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Code switching and code mixing in Internet chatting: between 'yes', 'ya', and 'si' a case study

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This case study examined the occurrences of code switching and code mixing in a chatroom based environment. In Fall 2004, the chat room conversations of 12 non-native speakers of English from Spanish and Indonesian backgrounds were collected during a two month period and analyzed to identify: 1) frequency of code switching and code mixing for both cultures; 2) topics that triggered code switching and code mixing in each culture; and 3) topics common to both cultures and topics less likely to occur within both cultures. The findings suggest that technology-related terms, along with introductory terms, triggered more instances of code switching and code mixing regardless of the linguistic background of the participants. Conclusions and suggestions for further research are provided.

Introduction

Developing communicative competence in two or more languages gives individuals opportunities to express their feelings and thoughts and shape their identity. It also helps them satisfy their individual and social needs in the different contexts of the languages used. The phenomena of code switching and code mixing of languages have long intrigued scholars who have examined what triggers such occurrences (Muysken, 2000; Wei, 2005). However, most research has been in face-to-face communication and in bilingual communities (See Chan, 2004; Muysken, 2000; Myer-Scotton, 1992; Wei, 1998) with few studies in the context of computer mediated communication (Danet & Herring, 2003; Durham, 2003; Goldbarg, 2009; Ho, 2006; Huang, 2004;). Such studies suggest that research needs

to examine the different facets of code switching and code mixing in CMC contexts, while keeping in mind cultural differences.

This case study examines the occurrences of code mixing and code switching produced during interactions in a chat room environment by advanced users of English from Spanish and Indonesian backgrounds. The paper starts by defining key terms and reviewing literature that covers the study. Then, it provides a rich description of the participants, data collection, and data analysis. Next, the paper presents the results in two sections. The first section identifies the key topics that trigger code switching and code mixing more frequently. The second section compares the topics based on the cultural traits and classifies code mixing occurrences under the headings of alternation, insertion, and congruent lexicalization. The paper concludes with a discussion of the findings and suggestions for further research.

Situating the study

Examining topics that trigger code switching and code mixing in Internet chatting requires an understanding of the main concepts that frame this study. In the first part of the literature review, we discuss the definitions of code switching and code mixing and use examples from our data set to illustrate each. Following a brief description of CMC, we also discuss how the traditional distinction between spoken and written language is blurred in computer mediated communication. In the second part, we examine studies that investigate code switching in computer mediated environments.

Code alternation

The distinction between code switching and code mixing is one of the most puzzling debates in the study of code alternation. Clyne (1991) argues that code switching and code mixing refer to the same phenomena in "which the speaker stops using language 'A' and employs language 'B' " (p. 161). Romaine (1995) views code switching as a phenomenon that occurs in a continuum where both inter-sentential and intra-sentential code alternation takes place. Other researchers make the distinction between code switching and code mixing based on the place where the alternation occurs. Wei (1998) notes that if code alternation occurs at or above clause level, it is considered code switching, but if it occurs below clause level then it is considered code mixing. These are the definitions that we adopt for the current study.

Code switching

Code switching or inter-sentential code-alternation occurs when a bilingual speaker uses more than one language in a single utterance above the clause level to appropriately convey his/her intents. Fischer (1972) suggests that language or code choice in communities where bilingualism or multilingualism is the norm should be analyzed in the context where the speech is produced. Fischer notes that three contextual factors should be taken into account: 1) the relationship amongst speakers; 2) the setting where the talk takes place and; 3) the topic being discussed. In this respect, Myers-Scotton (1992) notes that not only contextual factors play a role in the code choice, but factors such as social identity and educational background also affect the speaker's choice of code. Huang (2004) adds up the medium used with a number of factors believed to trigger code alternation. Thus, conver-

sations taking place in CMC environments trigger the change of code. Excerpt 1 illustrates an instance of code switching.

