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I speak, thus I belong?

van Niejenhuis, Cornelia Ybeltje

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Chapter 2

Predictors of immigrants' second language proficiency. A Dutch study of immigrants with a low level of societal participation and second language proficiency.

Abstract

This article examines the predictors of second language proficiency for a group that until now has hardly been investigated: immigrants who rarely participate in the host society and who have a low level of second language proficiency (sample characteristics are for example: no paid job, low educational and literacy level, high mean age and number of years since migration). In contrast with earlier research, not only self-assessments were used as indicator for second language proficiency, but also language test scores. Results from a sample of 624 immigrants partly replicate findings from earlier studies: self-assessed second language proficiency is higher among immigrants who have followed a language course, do voluntary work, have a high educational level, high mother-tongue proficiency, a low migration age, and a large number of years since migration. No links, however, were found between having psychological problems, gender, and migration motive and self-assessed second language proficiency. Furthermore, some new predictors of self-assessed second language proficiency were identified, namely similarity in alphabet between mother tongue and second language, daily interactions with natives in the public domain, and speaking the second language at home. For a subsample (N=98) second language proficiency was also assessed via (objective) lexicon tests. When using scores on this test as dependent variables, only years since migration turned out to be a significant predictor. Though certainly tentative, this finding indicates that different predictors of second language proficiency may apply depending on how it has been measured.

2.1 Introduction

For decades, a major challenge for Western countries has been the societal adjustment of the millions of immigrants who enter every year. Despite recent decline, almost 4 million people migrated permanently to the West in 2011 (OECD, 2013). A key factor in the successful adjustment of these immigrants is their competency in the host country's language. Research has shown, for example, that immigrants have a higher probability of finding employment (Aldashev, Gernandt, & Thomsen, 2009) and higher earnings when they are more proficient in the second language (Chiswick & Miller, 1995). Furthermore, there is evidence that the second language proficiency of first-generation immigrants even has an impact on the future opportunities of the next generation, while a high level of second language proficiency among parents has been found to be associated with more favourable educational placement of their children in secondary school (Alba, Handl, & Muller, 1994; Stanat, 2006).

Given the beneficial outcomes of the second language proficiency of immigrants, a relevant question is: What are the predictors of second language proficiency? Research addressing this question has consistently shown that immigrants who migrated at a lower age, who have been in the host society for a larger number of years, and who have a higher educational level have a higher level of second language proficiency (see for an overview Chiswick & Miller, 2007). However, despite the valuable insights from these studies, we argue that there are two limitations to the available evidence. First, one may question whether the samples used to test the determinants of second language proficiency were fully representative of all immigrant groups. Immigrants with low levels of societal participation are underrepresented, given that they are less likely to take part in research (Groves & Couper, 1998; Stoop, 2005: 274). Moreover, immigrants with a low level of second language proficiency are often not included in this work. Much research was conducted in the language of the host country or in an additional lingua franca (CBS- Statistics Netherlands, 2005: 50), in which languages many immigrants are not sufficiently proficient to participate in research. A second limitation concerns the measurement of the second language proficiency, which typically consists of self-assessments of the respondents (Beenstock, Chiswick, & Repetto, 2001; Carliner, 2000; Chiswick & Miller, 1995, 2002; Van Tubergen, 2010), and occasionally of assessments done by interviewers (see, for example Van Tubergen & Kalmijn, 2005; Van Tubergen & Wierenga, 2011). There is some evidence, however, that standardized language tests, which are more objective than self-assessment measures, may be more valid with respect to actual language proficiency (Finnie & Meng, 2005).[1]

In the current study, we addressed the first two shortcomings by examining the determinants of second language proficiency among a group of immigrants underrepresented in earlier research: immigrants who hardly participate in the host society, and who have a low level of second language proficiency. The third shortcoming was also addressed: In addition to measuring second language proficiency using self-assessment reports, we also used more objective measures (in a subsample): namely, a passive and an active lexicon test.

Building on previous work by economists and sociologists (Chiswick & Miller, 2001; Esser, 2006; Stevens, 1999; Van Tubergen, 2010), and taking into account specific characteristics of the immigrants participating in the current study, our first goal was to investigate whether we could replicate the findings from earlier studies using both subjective and objective measures of second language proficiency. Moreover, we explored other possible predictors of second language proficiency that were not included in earlier research but that we argue to be of relevance. This concerns four predictors: similarity between the alphabet of the mother tongue and that of the second language, speaking a lingua franca (English in the case of the Netherlands), the extent to which immigrants interact on a daily basis with members of the host society, and speaking the second language at home.

2.1.1 Predictors of second language proficiency

Regarding the predictors of second language proficiency, research has focused mainly on three concepts: Exposure, Efficiency, and Economic incentives (the three "Es": Chiswick & Miller, 1995). Exposure refers to the extent to which immigrants have been exposed to the second language. Research on this concept has most prominently tested the relation between the number of years since migration and second language proficiency. The findings have revealed that a larger number of years since migration, and thus greater exposure to the second language, was associated with a higher level of second language proficiency (Carliner, 2000; Espenshade & Fu, 1997; Massey & Espinosa, 1997; Sole, 1990; Stevens, 1999; Van Tubergen & Kalmijn, 2005).

In addition to the length of the exposure, research has focused on the intensity of the exposure, referring to the kind of activities one actually undertakes in which the language is used. The results showed that having followed a language course (Beenstock et al., 2001; Gonzalez, 2000) and being a member of a voluntary organization (Van Tubergen, 2010) were positively related to second language proficiency. Having a co-ethnic spouse was related to a lower level of second language proficiency (see, for example Van Tubergen & Wierenga, 2011); presumably because immigrants with a partner of another ethnicity are more likely to be exposed to the second language at home. Findings on having children who speak the

second language are mixed (see, for example Chiswick & Miller, 1995). The positive relations may (again) be explained by more second language exposure at home. Negative relations between having children who speak the second language and second language proficiency, on the other hand, may be caused by a diminishing need for parents to learn the second language when their children can serve as translator.

