

Changes in language use with peers during adolescence: a longitudinal study in Catalonia

Abstract

Changes in the patterns of language behavior may happen all over the life course, but recent research suggests that a number of junctures may be especially favorable for extensive change (Woolard 2011). This article presents a longitudinal panel study analyzing the evolution of a sample of more than 1,000 informants in the language practices with peers during the period between the end of primary education and the end of secondary education in Catalonia. Results led to the identification of five clusters of informants according to their linguistic trajectories. Three of them, which together accounted for 75% of all informants, combined the strong predominance of a single language—respectively Catalan, Castilian, and other languages—and a remarkable stability in patterns of language choice during the five years' period under scrutiny. The other 25% of informants, grouped in two different clusters, declared more bilingual/multilingual behavior and underwent more significant changes that may be related to *linguistic mudes* (Pujolar and González 2012). The study also explores the relevance of the transition between primary and secondary education as a social moment favorable for linguistic mudes and concludes that a small but still significant percentage of informants went through such changes in that transition.

Keywords: language use; linguistic mudes; Catalan; maintenance bilingual education; language choice

The analysis of language change along the life course

Age is one of the most fundamental factors influencing human lives, but, rather than being a simple variable, it is experienced in at least four, extremely interconnected different forms such as *chronological age*, *biological age*, *psychological age*, and *functional age* or *social age* (Birren and Cunningham 1985; Dixon 2011; Pinto da Costa et al. 2016; Settersten Jr. and Mayer 1997). Sociolinguistics has traditionally used chronological age as a classical variable. It is only in the last decades that researchers have considered the ways social age, i.e., the age position ascribed to each individual in its community and the ‘roles and habits with respect to other members of the society of which he is a part’ (Birren and Cunningham 1985, 8), is connected to sociolinguistic change (Eckert 1997; Woolard 2011).

In recent years, the idea that the most basic elements of linguistic behavior and linguistic ideologies might be somehow fixed in adolescence for the rest of the life is being replaced by the awareness that they may change substantially in later moments, in accordance with each individual’s biographical experiences (Grosjean 2010; Woolard 1997; Woolard 2011). In this line of reasoning, it has been claimed that some ‘critical junctures’ may be especially favorable for modifications of linguistic behaviors (Consell Social de la Llengua 2009; Woolard 2011; Pujolar et al. 2010; Pujolar and González 2012; Walsh and O’Rourke 2014). Some of these critical moments, such as a stay abroad or an unexpected transformation in the constellation of family members, are heavily dependant on each individual’s personal biography. Other, on the contrary, correspond to more socially structured biographical junctures, such as the entrance to kindergarten, to primary or secondary education, work, romance, parenthood and retirement (Walsh and O’Rourke 2014). To analyze the linguistic changes taking place in these occasions, several authors have proposed the notion of *linguistic muda*:

‘(...), we have felt the need to coin a new term, linguistic “muda” (pl. *mudes*, pron. [muðəz]), to name the specific biographical junctures where individuals enact

significant changes in their linguistic repertoire.” (Pujolar and González 2012, 2) [our emphasis]

In their seminal publication, Pujolar *et al.* (2010) somehow equated *mudes* with the adoption of an L2 as a *habitual language*, quite a significant change, even if the text did not specify to what extent a *muda* implied the predominance or only the frequent use of L2. *Mudes*, though, do not necessarily imply an *increase* in bilingual practices, and may even imply the abandonment of the use of a given language (Ramallo and O’Rourke 2014). The core meaning of *mudes* is that they are personal changes that take place in relatively short periods of time (“junctures”), involve a relevant modification in the number of language varieties actually used, and imply the adoption of a different personal image in—at least—a given domain of social life:

‘In any case, all these *mudes* were invariably associated with important changes in the everyday routines of respondents: they met new friends, teachers or employers, and joined new institutions in new locations. And they entailed important changes in the way people organized language choice in their lives, as now the language to be used became open to negotiation. And the new language adopted typically became associated with new people and new contexts.’ (Pujolar and González 2012, 6) [our emphasis]

According to their proponents, a relevant feature of *linguistic mudes* is that they are qualitatively *significant in the biography* of those involved, and therefore demand a certain intensity in the degree of change. *Mudes* should thus not be confused with language practices such as most of the innumerable code switches that bilinguals practice in their everyday life but lack any transcendence in their biography, or with the occasional use of an L2 by a language learner that has no long-term effect. Relevant as they may be from a micro, discursive perspective, such small linguistic movements should not be identified with *linguistic mudes* until they can be regarded as significant enough in the speakers’ biographies and social

personas. Using a few words in a new language may be the seed for a *muda*, but it does not amount to a *muda* itself until it reaches some intensity.

The concept of linguistic *mudes* has been used to explain the process followed by *new speakers* who engage in the active use of historically minoritized languages such as Catalan (Pujolar and González 2012, Pujolar and Puigdevall 2015), Galician (Ramallo and O'Rourke 2014), Irish (Walsh and O'Rourke 2014), and other (Hornsby 2015). It may be helpful in order to explain the processes of *language appropriation* whereby a given language L_b is significantly adopted by speakers of L_a in terms of proficiency, use, and/or identification (Boix i Fuster and Vila i Moreno 1998). The social extension of linguistic *mudes* and the appropriation of the local language by new speakers is especially relevant to understand the sociolinguistic dynamics in contexts such as Catalonia, where successive non-Catalan speaking immigratory waves in the last century have reduced the number of Catalan native speakers from more than 95% of the population at the beginning of the 20th century to 31.3% in 2013 (Vila, 2016; Direcció General de Política Lingüística, ed. 2015). The adoption of Catalan by a significant number of non-native speakers can be taken as evidence of the vitality of this language in the near future. In contrast, the absence of the process of adopting Catalan by new speakers and, *a fortiori*, the abandonment of Catalan by its native speakers will seriously compromise the future viability of this language.

