migration. The *current linguistic environment* determines which language immigrants learn. Naturally, in Flanders, it is more attractive for immigrants to acquire the Dutch language, as they are also more exposed to Dutch than to French. In Wallonia, and in the predominantly French region of Brussels, the opposite situation exists. It is hypothesised that immigrants acquire the dominant language in their region of residence (e.g. Dutch in Flanders) and make fewer investments in the alternative language—French in Flanders.

As some immigrants migrated from one language region to the other, it is important to consider the *first linguistic environment* as well. For instance, immigrants who arrived in the French-speaking region when they migrated to Belgium and then moved to the Dutch-speaking region have been exposed to French as well. We hypothesise, therefore, that the first-language (henceforth L1) region has an independent effect on L2 skills, over and above the current language region.

For economic reasons, language investments might differ between language regions. In Wallonia, the unemployment, income inequality and poverty rates are much higher than in Flanders (Statistics Belgium 2008). In regions with a higher unemployment rate and income inequality, it is more attractive for immigrants to invest in L2 (Chiswick and Miller 1994). Immigrants who do *not* invest in L2 here have a particularly high likelihood of being unemployed and to earn less, compared to regions where unemployment and income inequality are low (Chiswick and Miller 1994). Based on this reasoning, one would expect that immigrants have better L2 skills in Wallonia than in Flanders.

One can also hypothesise about differential investments in Dutch and French in both language regions, which have to do with the number of language-speakers inside and outside the current living environment. In the Dutch region (i.e. Flanders) around 59 per cent speak French as well, whereas only 19 per cent speak Dutch in the French region—i.e. Wallonia (Ginsburgh and Weber 2006). Furthermore, Chiswick and Miller (1994: 121) argue, in their study on Canada, that English is a more international language than French and that, because of the associated ‘broader and deeper market outside the local economy for transaction costs and/or information in English than in French’, it is more attractive to invest in English. With respect to Belgium, the choice is between French and Dutch. French is a more international language than Dutch, which leads us to hypothesise that—net of other factors—investments in Dutch are less attractive than investments in French.

Taken together, the following additional predictions are made:

L2 proficiency = f{L2 exposure in origin country (+), L2 region of first residence (+), L2 region of current residence (+), Wallonia (+), French (+)}

Data and Methods

Data and Measurements

We use the *Migration History and Social Mobility* (MHSM) survey (Lesthaeghe 2000), a cross-sectional survey among Turkish and Moroccan males in Belgium based on cluster samples. We selected municipalities containing at least 100 Turkish or Moroccan men in 1991. The random sampling of individuals was based on a list of non-naturalised immigrants. Before 1995, the number of naturalised Turks and Moroccans was very low. Surveys were available in four languages: Dutch, French, Turkish and Arabic (Lesthaeghe 2000). The non-response was 28 per cent for Turks and 44 per cent for Moroccans. All in all, 1,462 Turkish and 1,286 Moroccan men completed the survey—a total of 2,748 valid cases. Excluding those born in Belgium ($N = 351$), or whose questionnaires had missing information, then reduces the sample size to 2,250 cases.

Dependent Variables

The dependent variables measure the respondent's self-assessed L2 skills in French and Dutch.² Respondents were asked how well they could speak, read and write these languages. The L2 skills are measured on a five-point scale: (1) not at all, (2) a little, (3) fairly well, (4) well, and (5) very well. In this paper, we focus on *speaking* and *writing* skills. Reading and writing skills are highly correlated ($r = .97$ for Dutch and $r = .98$ for French), while speaking and writing skills are less-strongly correlated ($r = .88$ for Dutch and $r = .89$ for French).

Independent Variables

The *age at the time of migration* and the *length of stay* in Belgium are measured in years. We include a squared term for length of stay, as previous research has shown that the increase in language skills is more pronounced in the beginning. The respondent's *pre-migration education* has been measured as the number of years required to obtain the educational level before migration. We made use of the International Standard Classification of Education 1997 (ISCED-97) to recode the obtained pre-migration educational qualifications into the number of years the respondent followed education in his origin country (OECD 1999). Based on the ISCED scheme for Turkey, we measured pre-migration education as follows (years of education without diploma between parentheses): education before primary school 3(2); primary education 8(6); lower vocational education 12(10); higher vocational education 13(12); higher education 15(14); university 17(15) years. For Moroccan men, no ISCED scores were available and we used the same measurement as for Turkish men.

