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**Language attitudes, use, and competences of students of immigrant origin in Catalan secondary education: a moderated mediation model**

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## **Language attitudes, use, and competences of students of immigrant origin in Catalan secondary education: a moderated mediation model**

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Keywords: immigrant; bilingual education; secondary education, language attitudes; language competences; Catalonia.

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### **Education and immigration in Catalonia**

#### ***Sociolinguistic context***

Catalonia, a Spanish Autonomous Community, guarantees the right of all citizens to receive a bilingual education in Catalan (the language of the Community and main language of instruction at school) and Spanish (the official language of the Spanish state). Since the implementation of the Law of Linguistic Normalization in 1983, the Catalan educational system promoted programs of language immersion and maintenance with the aim that all

students master both languages equally by the end of compulsory education (Vila 1995). This approach achieved satisfactory results during the first decades of its implementation (OECD

2009; Serra 1990), which prompted frequent mentions of Catalonia as an example of successful language revitalization (Fishman 1991; Pujolar & Puigdevall 2015).

However, the progress made so far does not guarantee the survival of Catalan as new challenges arise, among which the surge of the international immigrant population is poised to play a key role (Strubell 2001). In this sense, Catalonia has registered a high influx of migrants, as it hosts 1,167,166 foreign residents, representing 15.7% of its total population (Instituto Nacional de Estadística 2017). On the one hand, this largely immigrant population is considered a possible threat to the vitality of Catalan because newcomers tend to prefer Spanish (Bastardas-Boada 2012; F. X. Vila & Galindo 2012). On the other hand, there are voices that underline immigrants' willingness to adopt Catalan (Querol Puig 2010) and point out that the number of Catalan speakers has not declined as a consequence of the demographic changes (Subirats 2010). According to the results of the latest survey of language uses in Catalonia, the use of the regional language remained steady since 2003. Specifically, more than 600,000 persons whose first language (L1) is not Catalan use it as their habitual language. Additionally, Catalan is used more than Spanish when interacting with the Government of Catalonia (46.2%) and local administration (47.9%), as well as in the workplace (45.5%) (Institut d'Estadística de Catalunya 2015).

Thus, although the long-term repercussions of the recent migratory movements are still under debate, there is widespread consensus that recruitment of new speakers among the immigrants plays an important role in the future of the Catalan language (Strubell 2001). However, this would not have been possible without the gradual transformation of Catalan into a more public language, increasingly more anonymous and less ethnically marked (Woolard 2008), which was brought upon by the language reversal and maintenance measures implemented in the last two decades and the subsequent significant number of native Spanish speakers who have adopted Catalan (Woolard 2016). In this sense, Pujolar and

González (2013) examined the change of linguistic repertoire that occurs because of important changes in an individual's life, which they called a 'muda' – roughly translated as life-shifts (Trenchs-Parera & Newman 2015) or linguistic makeovers (Urla 2013). The most common muda encountered in the case of Spanish speakers was the adoption of Catalan when entering the Catalan-medium schools.

Considering these findings, it becomes essential to gather more data regarding the linguistic behaviors of immigrant school-age children, as they may play a decisive part in configuring Catalonia's future linguistic dynamics. To further reiterate this point, a quick look at the socio-demographic structure of the student population enrolled at non-university levels during the academic year 2015-2016 shows that 12.5% of the total number of students was of immigrant origin (Ministerio de Educación, Cultura y Deporte 2016).

Among the measures implemented by the Government of Catalonia in response to the significant increase of immigrant students was the Plan for Languages and Social Cohesion, which aimed to promote multiculturalism, social cohesion, and to prioritize the Catalan language as a vehicle of social communication par excellence. Among its main features, it includes the reception classrooms, an educational resource for the initial attention, both emotional and linguistic, given to newcomers to ensure their swift integration in the regular classrooms. However, being pulled from the ordinary classroom to attend the reception classroom also hinders their progress in the subjects they are not attending and encourages the label of 'different', which is often accompanied by negative connotations (Siles, Segura, Petreñas, & Puigdel·lívol 2015). Furthermore, the varying degrees of knowledge of the region's official languages with which immigrant students are incorporated into Catalan-medium schools represents an important cause for concern among professionals, especially due to the close relationship between language proficiency and academic performance (Huguet & Navarro 2006).

### ***Language competences of immigrant students***

Specifically, recent studies conducted in Catalonia showed that immigrant students, regardless of their first language, have significantly lower levels of Catalan and Spanish competences than their autochthonous peers (Navarro & Huguet 2010; Vila, Siqués, & Roig 2006). Variables such as length of residence, the age of arrival or the L1 have proved to be revelatory in understanding in greater depth this phenomenon (Navarro, Huguet, Sanso & Chireac 2012; Oller & Vila 2008). Furthermore, despite the rapid acquisition of conversational fluency, it has been found that immigrant students require more than five years to match the academic language competences of their autochthonous peers (Cummins 2002). Perhaps the most paradigmatic situation is that of the Spanish-speaking students from Latin American countries. In this case, the fact of having Spanish variety as their L1 does not guarantee levels of Catalan and Spanish competences equivalent to those of their autochthonous counterparts (Navarro, Huguet & Sanso 2014; Oller & Vila 2011).

### ***Language uses of immigrant students***

Furthermore, it has been frequently observed that immigrant schoolchildren use Spanish more than Catalan. Accordingly, Vila (2004) warned that while the educational model succeeded in establishing Catalan as the language of the school, it failed to promote its use in interpersonal relations. Nonetheless, Sorolla (2008) argues that the rift between the two official languages is not as large as it may seem, considering that Catalan has an important presence outside the school.