The current study aims to analyze in detail the changes in the language use of a sample of pre-adolescents and adolescents in Catalonia during the period comprised between the end of primary education and the end of compulsory secondary education. This is one of the first works that analyze intra-individual change in language use focusing on one important transition or critical moment where individuals are prone to rearrange their network of peers and friends in a bilingual context. In what follows, we first present the previous studies regarding language practices among adolescents in Catalonia. We then discuss the data and the methodology used to assess change. Finally, we show the several results and discuss them from a theoretical and applied view.

The analysis of language practices among the younger generations in Catalonia

The life period better studied as far as sociolinguistic changes is concerned is the school period and, more precisely, adolescence. In contemporary societies, high school is ‘a hothouse for the construction of identities’ (Eckert 1997:163), a crucial phase in which family-dependent children speed up the (re)construction of their personalities, also in linguistic terms, in their transition towards young adulthood (Woolard 2011, 618). The school period coincides not only with the full acquisition of the basic linguistic repertoire of the speech community, but also with the adoption of many fundamental pragmatic norms, including the norms that regulate language choice (Rosselló i Peralta and Ginebra Domingo 2014). Therefore, it is not at all surprising that the period is often regarded as the end of some ‘critical period’ for the acquisition of sociolinguistic etiquette (Woolard 2011, 618).¹ Sociolinguistic changes during this period of life are salient in monolingual societies, where teenagers have often been reported to lead language change (Tagliamonte and D’Arcy 2009). But the saliency of adolescence for language socialization is probably more remarkable in multilingual societies, where adolescents are often identified as key agents of language shift (e.g., Cenoz 2008; Departamento de Educación, Política Lingüística y Cultura del Gobierno Vasco and Soziolinguistica Klusterra 2014; Pauwels 2005; Veltman 1983; Sorolla 2016).

As in many other minoritized language contexts, language-in-education policies have been the spearhead of Catalan language promotion in Catalonia, and therefore the position of languages among school students has been the focus of significant research (Arnau and Vila 2013). In spite of the very significant increase in the proficiency in Catalan among the generations schooled during the last decades, most available studies have *not* detected a significant increase in the use of Catalan among them (Vila and Sorolla 2017). Already in the late 80's, it was pointed out that young Catalan-speakers were switching to Castilian with more frequency and intensity than it used to be the case decades before (Boix i Fuster 1996), whereas their Castilian-speaking peers used Catalan with their teachers, but not with their classmates (Vila i Moreno and Galindo Solé 2012). The perception that the young, more mixed generations

use less Catalan than their (autochthonous) forefathers is widely spread, especially among teachers and educators (Larreula 2002; Wieland 2009; Woolard 2011, 620). The concern is shared by official institutions, which created a short-lived Advisory Council for language issues in the Department of Education (Consell Assessor de la Llengua a l'Escola 2006), and promoted a number of official recommendations to promote the use of Catalan among the youngsters (Consell Social de la Llengua 2009). Some authors have argued that Castilian speakers might be incorporating more significantly to the use of Catalan than previously thought after adolescence (Pujolar and González 2012; Woolard 2011). However, most official surveys, such as DYM 1997, EULC-2003 (Torres et al. 2005), EULP-2008 (Generalitat de Catalunya. Departament de Cultura 2011), and EULP-2013 (Direcció General de Política Lingüística 2015) confirm that adolescents and young Catalan speakers (older than 14 years old) are still much more prone to use their L2 than their Castilian-speaking counterparts, also among the younger generations. In this respect, understanding the dynamics of language use remains a crucial enterprise for Catalan language policies.

The current study: analyzing language use trajectories during adolescence

The current study aims to analyze in detail the changes in the language use trajectories of a sample of pre-adolescents and adolescents in Catalonia, more specifically during the period comprised between the end of primary education and the end of compulsory secondary education. The study tried to answer the following three research questions:

- 1) What are the changes experienced by the students in their patterns of language use with their friends and peers between the end of primary education and the end of compulsory second education?
- 2) To what extent are these changes minor (*movements*) or large (*mudes*)?
- 3) To what extent is the transition between primary and secondary education a juncture favorable for sociolinguistic transformation, be it minor or large?

Methodology

The data for the current study come from the RESOL project, a longitudinal, panel research project (2006-2015) that followed a cohort of student population in Catalonia between the end of primary and the end of secondary education from a variety of perspectives.² Panel studies follow the same individuals in real time and therefore, although more costly and time-consuming, avoid possible biases due to memory errors or biases due to the informants' changing perception of their own past.

Data for this specific study were collected using a sociolinguistic questionnaire that was filled in the classroom and that included several sociolinguistic and demographic questions. Participants were asked to fill in the questionnaire at three different times between 2007 and 2012:

- Time 1 (T1): last year of primary education (6th year of primary education in the Catalan education system, age=11-12)
- Time 2 (T2): one year later, in the first year of compulsory secondary education (age=12-13)
- Time 3 (T3): three years later, in their 4th and last year of compulsory secondary education (age=15-16).

The data about interpersonal language use with peers come from a section in the questionnaire that included a table specifically designed to gather data on the languages used by participants when interacting with their peers (see Appendix 1). To complete this table, informants were required to proceed in several steps. First, they were asked to write down the names of 20 people with whom they interacted mostly during the week in the first column, and the *type of relationship* they had with each person in the second column. This operation served to define the informants' network of most frequent relationships in the form of 20 dyads formed by the informants and their 20 interlocutors. For this study, the resulting data were filtered so

that only dyads involving *peers* (including categories such as friends, close friends, classmates and similar) were taken into consideration in the analyses. Once the names and types of relationship had been provided, informants had to go back to the top of the table and specify the *intensity of contact* with each person, marking one of three possible answers provided in the table: “a lot”, “fairly”, and “a little”. This variable was not used in the present study. Finally, the participants also answered a closed question about the *language(s) used* for each particular relationship (“In what language do you speak to this person?”), which included the options “Catalan”, “Catalan = Castilian”, “Castilian”, and “Other (specify)”.