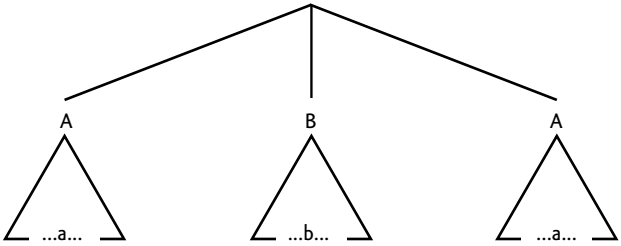
Excerpt 1: Example of code switching English/Spanish

A: The picture looks so cool.
B: Which picture?
A: The one you have in your messenger.
B: Ah…Si, me gusto mucho. (Ah…Yes, I liked it a lot.)

Excerpt 1 shows how participant B interacted in English during most of the conversation and suddenly switched into Spanish.

Code mixing

Code mixing also called intra-sentential code switching or intra-sentential code-alternation occurs when speakers use two or more languages below clause level within one social situation. Muysken (2000) defines three types of code mixing: insertion, alternation, and congruent lexicalization. In his view, insertion occurs when lexical items from one language are incorporated into another. The notion of insertion, according to Muysken (2000), corresponds to what Clyne (1991) terms as "transference" and Myer-Scotton as "embedding". Figure 1 illustrates a graphic representation of insertion.



Taken from Muysken (2000, p.7)

Figure 1. Example of insertion in code mixing

In the diagram *"a"* represents lexical items of the first language and *"b"* stands for the lexical item of the second language that has been inserted in the utterance by the speaker. Instances of this category of code mixing found in the data can be seen in excerpts 2a and 2b. Excerpt 2a occurs when a Spanish speaking participant discusses a paper for one of his classes. It seems that the shared professional background with the researchers' and the participants' specific language are the reasons that induce him to unconsciously insert an English lexical item into a Spanish conversation.

Excerpt 2b occurs when the participants talks about the factors that affect the price of a ticket of a live NBA game.

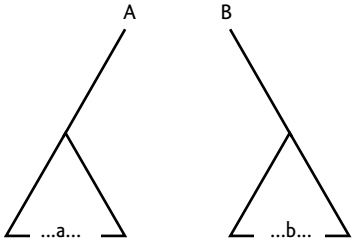
Excerpt 2a: Example of insertion (Spanish/English)

B: Pero bueno creo que basta con que incluya la pregunta de enhanced output más todas las demás.
(Well, I think it is enough if I just include the question of enhanced output.)

Excerpt 2b: Example of insertion (Indonesian/English)

B: Tergantung team, terus juga tergantung event.
(It depends on the team and on the event.)

The second category proposed by Muysken (2000), alternation, occurs when structures of two languages are alternated indistinctively both at the grammatical and lexical level. This definition is illustrated in Figure 2.



Taken from Muysken (2000, p.7)

Figure 2. Example of alternation in code mixing

In the diagram, A & B represent structures of the two languages that reflect the alternation that takes places in the utterances produced by the speakers. Excerpts 3a and 3b are examples of alternation. Excerpt 3a occurs when the researcher praises the picture of the new bicycle of the participant. In this excerpt the participant uses English in the first part of the sentence, but when it comes to finding a sentence to translate "pretty girl" he switches code into Spanish. Excerpt 3b occurs when the Indonesian participant talks about a paper about sentence choice that he needs to submit. He uses the expression "I mean" to introduce the rest of his utterance in his first language.

Excerpt 3a: Example of alternation (English/Spanish)

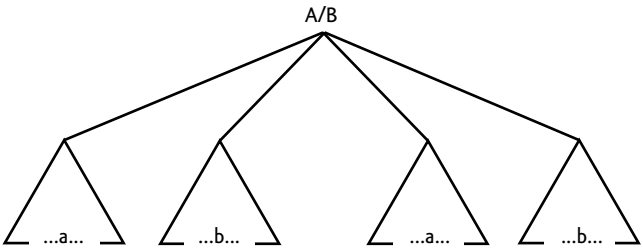
B: I just have it in my room like a niña bonita como debe ser.
(I just have it in my room like a girl pretty as it should be.)

