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**TÍTULO:** Cambio de código en aulas paquistaníes de inglés y ciencias.

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**RESUMEN:** Este estudio examinó casos de cambio de código por parte de profesores de inglés y ciencias en colegios pakistaníes. Veinte lecciones (10 de inglés y 10 de ciencias) se grabaron en audio y se analizaron utilizando el modelo semántico de cambio de código conversacional de Gumperz. Se descubrió que las funciones más frecuentes de cambio de código eran la reiteración y la cita. El cambio de código por razones interpersonales como la especificación del destinatario, la objetivización y la personalización es nominal. Además, la función de reiteración del cambio de código parece una traducción que se emplea principalmente para garantizar la comprensión. Otras instancias de reiteración se utilizan para marcar información o instrucción importante. Los maestros reiteraron principalmente en Urdu, y a veces, en Pashto para incorporar los aportes de los alumnos en la clase y/o darles una impresión amigable. Los resultados del estudio sugieren que el cambio de código facilita el aprendizaje en el aula.

**PALABRAS CLAVES:** cambio de Código, modelo semántico de conversación de Gumperz (1982), aulas de inglés y ciencias en colegios pakistaníes.

**TITLE:** Code-Switching in Pakistani English and Science classrooms.

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**ABSTRACT:** This study examined instances of code-switching by English and science teachers in Pakistani colleges. Twenty lessons (10 English and 10 science) were audio-taped and analysed using Gumperz's semantic model of conversational code-switching. It was found that the most prevalent functions of code-switching were for reiteration and quotation. Code-switching for interpersonal reasons like addressee specification, objectivization and personalisation is nominal. Moreover, the reiteration function of code-switching seems translation which is mainly employed for ensuring comprehension. Other instances of reiteration are used for marking important information or instruction. Teachers mostly reiterated in Urdu and sometimes in Pashto to incorporate students' input into lesson and/or to give students a friendly impression. The findings of the study suggest that code-switching facilitates learning in classroom.

**KEY WORDS:** code-switching, Gumperz's semantic model of conversation (1982), English and Sciences classrooms in Pakistani Colleges.

**INTRODUCTION.**

This paper focuses on the reiterative functions and its different forms that it takes in multilingual classroom in Pakistani colleges. Gumperz (1982) defines Code-Switching (CS) use of more than one code or languages in a single speech event. Code-switching may involve switch from single words to an array of several sentences.

Language is a principal instrument for meaning construction in classroom. Similarly, classroom is a forum where learners from different ethnic and linguistic background come across, talk to each other in two or sometimes more than two languages to convey the sense of what they think, know and things they do (García, Bartlett, & Kleifgen, 2007). On the other hand, students are actively involved in ‘instructional conversation’ with other students as well as with their teachers (García et al., 2007). This conversation may take place in more than one language; however, teachers always encourage them to use language of instruction due to the reasons such as students’ academic progress is assessed via language of instruction, teachers, for the sake of good reputation, always try to emphasise language of instruction in classroom and besides, teaching content being in the language of instruction (Garcia, 1993). However, despite teachers’ emphasis and attempt to maintain one language in classroom – language of instruction, languages other than instruction one continues to be used to make the learning of target language comprehensible and easier in the classroom (García, *ibid*).

How language is used in content-based lesson and language classrooms significantly differs. In content-based subjects such as science, the focus is subject matter and concepts where language is used as a medium. In content-based lesson, teaching of subject matter is primary while teaching of language is secondary (Zabrodskaia, 2007).

Although science teaching has received much attention from the researchers across the globe, it has been noted that low-proficiency in target language remained a major obstacle for the students in learning science (Giouroukakis & Rauch, 2010; Halliday, 2004). In such situations, teachers tended to use mother tongue to teach science.