To analyze language practices, language use was conceptualized as a continuous measure that each speaker may realize in one, two or more languages. Three separate *language use indexes* (LUI) were produced for every informant with the answers gathered by means of the table: Catalan LUI, Castilian LUI, and Other languages LUI³. To calculate the informants’ LUIs, each informant was given a fixed score for every language mentioned in his/her interactions with peers in the table. For Catalan LUI, informants got a 100 score for dyads exclusively in Catalan, a score of 50 for “Catalan = Castilian” and for Catalan plus other languages, a score of 0.33 when the three languages are used in combination and a 0 score for answers including Castilian or other languages (alone or in combination) but not Catalan. These scores were then added and divided by the number of peers mentioned, obtaining an index of use of Catalan ranging between 0 (no use of Catalan) and 100 (exclusive use of Catalan with all contacts). The equivalent operation was carried out for Castilian to obtain the Castilian LUI, and for the “other languages” category to create the Other languages LUI. In the end, each informant had three complementary LUIs (Catalan, Castilian and Other languages), which, taken together, provided a global LUI that summed up 100. Informants who declared strictly monolingual practices scored 100 in just one of their three LUI and 0 in the other two. For those who expressed some sort of bilingual or multilingual behavior, it was the addition of the three partial LUIs that gave a score of 100. Of course, these conversions are a simplification of actual language practices (e.g., data are declared rather than observed, perfect equivalence in the cited

languages is assumed, etc.), but as long as they are systematic, they appear as a statistically legitimate way to analyze language use as a continuous scale from quantitative perspective.

Given the longitudinal design of this study, LUIs were obtained from all informants for all three times under scrutiny (T1, T2 and T3). As a consequence, all informants had 9 language-specific LUIs; that is 3 LUIs (Catalan, Castilian, Other) x 3 times (T1, T2, T3). Changes in language use were subsequently analyzed following three different strategies:⁴

- First, a comparison of the average use of Catalan, Castilian and other languages provided a transversal picture of the basic transformations experienced by language practices during this period.
- Second, the comparison of the changes in global LUI of each informant allowed discerning the individual variability within the overall scenario.
- Third, the combined analyses of language-specific LUIs allowed identifying different clusters of language behaviors that best explained the individual differences. The language use trajectory profile of each informant was ascertained analyzing the coevolution in the use of Catalan, Castilian and other languages during the five years in three time moments. On the basis of these individual trajectories, a k-means technique was applied to reduce them to the most reasonable mean trajectories by a clustering procedure (see Ubalde et al. 2017 for a similar procedure). The Davies-Bouldin index, which represents the average of the within-cluster and between-cluster distances ratio, was used to choose the best classification. Next, the changes in each group were analyzed by means of a 3(language) x 3 (time) repeated measures ANOVA. A value of $p < 0.05$ was accepted as the minimal level of significance.

Participants: sample

Data for this study were collected from five different localities selected to represent the diversity of Catalonia's adolescent population. Three of them are located in the Barcelona Metropolitan

area, where the use of Catalan is below the national mean: Mataró, Sant Joan Despí and Sant Just Desvern; the other two localities are outside the Metropolitan Region of Barcelona (Manlleu and Balaguer), where the percentage of Catalan L1 speakers is higher. In order to build the database, all students that were attending 6th degree of primary education in 2007 in those 5 localities were invited to answer the survey questionnaire. Students were approached again one year later, when they were in their first year of compulsory secondary education, to repeat the survey, and three years later, when most of them were finishing their fourth and last year of compulsory secondary education. Data from the different surveys were eventually linked to construct a longitudinal database that allowed to analyze sociolinguistic trajectories in real time. The final sample was quite close to represent Catalonia's adolescent population in terms of sex, and birthplace, but it is impossible to assess exactly its degree of representativeness in sociolinguistic terms since no official source provides the linguistic census of this population cohort. A comparison with the results provided by the last survey of the Highest Council of Evaluation of the Educational System (Consell Superior d'Avaluació del Sistema Educatiu 2014) suggest that Catalan and Catalan-Castilian bilingual speakers might be overrepresented (MD=4.8% and MD=1.8% respectively), whereas Castilian speakers and native speakers of other languages might be underrepresented (MD=5.6% and MD=1.1% respectively). These potential biases should be taken into account when reading the general results.

The final database for the current study is made up of 1,046 participants, 45.9% of them were male and 54.1% female. As far as the final sample is concerned, participants were distributed as follows according to their L1: 42.7 % Catalan L1; 34.4% Castilian L1; 15.2% Castilian and Catalan L1; and 7.6% other languages. A small number of participants (less than 1%) that had Catalan and/or Castilian plus *another* language as their L1s were included in the group of other languages for statistical reasons. The largest percentage of informants was born in Catalan-speaking areas⁵ (89.6%), followed by those born in Central and South America (3.7%), in Africa and the Middle East (3.4%), elsewhere in Spain (1.2%), and in the rest of Europe (1.1%). The number of participants from other areas (e.g., Asia) was smaller than 1%.

Results

An overview of the evolution of the global (mean) percentages of languages used by the informants with their friends and peers between T1, T2 and T3 detected small but significant changes in the use of Catalan and Castilian. In general terms, Catalan was the most used language in all three times, but it receded significantly in favor of Castilian (more than 4 percentage points), whereas the use of other languages was comparatively very low and had no significant changes (Table 1):

INSERT TABLE 1 HERE

The data in Table 1 synthesize the language use at three successive moments of the linguistic trajectories of more than 1,000 informants. Data show a relatively small, although statistically significant increase in the use of Castilian between T1 and T3, and therefore do not support the hypothesis that Catalan students are undergoing a process of massive *muda* between the end of primary education and the end of compulsory secondary education.