The second concept, efficiency, refers to one's ability to convert exposure to the second language into actual language learning. Education helps to realize such a conversion process, presumably because higher educated people are more experienced in acquiring new skills (Carliner, 2000; Dustmann, 1994; Espenshade & Fu, 1997; Massey & Espinosa, 1997; Sole, 1990; Stevens, 1999; Van Tubergen, 2010; Van Tubergen & Kalmijn, 2005). Moreover, in the Common Underlying Proficiency theory on the transferability of skills across languages (Cummins, 2000), it is argued that the first language proficiency is a good basis for learning additional languages. It offers a set of skills (like being able to read and write) and implicit metalinguistic knowledge that can be drawn upon when learning a second language. It can thus be assumed that being proficient in the mother tongue facilitates learning an additional language (Dustmann, 1994; Van Tubergen & Wierenga, 2011). Furthermore, age at migration and health have been shown to be important efficiency-related predictors; younger immigrants (see, for example Chiswick & Miller, 2008b) and immigrants without psychological problems appeared to be more capable of acquiring second language skills (Chiswick & Miller, 2001; Van Tubergen, 2010). Gender is also often considered as an efficiency-related predictor in the literature. Men have generally been found to be more proficient in the second language than women (see, for example Van Tubergen, 2010; Van Tubergen & Kalmijn, 2005).[2] This finding is usually explained by suggesting that men are more oriented towards labour market participation, for which second language proficiency is usually required. This explanation, however, is not related to the efficiency concept, but, as outlined below, to the third concept mentioned by Chiswick and Miller (1995): economic incentives.

Economic incentives refer to the extent to which it is beneficial for immigrants to learn the language because of economic opportunities and thus potential financial gains. Similar to gender, migration motive may also affect both efficiency and economic opportunities. Research has revealed that immigrants who migrated with the objective of labour market participation (i.e., because of economic opportunities) score best regarding second language skills, followed by family immigrants, who are often attracted by family ties in combination with economic opportunities, and finally by refugees, who migrate for the sake of safety rather than for economic opportunities (see Chiswick & Miller, 2007).

Further variables subsumed under economic incentives that affect second language proficiency are the prospect of finding a job, or simply the hope that being proficient in the language will make it easier to find a desirable product for a good price (Chiswick & Miller 2008b). In addition, planned duration of stay in the host country has been found to be an influential predictor related to the economic incentives concept: The longer a person expects to stay, the higher the benefit ratio for investing in second language learning (Chiswick & Miller, 2007, 2008a).

Summarizing the literature discussed above, we can conclude that the number of years since migration, having followed a language course, voluntary work, education level, mother-tongue proficiency, being male, being an economic immigrant, and planned duration of stay in the host country are positive predictors of second language proficiency. Psychological problems, having a co-ethnic partner, and age at arrival in the host country are typically negatively related to second language proficiency. Having children who speak the second language is not consistently related to second language proficiency: both positive and negative relations are reported in the literature.

2.1.2 The current study

The present research sets out to test the relevant predictors of second language proficiency with a group that in many respects differs from typical respondents in previous research: socially isolated immigrants residing in the Netherlands who did not speak or hardly spoke the Dutch language. These immigrants participated in a social intervention, aimed at stimulating immigrants' social participation and integration through informal Dutch-language lessons given by a volunteer who functioned as a mentor. On average, the participating immigrants were relatively old (only 25% were younger than 35 years of age; mean age = 45), had a low educational level, a low literacy level with respect to the mother tongue, and no paid job. More than half of them originated from Morocco, Turkey, and Iraq; the majority came to the Netherlands between 1965 and 2000 and migrated because of marriage or unification with family. All immigrants stayed (or at least intended to stay) in the Netherlands permanently (see Table 2.2 for more details).

Although previous findings on the predictors of second language proficiency are quite consistent, and although we expected to replicate these previous findings on many of the investigated variables, we expected different findings for some predictors, given particular characteristics of our research group. More specifically, we expected that the number of years since migration would not at all or only weakly be related to second language proficiency. As mentioned above, the immigrants in the current study were socially isolated immigrants with

a low level of proficiency in the Dutch language. Even though many of these immigrants had been living in the Netherlands for several years, they had hardly been exposed to the Dutch language due to their secluded way of living. Therefore, the length of the exposure was not expected to be a powerful predictor of second language proficiency as it does not say anything about what immigrants did during their years in the host country and thus not about how intensively immigrants were actually exposed to the second language.

Moreover, we expected that the relation mostly found between gender and second language proficiency would not be replicated in the current study. Men in the current study were not expected to have a higher level of second language proficiency, because they were generally not (yet) oriented towards the labor market.

Focusing on the relation between migration motive and second language proficiency, most earlier research has shown that economic immigrants score relatively high. The few economic immigrants in the current study (about 6%), however, most probably came to the Netherlands to occupy low-skilled manual jobs, for which being proficient in the second language was not a requirement (see also Van Tubergen & Kalmijn, 2005; Van Tubergen & Wierenga, 2011). Therefore, we expected that the participants with the greatest language skills would not be the economic immigrants, but the immigrants who typically score second best in terms of language proficiency: family immigrants.