Education after migration has been measured as the number of years required to obtain the post-migration level of education, based on ISCED scores. There were

hardly any differences between the educational systems in Flanders and Wallonia. The levels were measured as follows (years of education without graduation between parentheses): only education before primary school 3(2); primary education 8(6); lower vocational education 13(11); higher vocational education 14(13); higher education 18(16); and university 19(18) years.

The *migration motive* contrasts non-economic motives (e.g. family reasons) (0) and economic motives (1) for migration. Regarding the respondent's *marital status*, we contrasted respondents who are married to a co-ethnic spouse with those who are single or who married outside their own ethnic group. The *ethnic concentration* in the area of the respondent is measured at the municipality level. Data on the ethnic composition were collected in 1991 by Statistics Belgium (2008).

Knowledge of the *first language* (L1) is measured in terms of both speaking and writing proficiency. It is operationalised in the same way as the dependent variables, i.e. ranging from (1) not at all to (5) very well. It should be noted that the L1 is not always clearly defined. Particularly among Moroccans, a substantial 40 per cent has more command of a 'local language'—mainly Berber—than of the national language (Moroccan-Arabic). Likewise, a small number of the Turks had more command of a local language than of Turkish. We therefore include separate measures of proficiency in the national language of the country of origin as well as the proficiency in a local language ($r = -.20$). This information is only available for speaking skills.

Settlement intentions are quantified as the respondent's future expectations of staying in Belgium. It has been dichotomised into respondents who will probably return-migrate or who are at least unsure about their settlement intentions (0) and respondents who will probably stay in Belgium (1). Whether or not the respondent has *followed a language course* is measured as a dichotomy.

Membership of a voluntary organisation is assessed by membership of a *sports club* and/or a *socio-cultural organisation*. Respondents were further asked whether they had contact within their organisation with natives. Almost everybody (95 per cent) had interethnic contacts within the sports club, and 65 per cent had contacts with Belgians in their socio-cultural organisation. Because of the small numbers—14 per cent—of Turks and Moroccans who were members of a socio-cultural organisation, and the endogeneity issue that would arise when looking at actual contacts, we do not differentiate between those who did and those who did not have contacts with Belgians in the organisation.

The *ethnicity* of respondents (based on the country of birth) has been dichotomised into Turkish (0) and Moroccan (1). The *language region of first settlement* measures the dominant language of the region where the respondent lived immediately after migration to Belgium. The *language region of current settlement* measures the dominant language of the region where the respondent currently lives. We distinguish between French, Dutch and bilingual language regions.

Cross-classifying first and current settlement region shows that about 90 per cent of the immigrants who arrived in a Dutch-language area still live in a region where Dutch is dominant. The language immobility is true for 89 per cent of those who

arrived in a French region and for 81 per cent of immigrants who first settled in a mixed-language area. Despite this strong overlap between first and current settlement areas, there is enough power to assess the effects of both variables. Table 1 presents the descriptive statistics for the independent variables.

Methods

The L2 skills are measured on a five-point scale and are ordinal in nature. Ideally, we use ordered logit regression. However, this regression technique relies on the proportional odds assumption and this assumption is violated in the present case. As an alternative, one could use more complex multinomial regression techniques, contrasting each outcome with a reference category. This would result in four separate equations (Dutch speaking and writing skills, French speaking and writing skills) and four outcomes (e.g. not well, fairly well, well, very well), contrasted separately with the reference category (not at all). This solution is less attractive, as it leads to too few cases to reliably estimate parameters, and to too many results to see patterns. We therefore estimate a binomial logistic regression for each language outcome (i.e. Dutch speaking and writing skills, French speaking and writing skills),