Butzkamm (1998) in his study maintained that students in German school where the subject was history taught in English requested for German equivalents for those English words which felt difficult to understand. Butzkamm’s findings and his support for using mother tongue in content subjects was supported by different studies. Setati (1998), for example, who carried out his research on Grade-5 mathematics class in South Africa, remarked that teacher’s Code-switching between

English and Tswana enhance students' understanding of the subject and encouraged them to participate with more interest. Similarly, Martin (1996) concluded that in science, mathematics, history and geography lessons in Brunei, teachers Code-Switched to Brunei Malay rather than Bahasa Malaya to quote examples and explain concepts.

Teachers expressed that it was easy for the students to understand things in their mother tongue – Malaya than Bahasa Malaya which is the standard variety. Meanwhile, teachers confessed that they feel uneasy to switch, but they switched to develop more natural learning setting and reduce the comprehension problem to the minimum. In one of his other papers, Martin (1999) maintained that teachers half-finished sentences often completed by students in Brunei Malay which meant that 'common understating' between teacher and students was established. He further added that teachers normally encouraged students to use local varieties and ensured students active participation in discussion using local languages such as Iban and Brunei Malay rather than using only English. None of these studies reported negative impact of code-switching on learning, teachers expressed their reservations about deviating away from language of instruction.

While research studies on Code-Switching in content lesson unanimously reported that code-switching had positive impact on learning in bilingual content teaching setting, code-switching in language classroom is a debatable issue among experts, researchers and language teachers. If several studies reported facilitative effects of code switching in language classroom, on the other hand equal number has also reported diverse effects of code-switching on target language competence in language classroom. Language has a dual function in language classroom: it is the subject of learning as well as medium of learning.

According to (Thornbury, 1999), in the communicative approach, when learner use the target language to learn it, code-switching deprives students of target language exposure, setting a bad language model for learners. Teachers' code-switching in language classroom encourages autonomous code-switching and students continue freely to code-switch more often (Skiba, 1997)

causing loss of target language fluency in students (Sert, 2005). Students naturally avoid use of available linguistic resources and use the language they are proficient in once option of code-switching is viable and permissible.

However, a body of research shows that code-switching can be a useful support for language learners especially when the target language becomes a hurdle for learning (Greggio & Gil, 2007; Reini, 2008). Reini (2008) stated that students enhanced their learning of English grammatical rules and they began to produce correct and comprehensible utterances after they were instructed in Finish. Similarly, Greggio and Gil (2007) found that the use of Portuguese speed up message clarity of English as a foreign language in Brazil, after students requested for explanation of English rules and providing equivalent of English vocabulary in Portuguese.

In several multilingual contexts, there is a clear policy on monolingual instruction, it is evident that teachers code-switch in classroom where students are having different linguistic background. Then and Ting (2010), for example, remarked that teachers considered code-switching as a strategy helping students in understanding core concepts and technical terms or terminology as well as instruction given for activities. Setati, Adler, Reed, and Bapoo (2002) found that code-switching should be considered as language resource than a hindrance to language learning. Moreover, use of language, other than instruction one, not only provide an opportunity to speakers to express themselves, it is also a way to show solidarity with a specific social group and convey speakers' attitude (Skiba, 1997). So far, several studies and related literature has been reviewed. One particular function of code-switching that has been repeatedly mentioned in these studies is reiteration, also called reformulation (Setati, 1998) or translation (e.g. Zabrodskaia, 2007) depending on the framework of analysis.

The focus of these studies remains on the types of functions of code-switching which ease the classroom interaction and learning. However, code-switching or more commonly known as translation is a debatable issue among language researchers and practitioners. Translation helps reduce errors because students know the meaning of sentence (Cunningham, 2000); it helps students

to comprehend cultural-bound and covert meaning of the text (Sima & Saeed, 2010). However, over-use of translation may hamper students' thinking, reading and writing in the target language (Cunningham, 2000) lowering the target language proficiency level of learners and alienate students who don't share the same language. This alienation is less likely to occur in those contexts where one language is used for translation such as Urdu which is used in urban areas of Pakistan.

