English Code-Mixings in WhatsApp interactions among Spanish adolescents and their orthographic competence

Francisco Núñez-Roman, University of Seville

Alejandro Gómez-Camacho, University of Seville

Olga Fernández-Juliá, University of Seville

Iván Quintero-Rodríguez, Universidad Loyola Andalucía

Abstract

Aims: The widespread use of computer-mediated communication (CMC) among adolescents has favored the creation of a new written code called digitalk. This new code includes, among other characteristics, the use of foreign words as textisms, mainly anglicisms. These textisms also serve as a mark of identity among young speakers. The aim of this paper is twofold: firstly, to describe which are the more frequent anglicisms used by Spanish adolescents in their CMC and the code-mixing pathways of inclusion; secondly, to examine the possible influence between the use of anglicisms in the CMC of Spanish adolescents and their orthographic competence.

Method: Based on an exploratory methodology, a corpus of interactions through WhatsApp of a group of adolescents attending Compulsory Secondary Education in a region of southern Spain has been analyzed.

Data analysis: Sketch Engine software was used for corpus analysis, presenting the normalized frequency (1/1,000) of textisms, misspellings and multimodal elements. Finally, for the descriptive statistical analysis of the data and for the bivariate correlation analysis applying Pearson's coefficient, IBM SPSS v.26 software was used.

Findings: The results indicate that young people use English Code-Mixings (ECM) as discursive framers with an expressive aim and as a sign of belonging to a specific community of speakers. Moreover, no positive correlation is observed between the use of these ECMs and a lower orthographic competence.

Implications: ECMs show an important pragmatic function in CMC among Spanish adolescents. Furthermore, they are one of the elements that have been incorporated into the digital norm of Spanish and can be used in Compulsory Education as a resource for the acquisition of communicative competence in adolescents along with other textisms.

Originality: This is the first research that analyzes the frequency and function of anglicisms in Spanish CMC and their impact on the orthographic competence of Spanish adolescents.

Keywords
textisms, WhatsApp, spelling, adolescents, code-mixing, English language, Spanish language

Introduction

Smartphone messaging

The continued expansion of Internet access and the consolidation of instant messaging applications for mobile phones, such as WhatsApp, Telegram or Line among others, have promoted the dissemination of computer-mediated communication (CMC). Herring and Androutsopoulos (2015) define CMC as "the communication produced when human beings interact with one another by transmitting messages via networked or mobile

computers, where 'computers' are defined broadly to include any digital communication device" (p. 127). Communicating in new media spaces also means engaging in new vernacular practices (Barton & Lee, 2013). These practices have increased the possibilities of interpersonal communication by means of new communicative realities based on different modes of interaction (Candefors Stæhr et al., 2019), in which is combined "a kaleidoscope of writing styles, each assigned to social situations and identities on the basis of socially shared linguistic and media ideologies" (Busch 2021, p. 298). Smartphone writing is part of what Herring (2013) called "emergent aspects" of web discourse, characterized by a dynamic collaborative discourse and multimodal conversational exchanges that use images, video, emojis, stickers, or memes to enrich the conversation. These elements make this type of writing more fluid, synchronous and closer to the oral conversation for its users (Yus, 2022).

Since smartphone messaging has become the most widespread communicative practice in contemporary society (Dixon, 2022), especially among young people (IAB Spain-Elogia, 2022), it is worth investigating these new writing practices linked to this type of CMC and how they are connected with some of the characteristics of the linguistic repertoire of the youngest users. Therefore, this paper analyzes the presence and functions played by English elements in a corpus of digital texts extracted from interactions carried out by Spanish adolescents using the app WhatsApp and their influence on the academic orthography of these teenagers.