Vila, Siqués, and Oller (2009) analyzed the language uses of 625 primary education students of immigrant origin and found that they used Catalan initially as the main language of communication. However, in time, the use of Spanish increased, especially in informal relations, so that it became the habitual language of communication. Specifically, 36.8% of

all the participants had Spanish as L1, but 58% considered it their habitual language. It was also found that language competences and uses were not associated. Hence, even when students had better competences in Catalan they still used Spanish in informal interactions. These results are rather unexpected, considering how inseparable language use and competences are (Hsiao & Oxford, 2002). The authors also underlined that “the relationship between language acquisition and use is crucial to automating conversational skills and thus be able to use it spontaneously in informal social relations” (I. Vila et al. 2009, 120).

### ***Language attitudes of immigrant students***

To find some answers and to understand the process of language learning and the language behaviors of learners, affective variables should also be taken into account. Lambert (1969) and Gardner (1985) were among the first to emphasize the importance of motivational and attitudinal variables. Thus, Gardner’s socio-educational model of second language learning posits language attitudes as precursors of behavior. Accordingly, the main function of attitudes is to “determine the extent to which the individuals will actively involve themselves in learning the language” (Gardner 1985, 56). Attitudes have long been a core concept in social psychology due to their behavior-guiding function (Eagly & Chaiken 2007). It has also been widely acknowledged that language attitudes are a critical factor in multilingual policy and practice design and implementation (Baker 1992; Lewis 1981) and language learning (Dewaele 2005; Masgoret & Gardner 2003).

In this regard, favorable language attitudes are generally strongly associated with a more frequent use of the respective language (MacIntyre, Baker, Clément, & Donovan 2002) and higher self-perceived language competences (Lasagabaster 2005; Lawson & Sachdev 2004; Saravia & Bernaus 2008). However, language attitudes seem to have rather weak



correlations with the results of standardized language tests in the case of Catalan and Spanish (Ianos, Huguet, & Lapresta-Rey 2017; Querol & Huguet 2010).

Consequently, the language attitudes of immigrant children and youngsters have been a source of concern for researchers and professionals, seeing that these students have more favourable attitudes toward Spanish and less positive attitudes toward Catalan than their autochthonous peers (Madariaga, Huguet, & Lapresta 2013; Bernaus, Moore, & Cordeiro Azevedo 2007).

Moreover, among the immigrant population, those from Latin America stood out as having the least favorable attitudes toward Catalan (Huguet, Janés, & Chireac 2008; Newman, Trenchs-Parera, & Ng 2008). These attitudinal patterns have been explained as a result of their preference for international languages and their perception of Catalan as an obstacle to communication and educational success (Newman 2011). However, there is also data showing that some youngsters have begun to appreciate Catalan as a means for social progress (Trenchs-Parera & Newman 2009). Hence, attitudes toward Catalan seem to be built more on instrumental bases than on identity ties (Trenchs-Parera & Newman 2015). Meanwhile, Peninsular Spanish was revealed to pose an identity threat for the Spanish-speaking immigrant students of Latin American origin, who feel the need to maintain their language varieties as a symbol of identity and cultural distinctiveness (Trenchs-Parera & Newman 2009). In this regard, Latin teenagers living in Barcelona use a Latino-Spanish repertoire, which mixes features from different parts of America and from Barcelona's language varieties, including Catalan (Corona, Nussbaum, & Unamuno 2012).

In reviewing the aforementioned studies, there are several conclusions that can be drawn. First, the successful social and educational integration of young immigrants is conditioned by their language attitudes, use, and competences. Second, these variables are intricately interrelated, seeing that they “may be both the cause and effect of each other”

(Baker 1992, 44). Nonetheless, generally, studies have focused on each factor separately and have overlooked the relationships between these three variables. Thus, the aim of the present study is to answer some of the questions concerning how language attitudes, uses, and competences are related for L1 Spanish and L1 non-Spanish students of immigrant origin.

Following prior theoretical and empirical findings in the field, we expect to find that:

a) Students of immigrant origin will have different language use, competences, and attitudinal patterns depending on their L1. Specifically, L1 Spanish students will report using, knowing, and liking Spanish more than their L1 non-Spanish peers;

b) Language attitudes, use, and competences will be correlated, regardless of the target language or the L1;

c) Language use mediates the relationship between attitudes and language competences. In other words, the mediation model proposed will test if language use explains the influence language attitudes could have on language competences;

d) First language (L1) (Spanish or non-Spanish) will moderate the mediation model. As a moderator, we expect L1 to influence the strength of the relationships between the three variables contained in the mediation model.

## **Method**

### ***Participants***

The participants were 490 students from immigrant backgrounds enrolled in the 2nd and 4th years of Compulsory Secondary Education in 14 schools across Catalonia (see Table 1).

There were 250 girls and 240 boys with ages between 12 and 19 years old ( $M_{\text{age}} = 14.83$ ,  $SD = 1.35$ ).

Regarding the origin, 233 students were from Latin America, of which 225 had Spanish as their L1. There also were 99 participants from Europe, 124 from Africa, and 33

from Asia and Oceania. These 265 students with a L1 non-Spanish had a highly varied linguistic background, consisting of 28 L1s.

[INSERT TABLE 1]

### ***Procedure***

The instruments and the procedure planned were presented for inspection to the Department of Education of Catalonia, who approved the study. Following, the schools indicated by the Department of Education were contacted and informed about the procedure. Once their consent was obtained, a timetable was established. The questionnaires and tests were administered in different phases. Thus, the written test of language competences in Catalan and Spanish was applied collectively, while the oral test was administered individually. The collective part was carried out in about 75 minutes and the individual part-time required around 15-30 minutes. Furthermore, on alternate days the questionnaires of attitudes and language use were applied collectively for a period of approximately 30-45 minutes.

