

# The Threshold Hypothesis Applied to Three Languages in Contact at School

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This study was designed to investigate whether the threshold level hypothesis (Cummins, 1976, 1979) could be applied to a three-language-in-contact school situation. The learning of three languages at school is becoming more and more commonplace throughout the world, some cases in Europe being reviewed. One of these three-language-in-contact school situations is that of the Basque Country, a bilingual community wherein both Basque and Spanish are official languages, and therefore taught at school. English is taught as a foreign language. The sample was made up of 252 students; 126 of them enrolled in Grade 5 (10–11-year-olds) and who were in their second year of learning English at school, and 126 enrolled in Grade 8 (13–14-year-olds) and who were in their third year of learning English at school. The participants completed Basque, English, and Spanish tests, as well as a background questionnaire and Raven's Progressive Matrices Test. The dependant variable was measured via a test of metalinguistic abilities. The threshold hypothesis could be applied either by establishing a third threshold or by maintaining the two original ones. The results showed that the maintenance of the original parameters on which the threshold hypothesis is based was more adequate than the proposal of establishing three thresholds.

Bilingual subjects can be divided according to their linguistic competence in both languages. Thus, a balanced bilingual would be a person who is equally highly competent in both languages, whereas a dominant bilingual is more competent in one of the languages than the other. A third group could be added, what is termed as semilingual (Skutnabb-Kangas & Toukomaa, 1976). This would be the case of a person who is not sufficiently competent in either of the languages.

Regarding competence, perhaps one of the most outstanding theories aimed at explaining the cognitive effects of bilingualism is the *threshold level hypothesis* (Cummins, 1976, 1979). Cummins states that a threshold level of linguistic competence must be attained so that the beneficial cognitive aspects of bilingualism can come to light. This threshold may vary depending on the cognitive stage of the bilingual person and the academic needs of a certain school period. This led Cummins to the conclusion that there is not only one threshold, but two. Once the lower threshold level of bilingual competence is achieved (high level in one of the languages — dominant bilingualism) bilingualism will not bring about any negative cognitive effect, whereas once the higher threshold level of bilingual competence is achieved (high levels in both languages — balanced bilingualism) bilingualism will have positive cognitive effects. Problems arise when there is a low level of competence in both languages; it is at this stage that semilingualism will entail negative cognitive effects.

Cummins (1976) does not affirm that linguistic factors on their own are sufficient to explain the positive or negative effects of bilingualism on cognitive

development. Rather, he suggests that the level of competence in both languages can affect the influence of the learning experiences on this development. Since the attainment of these thresholds is determined by social, attitudinal, educational, and cognitive factors combined, these thresholds are 'an intervening rather than a basic causal variable in accounting for the cognitive growth of bilinguals' (Cummins, 1976: 23). Yet, although positive attitudes help when it comes to learning a language successfully, it does not explain why the learning of a second language can positively influence some aspects of the cognitive development, whereas variables related to the linguistic competence can account for it.

However, this hypothesis has been criticised on the grounds that these thresholds are not sufficiently defined. According to the level of bilingualism hypothesis (Diaz, 1985; Hakuta & Diaz, 1985) for example, only in the early stages of second language acquisition does bilingualism promote cognitive ability, because it is then when the second language learner shows a greater metalinguistic awareness of language functioning. However, this hypothesis was not vindicated in an experiment carried out by Jarvis *et al.* (1995).

On the other hand, the threshold level hypothesis has been borne out in several studies: Barik & Swain (1976), Cummins & Mulcahy (1978), Duncan & De Avila (1979), Goncz & Kodopeljic (1991), Kessler & Quinn (1982) or Ricciardelli (1992). This paper aims at analysing the applicability of the threshold hypothesis (a theoretical construct designed for bilingual pupils) to a three-language-in-contact school situation, metalinguistic awareness being the dependent variable.

It should also be remembered that there is at least one study on multilingualism which is compatible with the extension of the threshold hypothesis, that of Nation & McLaughlin (1986). This involved a group of multilingual, bilingual and monolingual adults who completed a task based on an artificial language. The multilingual subjects outscored both the bilinguals and the monolinguals when they had to judge the grammaticality of some sentences.