Chances are that, at least in theory, this overall modest change was the result of many individual changes in opposite directions that would somehow *compensate* with each other and mask a larger transformation in language practices. That would be the case, for instance, if many Castilian L1 informants had massively adopted Catalan in one city and, simultaneously, an equivalent number of Catalan L1 speakers had adopted Castilian in another city: these transformations would go unnoticed in the global results.

To check this possibility, the language behavior of each informant was analyzed to determine to what extent it had changed globally between T1 and T3.⁶ Given that most informants declared bilingual behaviors, global change was calculated as the percentage of decrease in the use of one language, because this percentage was equal (in absolute terms) to the increase of their other language. In the case of trilingual and multilingual speakers, global change was calculated as the addition of all decreases.

Table 2 shows the percentage of informants according to their percentage of decrease in LUI (Catalan, Castilian, Other Languages and global) in intervals of 20%. In order to read it well, it is useful to keep in mind that, for instance, a change in 10% in LUI is equivalent to changing completely the language used with two interlocutors out of 20. Such a change may be due to a multiplicity of combinations. It could take place, for instance, if one informant drops two Catalan-speaking friends that had been mentioned in the questionnaire at T1 and replaces them in the questionnaire at T3 with two new Castilian-speaking friends. It would also be the case if he or she changed completely not *the friends* themselves but rather the language of interaction with them. Unfortunately, there is no way to discern whether LUI transformations were due to modifications in the social network (i.e., replacement of interlocutors) or changes in language choices with the same interlocutors. The same 10% LUI transformation may also take place by change in language practices from monolingual to bilingual uses (e.g., Catalan → Catalan and Castilian) or from bilingual to monolingual (e.g., Catalan and Castilian → Catalan) with four friends out of 20, and, of course, by combinations of all these different possibilities..

INSERT TABLE 2 HERE

The first conclusion to be drawn from Table 2 is that, in contrast with the rather static image we obtained in the first analysis when we looked at LUIs means, in actual terms, a large majority of informants declared some degree of transformation in their language behavior. To be more precise, only 22% of informants declared no change at all (0% changes— figure not shown in the table). That is, in the course of four years, a large majority of informants declared some degree of changes in his/her language behavior. Notwithstanding, Table 2 also makes clear that the degree of change declared by most informants remained comparatively small. In fact, the number of informants whose language practices with friends and peers experienced more significant transformations followed the rule of thumb of ‘the bigger the change, the smaller the number of people involved’. Table 2 shows that 61% of informants reported changes below 20% in their global LUI, and 82% declared changes below 40%. In fact, informants

whose global LUI changed by more than 60% were just 6.8% of the sample, and changes equal or beyond 80% of LUI, i.e., almost the whole network of peers, only affected 3% of the sample.

In other words, the analysis of individual changes allows us to nuance the image of high stability provided by the initial comparison of global language uses. Indeed, below the surface of apparent immobility there is a myriad of small oscillations in language practices that affects most informants. Nevertheless, the percentage of informants who declare important transformations in their language behavior remains comparative small.

In order to refine the understanding of the linguistic transformations experienced in the period under scrutiny, an analysis of classification grouped all individual trajectories in different clusters on the basis of their joint trajectories (see methodology). Once this analysis was carried out, five groups were identified. The following sections describe each group in detail

Group 1: The first group (40% of the sample) included profiles of adolescents who basically used Catalan with friends and peers (see Figure 1, left). Their language use index of Catalan was around 90 and decreased slightly from 92.7 in T1, to 89.4 in T3, while the Castilian LUI evolved from 6.6 to 8.8, and the index for other languages moved between 0.7 and 1.7. Both the reduction in the use of Catalan and the increase in the use of Castilian were significant (respectively, $p < 0.001$ and $p = 0.023$). Looking at it globally, however, the transition between primary and secondary education did not seem to be especially remarkable in terms of language use change.

Group 2: The second group of individuals, which comprised 32.9% of the sample, shows high values for the Castilian LUI —around 90— throughout the five-year period, less than 10 of use of Catalan, and less than 1 for other languages (see Figure 1, right). These scores changed over the years in a non-statistically significant way.