### ***Instruments***

The attitude questionnaire includes two scales of ten items each that measure the attitudes toward Catalan and Spanish, respectively. Participants were asked about various language related aspects, such as concerning the subjective aesthetic properties of the language (e.g., “Spanish is a beautiful language”, “I like listening to people speaking Catalan”), language learning (e.g., “Learning Catalan is unpleasant”, “Learning Spanish is boring”), personal language practices (e.g., “I live in a place where Catalan is spoken, so I must know, study, and speak Catalan”), and general language use (e.g., “We should all try harder to use Catalan more frequently”, “In my town, we should speak less Spanish”). The items were dichotomous, meaning that students were asked to indicate if they agreed or not with each

statement. The answers, which were codified with +1 when they expressed a favorable attitude toward the language investigated and -1 when they were unfavorable, were summed to obtain a final score that could oscillate between -10 and +10. The instrument has been previously validated and successfully used in the Catalan context (e.g., Huguet et al., 2008; Ianos et al., 2017). Additionally, the scales were internally consistent, as indicated by the Cronbach's alpha coefficients of .79 for the scale measuring attitudes towards Catalan and .75 for attitudes towards Spanish.

Catalan and Spanish language competence were assessed with the help of the standard tests developed by Bel, Serra, and Vila (1991) for the Catalan Education Service and often used in studies concerning secondary education students of immigrant origin (Navarro & Huguet 2010; Navarro, Huguet, & Sansó 2016). The two tests were parallel and were designed to evaluate language competences at an academic level. For each language, the test was composed of two parts: one written and one oral. It encompassed ten language abilities: written comprehension, written expression, morphosyntax, phonetics, spelling, oral comprehension, oral expression - lexicon and morphosyntax, information organization, reading correctness, and intonation. Each subtest was graded on a scale from 0 to 100 and their mean was used as an indicator of the individual's general language competence. The two tests had a good internal consistency, seeing that Cronbach's alpha coefficients were .88 for the Catalan language competences test and .89 for the Spanish language competences test.

Language use of Catalan and Spanish were measured with the help of seven items capturing language use in various contexts outside the family members, chosen based on previous research (i.e., peers in the schoolyard, peers outside school, adults outside school, teachers, reading, watching TV, and writing) (Lawson & Sachdev 2004; Madariaga, Huguet, & Lapresta 2013; Mettwie & Janssens 2007). The scores ranged from 0 – not at all – to 3 – all the time. The mean of these items was computed to obtain the variables 'use of Catalan'

and ‘use of Spanish’ so that higher values indicated a more frequent self-perceived use of each language. Cronbach’s alpha coefficients for the language uses scales were .81 and .84, respectively.

### ***Treatment of results***

To analyze the data collected, the software package SPSS v.20 and the computational tool PROCESS (Hayes 2013) were used to carry out Wilcoxon signed-rank tests, mixed-design analyses of variance (ANOVAs) and mediated moderation analyses. Hayes’s (2009) recommendations regarding the report and interpretation of unstandardized regression coefficients were followed. Additionally, we report bias-corrected and accelerated (BCa) confidence intervals based on 2000 bootstrap samples (Efron & Tibshirani 1993; Field 2013).

## **Results**

### ***Language attitudes***

To further analyze the attitudinal patterns determined by L1, we conducted a mixed-model ANOVA with L1 (Spanish or non-Spanish) as the between-subject variable and language attitudes (attitudes toward Catalan and attitudes toward Spanish) as the within-subjects variable. The results indicated a statistically significant interaction effect between the two variables,  $F_{(1, 488)} = 48.63, p < .001$ . Hence, the degree of favorability of the attitudes expressed toward the two official languages of Catalonia varied between the L1 Spanish and the L1 non-Spanish groups of students of immigrant origin, as shown in Figure 1.

[INSERT FIGURE 1]

To break down this interaction, the simple effects of each variable were computed. Therefore, L1 Spanish students showed more favourable attitudes toward Spanish ( $M = 7.57$ ,

95% BCa CI [7.23, 7.89],  $SD = 2.46$ ) than their L1 non-Spanish peers ( $M = 6.07$ , 95% BCa CI [5.63, 6.52],  $SD = 3.32$ ),  $F_{(1, 488)} = 31.55$ ,  $p < .001$ ,  $r = .25$ . The L1 Spanish group also had less positive attitudes toward Catalan ( $M = 3.81$ , 95% BCa CI [3.18, 4.47],  $SD = 5.06$ ) in comparison with the non-Spanish group ( $M = 5.87$ , 95% BCa CI [5.30, 6.43],  $SD = 4.26$ ) ( $F_{(1,488)} = 24.02$ ,  $p < .001$ ,  $r = .22$ ). Furthermore, the L1 Spanish students of immigrant origin had significantly more positive attitudes toward Spanish than toward Catalan,  $F_{(1, 488)} = 100.07$ ,  $p < .001$ ,  $r = .42$ , while L1 non-Spanish students gave similar ratings to the two languages,  $F_{(1, 531)} = 0.32$ ,  $p = .572$ ,  $r = .02$ .

### *Language competences*

Similarly, a mixed-model ANOVA with L1 as the between-subject factor and language competences as the within-subjects factor was used to investigate whether the language competences of L1 Spanish and L1 non-Spanish participants differed. Generally, students of immigrant origin tend to achieve medium levels of language competence in both languages analysed. Figure 2 shows the means corresponding to the Catalan and Spanish language competence test results for the L1 Spanish and L1 non-Spanish groups.