Table 1. Descriptive statistics of independent variables

Variable	Mean	Range	Std. Dev.
Age at migration	19.260	0–77	10.118
Length of stay	18.775	1–46	8.881
Length of stay squared	431.323	1–2116	311.750
Schooling origin	6.681	0–17	4.886
Schooling origin*Moroccan	2.663	0–17	4.528
Schooling Belgium	4.752	0–19	6.463
Labour migrant	0.476	0/1	
Co-ethnic spouse	0.759	0/1	
% co-ethnic in municipality	7.557	0.299–20.482	5.880
L1 main speaking skills	4.258	1–5	0.863
L1 local speaking skills	2.073	1–5	1.685
L1 writing skills	3.703	1–5	1.360
Settlement intentions	0.435	0/1	
Language course	0.236	0/1	
Sports club	.188	0/1	
Socio-cultural organisation	.140	0/1	
Moroccan	0.458	0/1	
First-language area			
Dutch	0.423	0/1	
French	0.214	0/1	
Mixed	0.363	0/1	
Current-language area			
Dutch	0.406	0/1	
French	0.170	0/1	
Mixed	0.424	0/1	

Note: All continuous variables are mean-centered in the analysis.

contrasting the top three categories (i.e. fairly well, well, very well) with the lowest two (not at all, not well).³

To examine language combinations, we estimate a multinomial logistic regression for the Dutch- and French-speaking parts of Belgium separately. In this way, we can see (for both language regions) whether immigrants invest in neither Dutch nor French, in French only or in Dutch only, or whether they become proficient in both languages. The officially mixed-language area of Belgium—the Brussels region—is subsumed under the French-speaking part, for three reasons. First, the dominant language among natives in Brussels is French, actively spoken by about 85 per cent of the population (Coffé 2006). Second, numbers become too small when we analyse the French and bilingual areas separately instead of jointly. Third, our binary logit models show that, in Brussels, immigrants overwhelmingly chose French instead of Dutch, as shown below.

Similar to the binary logistic regression, the multinomial models contrast between those proficient (fairly well, well, very well) and those not proficient (not at all, not well). This results in four language combinations (with percentages proficient in speaking and writing, respectively, for the whole of Belgium):

- (1) proficient in neither Dutch nor French (speaking: 29 per cent, writing: 48 per cent);
- (2) proficient in Dutch, not proficient in French (17 per cent, 13 per cent);
- (3) not proficient in Dutch, proficient in French (42 per cent, 31 per cent);
- (4) proficient in both Dutch and French (11 per cent, 8 per cent).

These language combinations are estimated with a multinomial logistic regression, for both writing and speaking skills. Proficiency in neither Dutch nor French is used as the reference category (1). The analyses were done with the software programme STATA 10.

The survey does not allow for a strong test of the causality of the relationships. Language learning is a dynamic process that takes a considerable period of time, and language skills play an important role in immigrant adaptation. Panel data are therefore better suited than cross-sectional data, but there are hardly any panel studies among immigrants available (exceptions are Chiswick *et al.* 2004; Hou and Beiser 2006). For variables that pertain to the situation before migration (e.g. pre-migration education), endogeneity problems are less severe. For post-migration determinants, issues of selectivity and causation are more problematic, and we keep this in mind when discussing the findings for the post-migration variables.

To check the sensitivity of the findings and to improve the quality of the estimates, several steps were taken. First, the analysis takes into account that observations within

municipalities are not independent from each other. Ignoring the clustering of observations would lead to an underestimation of the standard errors (Snijders and Bosker 1999). We therefore use hierarchical models. Second, it was examined how sensitive the results are to different kinds of dichotomisation of the dependent variable. In additional analysis, the middle category of speaking or writing Dutch or French 'fairly well' was scored 0. The results were very similar substantively. Third, the models were extensively checked for multicollinearity. Conventional measures of multicollinearity, such as VIF and Tolerance, suggest that these issues are of no serious concern. Fourth, the survey contains information provided by the interviewer as to whether or not the survey answers of the respondent were reliable. A dummy variable representing the difference between reliable and unreliable interviews was insignificant in our preliminary models. In addition, analysing the subsample of only those respondents who provided reliable answers yielded similar findings to the results presented here.