Metalinguistic awareness could be defined as the 'ability to think about and reflect upon the nature and functions of language' (Baker, 1996: 122). The effect of the degree of bilingualism on the development of metalinguistic awareness has received ample attention from the seventies onwards (Diaz, 1985; Diaz & Hakuta, 1981; Edwards & Christophersen, 1988; Galambos & Hakuta, 1988; or Merino, 1984, to name but a few), as it was considered that analysis of the relationship between metalinguistic awareness and language acquisition could prove very helpful in understanding the second language acquisition process. In these previous studies bilinguals outperformed monolinguals concerning the arbitrary relationship between the referent and the object, the former being better at changing labels than the latter. Bilinguals have also obtained better results in syntactic and lexical learning (Thomas, 1988). However, we are unaware of any study that has analysed the effect of the degree of proficiency in three languages on the development of metalinguistic awareness

In recent decades the number of studies on bilingualism and bilingual cognitive development has grown up enormously, but there is a new linguistic trend represented by multilingualism. The learning of three languages at school is becoming more and more commonplace, not only in Europe but also

throughout the world. Among the different reasons that have led to so many multilingual situations, perhaps three of them stand out: the role of the English language as a lingua franca (Preisler, 1995), the increasingly important migratory movements (Nelde, 1991) and the former colonial presence (Swilla, 1992). These factors have led to a great spread of multilingualism throughout the five continents. Nevertheless, three kinds of multilingualism can be distinguished, although it should be borne in mind that there is an overlap among these three types of multilingualism (on some occasions they cannot be easily distinguished):

- (1) *Social multilingualism*: this kind of multilingualism takes place when there is a real presence of three or more languages in the everyday life of a community. An example of this kind of situation would be that of the Buang Tribe in New Guinea (Sankoff, 1972), whose members usually communicate in three languages (Buang, Yabem and Neo-Melanesian). Moreover, it has to be taken into account that some of these people even have knowledge of other languages (English and Motu). When describing this context, Edwards (1994) points out that it is one of the most rich and complex linguistic settings in the world, a country where many of its tribes and languages are still unknown, and where it is estimated that there coexist between 600 and 1000 languages.
- (2) *Individual multilingualism*: the presence of several languages in the everyday life of an individual. This would be the case of an immigrant who resides in a bilingual community, adding his own L1 to these two languages, which results in the need to resort to three languages (Gulutsan, 1976; Swain *et al.*, 1990), which some experts (Siguan, 1992) regard as one of the main stumbling blocks which several European educational systems have to overcome. Another case of individual multilingualism would be that of children with parents from different countries living in a third one (Hoffmann, 1985).
- (3) *School multilingualism*: in an ample sense it could be defined as the presence of more than two languages in the curriculum. In a more strict sense it would be the use of more than two languages as means of instruction. The former would include those school situations in which two foreign languages are added to the L1 of the students (Bensoussan *et al.*, 1995) or a foreign language in a bilingual context (Valencia & Cenoz, 1992), whereas the latter would comprise those situations in which three languages are utilised as major media of curricular instruction (Byram & Leman, 1990; Genesee, 1987; Genesee & Lambert, 1983; Hoffmann, 1998).

This article deals with this last type of multilingualism, i.e. school multilingualism. The learning of three languages at school is becoming more and more widespread in Europe and around the world, especially in those areas where a minority language is spoken. Many of the areas in which there are at least three languages in contact at school are those where the region's own language, the state language, and a foreign language are included in the curriculum. This is the case of the bilingual province of Friesland in The Netherlands (Ystma, 1996); Brittany in France; the Bolzano region and the Aosta Valley (Decime, 1994) in Italy; the situation of the German linguistic minority that after the Second World War Peace Treaties remained within the Danish borders (Byram, 1993); the

bilingual high schools in German and French that were set up in Germany as a means of reconciliation between the two countries around the 1960s (Mäsch, 1993); The Netherlands (Sanders & Meijers, 1995); the Vaasa region in Finland (Laurén, 1996); Luxembourg (Lebrun & Baetens Beardsmore, 1993); some areas of Switzerland (Andres, 1990); the Foyer model in Brussels (Byram & Leman, 1990); or the European Schools (Baetens Beardsmore, 1993), to name but the most outstanding ones in western Europe.

Within the Spanish State six Autonomous Communities share the teaching of three languages, for apart from Spanish and the own language of each of them, they also have at least one foreign language taught at school. These communities are the Balearic Islands, Catalonia (Bernaus, 1996), Galicia, Navarre, Valencia, and The Basque Country (Cenoz & Lindsay, 1994; Valencia & Cenoz, 1992).