Digitalk in CMC

As Barton and Lee (2013) observe, vernacular practices in new media are a source of creativity, invention, and originality. As a result of these features, smartphone messaging has created a new written code which has been referred to as digitalk (Turner, 2010) or textese (Johnson, 2015). Verheijen (2018) defines "digi-talk" as a digitally written language which is "specially used by youths in informal communication via new media, and is characterized, to a greater or lesser extent, by deviations from the standard language norms at different levels of writing, such as spelling, grammar, and punctuation" (p. 144). These deviations are called textisms, "contractions and nonstandard spellings specifically developed to reduce the length of words for fast and cost-effective text messaging" (De Jonge & Kemp, 2012, pp. 49-50). These characteristics aim to meet the needs of a type of communication characterized by brevity and speed (Thurlow & Brown, 2003), in which elements of the written text are combined with the oral variety. Turner (2010, p. 43) considers that it is an attempt to reproduce "the voice of the speaker", and digitalk has frequently been defined as "oralized writing" (Martín Gascueña, 2016), "oralised written text" (Yus, 2010) or "written spoken language" (Mancera Rueda & Pano Alamán, 2013).

Gómez-Camacho et al. (2018) offer a characterization of Spanish textisms according to three categories (Table 1): textisms corresponding to the grapho-phonematic level, lexical-semantic textisms, and multimodal textisms.

Table 1. Categorization of textisms (based on Gómez-Camacho et al. 2018).

Textisms at the grapho-phonematic level	
Emphatic Repetitions	
- Repetition of closing marks	- *'Q nota te ha puesto en el trabajo??'*
- Repetition of one or more letters	- *'en principio siii', 'Sisi graciiiassss'*
- Emphatic repetition interjection or onomatopoeia	- *'Bueno bueno', 'sisis', 'ouuch'*
- Non-normative use of capital letters	- *'NECESITO q pongan ya las listas'*
Deletions and omissions	
- Words merging	- *'xdio', 'Qsi he estudiado'*
- Word shortening by removing letters or syllables	- *'Es q no me acuerdo mu bien'*
- Omission of punctuation marks	- *'Q t an traio los reyes?'*
- Omission of tildes	- *'Estas preparada para mañana? '*
- Intentional omission of H	- *'Sii ya le emos dao el regalo'*
- Loss of the intervocalic D	- *'Y encima se a olvidao la mochila'*
Non-normative graphemes	
- K-textisms	- *'no pdo kear'*
- X-textisms	- *'xurra', 'muxo'*
- S-textisms	- *'grasia grasia'*
- Z-textisms	- *'eze', 'zi', 'paza'*
- SH-textisms	- *'Ashe friooo'*
- TX-textisms	- *'txika'*
- W-textisms	- *'Weno te dejo ads xD' 'wuapetona'*
- Y-textisms	- *'iya ntr'*
- Textisms of numbers and symbols with their phonetic value	- *'Xq?', 'Xfa'*
Textisms at the lexical-semantic level	
- Dialectalisms	- *'Miarma'*
- Transcription of diatopic, diastratic and diaphasic varieties	- *'Oma quiero tortilla',*
- Creation of new words, non-normative onomatopoeias or interjections, amalgams or conglomerates	- *'awwww'*
- Foreign words	- *'lol', 'ese gym esta wuapo o q?'*
- Non-normative acronyms, abbreviations and acronyms	- *'ntr' (no te ralles), 'oka'*
Textisms at the multimodal level	

| Emojis, images, audios, videos, stickers, etc. | 😂 🤬 |

Code-mixing and digitalk

One of the features of digitalk is the presence of foreign words or sentences (Gómez-Camacho et al., 2018), mostly among the youngest users (Sanou, 2018). This is an inherent feature of Spanish teen talk that seeks to overcome the inexistence of vocabulary for new referents or is used for snobbery or "fun-loving and attention-seeking" (Rodríguez González, 2002). Foreign words, mostly anglicisms, also become a sign of identity construction and self-presentation within this social group (Lee, 2017). In some cases, these foreign words present orthographic (*feisbuh* 'Facebook', *kises* 'kisses') or morphological alterations (*fashoneta* 'fashion victim') to adapt them to the phonetics or the grammar of the L1 (Mancera Rueda & Pano Alamán, 2013). In general, several studies agree that most of the anglicisms used in Spanish CMC are nouns, followed by verbs and adjectives (Giménez Folqués, 2022; Rodríguez Arrizabalaga, 2021); on the other hand, Sanou (2018) highlights that vocatives (*bro*, *brother*, *love*, *bitch*) and interjections (*please*, *sorry*, *thanks*) are abundant. Moreover, they usually belong to certain semantic fields, such as technology (*hackear*, *jaqueo* 'hacking', *streaming*, *influencer*, *buffeado* 'buffered', *baneado* 'banned'), sports (*gym*, *coaching*, *team*) or fashion (*outfit*, *tuneada* 'tuned up', *flow*, *chill*, *look*) (Sanou, 2018). In our study, we call English Code-Mixings (ECM) the use of words, phrases, or sentences from English in another language in CMC, either in their standard form (*please*), orthographically (*plis* 'please') or morphologically adapted (*baneado* 'banned'), or in abbreviated or shortened form (*lol*).