Results

Table 2 presents the Dutch and French speaking and writing skills of Turks and Moroccan immigrants for each language area. Based on these descriptive statistics, there seems to be a preference for investment in the French language. For instance, in the officially bilingual region of Brussels, the vast majority of Turks and Moroccans prefers French. Table 2 also suggests that, in each language region, Moroccans have better L2 skills than Turks. Moroccans have especially good knowledge of French. Turks and Moroccans have better L2 speaking skills than L2 writing skills, in line with previous research in other countries (Hayfron 2001).

Table 3 presents the results of the binomial logistic regression of Dutch and French speaking and writing skills for Belgium as a whole. Table 4 (speaking) and Table 5 (writing) show the findings of the multinomial logistic regression of language combinations for the Dutch- and French- (including mixed-) language regions separately. Because current-language region is held constant in the multinomial

Table 2. Language skills of Turkish and Moroccan male immigrants in Belgium, 1994–95
(% reporting 'fairly well', 'well' or 'very well')

Language region	Ethnicity	Speaking skills		Writing skills	
		Dutch	French	Dutch	French
Dutch	Turkish	57	9	41	6
	Moroccan	62	62	45	45
French	Turkish	5	62	3	40
	Moroccan	5	88	4	63
Bilingual	Turkish	7	61	4	34
	Moroccan	10	83	9	67

analysis per language region, and first- and current-language region of living are highly correlated, both variables regarding the respondent's language area are left out in Tables 4 and 5. It is, furthermore, important to emphasise that Tables 4 and 5 only present the meaningful contrasts from the multinomial models. The contrasts between being proficient in French only (versus neither French nor Dutch) in the Dutch area, and between being proficient in Dutch only (versus neither French nor Dutch) in the French area are therefore omitted in the tables.

As hypothesised, we find a significantly negative effect of age at migration on L2 skills (Table 3). Immigrants who arrived at an older age are less proficient in Dutch and French speaking and writing skills. Separate analyses per language region equally show this effect of age at migration (Tables 4 and 5).⁴ Also in line with expectations is that language skills are generally better among immigrants who have stayed in Belgium for a longer time period, although the effect of duration decreases over time.

Table 3. Binomial logistic regression of Dutch and French speaking and writing proficiency among Turkish and Moroccan male immigrants in Belgium, 1994–95 (odds ratios; N = 2,250)

	Speaking		Writing	
	Dutch	French	Dutch	French
Age at migration	0.906***	0.948***	0.901***	0.939***
Length of stay	1.209***	1.138***	1.115**	1.099***
Length of stay squared	0.996***	0.998**	0.998**	0.998***
Schooling origin	1.046	1.013	1.031	0.958*
Schooling origin*Moroccan	0.939*	1.238***	0.940	1.369***
Schooling Belgium	1.063***	1.084***	1.127***	1.176***
Labour migrant	0.787	0.911	0.486**	0.568**
Co-ethnic partner	1.084	0.601***	0.825	0.567***
% co-ethnic in municipality	0.967**	0.936**	0.966**	0.963*
L1 main speaking skills	1.126	1.750***	0.945	1.225**
L1 local speaking skills	1.023	1.030	0.912	1.025
L1 writing skills	1.308***	1.055	1.646***	1.508***
Settlement intentions	0.868	1.362**	0.981	1.875***
Language course	1.654***	1.427**	1.936***	1.601***
Sports club	1.261	1.200	1.204	1.174
Socio-cultural organisation	1.334	1.418***	1.374	1.549**
Moroccan	2.672***	23.070***	4.316***	46.390***
First-language area				
Dutch	6.249***	1.000	7.354***	1.000
French	1.000	3.617***	1.000	4.120***
Mixed	1.766	2.687***	2.456*	2.970***
Current-language area				
Dutch	20.240***	1.000	20.960***	1.000
French	1.000	5.731***	1.000	4.647***
Mixed	1.464	9.660***	1.585	6.519***
McFadden R2	.48	.45	.52	.54

Notes: * 0.05 < p. < 0.10; ** 0.01 < p. < 0.05; *** p. < 0.01 (two-sided). Robust standard errors, adjusted for clustering on municipalities.

Hence, learning to speak and write the second language is particularly strong shortly after arrival.