INSERT FIGURE 1 HERE

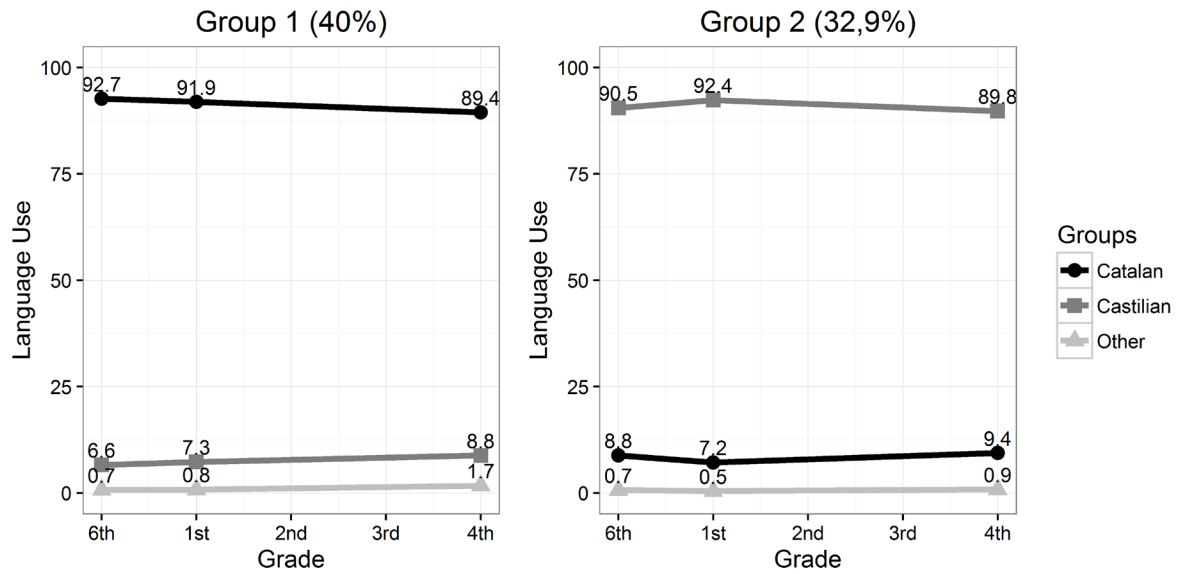


Figure 1. Evolution between 6th grade of primary education (T1) and 4th grade of secondary education (T4) of Catalan, Castilian and Other Languages LUIs for group 1 and group 2.

Group 3. The third group (13.8% of the sample) consisted of informants who diminished dramatically (69.5 to 24%) their use of Catalan during this years ($p < 0.001$) and increased very substantially (27.7 to 75.3%) their use of Castilian ($p < 0.001$). As figure 2 (left) shows, this change was rather abrupt between the end of primary education, when Catalan was used at 69.5%, and the beginning of secondary education, when it diminished to 43.5% and was clearly overtaken by Castilian, which increased from 27.7 to 55.6% in the course of just one year. The use of Castilian kept growing, although at a slower path, during the following four years.

Group 4. Like the third group, the fourth group (11.1% of the sample) consisted of informants who showed a very significant change in their language practices (see figure 2 right), but in the opposite direction. Castilian decreased from 69.4 to 54.5% between T1 and T2, and to 40.8% by T3, while Catalan use increased from 29.9 to 44.6% and then, to 56.8% ($p < 0.001$ in all cases). There was not a significant change in the use of other languages, which remained very low during the three times ($p = 0.099$).

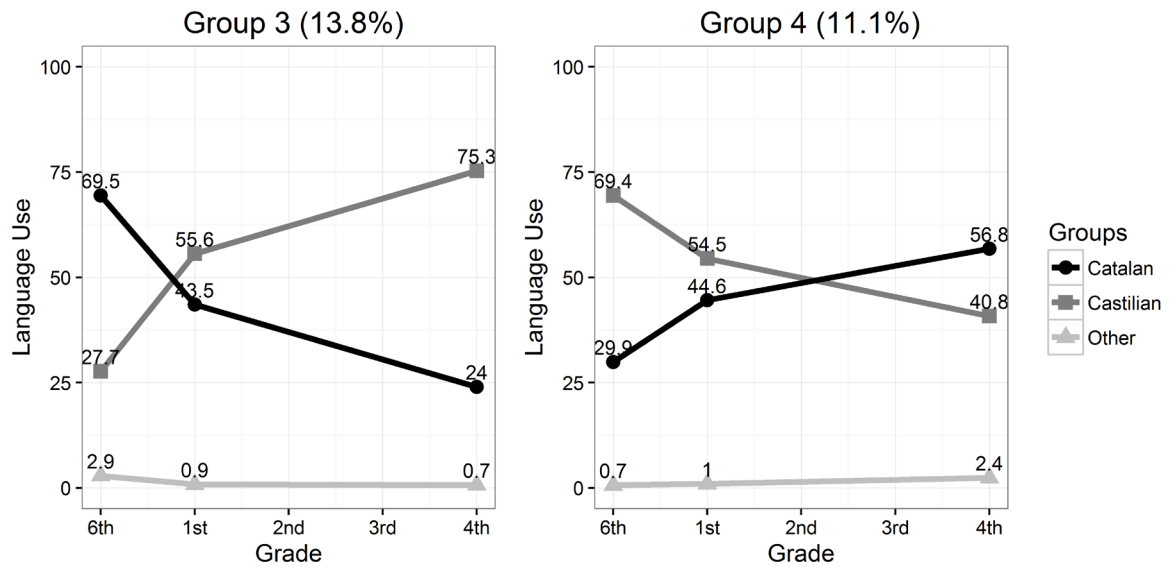


Figure 2. Evolution between 6th grade of primary education (T1) and fourth grade of secondary education (T4) of Catalan, Castilian and Other Languages LUIs for group 3 and group 4.

Group 5. The fifth group only included 2.2% of the sample and was characterized by a predominant, but not exclusive, use of other languages (see figure 3). Predominant use of languages other than Catalan and Castilian was higher by the end of primary education, but the entrance to secondary education implied a decrease from 67.8 to 53.5%. By the end of secondary education, this figure had grown very slightly to 55.1%. Changes were nevertheless statistically not significant.