The simultaneous presence or overlapping of two different codes in the same communicative exchange has been widely studied from the perspective of spoken language (Auer, 1998; Gumperz, 1977, 1982; Myers-Scotton, 1993); however, only in recent years there has been a renewed interest in analyzing the alternation of codes in CMC, from the pioneer work by Paolillo (1996) to the most recent studies of Dorleijn and Nortier (2009), Androutsopulos (2013, 2015) or Wentker (2018).

In contrast to the traditional conception of code-switching considering that the user should be proficient in both languages and consequently bilingual or multilingual (Lehiste, 1988; Myers-Scotton, 1993), Lee (2017) affirms that language choice in CMC "is mostly concerned with the codes or linguistic resources available to online participants and how they negotiate their code preferences when communicating with others who may or may not share these resources" (p. 23); therefore, this linguistic choice can be made "regardless of their competence in the resources concerned" (Lee, 2017, p. 23). In this respect, we can consider code alternation as a translingual practice, which focuses more "on communicative practices across different groups and communities of people rather than within a specific speech community defined primarily by the geographical locations of speakers" (Barton & Lee, 2013, pp. 60-61). It is interesting to highlight that translingual practices are "also concerned with the process of working with different languages rather than the product of it", even if that translingual action "does not necessarily involve more than one language" (Barton & Lee, 2013, p. 61).

Given this broad concept of code alternation within the framework of translingual practices, it can adopt different typologies, appearing as a code-mixing or code-switching procedure. The difference between these concepts has been widely discussed, although it seems clear that the boundary lies on the user's language proficiency and the intentionality of use. Considering these criteria, we can define code-switching in CMC, in a broad sense, as "a single writer drawing upon multiple (i.e. two or more) linguistic resources in a single discourse or multiple discourses" (Lee, 2017, p. 40); code-mixing, on the other hand, refers to the "use of elements from a second or foreign language [...] in one's first language" (Verheijen & Van Hout, 2022, p. 1), and would therefore be closer to the concept of borrowing, understood as "a process through which a lexical item from another language is assimilated into a language that is in use" (Lee, 2017, p. 39). According to this distinction, speakers use code-mixing with terms or expressions that are already part of their community's everyday language and are recurrent, while in code-switching situations the terms or expressions are not (Lee, 2017).

Verheijen and van Hout (2022, pp. 9-10) identify five characteristics of code-mixing in CMC: speechlike, foreign words reflect better the spoken language of young people, characterized by the presence of neologisms and non-autochthonous words; understandability, by which certain borrowings referring to concepts, objects or activities that do not have a native word in L1 are included; playfulness, which alludes to the use of foreign words as a sign of belonging to a particular group; expressiveness, which provides more possibilities of expression beyond the limitations of the L1; and reduction, which allows the use of shorter terms and expressions and therefore a more suitable use for CMC. In sum, language mixing in CMC is "a valid strategy to communicate online due to the democratic nature of the Internet as a whole and the liberty that allows its users to disregard established conventions, grammatical or otherwise" (Montes-Alcalá, 2016, p. 41).

Code-mixing in CMC also performs a variety of discursive functions that have been described by Verheijen and Van Hout (2022). These authors differentiate four pathways of code-mixing: discourse framing, insertion, alternation, and integration (Table 2).