Schooling is, as hypothesised, significantly positively related to L2 skills. The association between schooling obtained in the country of origin and L2 proficiency is lower than the relationship between schooling received in Belgium and L2 skills. The longer immigrants went to school in Belgium, the better their French and Dutch skills, in both speaking and writing. This pattern is observed for both language areas. Schooling in Belgium is, in particular, related to proficiency in both Dutch and French, more than knowledge of only the dominant language in the region of living.

Interestingly, pre-migration schooling does not have a *direct* positive effect on L2 proficiency among Turks (and is even slightly negative in some models). Further analyses, however, suggest that the pre-migration schooling of Turks is important *indirectly*. Turkish immigrants who were more-highly educated at the time of migration have better L1 skills, are more likely to obtain additional schooling after migration, more likely to follow a language course and are more often members of an organisation. These variables have important effects on L2 acquisition, as we discuss below, and thereby explain the role of pre-migration education. For Moroccan

Table 4. Multinomial logit regression of speaking skills among Turkish and Moroccan male immigrants, in dominantly Dutch-language (N = 914) and French-language (N = 1,336) regions in Belgium, 1994–95 (log odds ratios)

	Dutch-language area		French-language area	
	Dutch only/none	Bilingual/ none	French only/none	Bilingual/ none
Age at migration	-0.122***	-0.091***	-0.055***	-0.111***
Length of stay	0.221***	0.250***	0.160***	0.334***
Length of stay squared/100	-0.592***	-0.494***	-0.285**	-0.678***
Schooling origin	0.034	-0.034	0.053	0.058
Schooling origin*Moroccan	-0.019	0.177***	0.198***	0.106
Schooling Belgium	0.073***	0.115***	0.200***	0.272***
Labour migrant	-0.491	-0.536	-0.090	0.189
Co-ethnic partner	0.090	-0.810***	-0.634***	-0.794**
% co-ethnic in municipality	-0.032**	-0.134***	-0.024	-0.000
L1 main speaking skills	0.100	0.537***	0.653***	0.689***
L1 local speaking skills	-0.081	0.002	-0.015	-0.019
L1 writing skills	0.244**	0.262*	-0.023	0.304
Settlement intentions	-0.293*	0.301	0.238	-0.086
Language course	0.461**	0.825**	0.375**	0.983***
Sports club	0.163	0.026	0.786***	0.943***
Social-cultural organisation	0.489*	0.762*	0.547**	0.517
Moroccan	1.108**	4.015***	2.651***	3.715***
Constant	0.033	-1.944***	0.855***	-2.946***
McFadden R2	.36		.32	

Notes: * 0.05 < p < 0.10; ** 0.01 < p < 0.05; *** p < 0.01 (two-sided). Robust standard errors, adjusted for clustering on municipality. The French-language area includes the officially bilingual and dominantly French region of Brussels. The results for the contrasts between French-only versus none (in the Dutch area) and between Dutch-only versus none (in the French area) are not presented here.

immigrants we find that, even after taking into account these variables, pre-migration education has a significant positive effect on French skills, but not on Dutch. This confirms the idea that Moroccan immigrants were exposed to French at school, and that more years of schooling reflects more intense exposure.

Contrary to expectations, we do not find that immigrants who migrated for economic reasons have better L2 skills than immigrants who migrated for other reasons. Labour migrants even have fewer writing skills than other migrants.

We find some evidence that immigrants who are married with a co-ethnic partner report lower language skills than immigrants who are single or who married outside their own group. The significant difference pertains to French speaking and writing skills (Table 3). Turkish and Moroccan males married to a co-ethnic spouse have fewer skills in French speaking and writing.⁵

Ethnic minority concentration is negatively and significantly correlated with L2 skills when analysed for the entire country. However, separate analyses per language region show that the relationship between ethnic concentration and speaking and writing skills is not significant in the French area (Tables 4 and 5). The presence of co-ethnics in the region of living is not negatively related to proficiency in French,

Table 5. Multinomial logit regression of writing skills among Turkish and Moroccan male immigrants, in dominantly Dutch-language (N = 914) and French-language (N = 1,336) regions in Belgium, 1994–95 (log odds ratios)