This wide array of multilingual situations led us to analyse how the threshold level hypothesis can be applied with regard to the presence of three languages in the school curriculum. This research was carried out in the Basque Country, where since the 1978 Spanish Constitution both Basque and Spanish are official languages and therefore taught at school. Furthermore, English is the most widespread foreign language and is studied by more than 96% of secondary school students.

## Hypotheses

This study was designed to test two main hypotheses derived from the threshold level hypothesis regarding the presence of three languages in contact at school (Basque, Spanish and English), which led us to the following.

### Hypothesis 1

By extending the application of the threshold level hypothesis to a trilingual situation, in which we move from the two thresholds of a bilingual situation to the three (higher threshold, medium threshold and lower threshold) of a trilingual one, four groups are obtained:

- |  |                         |
|--|-------------------------|
| (1) Those highly competent in three languages                | <i>Higher threshold</i> |
| (2) Those highly competent in two languages                  | <i>Medium threshold</i> |
| (3) Those highly competent in one language                   | <i>Lower threshold</i>  |
| (4) Those not highly competent in any of the three languages |                         |

As regards this, the following subhypotheses were formulated:

- (1) The students with a high degree of competence in the three languages will obtain better results in the metalinguistic awareness test than those students who achieve a high degree of competence in two, one or none of these languages.
- (2) The students who are highly competent in two of the curriculum languages will score higher in metalinguistic awareness than those whose degree of

competence is only high in one language, or than those who do not achieve a high degree of competence in any of the three languages.

- (3) Those who attain a high degree of competence in only one of these languages will obtain higher scores in metalinguistic awareness than those who do not attain a high level of proficiency in any of the three languages.

## Hypothesis 2

A possible alternative would be that of maintaining the two original threshold levels in a trilingual situation, thus creating three groups:

- (1) Those highly competent in three languages. *Higher threshold*
- 
- (2) Those highly competent in one or two languages. *Lower threshold*
- 
- (3) Those who are not highly competent in any of the three languages

As a result the following subhypotheses are formulated:

- (1) The students with a high degree of competence in the three languages will obtain better results in metalinguistic awareness than those students who achieve a high degree of competence in one or two of these languages and than those who do not attain a high degree of competence in any of the three languages.
- (2) Those who reach a high degree of competence in one or two of these languages will obtain significantly higher scores than those who do not attain a high level of proficiency in any of the three languages.

## Method

### Subjects

The participants were 252 students from Vitoria-Gasteiz, the capital of the Basque Country; 126 were enrolled in Grade 5 (10–11-year-olds) and the other half in Grade 8 (13–14-year-olds). Of these subjects 60 (47.6%) were girls and 66 (52.4%) boys in Grade 5, whereas 67 of them (53.2%) were boys and 59 (46.8%) girls in Grade 8.

### Variables and the instruments used for their measurement

#### *Independent variables*

*Intelligence:* the non-verbal cognitive ability was controlled by means of Raven's Progressive Matrices Test.

*Background information:* through a general questionnaire the students were asked about their personal data and some background information; gender, age, socioeconomic status or sociocultural status.

*Basque proficiency:* in order to assess Basque proficiency we resorted to the Galbahe Tests (Olaziregi & Sierra, 1988; Sierra & Olaziregi, 1991), a standardised test created by the Department of Education of the Basque Government. The students had to complete a reading comprehension task and a writing one.

*Spanish proficiency:* in this case we also fell back on the same standardised tests, the Galbahe Tests (Sierra & Olaziregi, 1986; Olaziregi & Sierra, 1992), but this time related to the Spanish language and involving the same activities.

*English proficiency:* this was measured via a test of vocabulary and grammar and tests of the four linguistic skills (listening, reading, speaking and writing). Grade 5 students did not complete the writing test because this was their second year of learning English at school, and therefore were not accustomed to writing in English.

### *Dependent variable*

*Metalinguistic awareness:* the metalinguistic tasks used in this study were taken from the THAM-2 (Test of Metalinguistic Abilities) created by Pinto & Titone (1995). The metalinguistic test for Grade 5 students consisted of three tests (synonymy, acceptability, and ambiguity), and that for Grade 8 students of four tests (synonymy, acceptability, ambiguity, and phonemic segmentation). Grade 5 students scored a mean average of 14.6 (standard deviation = 5.05) for a maximum score of 22 points. Grade 8 students scored a mean average of 16.1 (standard deviation = 3.66) for a maximum score of 24 points.