Table 2. Pathways of code-mixing (based on Verheijen & van Hout, 2022, p. 8)

Pathways	Linguistics elements	Driving force
Discourse framing	- Interjections - Textisms	Expressivity
Insertion	- Content words: nouns, verbs, adjectives, adverbs, and prepositions	Lexical need
Alternation	- Phrases - Sentences	Expressivity
Integration	- Orthographic adaptations - Morphological suffixes: verbs, nouns, and adjectives	Linguistic embedding

Discourse framing is performed by interjections and textisms and gives expressiveness to the interaction. Through insertion, the speaker adds a single word to the interaction, generally for lexical needs. Sometimes, it is possible to introduce complete phrases and sentences; in this case, we can speak of alternation between codes, and it acquires an expressive value. Finally, the highest degree of linguistic embedding is achieved by means of integration, whereby ECM acquire morphological and orthographic characteristics of the L1.

Code-mixing and Spanish CMC

In the case of the Spanish language, several studies have explored code-mixing between Spanish and other peninsular languages (Ibarra Murillo, 2019) or between Spanish and two or more languages (Kulavuz-Onal & Vásquez, 2018; Pérez-Sabater, 2022; Pérez-Sabater & Maguelouk-Moffo, 2019); however, the study of the relationship between Spanish and English has a prevalent position in research on code-mixing in CMC (Giménez Folqués, 2022; Montes-Alcalá, 2016; Ortego-Antón, 2018), in response to what Rodríguez Gonzalez (2002, p. 46) defined as "youth Anglomania". These studies focus mainly on characterizing which types of English borrowings are most common in code-mixing contexts in CMC; in this sense, Sanou (2018) finds that 75% of anglicisms occurring in the CMC of adult Argentine Facebook users are superfluous or unnecessary and justifies this high presence of anglicisms as a sign of a more youthful, spontaneous, and highly informal form of expression specific to CMC.

Other research has focused on analyzing the functions that code-mixing has in CMC. For example, Montes-Alcalá (2016) analyzes the characteristics of language mixing in CMC in a community of adult Spanish-English bilingual speakers, and observes that even among these bilingual speakers, the main function of code alternation is what he calls "culturally-bound switching", i.e., the use of isolated lexical items, idiomatic expressions, discourse markers or linguistic routines "related to the bicultural environment where a given situation takes place" (Montes-Alcalá, 2016, p. 35). Pérez-Sabater (2022) reaches analogous conclusions in a trilingual community of adult speakers (Spanish, Catalan, and English) formed by language teachers. In this context, users use code-mixing "to express gratitude and for pragmatic, routine formulae and humorous language play" and "to construct their particular group identity" (Pérez-Sabater, 2022, p. 308). In the same line, Ortego-Antón (2018) observes that the anglicisms used by Spanish-speaking university students of Translation and Interpreting in their CMC have fundamentally an expressive function. This author, moreover, highlights that frequently the choice of English is not due to reasons of language economy, as it has so often been argued, but to the permeability of the English language in CMC.

Digitalk and orthographic competence

Digitalk has given rise to an intense debate about its influence on youths' literacy (Crystal, 2009; Fernández-Juliá & Gómez-Camacho, 2023; Verheijen, 2013; Wood et al., 2013; Zebroff, 2018). Several studies have highlighted its negative influence on vocabulary development (Drouin & Driver, 2014), reading accuracy (Drouin, 2011; Drouin & Driver, 2014) or morphological awareness (De Jonge & Kemp, 2012). However, further research has shown that digitalk is not a threat to adolescents' linguistic proficiency, suggesting that "the use of grammatical violations does not appear to be linked to changes in grammatical skills over time" (Wood et al., 2014, p. 427).

In fact, the presence of a higher number of textisms in the CMC of adolescents seems to indicate an improvement in the linguistic awareness of these users. In this sense, a positive correlation has been observed between the use of digitalk and an improved spelling performance in English (Plester et al., 2009; Wood et al., 2011) and Dutch (Verheijen et al., 2020; Verheijen & Spooren, 2021). As Van Dijk et al. (2006) observe, "the more words children omitted in their text messages, the better their grammar performance" (p. 16). Similar conclusions are reached by Lanchantin et al. (2015) in their study with French speakers, who show a high morphemic awareness that allows them to eliminate or substitute morphemes with no phonetic value in their digitalk and keep them in their digital writing.