[INSERT FIGURE 2]

Furthermore, the interaction effect resulted statistically significant,  $F_{(1, 488)} = 122.47$ ,  $p < .001$ , which indicates that Spanish and Catalan competences varied depending on the students' L1. Accordingly, L1 Spanish students obtained higher scores at the Spanish language competence test ( $M = 59.81$ , 95% BCa CI [57.96, 61.83],  $SD = 14.48$ ) in comparison with the L1 non-Spanish participants ( $M = 48.30$ , 95% BCa CI [46.19, 50.40],  $SD = 19.20$ ),  $F_{(1, 488)} = 55.20$ ,  $p < .001$ ,  $r = .32$ ). However, there were no significant differences between those with Spanish as their L1 ( $M = 53.86$ , 95% BCa CI [51.58, 56.16],

$SD = 16.62$ ) and their L1 non-Spanish peers ( $M = 53.82$ , 95% BCa CI [51.63, 56.14],  $SD = 17.92$ ) with respect to the results at the Catalan competence test,  $F_{(1, 488)} = 0.001$ ,  $p = .978$ ,  $r = .001$ . Additionally, the findings showed that Spanish speakers had higher levels of language competences in Spanish than in Catalan,  $F_{(1, 488)} = 60.90$ ,  $p < .001$ ,  $r = .34$ . On the contrary, L1 non-Spanish students obtained better results at the Catalan test than at the Spanish one,  $F_{(1, 488)} = 61.82$ ,  $p < .001$ ,  $r = .32$ .

### ***Language use***

A mixed-design ANOVA with L1 Spanish/non-Spanish as the between-subjects variable and use of Catalan and use of Spanish as the within-subjects variable revealed an interaction effect between these variables,  $F_{(1, 488)} = 222.90$ ,  $p < .001$ .

Breaking down this interaction, the results showed that L1 non-Spanish reported a more frequent use of Catalan ( $M = 1.98$ , 95% BCa CI [1.89, 2.08],  $SD = 0.05$ ) than L1 Spanish students ( $M = 1.28$ , 95% BCa CI [1.18, 1.38],  $SD = 0.05$ ),  $F_{(1, 488)} = 99.36$ ,  $p < .001$ ,  $r = .41$ . On the other hand, the L1 Spanish group reported a more frequent use of Spanish ( $M = 2.88$ , 95% BCa CI [2.84, 2.91],  $SD = 0.04$ ) than the L1 non-Spanish one ( $M = 2.05$ , 95% BCa CI [1.95, 2.15],  $SD = 0.04$ ),  $F_{(1, 488)} = 14.36$ ,  $p < .001$ ,  $r = .55$ . The results also showed that participants with L1 Spanish reported using Spanish significantly more frequently than Catalan,  $F_{(1, 488)} = 448.27$ ,  $p < .001$ ,  $r = .97$ , while those with other L1 languages declared similar uses of the two official languages,  $F_{(1, 488)} = 0.89$ ,  $p = .345$ ,  $r = .04$ .

[INSERT FIGURE 3]

[INSERT TABLE 2]

When examining in more detail each of the seven contexts considered with the help of Wilcoxon signed-rank tests, the patterns of language use of the two groups are clearly

noticeable, as summarized in Table 2. Thus, on the one hand, the L1 Spanish youngsters prefer to use Spanish in all the contexts. On the other hand, L1 non-Spanish students report using Catalan and Spanish with approximately the same frequency when interacting with their peers in the schoolyard and with adults, as well as when reading. They also declare a higher use of Spanish with their friends outside of school, on social networks, and watching TV. Finally, this group of students interacts with their teachers predominantly in Catalan.

***Correlational analysis of the relationships between language attitudes, uses, and competences***

Pearson correlations were used to investigate how language attitudes, use, and competences related to each other for the two groups defined by their L1. Fisher r-to-z transformations were conducted to compare the correlation coefficients of L1 Spanish and L1 non-Spanish groups (Cohen & Cohen 1983; Preacher 2002).

As showed in Table 3, in most of the cases, the relationships between variables followed the same patterns for both groups. Specifically, Catalan and Spanish language competences were positively and strongly associated, seeing that the correlations varied from .74 for the L1 Spanish group to .81 for the L1 non-Spanish group. However, attitudes toward Catalan and Spanish were not significantly related and use of Catalan correlated negatively with use of Spanish ( $r = -.41$  and  $r = -.31$  for the L1 Spanish and L1 non-Spanish groups, respectively). Additionally, Catalan competences correlated positively with attitudes toward Catalan, attitudes toward Spanish, and use of Catalan. Similarly, Spanish competences were positively related to attitudes toward Spanish and use of Spanish. There also were positive relationships between attitudes toward Catalan and use of Catalan, as well as between attitudes toward Spanish and use of Spanish.

The differences between the two groups occurred with respect to the use of Spanish. Namely, in the case of L1 non-Spanish participants, use of Spanish was significantly related



to both Spanish and Catalan language competences, as well as to attitudes toward Spanish. For the L1 Spanish group, the aforesaid relationships lost strength (see Table 3).

[INSERT TABLE 3]

### ***Moderated mediation analysis***

To test if the relationship between attitudes toward Catalan and competences in Catalan was mediated by the use of Catalan, a mediation analysis was conducted using the computational tool PROCESS, developed by Hayes (2013) for SPSS. PROCESS is a path analysis modeling tool for SPSS and SAS based on Ordinary Least Squares (OLS) regression.