### **Design and procedure**

The tests were administered to students from six schools in four sessions, each of them lasting between 45 minutes and an hour, and there was always an interval of two or three days between one session and the next. The results were recorded on answer sheets, which, after having been marked and codified, were statistically treated. The statistical analyses were carried out by means of the SPSS (Statistical Package for Social Sciences).

## **Results**

### **Hypothesis 1**

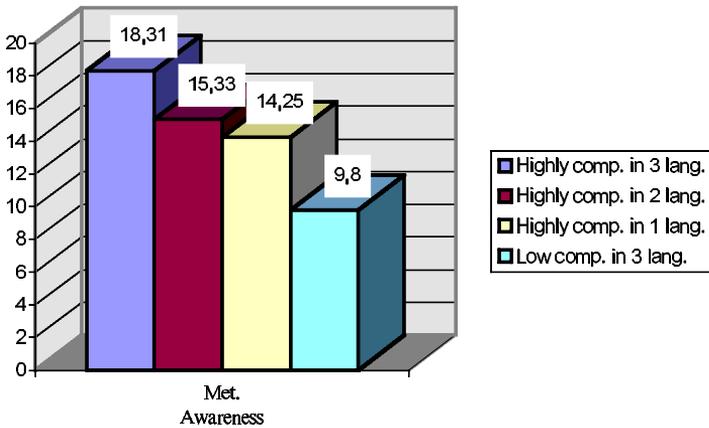
With the aim of testing this first hypothesis — the extension of the threshold level hypothesis to a trilingual situation — the raw scores obtained in the Spanish, Basque, and English tests were converted into Z-scores (standardised scores), because it allowed us to compare variables which had been measured according to different scales; the new mean average was zero, those under the mean obtaining a negative score and those above it a positive one. These Z-scores obtained for the different tests in each language were then added together and the total score for each of the three languages converted into *t*-scores, so as to avoid decimals and make the statistical treatment easier. This procedure had previously been used by Ricciardelli (1992). Finally, those students who were below the median were classified as having a low competence in the language concerned, whereas those who were above that median were classified as highly competent in that language. As a result, four linguistic groups were obtained (see Table 1).

The metalinguistic awareness test results for each of the four linguistic groups in Grade 5 are shown in Figure 1.

Those students who attained a high level of proficiency in the three languages

**Table 1** Four linguistic groups depending on level of competence in Basque, Spanish and English

	<i>Highly competent in 3 languages</i>	<i>Highly competent in 2 languages</i>	<i>Highly competent in 1 language</i>	<i>Low competence in 3 languages</i>
<b>Grade 5</b>				
N. students	29	39	32	26
%	23.0	31.0	25.4	20.6
<b>Grade 8</b>				
N. students	26	39	36	25
%	20.6	31.0	28.6	19.8

**Figure 1** Metalinguistic awareness scores in Grade 5

performed significantly better than the rest, those highly competent in two of the three languages obtained the next-best scores, followed by those highly competent in only one language. Finally, those who had not attained a high level of proficiency in any of the three languages achieved the lowest scores. Nevertheless, after employing Anova analysis, it was observed that the differences between groups (Low in 3 = students who are not very competent in any of the three languages; High in 1 = students with a high competence in one language; High in 2 = students with a high competence in two languages; High in 3 = students with a high competence in the three languages) were not significant in all cases, as the Student-Newman-Keuls test ( $p < 0.05$ ) showed (see Table 2).

These results were corroborated by *t*-test analyses, which revealed that those highly competent in three languages significantly outperformed in metalinguistic awareness those highly competent in two languages ( $t(66) = 3.85, p < 0.001$ ), those highly competent in one language ( $t(59) = 4.34, p < 0.001$ ), and those with a low competence in the three languages ( $t(53) = 6.77, p < 0.001$ ). Therefore, our first subhypothesis (1) proved to be correct.