	Dutch-language area		French-language area	
	Dutch only/none	Bilingual/ none	French only/none	Bilingual/ none
Age at migration	-0.130***	-0.069***	-0.076***	-0.091***
Length of stay	0.110**	0.133***	0.090*	0.312***
Length of stay squared/100	-0.299**	-0.266*	-0.192	-0.746***
Schooling origin	0.035	-0.128*	-0.048	-0.083
Schooling origin*Moroccan	0.009	0.268***	0.368***	0.188**
Schooling Belgium	0.140***	0.239***	0.197***	0.295***
Labour migrant	-0.550	-1.094***	-0.798**	-0.500
Co-ethnic partner	-0.243	-0.925***	-0.730***	-1.270***
% co-ethnic in municipality	-0.079**	-0.151***	-0.000	0.005
L1 main speaking skills	0.164	0.349**	0.168	0.0219
L1 local speaking skills	-0.180	-0.005	-0.066	-0.113
L1 writing skills	0.400***	0.632***	0.398***	0.994***
Settlement intentions	-0.038	0.647***	0.627***	0.454
Language course	0.718**	0.933*	0.512*	1.383***
Sports club	0.152	0.146	0.359	0.519
Social-cultural organisation	0.395	0.617	0.674**	0.704
Moroccan	1.359***	4.454***	3.552***	5.198***
Constant	-1.232***	-3.848***	-0.977***	-5.226***
McFadden R2	.44		.50	

Notes: * 0.05 < p < 0.10; ** 0.01 < p < 0.05; *** p < 0.01 (two-sided). Robust standard errors, adjusted for clustering on municipality. The French-language area includes the officially bilingual and dominantly French region of Brussels. The results for the contrasts between French-only versus none (in the Dutch area) and between Dutch-only versus none (in the French area) are not presented here.

possibly because many members of the respondents' own ethnic group have adequate knowledge of French as well.⁶

There is some evidence that settlement intentions are positively related to L2 proficiency. Immigrants who intend to settle permanently in Belgium speak and write French better. When analysed separately per language region, however, the positive relationship with French speaking skills disappears, although it remains significant for French writing skills.

Having followed a language course is associated with better skills in Dutch and French. When analysed separately per language region, we see that it is more strongly associated with speaking and writing both Dutch and French (versus no language), rather than having knowledge of only the dominant language.

We also find evidence for a positive relationship between being a member of a voluntary association and L2 proficiency. Turks and Moroccans who are members of a sports club or socio-cultural organisation generally report higher levels of Dutch and French skills. Note that only a relatively small number of immigrants are members of an organisation (15–18 per cent) and that the results are significant at conventional levels ($p < .05$) when using the appropriate one-sided tests. The results suggest that membership is more beneficial for speaking than writing skills.

L1 skills play a role in immigrants' proficiency in Dutch and French. The proficiency to write in the national, main language of the country of origin significantly increases the L2 speaking skills in the Dutch language area and increases L2 writing skills in the Dutch- and French-language areas. L1 speaking skills have a positive effect on L2 speaking skills in both languages, and they lead to knowledge of both Dutch and French in the Dutch-language area. However, these findings only pertain to the national language, not to knowledge of a local language in the country of origin, which appears to have no effect on L2 speaking skills. Overall, the results confirm the hypothesis that skills in the national language of the country of origin go hand-in-hand with L2 skills.

Table 6. Predicted distributions across language combinations by country of origin

	Dutch-language area				French-language area			
	Dutch	French	Both	None	Dutch	French	Both	None
<i>L2 Speaking</i>								
Moroccans	27.6	3.4	67.6	1.4	0.0	91.7	7.0	1.4
Turks	42.6	2.9	6.3	48.3	1.7	67.1	0.8	30.4
<i>L2 Writing</i>								
Moroccans	31.5	5.8	48.6	14.1	0.0	86.6	6.4	7.0
Turks	12.1	1.5	1.9	84.6	0.0	24.2	0.2	75.6

Note. Predictions computed with multinomial logit models, separately by ethnic group, with age at migration, length of stay, length of stay squared, years of schooling in country of origin, years of schooling in Belgium, % co-ethnic in municipality, L1 speaking proficiency, and L1 writing proficiency. Predictions evaluated at the country-level means of all variables (see Table 1).