In the Spanish language context, research has mainly addressed how the influence of digitalk on standard writing is perceived by the speakers (Cremades et al., 2021; Giraldo Giraldo et al., 2018). It has been highlighted, for example, that young Spaniards show a greater tolerance to the use of textisms which do not alter the relationship between phonemes and graphemes (Hunt-Gómez et al., 2020), those based on the creation of neologisms (Núñez-Román et al., 2021) or the ones related to multimodal elements (Gómez-Camacho et al., 2018). On the other hand, recent research confirms that textisms represent intentional discrepancies with the academic norm in the digital context and, therefore, cannot be considered as misspellings that occur due to ignorance of the Spanish language, but rather new forms of language generated using digital technologies (Gómez-Camacho et al., 2023a; 2023b; 2024).

As can be observed, Spanish language research has focused on the analysis of the influence of digitalk on orthographic competence and has not taken into account the presence of other languages in the digital literacy of these young speakers and how it may influence their standard writing. In addition, when code-mixing has been examined in Spanish CMC, it has been studied only on bilingual or highly proficient adult speakers of English. Therefore, there is no data on the use of English elements in the CMC of Spanish students in Compulsory Secondary Education, neither on the functions that this type of ECM plays within this community of speakers nor on their influence on orthographic competence. Therefore, the objectives of this research are the following:

Objective 1: to analyze the pathways of inclusion of ECM used by adolescents in their CMC and describe which of them are more frequent.

Objective 2: to determine if ECM is a significant factor in the literacy impairment of young people and examine the possible correlation between the use of ECM in the CMC of Spanish adolescents and their orthographic competence in comparison with the spelling competence of users who do not use ECM in their CMC.

Method

This research uses an exploratory methodology, based on textual content analysis (Neuendorf, 2017; Pérez Paredes, 2020). The sample of the study by Gómez-Camacho et al. (2023a) was used for this research, composed of 206 students between 14 and 16 years old who were in the last two years of Compulsory Secondary Education from 12 public higher schools in the region of Andalusia (Spain). The sample was composed of 58.7% females and 41.3% males. The sample was non-probabilistic and intentional and represents the population under study (students from the Autonomous Community of Andalusia) at a confidence level of 95% and a sampling error of +/-6.

Specifically, a subcorpus has been extracted from a dataset belonging to the research project "The digital writing of adolescent students in Andalusia. Instant messaging and its educational implications", of which this research is part of (Gómez-Camacho et al., 2023b). From a total of 3481 messages in WhatsApp chats sent through their smartphones by the 206 adolescents participating in the project (forming a corpus of 17225 words), 163 messages of 77 adolescents using EMC were selected, composing the subcorpus of 1137 words analyzed. A total of 99 English elements were identified, which represents 0.57% of the words in the corpus. In parallel, with the aim of comparing digital writing with the orthographic competence in Spanish language of the subjects, a subcorpus of 77 academic texts written by the same individuals with a total of 18016 words was extracted for this study from the full corpus of 206 academic texts of the project "The digital writing of adolescent students in Andalusia. Instant messaging and its educational implications" (38951 words).

The coding of textisms, misspellings and anglicisms was done by three researchers of the project with a concordance level higher than 0.80. The coding of the corpus used the categories of textisms shown in Table 1, while the misspellings were classified according to the standard norm of Spanish orthography published by the Spanish Royal Academy (Real Academia Española - Asociación de Academias de la Lengua Española, 2010). The same researchers determined the code-mixing insertion pathway following the model of Verheijen and van Hout (2022) shown in Table 2 with the same level of agreement. Sketch Engine software was used for corpus analysis, presenting the normalized frequency (1/1,000) of textisms, misspellings and multimodal elements. Finally, for the descriptive statistical analysis of the data and for the bivariate correlation analysis applying Pearson's coefficient, IBM SPSS v.26 software was used.

Results

In relation to Objective 1, the analysis of code-mixing pathways in CMC (Table 3) has been carried out based on the proposal of Verheijen and van Hout (2022).