**Table 2** Significant differences between the four linguistic groups in Grade 5

	<i>Low in 3</i>	<i>High in 1</i>	<i>High in 2</i>
Low in 3 (9.80)			
High in 1 (14.25)	*		
High in 2 (15.33)	*		
High in 3 (18.31)	*	*	*

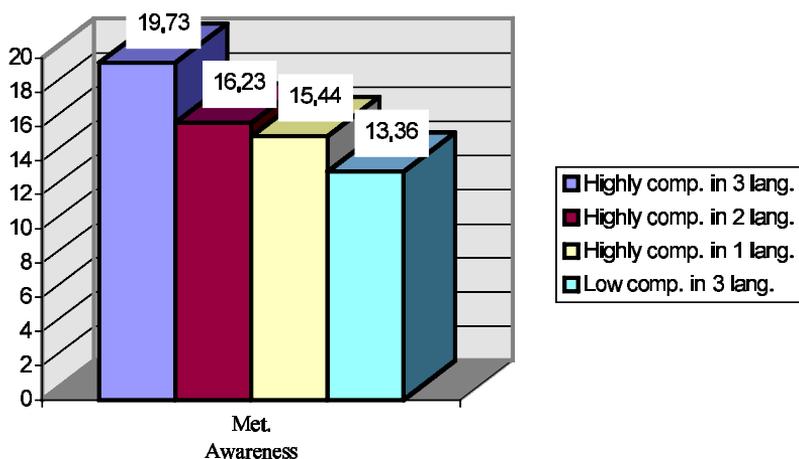
\* Indicates significant differences

Those highly competent in two languages did not significantly outperform those highly competent in one language, though. On the other hand, the difference did turn out to be significant with respect to those with a low competence in the three languages ( $t(63) = 4.72, p < 0.001$ ). As a consequence, our second subhypothesis (2) was not supported.

As far as those students highly competent in one language were concerned, their mean average with respect to that of those with a low competence in the three languages happened to be significant: ( $t(56) = 3.24, p < 0.01$ ). This subhypothesis (3) was also borne out.

It must also be taken into account that among the Grade 5 subjects there were significant differences between some of the groups as regards some important variables: intelligence (between the subjects highly competent in two or three languages compared to those who are not highly competent in any), socioeconomic status (in favour of those highly competent in two languages when compared to those highly competent in one), and sociocultural status (in favour of those highly competent in three languages with respect to those who are not highly competent in any).

In so far as the Grade 8 sample, the results coincide with those obtained in Grade 5 (the four linguistic groups according to level of competence in the three languages being based on the same parameters as in Grade 5) (see Figure 2).

**Figure 2** Metalinguistic awareness scores in Grade 8

The Student-Newman-Keul test ( $p < 0.05$ ) yielded the results shown in Table 3.

**Table 3** Significant differences between the four linguistic groups in Grade 8

	<i>Low in 3</i>	<i>High in 1</i>	<i>High in 2</i>
Low in 3 (13.36)			
High in 1 (15.44)	*		
High in 2 (16.23)	*		
High in 3 (19.73)	*	*	*

\* Indicates significant differences

Once again *t*-test analyses were used to analyse in more detail the differences between these four groups. As was the case with Grade 5 those students highly competent in three languages obtained significantly better results than those highly competent in two languages ( $t(63) = 5.19, p < 0.001$ ), those highly competent in one language ( $t(90) = 6.31, p < 0.001$ ), and those with a low competence in the three languages ( $t(49) = 8.14, p < 0.001$ ). Therefore, our first subhypothesis (1) also proved to be correct regarding Grade 8 students.

However, those highly competent in two languages did not significantly outperform those highly competent in one language, whereas the difference did turn out to be significant with respect to those with a low competence in the three languages ( $t(62) = 3.32, p < 0.01$ ). As a consequence, and as it came about with Grade 5 students, our second subhypothesis (2) was not confirmed.

Those highly competent in only one language achieved significantly higher scores than those with a low competence in the three languages: ( $t(59) = 2.54, p < 0.01$ ), our third subhypothesis (3) being borne out.

In as far as the Grade 8 students are concerned, significant differences were only noted in favour of those highly competent in the three languages compared to those not highly competent in any with respect to sociocultural status and intelligence variables.

Consequently, we can summarise by saying that the differences between groups were not significant in all cases, since in neither grade was the difference between the second group (those highly competent in two languages) and the third one (made up of those highly competent in only one language) significant, although that between all the other groups did prove to be significant.