Another hypothesis stated that, due to pre-migration exposure, Moroccans would exceed Turks in their proficiency in French. Table 3 shows that, when analysed for Belgium as a whole, Moroccans clearly have better French skills than Turks. Moroccans have 23-times higher odds of speaking French well and 46-times higher odds of writing well in French. Although Moroccans clearly outperform Turks with respect to French, as was expected, we also see that, net of other variables in the model, they have somewhat better skills in Dutch.

We find a strongly significant relationship between the main language of the first- and current-language region and their (French or Dutch) skills. In the officially bilingual—though dominantly French—region of Brussels, we see that immigrants are more proficient in French than in Dutch.

To examine whether immigrants invest more in L2 skills in Flanders than in Wallonia, as was hypothesised, we have to look at Table 6. It shows the predicted distributions across language combinations for both regions, based on the mean of the continuous variables at the country level (see Table 1). The categorical variables were excluded in this computation for reasons of estimation (i.e. numbers too small for specific combinations). To test the hypothesis, we cannot look at the results for the Moroccan immigrants, because they had some exposure to French before arrival. Hence, we have to compare the language investments of ‘similar’ Turkish immigrants in the Dutch and French areas, as they had no knowledge of these languages at arrival.⁷ In line with our hypothesis, more Turks have no knowledge of either French or Dutch in Flanders than in Wallonia. In Flanders, 48 per cent of the average Turkish immigrants are predicted to speak neither French nor Dutch well, as against 30 per cent of the (same) average Turkish immigrants in Wallonia. The difference is also found for writing investment.

Table 6 also allows us to examine whether immigrants prefer to invest in French rather than Dutch. Again, we have to look at the Turks, and in this case specifically at those who made some investments in L2 skills (i.e. who speak or write at least one language well). Of the average Turkish immigrant living in the Dutch-language area who invested in L2 skills, we see that 82 per cent [$42.6/(42.6 + 2.9 + 6.3)$] speak only Dutch and have no knowledge of French. Of the comparable Turkish immigrants living in the French-language area who invested in L2 skills, we see that 96 per cent speak only French and have no knowledge of Dutch. With respect to writing skills, the differential investments in French and Dutch are even more pronounced. These results suggest that Turkish immigrants find it more attractive to invest in French than in Dutch, in line with the theoretical model of language acquisition.

Conclusion and Discussion

Previous research has formulated three general mechanisms that play a role in immigrants’ L2 skills. It is argued that immigrants have more command of L2 when they are more exposed to that language, when they have more economic incentives to invest in L2, and when they are more efficient in learning L2 (the *Standard Theoretical*

Model, STM). From this general theory, a set of hypotheses has been derived and extensively tested in the literature (labelled here as the *Standard Empirical Model*, SEM).

This paper shows that SEM, which was empirically supported in monolingual countries, also holds in the multilingual context of Belgium. L2 skills are higher among those who migrated at a younger age, have been living in Belgium for a longer time period, are not married to a co-ethnic spouse, have received more education—particularly in Belgium, have followed a L2 course, intend to stay in the host country and live in regions with fewer co-ethnics. It seems that the determinants identified in SEM are quite universal and less dependent on the linguistic context.

One finding was unexpected, however. Contrary to SEM, immigrants who migrated for predominantly economic reasons do not have better L2 skills than those who migrated for family or other reasons. Possibly, this has to do with the fact that many of the Turkish and Moroccan labour migrants in Belgium were occupied in low-skilled manual jobs in which (virtually) no language skills were needed. Furthermore, these labour migrants were concentrated in certain organisations with many co-ethnic employees, leading to less exposure at the workplace as well. In the Netherlands, it was likewise found that Turkish and Moroccan labour migrants do not have better language skills than family migrants (Van Tubergen and Kalmijn 2009).

SEM was also extended in this study by examining the impact of social participation and L1 proficiency. Census data do not contain information on these potentially important factors. As expected, we find evidence for a positive association between social participation and L2 proficiency. Membership of a sports club or a socio-cultural association is positively associated with better Dutch and French skills, as they are settings in which immigrants could establish contacts with native Belgians. Our study thereby corroborates the cross-sectional study of Espinosa and Massey (1997), who found that Mexican immigrants in the US who were members of a sports or social club had better English-language skills.