Table 3. Pathways of code-mixing (based on Verheijen & van Houten, 2022, p. 8)

Pathways	Percentage
Discourse framing	51.5%
Insertion	32.3%

Alternation	1.1%
Integration	15.1%

In 51.5% of the cases, ECM are inserted in the interaction by means of discourse framing. The most numerous group of ECM is constituted by interjections (*thanks*, *bye*, *ok*) and vocatives (*bro*), as well as by textisms such as *lol* 'laughing out loud', *lmao* 'Laughing my ass off', *omg* 'Oh my God' or *idk* 'I don't know'.

(1) Es que lit no dijo fecha LOL.
'He literally did not say date lol'
(2) LMAO, ni idea XD.
'Lmao no idea XD'
(3) OMG hermoso me gusta.
'Omg beautiful, I like it'
(4) Bueno me tengo que ir, BYEE.
'Well, I have to go, bye'
(5) BRO has visto la q sa liao con la guerra.
'Brother, have you seen what's messed up with the war?'

In 32% of the cases, these textisms are introduced into the discourse as simple words (Insertion), replacing a term that could have appeared in L1.

In reference to the most used types of words (Table 4), exclamations predominate (34.4%), followed by nouns (30%) and adjectives (18.8%). Verbs (8.8%), adverbs (5.5%) and pronouns (2.2%) are used in lower percentages.

Table 4. Types of words of ECM

Word Classes	Number of occurrences	Percentage	Examples
Exclamations	31	34.4%	*thanks*, *please*, *ok*, *bye*
Noun	27	30%	*look*, *house*, *family, brother*, *roomtour*
Adjectives	17	18.8%	*perfect*, *chill*, *cute*, *good*, *sad*, *random*
Verbs	8	8.8%	*cry*, *edit*, *try*, *be*
Adverbs	5	5.5%	*anyways*, *too*, *never*, *much*
Pronouns	2	2.2%	*I*

In most cases, such textisms are not necessary, since there are words in Spanish to express these concepts (*house* 'casa', *family* 'familia', *sad* 'triste', *never* 'nunca').

(6) Que vas con YOUR FAMILY no?
'So, are you going with your family?'
(7) Es que ahora no estoy en MY HOUSE.
'I'm not in my house right now''
(8) estoy SAD.
'I'm sad'
(9) Por ahora sí, ta GOOD.
'For now, yes, it's fine'

Only 0.6% of the cases involved terms which have no equivalent in Spanish, or which are not yet widely adopted by speakers, such as *sticker*[1], *banner*[2] or *flow*:

(10) Encontre el STICKER perfecto ahre.
'I found the perfect sticker, mate'
(11) Pensaba hacer un recorte del vídeo de tlt y ponerlo de BANNER pero dice que es pequeña.
'I was thinking of clipping the video from tlt (?) and placing it as a banner, but it says it is small'
(12) Pa llevarlo por los huevos modo FLOW pan Moguer.
'To take it by the balls, FLOW mode, for Moguer [a Spanish village]'

What is also interesting is the presence of neologisms created from these textisms, such as gamers' vocabulary *tryhard* (compound from try harder 'keep on trying') or *farmear*, used by gamers with the meaning of 'kill enemies', as well as *besties* 'best friends', also used by native English youth. In the latter example, the very productive Spanish deverbal suffix -*ear* has been added to fit the Spanish verb morphology.

(13) Os hacéis BESTIES.
'You become besties'
(14) Vivo a lo TRYHARD por eso nunca me ato los cordones.

'I live like a tryhard, that's why I never tie my shoelaces.'
(15) Pues a FARMEAR protos.
'So let's farm protos (?)'

As shown in Table 3, 15% percent of ECM achieve linguistic embedding through morphological or orthographic adaptations in order to conform them to the phonetics of Spanish, i.e., *plis* 'please', *cenkiu* 'thank you', *an yu?* 'and you?', *flayin* 'flying' or *oukeyy* 'ok'.

(16) Me puedes mandar descargado o en foto la ficha de fonética de francés PLIS.
'Can you send me the French phonetics worksheet as a downloaded file or as a photo, please?'
(17) Ia loko ahora tengo franse no ai gana AN YOU?
'Yeah, man, I don't have French right now, I don't feel like it. And you?'
(18) Va FLAYIN.
'Flying'

Finally, in only 1.1% of the cases completed phrases or sentences are inserted in the interaction (Integration).