## Hypothesis 2

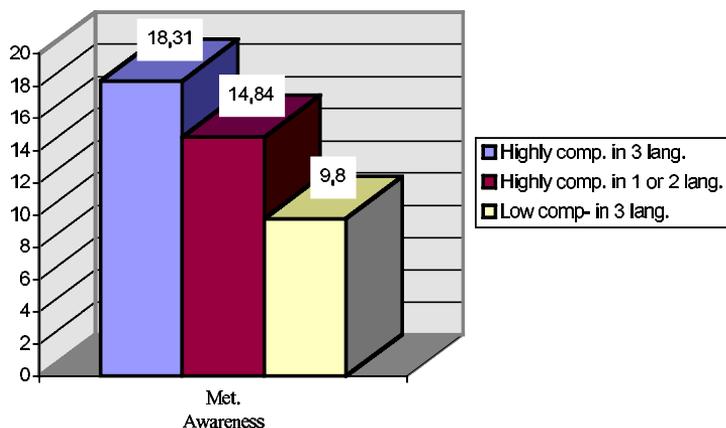
This second hypothesis was based on the possibility of maintaining the two thresholds proposed by Cummins in a situation of three languages in contact at school, which led us to the establishment of three distinct linguistic groups (see Table 4).

In Grade 5, the three linguistic groups attained the following scores in the metalinguistic awareness test (see Figure 3).

Maintaining the original two thresholds, those students who attained a high level of proficiency in the three languages outperformed the rest, those highly competent in one or two of the three languages came second, and those who had not attained a high level of proficiency in any of the three languages achieved the lowest scores. And this is valid for both Grade 5 and Grade 8. In this case, the

**Table 4** Three linguistic groups depending on level of competence in Basque, Spanish and English

	<i>Highly competent in 3 languages</i>	<i>Highly competent in 1 or 2 languages</i>	<i>Low competence in 3 languages</i>
<b>Grade 5</b>			
N. students	29	71	26
%	23.0	56.3	20.6
<b>Grade 8</b>			
N. students	26	75	25
%	20.6	59.5	19.8

**Figure 3** Metalinguistic awareness scores in Grade 5

differences between groups (Low in 3 = students with a low competence in the three languages; High in 1/2 = students highly competent in one or two languages; High in 3 = students highly competent in the three languages) were significant in all cases, as the Student-Newman-Keuls test ( $p < 0.05$ ) showed regarding the Grade 5 sample (see Table 5).

**Table 5** Significant differences between the three linguistic groups in Grade 5

	<i>Low in 3</i>	<i>High in 1/2</i>
Low in 3 (9.8)		
High in 1/2 (14.84)	*	
High in 3 (18.31)	*	*

\* Indicates significant differences

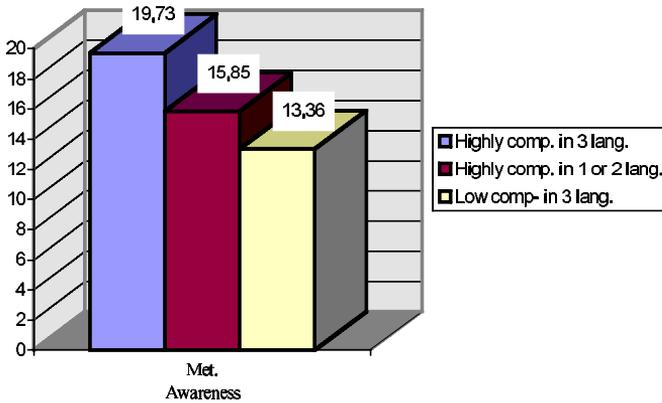
These results were corroborated by *t*-test analyses, which revealed that those highly competent in three languages significantly outperformed in metalinguistic awareness those highly competent in one or two languages ( $t(98) = 4.96, p <$

0.001), and those with a low competence in the three languages ( $t(53) = 6.53, p < 0.001$ ). Hence, our first subhypothesis (2.1.) turned out to be correct.

Likewise, the second subhypothesis (2.2.) was also verified, since those highly competent in one or two languages scored significantly higher than those with a low level of competence in the three languages: ( $t(95) = 3.95, p < 0.001$ ).

In the Grade 5 sample there were significant differences regarding the independent variables sociocultural status (in favour of those highly competent in the three languages with respect to those who did not attain a high level of competence in any) and intelligence (in favour of those highly competent in one, two, or three languages compared to those who were not highly proficient in any).

Results regarding the Grade 8 sample are shown in Figure 4.



**Figure 4** Metalinguistic awareness scores in Grade 8

The Student-Newman-Keul test ( $p < 0.05$ ) registered the results in Table 6.