As well as exploring whether earlier findings could be replicated among a substantially different sample, we explored whether additional predictors, not yet reported in the literature, were of relevance. The first additional predictor that we took into account was having an alphabet which is similar to the Dutch alphabet: Latin. Even though researchers investigating the relation between proficiency in the mother tongue and in the second language (also) examined writing skills in both languages (Dustmann, 1994; Van Tubergen & Wierenga, 2011), they did not examine the effect of having a similar or different alphabet. However, again based on the Common Underlying Proficiency theory (Cummins, 2000), it can be argued that learning a language with an alphabet that is similar to that of the mother tongue is easier because of the transferability of the already established skills. In the current study, it was all the more relevant to include this predictor, given that many of the participating immigrants spoke an Arabic language and were thus more familiar with the Arabic alphabet than the Latin alphabet.

The second additional predictor is speaking a relevant lingua franca. It is assumed that the second language proficiency is lower among immigrants who have the opportunity to avoid this language (Chiswick & Miller 2007; Chiswick, 1998). Hence, it can be argued that speaking a language that serves as a lingua franca in the host country (English) can cause

immigrants to avoid communicating in the second language (Dutch). The consequence of this is less intensive exposure to the second language and thus lower second language proficiency. Therefore, proficiency in a lingua franca that is spoken in the host country was expected to be an important predictor negatively related to second language proficiency.

Third, frequency of daily interactions with natives in the public domain was explored for its relation with second language proficiency. There are many opportunities in the public domain for exposure to the second language in addition to interactions while doing voluntary work or following a language course (e.g., shopping, walking through the neighborhood, or traveling by public transport). Presuming that more of these interactions on a daily basis indicate greater exposure, we expected this variable to be an important predictor of second language proficiency.

Finally, we explored speaking the second language at home as another predictor. In earlier research, having a co-ethnic partner or having children who speak the second language, or both, were often included as predictors. As described earlier, they were assumed to be indicators of whether or not an immigrant is exposed to the second language at home. We argue that this can be measured more precisely by asking an immigrant directly whether he or she speaks the second language at home. Given the typically low (societal) participation levels of the current immigrants in the host society, we expected that this second language exposure at home would be a very important predictor of their second language proficiency.

Table 2.1 (see next page) provides a summary of all variables that were investigated in the present study. Where applicable, it indicates whether a positive or negative relation with second language proficiency was expected. Our model does not include variables related to the above-mentioned economic incentives concept. These variables could not be tested in the current study, because all immigrants from the sample intended to stay permanently. We tested the model using a large sample of immigrants with self-assessed second language proficiency as dependent variable. In addition, we analyzed this model using, for a small subsample, more objective measures of second language proficiency as dependent variable: namely, the scores on active and passive lexicon tests.

Table 2.1 Summary of variables and expected direction of relation with second language proficiency

Predictors	Relation
Exposure:	
Number of years since migration	?
Other language course	+
Voluntary work	+
Speaks second language at home	+
Daily interactions with natives in public domain	+
Speaking a lingua franca	-
Efficiency:	
Education	+
Mother-tongue proficiency	+
Similar alphabet	+
Age at time of migration	-
Psychological problems	-
Male	?
Migration motive: family	+

2.2 Method

2.2.1 Participants

The data used in the present study stem from a larger research project on the effectiveness of a Dutch intervention called 'Language encounters' (van Niejenhuis, Naayer, & Verkade, 2012). As mentioned above, the target group of this intervention comprised socially isolated immigrants residing in the Netherlands, who did not speak or hardly spoke the Dutch language. The aim of the intervention was to stimulate the social participation and integration of these immigrants through informal Dutch-language lessons given by a volunteer who functioned as a mentor.

With help from their mentors, all 1105 immigrants who entered the program filled in a simple intake questionnaire in Dutch. Through use of this questionnaire the background information and the self-assessed Dutch-language proficiency of the immigrants was registered. In very few cases, a translator who spoke the mother tongue of the immigrant had to assist. Unfortunately, owing to lack of time and different priorities, many mentors did not make the effort to motivate the immigrants to fill in all questions in the questionnaire. Therefore, many participants had to be omitted from our first analyses of the self-assessment measures of language proficiency because of missing information on the specific questions relevant to the current research. Table 2.2 shows the descriptives when all responses per

variable are taken into account (differing N because of the missing information) and when only the complete cases for the self-assessment analyses (*N*=624) are taken into account. We compared the mean scores of the 624 complete cases with the rest of the group that did have a score on that specific variable. Importantly, this comparison showed a very small difference between both groups in the average score on self-assessed second language proficiency (*t*(932)=1.26, *p*=.21), which implies that the remaining respondents were in this respect representative for the whole response group. With regard to the predictors, the subsample was also broadly representative. Only one difference was statistically significant; compared with the incomplete-response group, more of the remaining 624 immigrants migrated for family-related reasons (*X²* (1,943)=29.19, *p*<.001).[3]

Due to scarcity in terms of time and money, the researchers selected a subsample of the 624 respondents for the passive and active lexicon tests.[4] These tests were administered by the mentors, and used for the second analyses of this study. As the descriptives from Table 2.2 show, the 98 respondents who completed the tests are in most respects comparable with the rest of the sample. Only one significant difference was found, namely with respect to the similarity between the alphabets of the mother tongue and the second language: relatively more immigrants from the subsample had a mother tongue written in a non-Latin alphabet (*X²* (1, 624)=7.75, *p*<.01).

2.2.2 Measures

Criterion variables. *Self-assessed second language proficiency.* In line with earlier research, the dependent variable used in the first analyses was self-assessed Dutch-language proficiency, based on two items: "How well can you read in your own language?" and "How well can you write in your own language". The inter-item correlation was .79 (*p*<.001). Therefore the two items were combined into one scale.'