Studies on code-switching for reiteration and translation have been carried out in varied contexts using different methods. It would be perhaps an interesting comparison of translation and reiteration in the context of Gumperz's (1982) model of conversational code-switching which may yield insights into how code-switching assist and enhance learning of content subject in education context such as Pakistan where students are from different linguistic background.

### **The need for code-switching in the Pakistani educational setting.**

Pakistani society comprises of different ethnic groups: the dominant Panjabi, Sindhi, Pathan, Mahajar, Baloch, Kashmiri and other minor groups. These ethnic groups have their own culture, language and traditions, and living together for centuries.

In 1947, the British Empire granted independence to India and the country was divided in two dominions, i.e. India and Pakistan. In Pakistan Urdu was declared as national language whilst English as official language – used in government offices and other industries.

When British came to India, they brought their education system and medium of instruction was English. After independence, the education system split into two: public schools for elites and state-run schools where students from lower middle class studied, and the medium of instruction in these schools was either Urdu or local language. However, at college level, teachers preferred to use Urdu as they had students from different linguistic backgrounds. Until 2000, all science text books at school level were in Urdu and at college level in English. Students who entered in college with Urdu-medium background had to struggle with both content and the medium. This fact was also realised by teachers

and they started code-switching to Urdu as well local languages to explain the scientific concepts and description of phenomena. Similarly, in language classroom teachers code-switched to explain grammatical rules and other language related components. Since teachers feel comfortable and content with code-switching to a language of their comfort.

Code switching is still practiced at college level in Pakistan in both – science and English language classrooms.

### **Theoretical framework of the study.**

The theoretical framework used in this study is Gumperz's (1982) semantic model of conversation code-switching. This model is considered to provide explanation for why people switch language in a specific context (Onyango, 2009). For Onyango, code-switching is a form of discourse strategy because people do not change ways of speaking due to certain situational factors or social identities – people choose among several linguistics choices available to them to convey intentional meaning. Hence, semantic model is capable of covering 'the multiple relations between linguistic means and social meaning' (Onyango, 2009, p. 153). Gumperz's model was presented some four decades ago; however, it is still used to explain code-switching in language classes, for example, Chinese (e.g. Ruan, 2003; Zheng, 2009) and German (Seidlitz, 2003), and science classes (e.g. Choi & Kuipers, 2003; Then & Ting, 2009).

Gumperz's model has adopted two-pronged approach to code-switching in terms its functions: situational and metaphorical. Blom and Gumperz (1986) quoted the example of instructors delivering lecture in Brokmal. However, to provoke open discussion among students, they switch to Ranaml – this is situational code-switching as it redefines the situation. On the other hand, metaphorical code-switching enables 'the enactment of two or more relationships among the same set of individuals' (Blom & Gumperz, 1986, p. 425). For example, Blom and Gumperz (1986) explained that a person discussed business transaction with a clerk in standard language but talked to the same clerk (at home)

in local or non-standard language because the relationship changed, emphasising standard language in business relationship and local or informal language in close or personal relationship.

Code-switching that is capable of accepting change in social situation is called situational code-switching by Blom and Gumperz (1986) while code-switching that is rigid enough to accommodate a change in context, participants or even topic is called metaphorical code-switching.

The metaphorical code-switching has the following functions: quotation, addressee specification, interjections, reiterations, message qualification and personalisation vs. objectivization. Quotation is a direct quotation or reported speech; for example, a speaker inserted reported speech in Spanish while she was speaking English when she said ‘She doesn’t speak English, so: “Ella no habla inglés”, ‘the children are surely going to forget their language; so: “los niños van a olvidar con seguridad su idioma”)’ (Gumperz, 1982, p. 76). The next is addressee specification when one of the many addressees is directly addressed. For example, the speaker switches to Hindi to address one of the participants who just came back from answering the door:

A: Sometimes you get excited, and then, you speak in Hindi, then again, you go on to English.