We also find that L1 proficiency increases L2 proficiency. This is in line with observations by Dustmann (1994) for immigrants in Germany, and supports the idea that immigrants are more efficient in learning L2 when they are more proficient in L1. The increased efficiency is partly due to a higher general ability (related to any type of learning) and partly due to specific 'language skills' acquired when learning L1, and which can be used again when learning a new language. Indeed, our analysis shows that the positive impact of pre-migration education is partly explained by better proficiency in L1. This is a potentially important extension of SEM which needs further testing. More research is also needed on the observation that oral knowledge of a local language does not promote L2 skills—whereas oral and written skills in the national language of the country of origin do increase L2 speaking and writing proficiency.

The multilingual nature of Belgium also has implications for language learning. Investments in L2 are unequal between the language regions, as these regions differ quite strongly in their economic conditions. In Wallonia, immigrants have better language skills than in Flanders. This conclusion is true even for Turkish immigrants, who had no knowledge of French or Dutch at arrival. It confirms the idea that it is more economically attractive for immigrants to invest in L2 skills in Wallonia, as the region has a higher unemployment rate and income inequality than in Flanders.

The multilingual context also has consequences for the unequal exposure to one of the dominant languages before migration. Although Moroccans have better Dutch and French skills than Turks, they are particularly proficient in French. Our study also shows that the returns on schooling in the country of origin are higher among Moroccans than Turks. These observations are in line with the idea that, as a former colony of France, Moroccans have been more exposed to French in their country of origin.

Finally, we see that language investments in the multilingual context are unequally distributed. We find that immigrants acquire the dominant language of their first and current region of living. This means that immigrants in Flanders invest in Dutch skills, whereas in Wallonia they learn French. In the officially bilingual, though dominantly French region of Brussels, immigrants choose French and not Dutch. This is a more general finding of our study: French is the preferred language. This is evident from the language acquisition of Turks. Their investments in French in the French part are stronger than their investments in Dutch in the Dutch-speaking part. And, likewise, Turkish immigrants invest more in French in the Dutch region than they learn Dutch in the French region. These patterns presumably reflect the fact that French is a more international language than Dutch, and therefore more attractive to learn.

Notes

- [1] On how these determinants were derived from STM, see Chiswick and Miller (2007); Esser (2006).
- [2] Although test scores might be preferred as a more objective measure of language skills, studies have reported a very strong relationship between self-reported language and such test scores (see Carliner 2000; Stevens 1999 for discussion). For some variables, however, the estimated size of the effect can be biased in analyses using self-reported measures (Finnie and Meng 2005). Language skills reported by respondents themselves do not differ significantly from the skills reported by interviewers (Van Tubergen and Kalmijn 2005).
- [3] The contrast between the three upper categories and the lower two was chosen for several reasons. First, it was based on the thresholds of ordered logit regressions. The distances between the second and third categories appeared to be particularly large. Second, the dichotomy results in a quite balanced distribution. Third, many previous studies have used the same contrast, enabling us to compare findings across studies more easily.
- [4] We also estimated a quadratic functional form of age at migration, but found no significant effects.

- [5] One reason for not finding the hypothesised negative impact of endogamous marriages for Dutch skills is that we contrasted these immigrants with those who are single or married with a partner born outside their country of origin. It is possible, however, that a substantial part of 'mixed marriages' are in fact co-ethnic marriages between first- and second-generation immigrants, thereby underestimating the effect of 'true intermarriages'. There is no room to examine this issue in this paper, however. Another reason is that the 'effect' of co-ethnic marriages is selectivity into marriage, rather than the influence of the partner thereafter. Additional binary logistic regression analyses controlling only for language area show that co-ethnic marriages have lower Dutch speaking and writing skills.
- [6] The results pertain to both Turks and Moroccans (analysis not presented here).
- [7] In the analysis, the French-speaking region of Wallonia and the officially bilingual (though dominantly French) region of Brussels are taken together. In further analysis we find virtually the same predicted probabilities for the speaking skills of Turks when analysing these regions separately. With respect to the writing skills of Turks, numbers for each outcome category per region are too small to obtain results. For this reason, we present the findings for the regions combined.

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