Excerpt 3b: Example of alternation (English/Indonesian)

B: I mean, ganti ke kalimat laen.
(I mean, change it to another sentence.)

 The third and last category in code mixing is congruent lexicalization, which refers to the

situation where two languages share grammatical structures which can be filled lexically with elements from either language (Muysken, 2000). Figure 3 illustrates this phenomenon.



Taken from Muysken (2000, p.8)

Figure 3. Example of congruent lexicalization in code mixing

Excerpts 4a and 4b are examples of congruent lexicalization. Excerpt 4a occurs when the participant describes the way he uses his cell phone to connect to the Internet.

In Except 4b the participant states that the software that he usually uses to convert his music file has expired.

Excerpt 4a: Congruent lexicalization (Indonesian/English)

B: Gw konek pake cellp gw.
(I connected using my cell phone.)

Excerpt 4b: Congruent lexicalization (Indonesian/English)

B: Software gua buat convert file wav jadi mp3 gua uda expired.
(My software for converting wav files to mp3s has expired.)

Computer mediated communication and characteristics of language in Internet chatting

CMC, defined as "communication that takes place between human beings via the instrumentality of computers" (Herring, 1996, p. 1), is seen as an alternative that provides computer users with a number of options (chat rooms, blogs, instantly delivered messages, etc.) to be used according to the communication needs of each individual. In terms of delay, there are two types of **CMC**: synchronous and asynchronous. Synchronous communication or interaction that takes place in real time via relay chats, chat rooms, instant messaging, voips and twits; asynchronous communication, or interaction that allows **CMC** users to access the media at a different time includes emails, blogs, and wikis among others.

Crystal (2001) asserts that these new forms of communication have triggered an evolution in concepts such as a spoken and written language. Traditionally, language is conceived into two categories: spoken and written genres. While written language tends towards structural complexity, formality and abstraction, spoken language is more context

dependant and structurally simpler. In CMC environments, one of the most striking features of language is the blurring of the spoken and written distinction (Herring, 2001). Thus, written communication in CMC environments, especially in synchronous communication, resembles most of the features of dialogues produced in face-to-face communication. Although Internet chatting, in general, uses the written medium, the language used is less correct, less complex, and less coherent than standard written language, making it closer to speech (Danet & Herring, 2007). Crystal (2001) contends that many of the colloquial features of spoken language such as short constructions, phrasal repetition, looser sentence construction, and the use of reaction signals (you know, you see) are present in the texts produced in synchronous communication in CMC contexts. In his view, users simplify language to meet the goal of interactive communication.

Research on code switching and code mixing in computer mediated environments

Most studies in code switching in CMC environments have examined asynchronous communication. One of the earliest studies to examine the code switching phenomena is that of Warschauer, El Said & Zohry (2002). They investigated English and Arabic language use in email communication by a group of young professionals. They found that English was more frequently used both when searching the Internet and in formal (business related) email communications. They also found that from the two varieties of Arabic used in Egypt, classical Arabic and the Egyptian Arabic, a Romanized version of Egyptian Arabic was most frequently used in informal email messages and in online chats. Additionally, this choice of code was also preferred by participants when they wanted to express highly personal content. In a similar study but with a quite sophisticated methodology, Goldbarg (2009) examined the Spanish-English code switching in email exchange of five Latin American participants. In her study, she found that English was mostly associated with communications that dealt with professional and work related issues. Spanish, the participants L1, was mostly used in communications that reflected a degree of intimacy, informality, and group identification.

Durham (2003) investigated language choice in a Swiss mailing list by examining a corpus of 996 emails collected from 1999 to 2002. The participants were students attending various medical schools in Switzerland where instruction is imparted in German. She found the use of English in the email list increased dramatically over time (from 10% to 80% in a four year period). She explained that this trend was due to the fact that English acted as a non-native language for all participants. Additionally, she found that the use of more than one language was impractical and confusing in the email exchange, so participants tended to rely on English as the main language.