The four-point Likert scale ranged from "not/hardly", "a little", "considerably", to "excellent". In the literature, both four point scales (see, for example Van Tubergen 2010) and five point scales (see, for example Van Tubergen & Wierenga, 2011) are used to measure the self-assessed language proficiency. For these scales, as well as for the other scales used, we based our choice for the scale range on the discussion of the questionnaire with focus groups. These groups existed out of immigrants who belonged to our target group. Decisive was which range was most clear to the target group.

Passive lexicon test. In a subsample, we were also able to use the results of a passive Dutch lexicon test as measure of second language proficiency. To provide a more objective indicator of second language proficiency, this test was based on the only validated Dutch lexicon test

available when the research was conducted: the '*Taaltoets Alle Kinderen*' [Language test for all children] (TAK: Verhoeven & Vermeer, 2001). Though it is mostly used for children, this test seemed appropriate to measure the level of language proficiency for the adults in the present sample who learn the second language in an informal way instead of in a formal language course. The words from the test are used in the daily language of both children and adults. Advantage of this test is also that it is appropriate for people with a very low Dutch language proficiency and is easy to administer, even to illiterate people. The test consisted of 96 items of increasing difficulty and was administered by showing a page with four pictures, saying a certain word, and asking the immigrant to point to the corresponding picture on the page. The immigrant was asked, for example, to "point out the nose" while being shown four pictures depicting an eye, a nose, a mouth, and a knee. Likewise the original TAK lexicon test, this test was stopped after a certain amount of incorrect answers (seven). It was decided to (also) do so because the level of second language proficiency of many of the participants was very low. For the participants with a very low level, it would be frustrating to go through all 96 questions (with increasing difficulty). The test score was calculated by adding up all correct answers up to this moment (1 point for each). Given that most immigrants did not complete all items (as expected), an overall reliability could not be computed. Instead, computations were done on the individual items. Per item the number and subsequently the percentage of respondents who answered correctly was determined. Given the four answering categories per question, merely by chance at least 25% of the respondents who answered a question should have answered it correctly. Therefore all items which were answered correctly by less than 25% of the answering respondents were omitted from the test. Furthermore the correlations between the score on the specific items and the total test score were computed. Items with a correlation of zero or a negative correlation were considered as bad items and were therefore deleted. In total the computations on the individual items led to the omission of seven items from the test.

Active lexicon test. The second more objective indicator of second language proficiency was an active Dutch lexicon test, which was also based on the TAK (Verhoeven & Vermeer, 2001). Forty-one pictures were selected, of items that were assumed to be most relevant in daily life (26 concerning concrete subjects and 15 concerning actions). This test was administered by pointing out one item at a time and asking the immigrant a predefined question, like "What is this?" or "What is this woman doing?" For example, a bike was pointed out on a picture, while asking "What is this?" The immigrants were asked to give one answer. If more answers were given, only the first answer was rated. The rating of the answers was done by two persons, who gave either "2" (completely correct), "1" (partly correct), or "0" (incorrect) points (inter-

rater reliability: Cohen's k .79). Total test scores were computed by adding up the points of all individual items. The overall reliability of the test was high, with a Guttmann's lambda-2 of .88.

Exposure predictors. *Number of years since migration* was calculated by subtracting the year of migration, as indicated by the immigrant, from the year the questionnaire was administered (either 2010 or 2011). Additionally the squared number of years since migration was included (see, for example Beenstock et al., 2001; Van Tubergen & Kalmijn, 2005). This was done to test a possible nonlinear relation between number of years since migration and second language proficiency, which implies that the increase in proficiency is strongest in the first years after arrival.

Following a language course at the moment, working as a volunteer, and *speaking Dutch at home* were all direct questions coded as "1" ("yes") and "0" ("no").

Daily interactions with natives in the public domain was measured using the question "How often does it happen that you talk to several Dutch people on one day?" This was answered on a four-point scale ranging from "never" to "frequently".

Speaking English was derived from an open question asking respondents to mention the languages they spoke. All respondents who mentioned English were coded as "1", others as "0".

Efficiency predictors. *Highest educational level* was measured on a five-point scale using the answer categories "none", "primary school", "secondary school", "middle or high vocational education", and "university".

Age at time of migration was calculated by subtracting the migration year from the birth year.

Mother-tongue proficiency was measured using a 2-item Likert scale based on the self-assessment questions "How well can you write in your own language?" and "How well can you read in your own language?" (inter-item correlation .80, $p<.001$). The four- point scale ranged from "not/hardly" to "excellent".

Similar alphabet was derived from the question about the immigrants' mother tongue. This open question was recoded into a dummy variable that was coded as "0" if the mother tongue was written in a non-Latin alphabet and as "1" if it was written in the Latin alphabet.

Psychological problems were measured by asking whether or not the respondent had had psychological problems in the past two years; this could be answered with "no", "yes, but not anymore", and "yes, I still have". This was recoded into "1" for immigrants who answered

"yes, I still have", and "0" for all others.

Gender was measured by asking whether the immigrant was male or female. The variable was recoded into a dummy variable where males were coded as "1" and females as "0".

Migration motive: unification with family was measured by asking the respondents to indicate the reason for migration. The possible answer categories were ("1") "unification with spouse or marrying someone who lives in the Netherlands", ("2") "not feeling safe in my own country", ("3") "for reasons I don't want to give", and finally ("4") the open category "other reasons, namely ..." where respondents could fill in specific reasons. The answers were recoded into a dummy variable. The first category and family-related answers on the open category were coded as "1". The second category, concerning safety, and the remaining answers on the open category were coded as "0". The category "for reasons I don't want to give" was coded as missing. Table 2.2 presents the descriptive statistics for the independent and dependent variables.