B: No nonsense, it depends on your command of English.

A: [shortly after turning to a third participant, who has just returned from answering the doorbell] Kaun hai bai (who is it)? (Gumperz, 1982, p. 77).

Thirdly, interjection – sentence filler or switch to other language to mark an interjection. For example, a Spanish interjection occurs in a brief talk in English between two Chicano professionals saying goodbye to one another:

A: Well, I’m glad I met you.

B: ¡Ándale pues (O.K. swell). And do come again. Mm? (Gumperz, 1982, p. 77).

Fourthly, reiteration serves to repeat the message in another language literally or with some modification. For instance, father while walking through a train compartment repeated his statement ‘Keep straight. Sidha jao [louder] (keep straight)’ (Gumperz, 1982, p. 78). The fifth function is



message qualification which serves to qualify constructions such as sentence and verb complements or predicates following a copula. The following statement explains the preceding statement. For instance, ‘The oldest one, la grande la de once años (the big one who is eleven years old)’ (Gumperz, 1982, p. 79).

The final code-switching is for personalisation and objectivization which attempts to distinguish between talk about action and talk as action, the extent of speaker’s involvement in or otherwise, if a statement is speakers’ personal opinion or knowledge, whether the statement refers to a particular instance or has the authority of generally known fact. In the following example, switches from Slovenian to German to give his counter statement greater authority while discussing the origin of a certain type of wheat:

A: Vigala ma y3 sa america (Wigele got them from America)

B: Kanada prida (it comes from Canada).

A: Kanada mus I s3gn nit (I would not say Canada)

(Gumperz, 1982, p. 79).

This paper is interested in using reiteration function of Gumperz’s (1982) semantic model of conversational code-switching because the said function is very similar to translation; for instance, an English utterance ‘count first’ was reiterated in German as ‘zahlen OK (count OK) in Seidlitz’s (2003) study. These German teachers of foreign language in Texas used reiteration to facilitate students’ understanding of certain concepts and directing their attention to a particular instruction. Similarly, in Ruan’s (2003) study on Chinese/English bilingual students in USA in Chinese language program, to establish a relationship between English and Mandarin Chinese lexis, teacher reiterated hua yuan as a garden and ‘hua yuan jiu shi you hen duo hua, shi garden’ (Garden has lots of flowers, is garden). In their study in Malaysian secondary school.

Then and Ting (2009) maintained that the use of message qualification along with reiteration helped teachers in explaining the referential content. The direction of code-switching from English to Bahasa Malaysia suggested that on one side if English is considered the medium of instruction, on the other side Bahasa Malaysia is also important for understating the concepts and comprehension of content. While reiteration performs various functions during teaching, translation on the other hand helps in comprehension.

Translation attempts to provide near-exact translation of the source utterance retaining lexical, syntactic and cultural accuracy (Metha, 2010). The translation in the target language retains the meaning, form, register and style of the source sentence (Krajka, 2004). As Then and Ting used Gumperz (1982) semantic model of conventional code-switching in their study where translation was coded as reiteration. In the present study, the analysis considers the form of language shift – whether the original (translation) form of language is retained or modified (reiteration) version is used.

## **The Study.**

### ***Participants.***

The present study was conducted at five colleges (three male and two female) of District Kohat located in the Khyber Pakhtunkhwa province of Pakistan. Kohat district is inhabited by ethnically diverse population and hence the selected colleges had teachers and students with varied ethnic and linguistic background. Pashto is the majority language and Hindko is also the mother tongue sizeable population in the urban area of the district. Urdu being the national language of Pakistan is spoken and understood by majority of people. Punjabi, although has little users, is also spoken and understood in the town. Teachers who were selected for the study fulfilled the following criteria: they were teaching English or science at Intermediate or Bachelor's level and each teacher had terminal degree in the subject with 5 to 10 years teaching experience. A total of 20 lessons (10 English & 10 science) containing code-switching were observed.