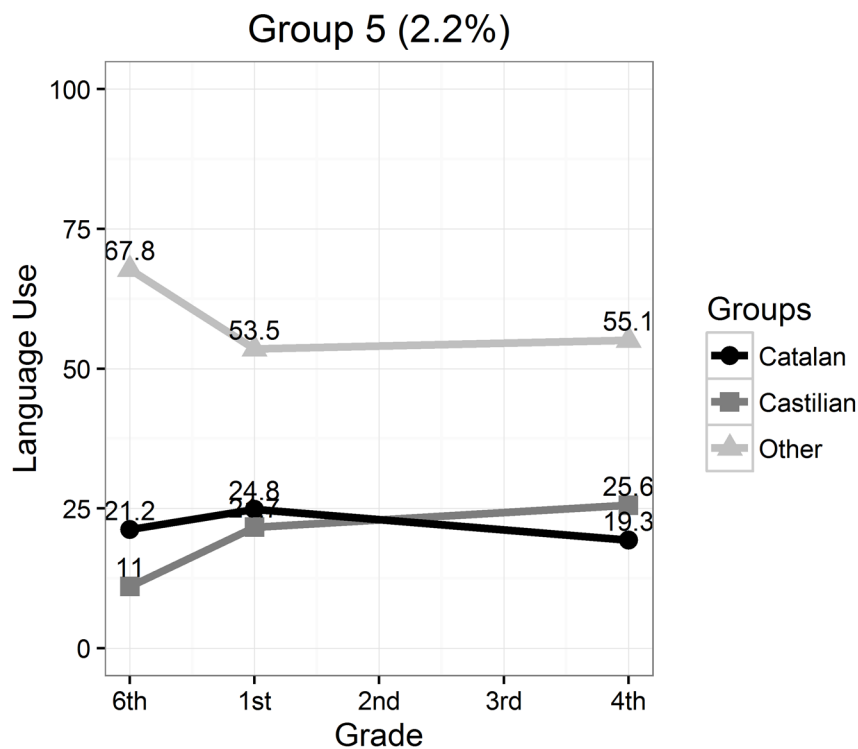


Figure 3. Evolution between 6th grade of primary education (T1) and fourth grade of secondary education (T4) of Catalan, Castilian and Other Languages LUIs for group 5.

In sum, the longitudinal data here analyzed revealed the existence of several groups as far as their language use with friends and peers is concerned: two of them, including nearly 73% of the informants, mostly used one single language most of the time all along the period and showed no or little change in that pattern. Two other groups (nearly 25% of the sample), which showed higher use of both languages all over the period, indicating bigger changes in their linguistic behavior to the extent that they swapped their predominant language between T1 and T3. The degree of their change was nevertheless not the same: Informants in group 3 evolved faster towards a very clear predominance of Castilian. Members of group 4 did modify the balance between their two main languages but linguistic polarization was slower and much less pronounced. Finally, a very small group (2.2% of the sample), the only one to use extensively three languages, did not show significant changes and used predominantly languages other than Catalan and Castilian.

In order to characterize the members of each group, several sociodemographic variables that have often been found relevant in sociolinguistic research among teenager population in Catalonia were used: first language, sex, level of education of the mother and area of residence (within/outside the Barcelona Metropolitan Region). Table 3 shows the percentages of these variables by cluster, and the significance associated to them (derived from a χ^2 -Test).

INSERT TABLE 3 HERE

a) First language: First language was significantly associated with language practices with friends and peers. Group 1 consisted (77.8%) mostly of Catalan L1 speakers, whereas group 2 was formed predominantly by Castilian L1 informants (67.4%). In contrast, group 3 and group 4 were more mixed, with group 4 including a high proportion of bilinguals. Finally, users of other languages were almost exclusively native speakers of these other languages. It is interesting to point out that group 3, the one experiencing the most significant change in language practices, was to a large degree (almost 60%) formed by Castilian L1 and by Catalan/Castilian bilinguals. In other words, for many informants in group 3, the abrupt movement towards Castilian as the main language of communication with friends and peers that characterized this group was in fact a movement back towards their first language rather than away from it.

b) Sex: Virtually no association was found between sex and group configuration. The only exception was the significantly higher proportion of males in Group 4. Group 5 was overwhelmingly female, although its small size makes statistical considerations irrelevant in this case.

c) Educational level of the mother: A significant association was found between the educational levels of the participants' mothers and the typology of change. The children of mothers with university education were significantly more abundant in group 1, while mothers with basic and especially medium studies were common in group 2. Mothers with only basic studies were also overrepresented in group 3.

d) Area of residence was found to play a significant relation with group configuration. While adolescents living outside the Barcelona metropolitan region were overrepresented in group 1, groups 2, 3 and 4 showed a hugely disproportionate percentage of informants living within the metropolitan region.

The comparison of the changes in language use between T1, T2 and T3 offers the opportunity to assess to what extent the transition between primary and secondary education is a social juncture that allows for increased language change. Table 4 shows the results by each group for each language, the differences between T1 and T2, and between T2 and T3. Taking into account that the evolution between T2 and T3 took place within a period of 3 years, the results of T2→T3 were divided by 3 to obtain the average group change per year in the latter period. The last column indicates with L the cases when T1 →T2 change was larger than T2→T3.

INSERT Table 4 here

Data show that the transition between primary and secondary education (i.e., T1 →T2) seems to facilitate changes in language practices but, taking into account that differences between the LUI were not significant for groups 1, 2 and 5, the *juncture* effect was only relevant in groups 4 and, very specially, in group 3.

Discussion

The general overview provided by the global mean percentages of language use with friends and peers is one of very little change. The use of Catalan diminished slightly, though significantly, between T1 and T2, as well as between T2 and T3, whereas the use of Castilian increased accordingly. The use of other languages remained very low during the years.

This landscape of overall stability, combined with a small increase in the use of Castilian, does not mean that language practices remained almost frozen during the five years under scrutiny. On the contrary, changes in language practices were abundant and in fact affected a large majority of informants, but in their majority they were minor movements implying only small changes. Considering the informants' individual changes, less than 20% of the informants reported a change in its global LUI of 40 percentual points or more between T1 and T3. In other words, whereas for a large percentage of the informants, increasing or decreasing slightly their customary use of Catalan, Castilian (or other languages) with their friends or peers was a familiar experience, extensive transformations of the language practices were declared only by a small number of informants.

In this context of continuous though moderate change in language practices, a cluster analysis identified five main patterns of linguistic trajectories. Three of them (groups 1, 2 and 5), which together accounted for 75% of all informants, combined the strong predominance of a single language —Catalan, Castilian, or another language— and a remarkable stability in patterns of language choice during the five years period. Informants in group 1 were basically Catalan L1 speakers or Catalan-Castilian L1 bilinguals and most lived outside of the Barcelona Metropolitan Region, so it can be claimed that they simply tended to project their L1 with their peers and friends. Informants in group 2 were Castilian L1 speakers or bilinguals in their majority and were geographically concentrated in the Barcelona Metropolitan Region almost without exception. Group 5 was made up of speakers of other languages scattered across the country.