2.3 Results

2.3.1 Statistical analyses

Before starting our analyses, we focused on the correlations between the three indicators of language proficiency. These show that the scores on the active and passive lexicon tests are moderately related (r=.58, p<.01) and that both tests are hardly related to the self-assessed second language proficiency (r=.30, p<.01) (for interpretation coefficients see Cohen, 1992). Multiple regression analysis was used to answer the research questions. In line with earlier research, in the first regression analyses we examined the predictors of self-assessed second language proficiency. To first test the predictive value of the exposure and efficiency variables independently, we included these predictors in two separate models. All predictors were then simultaneously included in a third model. Running this full model enabled us to examine the relation of each predictor with second language proficiency, while controlling for all other predictors. Based on this analytical approach, conclusions were drawn about the strongest predictors of the self-assessed second language proficiency of the respondents in the current study.

In addition to these analyses on the complete cases using the self-assessment scores as the dependent variable, we also analyzed the subsample of respondents for whom test scores were (also) available. In these analyses, both the self-assessment scores and the passive and active lexicon test scores were the dependent variables. The variables that had appeared to be significant in the earlier full model were included as predictors.

Table 2.2 Descriptive statistics of independent and dependent variables

	Full sample				Complete cases SA (N=624)			Subsample LT (N=98)		
	N	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD
Exposure										
Number of years since migration	896	0-51	14.14	10.44	0-51	14.57	10.50	0-45	14.86	11.24
Number of years since migration squared	896	0-2601	308.80	395.37	1-2601	322.27	399.11	0-2025	345.88	416.31
Other language course	945	0/1	0.65		0/1	0.67		0/1	0.73	
Voluntary work	943	0/1	0.14		0/1	0.14		0/1	0.09	
Speaks Dutch at home	882	0/1	0.32		0/1	0.32		0/1	0.29	
Daily interactions with natives in public domain	888	1-4	2.21	0.83	1-4	2.22	0.84	1-4	2.21	0.88
Speaking a lingua franca (English)	1050	0/1	0.22		0/1	0.22	0.41	0/1	0.16	
Efficiency										
Education	1021	1-5	2.40	1.38	1-5	2.50	1.37	1-5	2.27	1.29
Mother-tongue proficiency	916	1-4	2.91	1.22	1-4	2.88	1.22	1-4	2.79	1.23
Similar alphabet (Latin)	1075	0/1	0.34		0/1	0.38		0/1	0.50	
Age at time of migration	978	0-75	30.91	11.40	0-75	30.29	11.28	13-63	28.87	10.95
Psychological problems	881	0/1	0.29		0/1	0.29		0/1	0.30	
Male	1060	0/1	0.22		0/1	0.19		0/1	0.21	
Migration motive: family	943	0/1	0.58		0/1	0.64		0/1	0.70	
Dependent variables										
Self-assessment Dutch reading and writing	934	1-4	1.89	0.70	1-4	1.91	0.70	1-4	1.82	0.69
Score passive lexicon test	145	3-67	20.97	11.67				3-67	21.56	12.57
Score active lexicon test	141	15-80	58.35	12.50				15-80	58.39	12.85

* The complete cases SA (N=624) are respondents who completed all predictors plus self-assessed language proficiency.

** The subsample LT (N=98) are respondents who included all predictors plus self-assessed language proficiency and 2 lexicon tests.

2.3.2 Missing data

Despite the above-mentioned small differences in means of the full sample and the complete cases with respect to self-assessed second language proficiency (*N*=624) and the lexicon tests (*N*=98), it cannot be said with certainty that the analyses of the complete cases led to unbiased results. Therefore, we imputed missing data, which is currently considered as the best method to deal with incomplete data (Graham, 2009). We used multiple imputation based on Fully Conditional Specification (Van Buuren, 2007) with logistic and linear regression models as imputation models, depending on the type of scale used to measure each variable. All variables of this study were included in the imputation model to predict the missing values. The only variables that were not imputed were the active and passive lexicon test scores, because of the high percentage of missing values (87%). For the other variables, the percentage of missing range was between 3% and 20% (see Table 2.2). The imputation procedure resulted in a dataset with full information about all 1105 immigrants who entered the social intervention. A comparison of the results of the multiple regression analyses on the imputed and the original data (using listwise deletion) shows minor differences in terms of explained variance, standard deviations, and significance levels. All variables that were significant in the analyses using the original data were also significant in the analyses using the imputed data. The very few exceptions are variables that were on the edge of significance in the original data, and are no longer or just significant in the imputed data. Given the high similarity between the results of the regression analyses of the two datasets we report the analyses conducted using the original data below.

2.3.3 Analysis of self-perceived language proficiency in the complete cases

Table 2.3 presents the results of the multiple regression analyses with self-assessed Dutch-language proficiency as dependent variable. First, looking at the highly significant exposure predictors (*p*<.001 in Model 1), the results from both Model 1 and Model 3 show that having followed a Dutch-language course, doing voluntary work, speaking the Dutch language at home, and the frequency of speaking with natives on a daily basis are all positively related to Dutch-language proficiency. The results from Model 1 also indicate that speaking a lingua franca (English) is positively related to Dutch-language proficiency. However, we also found that speaking a lingua franca is strongly and positively related to educational level (*t*(624)=-12.99, *p*<.001). Not surprisingly then, when educational level is also included in the analyses, as in Model 3, speaking a lingua franca becomes non-significant, indicating that speaking a lingua franca is confounded with the efficiency variable educational level and is, therefore,

not necessarily a powerful predictor in itself. Finally, number of years since migration is significantly related to the Dutch-language proficiency, though to a lesser extent than the previously mentioned variables ($p<.05$). The negative coefficient of the squared number of years since migration implies that the increase in proficiency is strongest in the first years after arrival.