All the teachers participated in the study had good command on English, Urdu and Pashto. All students can usually understand Urdu as it is the national language of the country and is used as lingua-franca between speakers of different languages.

### **Data Collection.**

The data for the study in hand was collected via non-participant observation and audio-recording of the teachers' lessons in the classrooms. Each lesson observed lasted for 50 to 60 minutes. For recording, Sony digital recorder was used which was placed on suitable place after teacher's permission was obtained for recording the classroom interaction. With recording, the researcher took notes of the setting, physical gestures and facial expression of the teacher observed during the act of code-switching to help in the interpretation of the data.

### **Data Analysis.**

The recorded data of observed classes were transcribed using Elan software. The use of Urdu, Pashto and other languages was indicated in italics and the English translation enclosed in brackets (). Similarly, pauses were indicated with epsilon ... and any additional information were enclosed in square brackets []. The observed classes transcript was then analysed for functions of code-switching using Gumperz (1982) semantic model: quotation, addressee specification, interjections, reiteration, message qualification, personalisation vs., objectivization and situational code-switching.

Code-switching for these functions was identified and underlined on the transcript. The main purpose of the paper remains to focus on reiterative function of code-switching, the frequencies of other code-switching functions were also penned down to provide a complete picture to understand the purpose of code-switching in English and science classrooms in Pakistani colleges.

For the analysis, if a teacher code-switched more than once for a particular function, it was counted as separate instance. For instance, in science classroom when a teacher giving an example in English and reiterates it in Urdu or Pashto and again reiterate in English, it was counted as two instances of

reiteration. In the present study, reiteration and translation are considered different: When the syntactic structure of the original and reiterated utterance remains the same as in ‘close the door. Band krdo Darwaza (close the door), it is considered translation. But the fact remains that not all reiteration is translation; for instance, open your book apni kitab kholo (your book, open) where the syntactic structure alters in reiterated utterance. It is worth mentioning here that the word OK or Okay was not treated as code-switching in this study because of its normal use in all languages of Pakistan.

## **Results and discussion.**

### ***Frequency of code-switching functions.***

The analysis of 20 lessons observation revealed that the teachers code-switched 293 times, of which 59.23 % were by English teachers. The most common code-switching was reiteration (44.36%) and quotation (26.27%). The English teachers were observed to have code-switched for reiterative purpose 77 times while science teachers did that 53 times out of 130 instances in total.

Similarly, the teachers also code-switched for addressee specification, term of reference and message qualification to some extent. Only 6.46 % involved code-switching for addressee specification mostly in Urdu (e.g. tum, surkh bag waly meaning you with a red bag) and some in Pashto (e.g. shaikha meaning a boy/man with beard).

Similarly, for terms of reference in Urdu (Ustad meaning teacher). In Pakistan, teachers normally attempt to retain culture bound meanings that can be lost in translation. The data set table shows message qualification being 3.07 indicating that teachers, most of the times, provided explanation in the language of instruction.

Table 1. Frequency of code-switching functions in English and science lessons.

Functions of code-switching	Frequency of code-switching			Percentage
	English	Science	Total	
Reiteration	77	53	130	44.36
Quotation	33	44	77	26.27
Terms of reference	11	13	24	8.2
Interjections	5	4	9	3.07
Addressee specification	15	4	19	6.48
Message qualification	7	2	9	3.07
Situational code-switching	7	9	16	5.46
Objectivisation	4	0	4	1.36
Personalisation	5	0	5	1.70
Total	164	129	293	99.97a

The total percentage does not equal 100% due to rounding error.

Besides reiteration and quotation for explanation of lesson content, the teachers also code-switched for terms of reference and message qualification to some extent. Only 12.60% of code-switching instances involved the use of terms of reference, mostly in Urdu (e.g. Ustad meaning teacher) and less frequently in Pashto (e.g. bhoos meaning hey/straw).