In contrast with these more stable groups, the other 25% of informants displayed trajectories that were more bilingual and mobile, to the extent that, by the end of the period here analyzed (T3), both groups had replaced their predominant language of interaction with friends and peers with another one that used to be their second most used in T1. These *language swappers*, as we could term them, were distributed into two groups that were quite similar in their numbers. They evolved in opposite directions: group 3 moved from Catalan to Castilian

language practices, whereas group 4 evolved from Castilian towards Catalan. Group 3 was the one to show the most dramatic change in patterns of language use (almost 50 points of difference in their LUIs between T1 and T3). The number of Castilian speakers in this group was higher (39%) than the number of Catalan speakers (35%), followed by bilingual L1 speakers (20%) and native speakers of other languages (6%). Most of the members of this group (90%) lived in the Barcelona Metropolitan Region. Group 4, which evolved towards Catalan, was also made up predominantly of Castilian L1 speakers (36%), followed by Catalan L1 speakers (30%), bilingual L1 speakers (24%) and alloglot participants (10%), and they also lived predominantly in the Barcelona Metropolitan Region.

In sum, the general landscape of stability, small oscillations in language uses, and bilingual practices in the current study is the result of two trends: on the one hand, about three quarters of our informants displayed only minor changes and appeared comfortably established in the predominant use of one language. On the other hand, the remaining quarter of our informants displayed more variability and displayed variegated and contradictory trajectories that somehow compensate with each other in the overall view, although a slight trend towards more use of Castilian was identifiable.

Finally, the comparison of language changes from T1 to T2 and from T2 to T3 showed that the transition from primary to secondary education in Catalonia did operate as an effective sociotemporal juncture for two groups of informants, basically those from the Barcelona Metropolitan Region. The trend for one of them was to drop the use of Catalan with friends and peers in favor of Castilian; for the other, slightly smaller, the trend was to increase the use of Catalan. Both groups include, in this order, native speakers of Castilian, native speakers of Catalan, Catalan and Castilian bilinguals, and native speakers of other languages and, therefore, in many cases rather than *linguistic movements* or *mudes* in the direction toward the L2, what we have is a retraction to the L1.

Conclusion

This paper has investigated the longitudinal evolution in the patterns of language use of adolescents with friends and peers between the end of primary education and the end of compulsory secondary education in a highly bilingualised society such as Catalonia. Its goal was exploring to what extent this period of life was open to the enactment of sociolinguistic change in the form of *linguistic movements* or even *linguistic mudes*, and to what extent the transition between primary and secondary education constituted a social juncture favorable for sociolinguistic change.

Results have shown a general scenario characterized by a combination of general stability and a slight, but significant decrease in the use of Catalan between the end of primary education and the end of compulsory secondary education. However, this scenario somehow conceals a multitude of sociolinguistic transformations that affect the individual trajectories of many informants. These transformations were studied by means of the analysis of individual trajectories and a cluster analysis. Most of the changes detected were minor, but for a quarter of the informants—precisely those who showed a more bilingual behavior at the end of primary education—, transformations were important enough to show a change in the predominant language of interaction with peers. More important modifications in language behavior were rather uncommon, and only 6.8% of informants reported to have transformed their language practices (global LUI) with friends and peers by 60% or more between T1 and T3. Indeed, of the five clusters of linguistic trajectories identified, only one approached such a remarkable degree of transformation in linguistic practices. Furthermore, a majority of the most dramatic changes in language use detected in the sample showed an increase in the use of L1 rather than L2. On the whole, these data suggest that whereas language movements seem to be very widespread, only a small percentage of informants experience the important changes in language uses and social persona inherent to actual *linguistic mudes* during the period here analyzed

The results from the current study also suggest that the transition between primary and secondary education constitutes a juncture for sociolinguistic change, albeit a modest one. This juncture facilitates the increased use of Castilian not only among Castilian L1 speakers, but also by native Catalan, bilinguals and speakers of other languages, who used to speak more Catalan in primary education with their peers. Evolution in the other direction, i.e., towards an increased use of Catalan, also takes place but to a smaller degree.

Finally, the results from this study point to a number of trends that may be illuminating for language policy makers both in Catalonia and in other contexts of linguistic minoritization. First, in Catalonia, Catalan may be the main language of education in primary and secondary education, but Castilian remains very solidly entrenched in interpersonal uses. Second, the reduction in the use of Catalan in interpersonal relationships is probably related not only to the lower use of Catalan as a vehicular language in secondary education (in comparison with primary education), but also to the comparatively smaller cultural supply (including TV programs) for teenagers than for children (Bretxa 2015; Bretxa and Vila 2014). Taken together, both reflections underline the need for language promoters to avoid school-centered reductionist views. The trends here described corroborate that language practices are to be placed in complex ecosystems where schools are just one (important) element among others, rather than *the* crucial factor determining interpersonal language use.

Funding

This work was supported by the Spain's Ministry of Economy, Industry and Competitiveness (MINECO) under Grant *FFI2016-75416-P*; by Catalonia's Agency for the Management of University and Research Support (AGAUR) under Grant 2014 SGR 918; and by Fundació La Caixa under Grant *Recercaixa 2014*.

Appendix 1. Instrument to obtain data on language use with peers (including the original in Catalan and the English translation).

Pregunta 31. Pensa un moment en les coses que fas al llarg de la setmana (per exemple, quedar amb els amics o parella, activitats extraescolars, feina, estar amb la família, anar al col·legi o l'institut...). Escriu a la primera i la segona columnes de la taula el nom de les 20 persones amb qui més et relaciones. Un cop escrits els noms, respon les altres preguntes.