Huang (2004) examined code choice and language use in the emails used for interpersonal communication written by 8 Chinese-English bilinguals in Taiwan. He reported that from the analysis of a corpus of 223 emails supplemented with interviews and questionnaires, participants adopted three modes of email communication: Chinese/English bilingual mode, Chinese monolingual mode, and English monolingual mode. The Chinese monolingual mode was used when participants wanted to express their most personal thoughts and feelings. Additionally, this mode was preferred when portraying their local identities. The English monolingual mode was used by participants to display "an embrace of international and Internet identity and of younger generation identity" (p.307). Huang (2004)

also reported that contrary to the language used in face to face communication in which Chinese is mostly used, a Chinese monolingual mode was the least preferred mode choice in email writing. Additionally, Huang reported that topics related to movies, shopping, sports, computers, along with food triggered most of the instances of code switching in his data.

Ho (2006) investigated the bilingual practices of 21 tertiary students in Hong Kong when using ICQ – an instant messaging computer program. Upon analysis of 40 ICQ histories, she suggests that English and Chinese languages were used to complement each other, helping participants deal with the pressure of instant communication present in synchronous CMC. In addition, she found that while English use was mostly associated with technology and academic matters, Chinese use was associated with traditions. She also notes that the complementary use of the two languages is a clear reflection of the identity of new generations in Hong Kong whose culture has been shaped by the blend of Chinese and Anglophone cultures.

The above studies point to the tendency of bilingual speakers to use the language they identify the most with to express personal thoughts and topics that convey a degree of intimacy. Computer-related topics along with Anglophone culture-related topics are most likely to be used in English. Given the limited body of research on code switching and code mixing in synchronous communication we find it pertinent to observe and analyze how these phenomena actually occur in Internet chatting conversations taking into account Internet users from two distinct linguistic backgrounds. This case study strives to find answers to the following research questions:

1. What is the number of occurrences of code switching and code mixing between Spanish speaking and Indonesian speaking participants?
2. Does researcher-initiated code switching prompt participants from both linguistic backgrounds to shift code?
3. On what topics and functions of the language do speakers seem to switch the most? Additionally, what topics are common and/or different regardless of cultural background?
4. What is the most frequent code mixing category in which participants mixed languages?

Method

Participants

The participants in this study were 12 male participants. Six participants were from an Indonesian background and six participants were from a Latin American background representing five nations: Colombia, Chile, Uruguay, Mexico, and Argentina. The participants were advanced speakers of English enrolled in different graduate school programs at American universities. The decision to exclude female participants was due to the limited number of female graduate students with whom the researchers conversed.

In contrast to research on code switching and code mixing that examined letters, notes, homework, and to-do lists, the data for this study is a compilation of 84 transcripts of original, typed conversations collected through the MSN Messenger. Data was collected for two months and no topics were chosen systematically. Instead, they emerged as the conversations developed with each of the researchers in a natural setting. To make the data comparable and consistent between the two languages, we examined 20 instances of conversations in Indonesian and 20 in Spanish. To decide which conversations to use as

the basis for our data, each data set was complied with three criteria: gender, number of conversations, and occupation.

Participants were invited to participate in the study based on the frequency they used the MSN Messenger to communicate with the two female researchers of this study. The ethics forms sent did not include detailed explanations on the kind of linguistic feature that was to be analyzed. MSN Messenger conversations initiated either by the researchers or by the participants were saved.

Data analysis

Upon collecting the transcripts of the chatting conversations, the instances of code switching and code mixing in each language were identified and counted.

For the analysis of code switching, occurrences of three variables were taken into account: a) researcher-initiated switching followed by the participant; b) researcher-initiated switching not followed by the participant and, c) participant initiated. The occurrences of code switching were then counted and classified into the three variables and later in each category, the topics and the frequency of the occurrences were identified. Similarly, the occurrences of code mixing were counted and classified into three categories: a) insertion, b) alternation, and c) congruent lexicalization. Upon classification, the results were analyzed and compared to draw conclusions.