Code-switching in such cases retains culturally bound meanings that may be lost in translation. In this data-set, teacher code-switching for message qualification or elaboration was low (4.47%), indicating that the teachers attempted to provide explanations in the language of instruction.

On the other hand, instances of code-switching for personal reasons remained less than 20 % of the total instances of code-switching in classroom. For example, situational code-switching (5.46%), interjections (3.07%), addressee specification (6.48%), objectivization (1.36%) and personalisation (1.70%). The data revealed that English teachers code-switched more often for personal reasons than science teachers making interjection in Pashto such as O Khudaya Paka (Oh, my good lord!), personalising expressing their feeling about themselves as a teachers (e.g. Ustad bhi ghalti ker sakta he meaning teacher can also commit mistake) or addressing a student using Pashto (Naeema dalta rasha meaning Naeem, come here!). It should be noted that code-switching more utilized for reiteration and quotation than for developing interpersonal relationship with students.

### **The nature of code-switching for reiteration.**

Since reiteration was the most prevalent form of code-switching, it was further analysed as follows.

#### **Repeated use of reiteration.**

In the present study, as is evident from the table, English teachers made use of reiteration more often than the science teachers. The following excerpt is taken from English teacher E5 who was teaching Hamlet, a play by Shakespeare.

Excerpt (1).

E5: You must think before taking any action. But too much thinking or procrastination can lead you to failure because people who think a lot and don't take actions always face failure in life, ok, got my point?

Students: [silence]

#### *Reiteration.*

Sochna achi cheez hai koi bhi kaam karny se pehly sochna chchye liken agar aap zyada sochyngy aura amal nahi karengy tho zindagi mein nakami apka muqadar bany gi. Lehaza socho aur amal kro na k sochtry raho aor amal na kro. (Pashto - poh shwy?)

E5 asked students to think and act but too much thinking can lead you to failure. However, noticing student's facial expression and silence, he reiterated to Urdu (thinking is good and you must think before taking any action but if you think and don't take action, you shall face failure. That's why think and act ... it's not good that you think and don't act – got it?). The teacher switched to Urdu to tell them that they should not waste life in thinking and not doing anything like Hamlet.

Other instances of code-switching for reiteration were for emphasis on certain aspects during classroom instruction; for example, when you memorize something, the best way to keep it in your memory for long is to write it again and again. Ok, write again and again bya ba pa imtehan k pa asana likal shy (you will be able to reproduce that easily in exam). This was something very easy and

no need for the teacher to reiterate for the sake of comprehension, it was but to emphasise the importance of writing.

Excerpt (2).

S6: Don't talk, please, don't talk. Look at the blackboard Board ki taraf dekhy (look at the writing board) and write what you see on the board. So, we were discussing gravitational force, yes.

In Excerpt (2) the science teacher was teaching students about the gravitational force. During the lesson, she noticed that one of the students attempted to talk to another students. She warned her not to talk and then instructed her in English first and repeated the same in Urdu board ki taraf dekhy (look at the writing board). The double reiteration showed the seriousness of the environment and importance of the topic which she was teaching. Using multiple reiteration, the science teacher tried to make her realize that this is very important, and you must not miss that and disturb other students. The use of code-switching for explaining main points and instruction has always been found in other studies. Zheng (2009) concluded that Chinese-Australian bilingual students for the sake of emphases, repeated messages in their interviews. However, it should be noted that in Zheng's study (2009) students repeated their message only once. In the present study, multiple instances of reiterations are used to facilitate comprehension and emphasis.

### **Quotation and reiteration.**

Direct quotation or reported speech in an ongoing discourse is known as quotation (Gumperz, 1982).

In the following example, the science teacher used direct quotation from his student.

Excerpt (3).

S 1: Do you know what human cell is?