Question 31. Think for a minute about the things that you do throughout the week (for example, meeting your friends or your partner, doing extracurricular activities, work, being with your family, going to school or high school...). Write in the first and second columns of the table the name of the 20 people with whom you most interact. Once you have written the names, answer the other questions.

	Nom de la persona (sense cognoms) <i>Person's first name (without last names)</i>	Tipus de relació (amic, cosí, parella, monitor...) <i>Type of relationship (friend, cousin, couple, instructor...)</i>	Ens relacionem... <i>We interact...</i>			En quina llengua parles tu amb aquesta persona? <i>In what language do you speak to this person?</i>			
			Poc <i>A little</i>	Bastant <i>Fairly</i>	Molt <i>A lot</i>	Cat <i>Cat</i>	Cat=Cast <i>Cat=Spa</i>	Cast <i>Spa</i>	Altres. Quines?... <i>Other. Which ones?...</i>
1.									
2.									
...									
20.									

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Table 1 Evolution between T1, T2 and T3 of the mean percentage of each language used with friends and peers

Use of each language	T1	T2	T3
Catalan^{***}	55.13	52.49	50.70
Castilian^{***}	42.37	45.60	46.70
Other languages	2.50	1.91	2.60

*** p<0.001; ** p<0.01; * p<0.05

Table 2. Percentage of informants according to their range of LUI change between T1 and T3 for each language

LUI	Range of LUI changes between T1 and T3				
	[0-20)	[20-40)	[40-60)	[60-80)	[80-100]
Change (decrease) in Catalan LUI	44,4	11,7	6,2	2,3	1,9
Change (decrease)in Castilian LUI	43,0	8,3	3,9	1,1	0,5
Change (decrease)in Other languages LUI	88,5	1,1	0,6	0,1	0,6
Total change in LUI	61,1	21,3	10,8	3,8	3,0

Table 3 Sociodemographic and sociolinguistic characteristics of group members

Factors	Group 1	Group 2	Group 3	Group 4	Group 5	Total
Catalan L1	77.78***	9.97	34.97	29.57	4.35	42.57
Bilingual						
L1	10.14	17.30	19.58	24.35**	0.00	15.15
Castilian						
L1	7.00	67.45***	39.16	35.65	4.35	34.46
Other first						
lang.	5.07	4.11	6.29	10.43	91.30***	7.43
Male	49.52*	46.92	41.96	39.13	26.09	45.95
Female	50.48	53.08	58.04	60.87	69.57	53.96
Illiterate	1.93	5.87	1.40	6.09	39.13	4.44
Basic						
studies	5.80	15.84***	16.78*	10.43	13.04	11.29
Medium						
studies	38.89	62.17***	53.15	51.30	34.78	49.81
High						
studies	51.45***	14.08	25.17	30.43	8.70	32.24
BMR	61.84	98.24***	90.21***	86.96*	73.91	80.79
Non BMR	38.16***	1.76	9.79	13.04	26.09	19.21

Asterisks indicate significance according to a ν -test (one tail): *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table 4. LUI changes between T1, T2 and T3

		T1	T2	T3	T1 →T2	T2→T3	T2→T3/3
Group 1	Catalan	92.7	91.9	89.4	<i>-0.8</i>	<i>-2.5</i>	<i>-0.8</i>
	Castilian	6.6	7.3	8.8	0.7	1.5	0.5 L
	Other	0.7	0.8	1.7	0.1	0.9	0.3
Group 2	Catalan	8.8	7.2	9.4	<i>-1.6</i>	2.2	0.7 L
	Castilian	90.5	92.4	89.8	1.9	<i>-2.6</i>	<i>-0.9</i> L
	Other	0.7	0.5	0.9	<i>-0.2</i>	0.4	0.1 L
Group 3	Catalan	89.5	43.5	24.0	<i>-46.0</i>	<i>-19.5</i>	<i>-6.5</i> L
	Castilian	27.7	55.6	75.3	27.9	19.7	6.6 L
	Other	2.9	0.9	0.7	<i>-2.0</i>	<i>-0.2</i>	<i>-0.1</i> L
Group 4	Catalan	29.9	44.6	56.8	14.7	12.2	4.1 L
	Castilian	69.4	54.5	40.8	<i>-14.9</i>	<i>-13.7</i>	<i>-4.6</i> L
	Other	0.7	1.0	2.4	0.3	1.4	0.5
Group 5	Catalan	21.2	24.8	19.3	3.6	<i>-5.5</i>	<i>-1.8</i> L
	Castilian	11.0	21.7	25.6	10.7	3.9	1.3 L
	Other	67.8	53.5	55.1	<i>-14.3</i>	1.6	0.5 L

NB: negative values are offered in italics.

¹ Although (Kulick and Schieffelin 2004) would argue that this may be an extreme viewpoint subservient of a dated model of enculturation, since, as proved by a number of studies, language changes may take place at many other moments of life.

² For more details on the project, see Bretxa and Vila (2012), Bretxa and Vila (2014), Bretxa et al. (2016) and the project website: www.ub.edu/cusc/sleducativa.

³ Other languages were too numerous to be broken down in this study.

⁴ Due to the anonymity of data one cannot tell whether the evolution in language behavior derived from changes in language practices within each dyad, or rather from changes in the members of the network. Nevertheless, since the goal of this research was measuring whether informants were using more or less Catalan, Castilian or other languages, the origin of changes was interesting but secondary.

⁵ The term *Catalan-speaking areas* refers to the territories where Catalan is the traditional and historical language, which include Catalonia, the Balearic Islands, the Valencian Community, La Franja (Aragon), Andorra, Northern Catalonia (France), and Alghero (Italy).

⁶ Only two times (T1 and T3) were used here for the sake of simplification. More detailed analyzes will be found in the next paragraphs.