**Table 6** Significant differences between the three linguistic groups in Grade 8

	<i>Low in 3</i>	<i>High in 1/2</i>
Low in 3 (13.36)		
High in (15.85)	*	
High in 3 (19.73)	*	*

\* Indicates significant differences

The results coincide with those obtained in Grade 5, since those with a high level of competence in the three languages outperformed both those with a high level of competence in one or two languages ( $t(99) = 7.07, p < 0.001$ ) and those with a low level of competence in the three languages ( $t(49) = 8.06, p < 0.001$ ).

Similarly, those with a high level of competence in one or two languages scored significantly higher than those with a low level of competence in the three languages ( $t(98) = 3.33, p < 0.001$ ).

Concerning the Grade 8 students, there were significant differences relating to the independent variables sociocultural status and intelligence (in both cases in

favour of those highly competent in the three languages with respect to those who did not attain a high level of competence in any of the three languages).

## Conclusions

The application by extension of the threshold level hypothesis parameters to trilingualism at school directed us to the establishment of three thresholds, with the four consequent categories. The first made up of those subjects highly competent in three languages (Basque, Spanish and English), the second group highly competent in two of the three languages, the third those highly competent in one of the three languages, and the fourth those whose scores indicated they were not highly competent in any.

Although the threshold hypothesis does not specifically relate to trilingualism, we considered that it would be interesting to examine whether those highly competent in three languages would outperform those highly competent in two languages, in an attempt to answer the question of whether there may even be three thresholds. The decision to apply the threshold hypothesis to a situation of three languages in contact at school was taken because there is at least one work (Nation & McLaughlin, 1986) which suggests that those competent in three languages would score higher than those competent in two.

However, the problem arose when there was no significant difference between those highly competent in two languages and those highly competent in one, since the threshold hypothesis states that a high proficiency in two languages is associated with more positive effects, whilst a high competence in only one language equates with monolingualism. In spite of the other subhypotheses having been shown to be correct with regard to the metalinguistic awareness dependent variable, in neither of the two grades was any significant difference noted between these two groups. That is why this second threshold (of the three we established for trilingualism at school) remains doubtful, as it has not been corroborated. A possible explanation could be that those students who jumped over the third threshold (those highly competent in three languages) would be the ones that made the differences between these two groups significant. In any case, more research is needed.

It must be remembered that among the Grade 5 subjects there were significant differences between some of the groups as regards some important variables such as intelligence, socioeconomic status, and sociocultural status. Concerning, Grade 8 significant differences were only noted in favour of those highly competent in the three languages compared to those not highly competent in any with respect to sociocultural status and intelligence variables.

Nonetheless, there was also the possibility of maintaining the two thresholds proposed by Cummins (1976, 1979) in a trilingual situation. Maintaining these parameters the results referring to metalinguistic awareness conform in Grade 5 and in Grade 8. Therefore the maintenance of the two original thresholds in a trilingual school situation is shown to be a more adequate option than that proposed in our first hypothesis relating to the establishment of three thresholds. Accordingly, it can be stated that Cummins's threshold level hypothesis can also apply to a trilingual situation.

When the two original thresholds were maintained, differences were also

observed concerning some important independent variables like intelligence, sociocultural status and socioeconomic status. Nevertheless, in neither grade were these differences significant when comparing those highly competent in three languages and those highly competent in one or two languages (in Grade 5 a difference was only noted regarding intelligence between those proficient in one or two languages and those not proficient in any). However, the results concerning the dependant variable did show significant differences in all these cases. These findings confirm the threshold hypothesis and help to counteract criticisms in the sense that the differences between these two groups are more attributable to linguistic factors than to social (socioeconomic and sociocultural status) or cognitive (intelligence) variables. Likewise, this study does not support the level of bilingualism hypothesis (Diaz, 1985), which claims that only in the early stages of the second language acquisition process does bilingualism bring about positive cognitive effects; Grade 8 students had attended school for a minimum of eight years, which cannot be considered an early stage of the language learning process.

The author is unaware of the existence of any research in which the three thresholds proposed here, nor even of the two originals, have been applied to a trilingual situation, which is why our results cannot be compared to those of other contexts. Bearing in mind how widespread the teaching of three languages at school is, this ought to be a very fruitful and interesting area of research. Studies in the last four decades have dealt with bilingualism and its effects; however, and as a consequence of the increasing worldwide interest in the learning of languages (international languages and minority languages alike), in the first century of the new millennium studies into the cognitive effects of multilingualism will become more and more common, a trend already being observed.

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