When considering the whole sample of participants, attitudes toward Catalan did not have a direct effect on language competences in Catalan ( $b = 0.26$ , 95% BCa CI [-0.08, 0.61],  $p = .138$ ) but they had an indirect effect through language use ( $b = 0.28$ , 95% BCa CI [0.12, 0.45]). Similarly, use of Spanish mediated the relationship between attitudes toward Spanish and competences in Spanish. In this regard, there was a direct effect of attitudes ( $b = 0.85$ , 95% CI [0.34, 1.37],  $p = .001$ ), accompanied by a significant indirect effect ( $b = 0.76$ , 95% BCa CI [0.49, 1.09]).

Additionally, in order to see if these mediation models vary by participants' L1, a moderated mediation analysis was conducted using Model 59 included in PROCESS (Hayes, 2013) (see Figure 4).

[INSERT FIGURE 4]

Table 4 summarizes the results of the analysis carried out to test if L1 influenced the strength of the relationship between attitudes toward Catalan and competences in Catalan, via the use of Catalan. As expected, the variables attitudes toward Catalan and L1 influence use

of Catalan. However, the L1 did not have a significant influence on the relationships between attitudes, competences, and use of Catalan. The conditional effects show that the attitudes toward Catalan reported by L1 Spanish participants do not affect their competences in Catalan. Meanwhile, use of Catalan mediated the relationship between attitudes toward Catalan and competences in Catalan in the case of the L1 non-Spanish group (see Table 5).

[INSERT TABLE 4]

[INSERT TABLE 5]

A similar procedure was carried out to test if the L1 moderated the mediation model proposed for Spanish. The results presented in Table 6 show that L1 moderates the effect of attitudes toward Spanish on use of Spanish. Moreover, the significant conditional effects show that attitudes toward Spanish influence competences, regardless of the respondents' L1. Furthermore, a significant indirect effect was found only for those who had other L1s than Spanish (see Table 7).

[INSERT TABLE 6]

[INSERT TABLE 7]

## **Discussion and conclusions**

The successful social integration of immigrants into a bilingual society poses multiple challenges for all the parties involved. On the one hand, the newcomers have to incorporate two new languages to their linguistic repertoire. On the other hand, the host society has to protect and maintain its regional language, which could be threatened by a considerable influx of immigrants. The situation is all the more concerning when a large part of the immigrant population already speaks the majority language, as it happens with the Spanish speakers moving from Latin America to Catalonia. It has been documented that they prefer

Spanish to Catalan (Newman et al. 2008). Thus, our data add to the accumulated evidence on these attitudinal patterns.

The responses of the secondary education students of immigrant origin regarding language use are also similar to previous findings, according to which immigrants, and Latin Americans especially, tend to refuse to adopt Catalan (F. X. Vila & Galindo 2012). In this regard, the L1 Spanish participants reported a significantly more frequent use of Spanish overall. Nevertheless, the umbrella label Spanish can be ambiguous with respect to the many varieties of the language that are spoken worldwide. Therefore, it is relevant to acknowledge that even if the participants from Latin America said they use mostly Spanish, it cannot be assumed that they use Peninsular Spanish. Even more, Trenchs-Parera and Newman (2009) found Peninsular Spanish can be perceived as an identity threat and Corona et al. (2012) found that Latin American boys living in Barcelona use a mixture of words and accents from different American language varieties and from several local varieties, including Catalan.

However, the L1 non-Spanish participants showed a relatively balanced use of the two official languages in half of the contexts investigated and a higher use of Catalan in their interactions with teachers. This last finding reflects the linguistic policies implemented in the last two decades. Thus, the Law of Linguistic Policy of January 7, 1998 states that Catalan is the language of instruction and communication in non-university education. Furthermore, students with other L1s declared a higher use of Spanish with friends outside of school, watching TV, and using social media, but the differences between their reported use of Spanish and of Catalan were fairly small. These results are not surprising when considering that newcomers tend to live in marginal areas or in mostly immigrant districts, where Spanish is the dominant language (Huguet et al. 2008). The role of Spanish as a majority language, which is also widely spoken internationally, and its presence in the mass media further explain youngsters' language uses. Additionally, Catalan speakers have the custom of

accommodating to Spanish whenever interacting with an international immigrant (Pujolar & González 2013; Trenchs-Parera & Newman 2015). More importantly, in this socio-linguistic context, observing that L1 non-Spanish students use almost as much Catalan as Spanish suggests that the educational policies implemented to maintain and promote Catalan are effective, at least with respect to counterbalancing the previously mentioned factors that work in favor of Spanish.

Furthermore, the L1 non-Spanish group obtained better scores at the language competences test in Catalan than in Spanish, a result that probably reflects the role of Catalan as the main language of instruction in schools. The L1 Spanish group had the same level of Catalan competences as their L1 non-Spanish peers, despite their reduced use of the regional language. Previous studies have noted that Catalan has become the language associated with education (Newman et al. 2013) and it is adopted by many academically oriented teenagers (Pujolar & González 2013). The social compartmentalization of the two official languages – Catalan for education and Spanish for informal communication – seems to be one of the main factors explaining the disjunction between language use and competences indicated by the small or non-significant correlations that were found for the L1 Spanish students.