Second, looking at the highly significant efficiency predictors ($p<.001$ in Model 2), the results from both Model 2 and Model 3 show that educational level and mother-tongue proficiency are consistently positively related to self-assessed Dutch-language proficiency. The models also consistently show a negative relation between age at time of migration and Dutch-language proficiency. Furthermore, similarity in alphabet between the mother tongue and Dutch is significantly related to second language proficiency, though to a lesser extent than the previously mentioned variables ($p<.01$ in model 2). Unexpectedly, this relation is negative, which implies that immigrants with a mother tongue written in a non-Latin alphabet (like the Arabic one) score better than those from countries with a Latin alphabet. Finally, and unlike in previous research, having psychological problems, gender, and migration motive did not reliably predict second language proficiency in our sample.

Table 2.3 Regression results of self-assessed second language proficiency (*N*=624)

	Model 1 Exposure			Model 2 Efficiency			Model 3 Overall		
	B	SE	Beta	B	SE	Beta	B	SE	Beta
(Constant)	1.27	0.10	***	1.34	0.11	***	0.78	0.15	***
Number of years since migration	0.00	0.01	.04				0.01	0.01	.19 *
Number of years since migration squared	0.00	0.00	-.20 *				0.00	0.00	-.23 *
Other language course	0.28	0.05	.19 ***				0.23	0.05	.16 ***
Voluntary work	0.37	0.07	.18 ***				0.25	0.07	.13 ***
Speaks Dutch at home	0.26	0.06	.17 ***				0.24	0.05	.16 ***
Daily interactions with natives in public domain	0.14	0.03	.17 ***				0.09	0.03	.11 **
Speaking a lingua franca (English)	0.30	0.06	.18 ***				0.09	0.06	.05
Education				0.10	0.02	.19 ***	0.08	0.02	.15 ***
Mother-tongue proficiency				0.23	0.03	.40 ***	0.19	0.03	.34 ***
Similar alphabet (Latin)				-0.15	0.05	-.11 **	-0.08	0.05	-.06 *
Age at time of migration				-0.01	0.00	-.14 ***	-0.01	0.00	-.09 **
Psychological problems				0.02	0.05	.01	0.01	0.05	.01
Male				-0.05	0.06	-.03	-0.06	0.06	-.03
Migration motive: family				0.00	0.06	.00	0.03	0.05	.02
	R^2=.26			R^2=.30			R^2=.41		

*p<.05 **p<.01 ***p<.001 (one tailed)

2.3.4 Analysis of the subsample on self-perceived language proficiency and test scores

As reported above (see Section 2.3.1), the scores on the active and passive lexicon tests are moderately related to each other and hardly related to the self-assessed second language proficiency. Thus, these dependent variables actually seem to differ from each other. This makes it interesting to compare the similarity in the predictors of the three indicators of language proficiency. To allow comparison of the predictors of self-assessed second language proficiency with the proficiency as revealed by active and passive language test, we showed the results of the further analyses on in Table 2.4. This table consists of three models, each showing the results for one indicator of second language proficiency. In each model the significant predictors from the aforementioned complete sample analyses (N=624) are tested on the subsample for whom the passive and active lexicon tests are (also) available (N=98).

In Model 1, self-assessed second language proficiency is again used as dependent variable, in order to facilitate the comparability of the predictors of self-assessed language proficiency and the lexicon test scores in the subsample. In this way, deviating findings due to a bias in the subsample are ruled out. In terms of significance, doing voluntary work and speaking the Dutch language at home are most strongly and positively related to self-assessed Dutch-language proficiency (p<.01). Number of years since migration and mother-tongue proficiency are also positively related to self-assessed Dutch-language proficiency, though with a lower significance level (p<.05). Having followed a language course, daily interactions in the public domain, educational level, similarity in alphabet between the mother tongue and Dutch, and age at time of migration appeared not to be related to the self-assessed second language proficiency of this subsample.

In Models 2 and 3, the significant predictors from the analyses of the complete self-assessment cases are again tested, but now with the scores on the passive and active lexicon tests, respectively, as indicators of Dutch-language proficiency. Although the significance levels differ, the results indicate that similar predictors are relevant to both independent measures of the Dutch-language proficiency (p<.01 or p<.05). The predictor number of years since migration, for example, is related to both lexicon scores. For the passive lexicon score, however, this relation is generally positive, while for the active lexicon score, the magnitude of this positive relation becomes smaller as the number of years since migration increases (as indicated by the negatively squared coefficient). The predictors daily interactions with natives in the public domain and educational level are positively related to both Dutch lexicon scores, whereas age at time of migration is negatively related to these objective measures of Dutch-language proficiency. Having followed a language course, doing voluntary work, speaking

Dutch at home, mother-tongue proficiency, and similarity in alphabet between the mother tongue and Dutch are not related to these measures of Dutch-language proficiency.