Results

Although 20 conversations were analyzed for each language, the Spanish researcher-participant chatting exchanges resulted in longer interactions in terms of word count than those between the Indonesian-speaking researcher and her counterparts. The chatting exchanges of Spanish speaking participants resulted in 1935 lines (9113 words), while the Indonesian exchanges resulted in 1035 lines (4119 words). Not surprisingly, this affects the number of code switching occurrences between the two groups.

What is the number of occurrences of both code switching and code mixing between linguistic backgrounds?

There are marked differences between the number of code switching and code mixing occurrences between linguistic backgrounds. In the 20 conversations analyzed for the Spanish-speaking participants a total of 119 alternations took place. 81 correspond to code switching and 35 to code mixing. Indonesian speakers exhibited a higher number of alternations adding up to a total of 174 shifts in code choice. 110 correspond to code switching and 64 to code mixing.

Does researcher-initiated code switching prompt participants to shift code?

For Spanish speakers, 23 (28%) occurrences fit into the category of researcher-initiated code switching and 58 (72%) occurrences fit into the category of participant-initiated code switching. Of the 23 instances of researcher-initiated code switching, change of code was triggered 17 times (78%), one turn immediately after the researcher had switched from Spanish to English. Additionally, change of code was followed after two turns on one

occasion. On 5 (22%) occasions participants did not follow the code imposed by the researcher. Indonesian speakers displayed a similar trend. Of 110 occurrences of code switching, 70 (64%) happened when the researcher switched her chatting conversation to the other language and 40 (36%) were initiated by the participants.

Out of 70 instances of researcher-initiated code switching for Indonesians, on 36 (51%) occasions the participants followed the code switching and switched to English, whereas in 34 (49%) occurrences, the participants remained in their **L1** as illustrated in Table 1.

Table 1. Occurrences of code switching

Indonesians				**Latin Americans**			
Researcher-initiated switching		Participant-initiated		Researcher-initiated switching		Participant-initiated	
Switch	Non-switch	switching	Total	Switch	Non-switch	switching	Total
36	34	40	110	18	5	58	81
Number of turns to switch				Number of turns to switch			
1–2 turns	30			1–2 turns	17		
3–4 turns	4			3–4 turns	1		
over 5 turns	2			over 5 turns	0		

On what topics and functions of the language do speakers seem to switch the most? Additionally, what topics are common and/or different regardless of culture?

As expected, the function of the language that triggered the most code switching occurrences is confirming (21%). This fact is explained as the relevant English words (i.e. yeah, ok, yes, etc.) are commonly used in colloquial Spanish and English. In addition to confirming, the top-three topics and functions of the language that triggered the most code switching and code mixing occurrences are: farewells (11%), computer-related terms (10%), academics (9%), and sports (6%) regardless of language background. While Spanish-speaking participants tended to shift code when a discussion on academics (17%) and computer-related terms (14%) took place as well as when saying goodbye (9%), Indonesians shifted code when functions of the language such as saying goodbye (23%) and topics such as sports (19%), feelings, and computer-related terms (13%) were triggered. Some of the topics not shared by the participants in both languages include money, music, and sports.

What is the most frequent code mixing category in which participants mixed languages?

Results for code mixing for Spanish-speaking participants show that from the 35 instances identified, 32 instances (92%) correspond to the category of insertion, 3 (8%) fit into the description of alternation and none of the occurrences fulfils the definition of congruent lexicalization. In terms of code mixing for Indonesian participants, of the 66 instances 53 occurrences fit the classification of insertion which correspond to 83% of the total turns where code mixing was present, 6 (9%) of occurrences correspond to alternation and 5 (8%) correspond to congruent lexicalization.

Regarding code mixing, both Indonesian and Spanish participants used more insertion

than alternation or congruent lexicalization. In fact, the number of insertion occurrences is significantly higher than the two other types, 83% and 92% respectively. (Table 2)

Table 2. Occurrences of code mixing classification

Type of code mixing	Spanish subjects	Indonesian subjects
Insertion	35	53
Alternation	3	6
Congruent lexicalization	0	5
Total	38	64

Discussion

Indonesian participants shifted code more often than Spanish speaking participants. While Spanish speakers switched code 116 times, Indonesians switched code 174 times. This result is interesting, considering that the number of exchanges of the Spanish-speaking participants is longer than the Indonesian ones (1935 lines, 9113 words vs. 1035 lines, 4119 words). A closer look at the data indicates that most code alternation was triggered when participants used the function of the language "confirming". This can be explained by the phonetic similarity between Indonesian and English "yes", "yeah", and "ya" if compared to "yes" and "Si" in Spanish.