Nonetheless, the maintenance of Catalonia's own language would benefit if newcomers learn and use the language. Knowledge of the regional language would also facilitate newcomers' social integration and upward mobility, considering that higher status jobs usually require a good command of Catalan (Ianos et al. 2017). Thus, besides the data gathered by analyzing each variable individually, it is necessary to understand how they relate to each other and which factors condition these relationships. For this purpose, the model proposed relied on the well-established role played by language attitudes in language learning (Gardner, 1985; Masgoret & Gardner 2003). Overall, the effect of attitudes on language competences was mediated by language use for both Catalan and Spanish. In other

words, attitudes not only influenced directly language competences but also determined a greater use of each language, which in turn promoted higher competences. The mediator role of language use could explain the discrepancy between the theoretical assumptions and the empirical findings regarding the attitudes – competences relationship. The patterns of language use promoted by the socio-linguistic context in which one lives, as well as the individual characteristics and preferences, could facilitate or impede the influence of language attitudes on language competences. However, this hypothesis is constructed using self-reports of language use and attitudes. Self-reports measures generally have a series of inherent limits concerning social desirability, impression management, normative demands, and response biases. To confirm the proposed mediated model, further data regarding observed language use will be needed. An indirect approach to measuring language attitudes, such as the implicit cognition framework, could also be useful to obtain accurate data.

Students' L1 moderated this mediation model. Although attitudes toward Spanish were a significant predictor of competences in Spanish regardless of the L1, their effect was mediated by the use of Spanish only in the case of L1 non-Spanish participants. The lack of an association between use of Spanish and competences in Spanish for the Spanish speaking participants is, thus, reiterated. Seeing that Spanish is these students' first language, the relationship between uses and competences cannot be examined with the lenses of the second language learning theories. We must also acknowledge that the language competences test has been constructed according to the norms of Peninsular Spanish and that, probably, immigrant students use different varieties of Spanish. Further studies are needed to inquire into the language varieties youngsters use in various social and educational contexts and their effects on language competences and academic achievement.

Moreover, attitudes toward Catalan and use of Catalan did not significantly affect the competences in Catalan of L1 Spanish students of immigrant origin. This suggests that L1

Spanish youngsters' acquisition of the regional language largely takes place due to the presence of Catalan in schools, regardless of the attitudes and language use reported by the learners. Thus, having a Catalan-medium educational system has been a key factor in fomenting Catalan competences among the students of immigrant origin.

However, the bilingual education system is a necessary, but not sufficient condition for the promotion of Catalan. Some of the features of the Languages and Social Cohesion Plan, such as the Local Education Plans, which aims to involve the community in the education of children and youngsters, were probably intended to promote Catalan outside schools, but the desired results do not seem to have been reached.

The re-evaluation and re-conceptualization of the education system – including policies, official documents and schools' education plans and how these are implemented at classroom level – are most likely necessary. Special attention should be paid to the reception of newcomers, the treatment of minority immigrant languages, and the promotion of voluntary use of Catalan. Specifically, students of immigrant origin seem to learn Catalan instrumentally, for educational and professional purposes. The data obtained so far is not clear on the image of Catalan these students construct. The general implementation of the reception classrooms emphasises the feeling of being different and the negative connotations which are often associated with this label (Gómez-Zepeda, Petreñas, Sabando, & Puigdellívol 2017). Catalan is thus at risk of being perceived as imposed or forced onto them (Huguet et al. 2008). Accordingly, reception classrooms should be redesigned so that, instead of mobilizing the students towards the resources provided in the physical space of the reception classroom, the resources are incorporated in the ordinary classrooms (Siles et al. 2015).

Furthermore, measures designed to increase the use of Catalan in informal contexts are required. Ensuring the presence of Catalan in leisure environments and making its use motivating and enjoyable, so that students of immigrant origin voluntarily choose the

regional language, could be the solution to closing the formal-informal gap that dominates the perception of the two official languages.

Finally, the moderated mediated model proposed in this study is a first attempt at mapping the intricate relationships between language attitudes, uses, and competences. There are other possible mediators and moderators, such as motivation, parental support, socio-linguistic context, etc. that should be considered in future studies. Moreover, the model has been tested on a sample of students of immigrant origin. It needs to be further confirmed on autochthonous students, as well as on other socio-linguistics groups and in other contexts. The present model serves to underline the importance of examining not only the variables of interest, but also the relationships between them, and to advance the scientific debate accordingly.

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For Peer Review

Table 1. Sample distribution by locality and province

Province	Locality	Number of students of immigrant origin		
		L1 Spanish	Non-Spanish L1	Total
Lleida	Lleida	9	29	38
	Mollerussa	0	11	11
	Balaguer	7	19	26
	Guissona	2	26	28
	La Seu d'Urgell	1	18	19
	Bellpuig	0	2	2
	Borges Blanques	0	3	3
Barcelona	Barcelona	93	28	121
	Manresa	17	23	40
	Hospital de Llobregat	34	7	41
Tarragona	Tarragona	17	11	28
	Reus	12	16	28
Girona	Girona	29	35	64
	Torroella de Montgrí	4	37	41
Total		225	265	490

Table 2. Summary of Results of Wilcoxon signed-rank tests comparing use of Catalan and use of Spanish in seven contexts for the L1 Spanish and L1 non-Spanish groups

Variable		L1 Spanish			Non-Spanish L1		
Context	Language used	Mdn	T	p	Mdn	T	p
Schoolyard	Spanish	3	20.58	< .001	3	12.44	.351
	Catalan	0			2		
Friends outside school	Spanish	3	20.88	< .001	3	12.99	< .001
	Catalan	0			2		
Adults outside school	Spanish	3	17.51	< .001	2	7.94	.670
	Catalan	0			3		
Reading	Spanish	3	10.26	< .001	3	4.90	.180
	Catalan	2			3		
TV	Spanish	3	11.79	< .001	3	10.66	< .001
	Catalan	2			2		
E-mail and social networks	Spanish	3	21.43	< .001	3	10.87	< .001
	Catalan	0			2		
Teachers	Spanish	3	8.53	< .001	2	2.74	< .001
	Catalan	3			3		