Table 2.4 Regression results of second language proficiency: Self-assessment, passive lexicon, active lexicon (N=98)

	Model 1 Self-assessment			Model 2 Passive lexicon			Model 3 Active lexicon		
	B	SE	Beta	B	SE	Beta	B	SE	Beta
(Constant)	0.60	0.39		5.32	7.57		46.10	7.62	***
Number of years since migration	0.04	0.02	.59 *	0.74	0.40	.66 *	0.98	0.41	.86 **
Number of years since migration squared	0.00	0.00	-.53	-0.01	0.01	-.41	-0.02	0.01	-.66 *
Other language course	0.11	0.15	.07	4.54	3.02	.16	2.04	3.04	.07
Voluntary work	0.60	0.21	.26 **	4.54	4.18	.11	3.90	4.21	.09
Speaks Dutch at home	0.43	0.14	.28 **	2.74	2.73	.10	2.32	2.74	.08
Daily interactions with natives in public domain	0.06	0.08	.08	3.64	1.49	.25 **	3.39	1.50	.23 *
Education	0.10	0.07	.18	3.40	1.42	.35 *	2.48	1.43	.25 *
Mother-tongue proficiency	0.16	0.08	.29 *	-1.32	1.53	-.13	-0.23	1.55	-.02
Similar alphabet (Latin)	-0.03	0.13	-.02	-0.43	2.64	-.02	0.23	2.66	.01
Age at time of migration	0.00	0.01	-.04	-0.24	0.13	-.21 *	-0.36	0.13	-.31 **
	R²=.39			R²=.30			R²=.32		

*p<.05 **p<.01 ***p<.001 (one tailed)

2.4 Conclusion and discussion

Many studies have been done on the predictors of second language proficiency. In the current study we extended this earlier work by exploring the predictors of second language proficiency among a group of immigrants who until now have received little attention from researchers: immigrants who hardly participate in their host society (the Netherlands), and whose level of second language proficiency is low. Building on previous research and based on the specific characteristics of the immigrants in the current study, we investigated whether the findings on predictors of second language proficiency that were identified in earlier research could be replicated. Moreover, the relevance of additional predictors (which are not examined in the literature as such) of second language proficiency was explored: namely, similarity in alphabet between the mother tongue and the second language, daily interactions with natives in the public domain, speaking a lingua franca, and speaking the second language at home. Finally, in contrast with most earlier research, not only self-assessed second language proficiency was analyzed, but, for a subsample, also more objective measures of language proficiency.

As expected, many predictors identified in earlier research appeared also to be related to the self-assessed second language proficiency of the specific immigrant group investigated in the current study. Results from our analyses of the complete cases indicate that immigrants who have followed a language course, do voluntary work, have a high educational level, have a high level of mother-tongue proficiency, and have a low age at time of migration have a higher self-assessed level of second language proficiency.

A finding that we did not expect to replicate in the current study concerns the predictor number of years since migration, which was – as in previous research – found to be positively related to self-assessed second language proficiency. Hence it seems that, even for the immigrants in the current study who hardly participate in the host society and thus hardly communicate with members of that society, a longer period of stay still implies greater exposure to the second language. Possibly, a relevant factor herein is media exposure (e.g., watching television), which can also be seen as a way of being exposed to the second language without having actual contact with members of the host society.

Some predictors identified in earlier research were not significant in the present study. First, immigrants from the current study who indicated having psychological problems (30% of the respondents) appeared not to have a lower self-assessed level of second language proficiency than the immigrants without psychological problems. A possible reason is that immigrants in the current study did not fill in a depression scale, as in most earlier research,

but answered a quite general and direct question on whether they had psychological problems. This may have led to socially desirable answers. Furthermore, our findings on migration motive differed from earlier research findings in the sense that we found no relation with second language proficiency. Seemingly, migration motive does differentiate immigrants who hardly participate in the host society and have a relatively low level of second language proficiency. Another possible explanation for these findings is the small variance in migration motive among the respondents.

Finally, we did not replicate findings on gender in the current immigrant group. Men's second language proficiency was not higher than that of women. This, however, is in line with what we expected, because the male immigrants in the current study cannot be assumed to have a higher orientation towards labor market participation than the woman (which is often assumed in the literature). Both the men and women in the current study generally had a low level of societal participation and were not (yet) oriented towards the labor market.

With respect to the new predictors that we included in the present study, we found that immigrants who speak the second language at home have a relatively high self-assessed level of second language proficiency; this predictor is very close to the commonly used predictors having a co-ethnic partner and having children, but can, in our view, be considered to be more precise as it measures directly what is only assumed using the other two predictors. Furthermore, the predictor daily interactions with natives in the public domain appeared to be related to self-assessed second language proficiency. As expected, a high frequency of contacts with natives was associated with a high level of self-assessed second language proficiency.

Surprisingly, we found that similarity in alphabet between the mother tongue and the second language was negatively related to self-assessed second language proficiency. Hence, for this immigrant group the transferability of language related skills (such as alphabet) seems to hinder rather than facilitate second language learning. Possibly, third variables (like the alphabets of other languages respondents speak) account for the unexpected finding. Another explanation can be that immigrants with a dissimilar alphabet feel a stronger urge to learn the second language because the dissimilarity in alphabet emphasizes the differences between the languages. Also in contrast to what we expected, the additional predictor speaking a lingua franca was not related to the second language proficiency of the immigrants in the current study. Apparently, not speaking a lingua franca does not imply more exposure to the second language for this group.

Importantly, our findings reveal that the list of relevant predictors of second language proficiency differs in several respects if we consider objective (lexicon test scores) measures

of second language proficiency rather than subjective (self-assessment) measures. Only number of years since migration, daily interactions with natives in the public domain, education, and age at time of migration appeared to be valid predictors of the lexicon test scores. This drop in relevant predictors may partly be explained by the loss of statistical power. This reasoning is in line with the fact that the analyses of the subsample with the self-assessment measure as dependent variable also shows only four predictors of relevance: namely, number of years since migration, doing voluntary work, speaking the second language at home, and mother-tongue proficiency.