The personalities and individual interests of the researchers can be considered as factors that may have influenced the results of the study. While the Indonesian researcher tends to be more inquisitive and asks many questions at once, the Spanish-speaking researcher tends to follow turn taking conventions. This fact could explain the difference between the percentage of researcher-initiated code switching occurrences that were not followed by the participants in both languages (22 % for Spanish and 49% for Indonesians). Also, while the Spanish speaking researcher is academically-oriented and has a passion for reading and swimming – two highly individual activities – the Indonesian researcher has interests in more group oriented activities like band playing, sports, and computer social networking. These individual interests are somehow reflected in the topics selected from participants of each cultural background. Spanish-speaking participants talked about academic-related topics and used the function of the language "asking questions" during their chatting conversations. In contrast, Indonesian participants preferred to talk about non-academic topics, such as sports and sharing their feelings in the chatting activities. Topics such as sports and academic matters that were not shared by the participants from both linguistic backgrounds also reflect the individual interests the participants have.

Interestingly, participant-initiated code switching is higher for Latin Americans (72% compared to 36% for Indonesians). Most of the code switching was done from Spanish to English when academic topics were discussed. It seems that the shared academic background with two of the participants with the researcher can account for this.

Most words used for saying goodbye such as "bye", "see you", and "talk to you later" as well as computer-related terms such as "email", "**PC**", and "attachment" have been borrowed from English by both languages and their use has spread rapidly. Evidence of this is that Spanish and Indonesian speaking participants whose linguistic and cultural backgrounds are different use them indistinctly. These findings support Crystal's (2001), Danet & Herring's (2007), and Ho's (2006) assumptions about how the emergence of computer-related terms in the Anglophone culture transfer easily regardless of the language where they

are used. Additionally, the finding that topics such as computers and sports triggered most of the code switching and code mixing occurrences among participants are in line with Huang's (2004) studies in which he found that topics related to movies, shopping, sports, computers, along with food triggered most of the code switching instances in his data.

Topics such as relationships and friendships initiated by the researchers that did not trigger code change seem to reflect the participants' tendency to use their first language when it comes to intimacy. These findings also support the studies of Warschauer, El-Said & Zohyr (2002) and Goldbarg (2009) in which participants showed preference to use their L1 to express highly personal content and feelings.

Regarding code mixing categories, a possible explanation for the number of insertion occurrences compared to the number of occurrences of alternation and congruent lexicalization might be that inserting a word from one language to another requires minimal competence at a lexical level, whereas for alternation and congruent lexicalization individuals need to fully master the language at grammatical and semantic levels. This study corroborates the findings of Huang (2004) in which he reported that insertion of words, especially nouns, accounted for the highest number of code switches in the emails exchanged by his participants. Moreover, given the chatting characteristics of the MSN Messenger© program where written language follows the features of spoken language (short sentences, grammatically incorrect sentences, individual words used in response to complete utterances, among others), the possibilities for categories such as alternation and congruent lexicalization to occur are limited. Moreover, neither language shares marked grammatical structures with English.

Conclusions and avenues for research

This study aimed to add to the limited data available about the Internet chatting practices of advanced users of English from Spanish-speaking and Indonesian-speaking backgrounds. Although the results from this case study cannot be generalized about Latin Americans' and Indonesians' code choice, several findings are consistent with, and thus support, past research on code switching in CMC environments. This study is unique in the sense that no other study has compared the code alternation phenomena across cultures in synchronous CMC.

Further research comparing code switching and code mixing occurrences between genders and age groups is needed to better understand these phenomena in synchronous forms of communication.

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