(19) Ahora te digo ONE MOMENT.
'I tell you right now, one moment'

In relation to objective 2, the data do not allow us to draw significally statistical results. From the descriptive statistic point of view (Table 5), adolescents who used ECM in their CMC on WhatsApp were characterized by using more textisms with a mean value of frequency of occurrence of 36.85 and a SD=15.88, compared to 24.93 (SD=20.62) of those who did not use ECM on WhatsApp. Moreover, these speakers committed fewer misspellings in their academic texts with a mean of 4.03 (SD=4.64), while those who did not insert ECM reached 6.05 (SD=7.17). The correlational analysis offers a negative value in the Pearson's correlation between misspellings and textisms in adolescents who inserted EMCs (r=-.048), and a positive value in those who did not. Although these results are not statistically significant due to sample limitations, they are consistent with previous research and could confirm the trend that the use of textisms and the use of a digital norm for Spanish language in WhatsApp messages does not necessarily harm and may even benefit youth's literacy or orthographic competence.

Table 5. Descriptive Statistics.

	Users of ECM (N=77)		Non-user of ECM (N=129)	
	Mean	Standard Deviation	Mean	Standard Deviation
Textisms	36.85	15.88	24.93	20.62
Mispellings	4.03	4.64	6.05	7.17
Multimodality	1.65	3.20	0.50	1.23

Note: Standardized frequency: 1/1,000.

Discussion and Conclusions

Our study has given us, firstly, the possibility to analyze the ECM inclusion pathways used by Spanish adolescents in their CMC and to describe which ECM adolescents choose in their CMC, and secondly, to examine the possible correlation between the use of ECM in the CMC of Spanish adolescents and their orthographic competence.

Regarding Objective 1, we can state that the adolescents participating in the study use very few English elements, in contrast to the results obtained by Verheijen and Van Hout (2022), where the number of ECM in the CMC among Dutch adolescents was 2.5%. It seems that Dutch youth's high proficiency in English could have had an important role in Verheijen and Van Hout's study, since it is stated, according to official reports, that "of all countries worldwide where English is not an official native language, the English language proficiency is highest in the Netherlands" (Verheijen & Van Hout, 2022, p. 2). This is an aspect to be explored in further research.

ECM appear in our corpus mainly as discourse framers that provide expressiveness to the interaction. These data coincide with those obtained by Montes-Alcalá (2016), Ortego-Antón (2018) and Pérez-Sabater (2022). However, these findings are in contrast with Verheijen and Van Hout (2022), in which anglicisms were mainly inserted for lexical needs. In fact, insertion, which aims at solving lexical needs of the speaker, is the second most common pathway in our study. However, lexical needs do not imply a "lack of proficiency in one of the languages [...] or laziness on the part of the speaker" (Montes-Alcalá, 2016, p. 35), since in most cases, it is an intentional substitution of a term or even a phrase in Spanish. In very few cases, a genuine lexical need is observed, since the anglicism used is a technicism (*apps*, *banner*, *buffeado* 'buffered') or is part of the teen

language vocabulary (*flow*, *besties*). In particular, the use of ECM in our study does not reveal a deep knowledge of English, but a voluntary adoption of a set of English words which are integrated into Spanish as lexical units, as shown by the testimonial presence of integrated ECM in the CMC (only 1.1% of the sample alternates complete phrases or sentences in L1 and English). These data suggest that Spanish adolescents use ECM as a sign of belonging to a particular social group, with a clear expressive or identity function, since ECM are unnecessary borrowings and are randomly inserted in their CMC (Moreno-Fernández, 2018).