It is interesting that only one of the four predictors of objective and subjective second language proficiency is similar, being the number of years since migration. One explanation for the differing predictors could be the difference in the subject of the language indicators. In the current research, we compared the predictors of self-assessed levels of reading and writing (and thus literacy) with the predictors of the scores on tests concerning understanding and speaking (passive and active lexicon). Therefore, one could argue that it would be more accurate to compare self-assessed literacy with tests regarding literacy or to compare the self-assessed lexicon with tests regarding lexicon. However, this reason is not supported by earlier research indicating that self-assessed proficiency in reading and writing are closely related to self-assessed proficiency in speaking and understanding (inter-item correlation writing and speaking $r=.88$, Van Tubergen & Wierenga, 2011), which renders our comparison very appropriate. Moreover, if the different subjects of the compared measures actually caused the differences, we would expect educational level to relate more strongly to the more cognitive demanding literacy skills than to lexicon test scores (Van Tubergen, 2010; Dustman, 1994). Furthermore, the 'contact variables' (doing voluntary work; speaking the second language at home) should be related to lexicon instead of literacy.

An alternative explanation for the differences in predictors of second language proficiency is the method of measurement of the criterion variable. Measuring language proficiency using self-assessments can be seen as subjective, compared with objective lexicon tests, since the self-assessed measure might be biased and thus inaccurate. This bias can, for example, be caused by cultural differences; which is in line with research that showed differences in self-assessment scores between immigrants from different cultures (Carliner, 2000). The self-assessment method can also be biased by personal or 'peer related' factors, as suggested by Finnie and Meng (2005) who point out that self-esteem might bias self-assessment scores as well as the language proficiency of the people with whom the immigrant compares oneself.

In sum, we conclude from our comparison of self-assessed and more objectively assessed second language proficiency that while one certainly can expect overlap, one should nonetheless be cautious when extrapolating from relevant predictors in the one domain to the other domain. However, to exactly understand the nature of these differences, more research is needed.

2.4.1. Limitations

It is important to note that this study is cross-sectional. Certain predictor variables in our analyses might be both cause and result of the level of language proficiency. This especially applies to the predictor variables daily interactions with natives in the public domain, but also to some predictors included in earlier research like doing voluntary work.[5]

Another limitation, as briefly mentioned above, is the small number of immigrants to whom the lexicon tests were administered. Consequently, the analyses testing whether findings from earlier research on self-assessed second language proficiency could be replicated for the current immigrant group were based on a much larger number of respondents (N=624) than the comparisons of the predictors of the subjective and objective measurements of second language proficiency (N=98) within this group. This caused a drop in statistical power in the latter analyses. However, having such a large amount of data collected among socially isolated immigrants with a low level of second language proficiency, and even having both self-assessment and lexicon scores of a subsample of this group, can also be considered a strength. These unique data enabled us to make a valuable contribution to the literature by not only offering insight into the predictors of second language proficiency of this specific group of immigrants, but also exploring whether the commonly used self-assessment measures are predicted by the same variables as other, more objective indicators of second language proficiency.

2.6.2. Implications for future research

The current findings have a number of important implications for further research. First, it seems worthwhile to do more research including immigrants with a low level of participation and a low level of second language proficiency. This can be done, for example, by recruiting and interviewing respondents face to face in their own language. Putting this into practice can prevent possible further biases in the literature on the predictors of second language proficiency owing to the underrepresentation of this specific type of immigrant.

Second, it would be valuable to include and further validate the new predictors

identified in this study in future research on second language proficiency, namely, similarity in alphabet between the mother tongue and the second language, daily interactions with natives in the public domain, speaking a lingua franca, and speaking the second language at home.

Third, we encourage further research to compare the predictors of self-assessed levels of second language proficiency with predictors of second language test scores. In doing this, cultural background and personal as well as social ('peer' related) characteristics of immigrants should be taken into account as possible explanations for differences in predictors. This research can provide more insight into the validity and accuracy of the widely used self-assessment measures as indicators of immigrants' second language proficiency.

All in all, we consider the current study a relevant contribution to fostering our understanding of the relevant predictors of second language proficiency. This was achieved by: 1) showing the applicability of earlier findings on the predictors of second language proficiency to immigrants with a low level of societal participation and a low level of second language proficiency; 2) identifying additional predictors of second language proficiency among this group; and 3) by (again among this group) showing different predictors to be relevant to the commonly used self-assessment method as an indicator of second language proficiency and objective language tests as indicators of second language proficiency.

Acknowledgements

Notes

[1] Finnie and Meng (2005) investigated the determinants of second language proficiency and the relation between literacy and labour market outcomes. They compared self-assessed literacy with scores on a literacy test. The only typical determinants included, however, were age and (years) of education. Therefore, the general conclusion of the study that objective test scores are '*better conforming to theory and expectations based on other empirical findings*' are not necessarily applicable to our own study.

[2] The findings of one study showed women to be more proficient than men (Carliner, 2000). This study, however, concerned European and East Asian women, while the

respondents in the current study were mostly from other parts of the world (for example, Arabic countries).

[3]   The high N (between 924 and 1075) in combination with the high number of tests performed increase the chances of type I errors occurring. Therefore, we report only predictors with $p<.001$ here.

[4]   Also other instruments (not relevant to the current study) were assigned to this subsample. Given the low Dutch language proficiency of the respondents, these instruments had to be translated. Obviously, this could only be done into a limited number of languages. Therefore only the respondents speaking those languages were selected for the further research. The concerning languages are Turkish, Arabic, Berber, Somali, English and Polish.

[5]   As noted by Van Tubergen and Wierenga (2011), longitudinal research is very rare in this field. Exceptions are Chiswick, Lee and Miller (2004) and Hou and Beiser (2006). Being aware that our study was (also) cross-sectional, we do not speak of 'determinants' of second language proficiency, but of 'predictors'. This term is generally used in the type of analysis we used and does not necessarily imply causality.