Table 3. Matrix of Correlations between Language Attitudes, Competences, and Use for L1 Spanish and L1 Non-Spanish participants and Fisher's Z Transformations

		1.	2.	3.	4.	5.
1. Competences Catalan						
2. Competences Spanish	L1 SPA	.74*				
	L1 Non-SPA	.81*				
	<i>z</i>	-1.94				
3. Attitudes Catalan	L1 SPA	.16*	.10			
	L1 Non-SPA	.15*	.04			
	<i>z</i>	0.11	0.66			
4. Attitudes Spanish	L1 SPA	.17*	.17*	-.01		
	L1 Non-SPA	.24*	.23*	-.10		
	<i>z</i>	-0.80	-0.69	0.99		
5. Use of Catalan	L1 SPA	.16*	.06	.39*	-.04	
	L1 Non-SPA	.29*	.09	.37*	-.10	
	<i>z</i>	-1.50	-0.33	0.26	0.66	
6. Use of Spanish	L1 SPA	-.03	-.01	-.22*	.15*	-.41*
	L1 Non-SPA	.23*	.36*	-.24*	.33*	-.31*
	<i>z</i>	-2.90*	-4.24*	0.23	-2.10*	-1.26

Note: L1 SPA = L1 Spanish; L1 non-SPA = non-Spanish.

\*  $p < .05$ .



Table 4. Summary of Results of the Moderated Mediation Analysis for the Effect of the Attitudes toward Catalan on Competences in Catalan Through the Use of Catalan

	Use of Catalan	Competences in Catalan
Attitudes toward Catalan	0.06*, [0.94, 1.18]	0.38 [-0.09, 0.86]
SPA L1/non-SPA L1	0.51*, [0.32, 0.71]	-8.42*, [-15.45, -1.39]
Attitudes Catalan x SPA/non-SPA	0.01, [-0.02, 0.04]	-0.18, [-0.87, 0.52]
Use of Catalan		2.56, [-0.65, 5.77]
Use of Catalan x SPA/non-SPA		3.43, [-0.77, 7.64]
$R^2$	.29	.07
$F$	65.01	6.73

*Note.* 95% BCa CIs based on 2000 bootstrap samples are reported in brackets. SPA L1 = L1 Spanish; non-SPA L1 = L1 non-Spanish.

\*  $p < .05$ .

Table 5. Conditional Direct and Indirect Effects of Attitudes toward Catalan on Competences in Catalan at the Two Values of the Moderator

	Direct effect		Indirect effect	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
L1 Spanish	0.38, [-0.09, 0.86]	0.24	0.15, [-0.02, 0.35]	0.10
Non-Spanish L1	0.21, [-0.31, 0.72]	0.26	0.42, [0.21, 0.71]	0.12

*Note.* 95% BCa CIs based on 2000 bootstrap samples are reported in brackets.

For Peer Review

Table 6. Summary of Results of the Moderated Mediation Analysis for the Effect of the Attitudes Toward Spanish on Competences in Spanish Through the Use of Spanish

	Use of Spanish	Competences in Spanish
Attitudes toward Spanish	0.01, [-0.02, 0.05]	1.01*, [0.13, 1.88]
SPA/non-SPA	-1.22*, [-1.51, -0.93]	-29.46*, [-56.65, -2.28]
Attitudes Spanish x SPA/non-SPA	0.07*, [0.03, 0.11]	-0.28, [-1.35, 0.80]
Use of Spanish		-2.06, [-11.33, 7.22]
Use of Spanish x SPA/non-SPA		9.50, [-0.11, 19.11]
$R^2$	.38	.20
$F$	98.66	23.96

Note. 95% BCa CIs based on 2000 bootstrap samples are reported in brackets.

\*  $p < .05$ .

Table 7. Conditional Direct and Indirect Effects of Attitudes toward Spanish on Competences in Spanish at the Two Values of the Moderator

	Direct effect		Indirect effect	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
L1 Spanish	1.01, [0.13, 1.88]	0.45	-0.03, [-0.22, 0.08]	0.07
Non-Spanish L1	0.73, [0.10, 1.35]	0.32	0.61, [0.32, 1.04]	0.17

*Note.* 95% BCa CIs based on 2000 bootstrap samples are reported in brackets.

For Peer Review

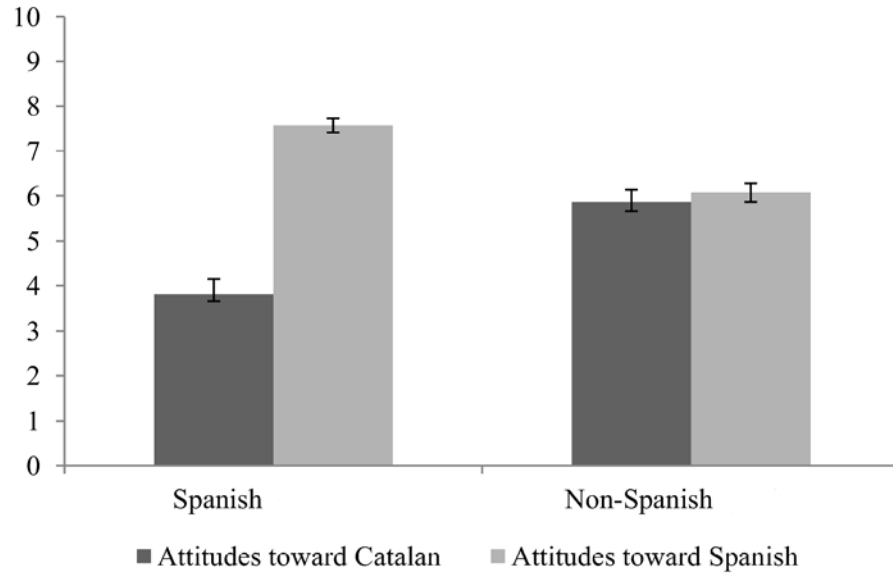


Figure 1. Means of Language Attitudes towards Catalan and Spanish on the part of L1 Spanish and L1 Non-Spanish students of immigrant origin. Error bars represent  $\pm$  SE