Therefore, our study confirms that code-mixing processes do not necessarily imply that the interlocutors must be highly proficient in both languages, as Lehiste (1988) or Myers-Scotton (1993) argued; on the contrary, our data confirm, as Lee (2017) argues, that code-mixing occurs as a personal preference of the speaker by means of the free choice of the available resources, with the aim of rendering the communication more efficient, regardless of the proficiency in the second language of the speaker and the interlocutor. Similarly, this use of ECM as an effective communicative resource suggests the key role of the pragmatic functions performed by textisms in CMC. Despite advances in technology, such as the possibility of text autocorrection or the use of emojis and other multimedia elements that reinforce the time-saving aspect of CMC, text alteration is still a key element in the cyberpragmatic approach to CMC, since it "generates additional inferences and effects (propositional and/or affective) in addressee users" (Yus, 2022, p. 74).

This hypothesis is further supported by the analysis of the most common linguistic elements in our study. Spanish adolescents mainly use exclamations when using ECM in their CMC. These data contrast with previous studies, such as those of Sanou (2018), Giménez Folqués (2022) or Verheijen and Van Hout (2022), in which nouns predominate. This finding suggests once again that the use of ECM is not determined by a specific communicative need, but by the adoption of communicative practices shared by a specific community of speakers, already acculturated in the use of certain expressions representative of the group. Consequently, the code-mixing of the Spanish youth in our study is a clear example of a translingual practice, as defined by Barton and Lee (2013), since it goes beyond the concept of discursive practice linked to a specific geographic location or language. Thus, it can be considered a specific feature of the "glocalized digital youth culture" (Waetchter, 2021), which has become widespread especially in recent years due to the growth of online platforms in multilingual formats which can be accessed from anywhere in the world and shared by young people from different languages and cultures.

Finally, what is noteworthy is the presence of neologisms and orthographic and morphological adaptations of these ECM. Although this is the least common pathway in studies such as Verheijen and Van Hout (2022) for Dutch, our data coincide with previous research in Spanish (Giménez Folqués, 2022; Rodríguez Arrizabalaga, 2021). These ECM, therefore, already serve as the basis for the formation of new words (*buffeado*, *banneado*, *farmear*) and they "are beginning to lose their neological status", signaling "their emerging integration in the recipient language" (Rodríguez Arrizabalaga, 2021, p. 17).

Regarding Objective 2, the results cannot confirm that the use of ECM in CMC through WhatsApp was in any way harmful to adolescents' Spanish-language spelling. On the contrary, these speakers appear to commit fewer misspellings than those who avoided ECMs. The profile of these speakers also shows a trend to mix codes beyond ECM, since they insert in their digital communication non-verbal elements of the multimodal level that strengthen the effectiveness of their CMC through smartphones. Despite the limitation of the small sample size, these results show the same trend with previous research with a similar corpus (Gómez-Camacho et al., 2023a) and may confirm the conclusion that ECM are one of the elements that have been incorporated into the digital norm of Spanish without negative consequences on the communicative competence of young people. We agree with Gómez-Camacho et al. (2023b) and Verheijen et al. (2020) that the use of ECM and other textisms in young people's digital communication should not be restricted. Conversely, the alternation between formal registers in academic and informal texts in digital communication in Spanish represents an opportunity for the acquisition of the communicative and orthographic competence of students in compulsory education.

In conclusion, Spanish adolescents from Andalusia use ECM as discursive framers with a clearly expressive purpose and as a sign of identity and belonging to a specific community of speakers: "glocalized youth". In our study, the use of ECM in CMC is not due to a lexical necessity, as observed by the predominant use of interjections and acronyms, but rather meets the characteristics of spontaneity, creativity and playfulness of the digital, with an important pragmatic role. Finally, the use of ECM does not seem to be a noteworthy driver for misspelling or a lower orthographical competence in Spanish adolescents.

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[1] Although institutions such as RAE (Spanish Royal Academy) or Fundéu (Fundación del Español Urgente) propose the adoption of the terms *pegatina*, *calcomanía*, *pegotín* or *autoadhesivo* instead of sticker, this proposal has not yet reached a broad consensus among speakers. Cfr. https://www.fundeu.es/recomendacion/sticker-alternativas-en-espanol/

[2] Fundéu defends the use of the Spanish word *anuncio* instead of banner, even though the latter indicates a type of advertising specific to digital media lacking in the former. Cfr. https://www.fundeu.es/escribireninternet/banner-2/