Review

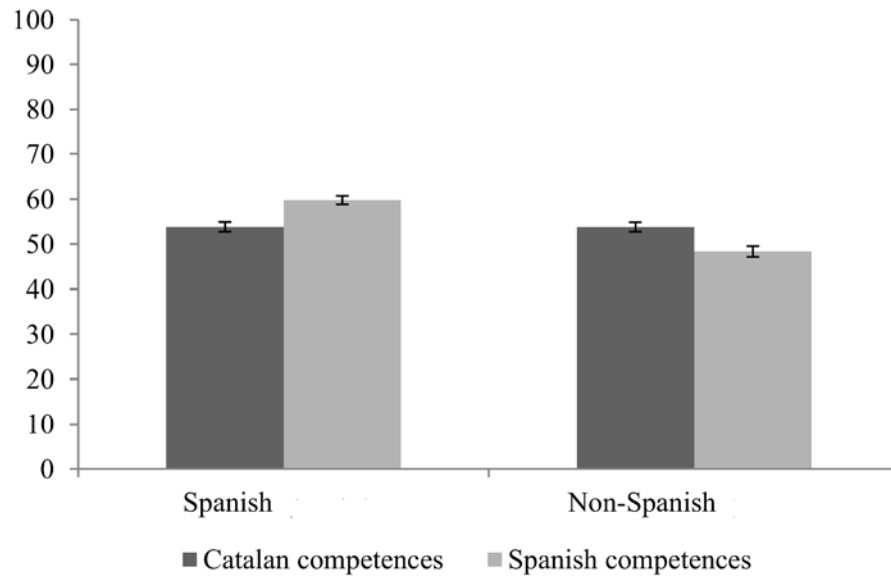


Figure 2. Means of Language Competences in Catalan and Spanish on the part of L1 Spanish and L1 Non-Spanish students of immigrant origin. Error bars represent  $\pm$  SE

Review

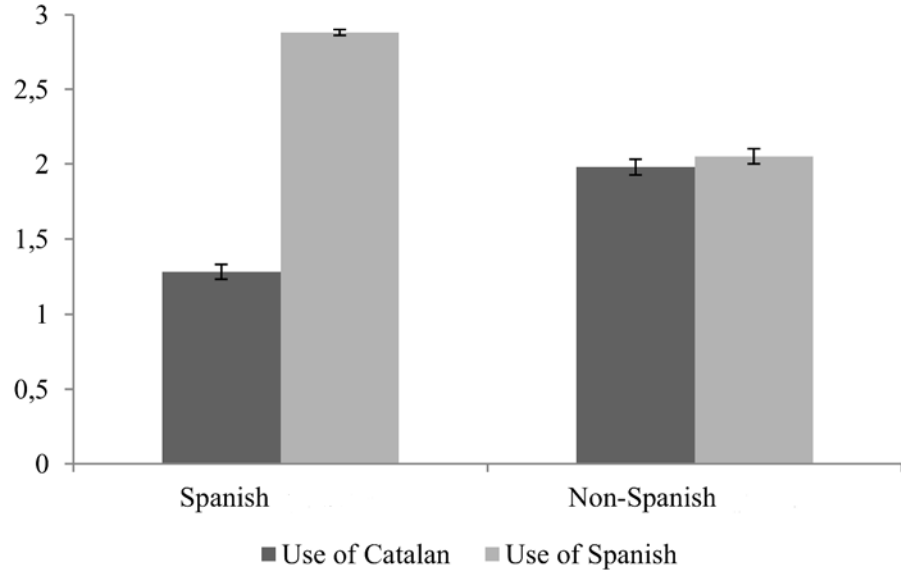


Figure 3. Means of Language Uses on the part of L1 Spanish and L1 Non-Spanish students of immigrant origin. Error bars represent  $\pm$  SE

Review

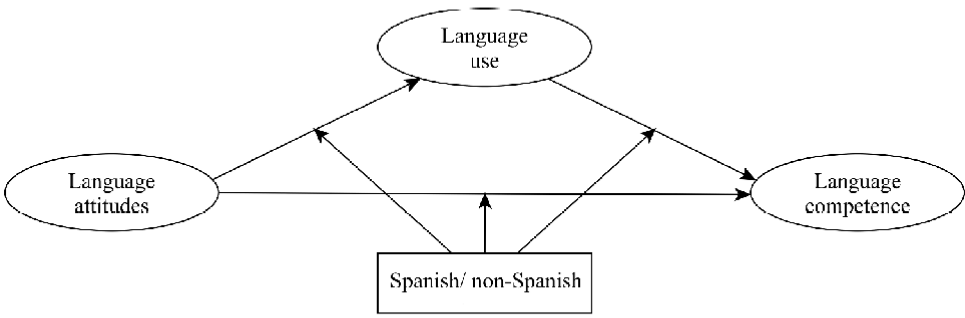


Figure 4. A moderated mediation model of the relationship between language attitudes, language use, and language competences

Review