Student 1: Cell is the basic structural, functional, and biological unit of all known organisms.

Student 2: Jaesy kay makan ka unit eent hota hai (Urdu) (as brick is unit for a building).

S1: Yes. Jaesy kay makan ka unit eent hota hai.... Quotation reiteration

By quoting his student words, the teacher not only attempted to help the student build their knowledge regarding the concept but he also attempted to appreciate the student concerned and encourage other students to share their knowledge and participate in the discussion.

Similarly, science teacher S3 reiterated twice when she was giving instruction for lab work.

S3: All of you must go in line silently so that other classes are not disturbed.

Student1: Madam, practical copy bhi le jaye? (Madam, should we take practical notebook with us?)

S3: Oh yes, (copy bhi le jaye) (Yes, take notebook with you) Quotation reiteration

*In laboratory.*

Student 2: Tezab halka kerna he? (Should we dilute the acid?)

S3: Han, teezab halka karna hai (Yes, dilute the acid) Quotation reiteration

And don't forget to put off fire once you finish your experiments. Okay.

The purpose of reiteration, in this excerpt, was not that of the comprehension but to ensure the material needed in library and to ensure the safety of the students. Apparently, it was a reply to a single student, but in fact this was the information meant for all the students as students listen to and understand well if guided in their own language or the language familiar to them.

### **Reiteration and translation.**

The results showed that out 20 lessons with teachers code-switching, only 11 code-switched for message repetition, sometimes literally translated and others modified form. For translation, for example, 'as a result is nateejatan (as a result)' (E4); however, the form is modified in reiteration. For example, 'How to calculate the value of gravity? .... Kashish-e-saqal kesy masloom kerty hein?(How to find gravity). The data also revealed that when students provided input in Urdu, Pashto or any other language, teacher reiterated their input in English. The Excerpt (6) showed how teacher reiterated student's utterance in Urdu into English and refrained from repeating that in the same language instead of being proficient in it.



E1: He is a lion. What is lion here?

Student: Iste-ara (metaphor).

E1: Lion is metaphor ... very good.

The student's reply in Urdu signalled teacher that the meaning had been comprehended. However, teacher was more inclined to repeat student's utterance in English than using Urdu.

A total of 85 instances of message repetition were observed, where the frequency of reiteration (55.5%) was higher than translation (44.4%). It was found that most of reiteration and translations were for the lesson and concepts explanations than for classroom activities or general discussion among teachers and students. It was also evident that Urdu remained the main language that teachers used for explaining academic content.

Moreover, individual difference on the part of teachers had also been observed in terms of code-switching for reiteration or translation. For example, as Table 2 shows, six teachers who had been observed for a few instances of code-switching – the message repetition was all translation (E2, S4 and S6) or reiteration (E3, E4 and S3). On the other hand, rest of teachers, both Science and English, frequently code-switched with a fair balance of translation and reiteration in message repetition.

## **CONCLUSIONS.**

We have seen that how language is juxtaposed by English and Science teachers at colleges in Pakistan to serve different functions of code-switching.

The code-switching takes place in classroom mainly between English (the language of instruction), Urdu, the national language and sometimes Pashto (regional language). Using Gumperz's model (1982), teachers' classroom data revealed that most of code-switching were made for reiteration and quotation.

The reiterations are mostly used as message repetition which involves words, principal concepts and instruction in Urdu. Similarly, repetition of reiteration marks the importance of the academic content or instruction, and single repetition signifies importance of head words. On further and in-depth analysis of the reiteration revealed that almost half of the reiterations are the direct translation to make students understand a particular concept or phenomenon or for clear and succinct directions for activities or lab work. The use of different languages helps gain students' attention and maintain classroom teaching as planned, as concluded by Greggio and Gil (2007). Similarly, continuous code-switching in form of reiteration and quotation is also evident, a sandwich technique (Butzkamm & Caldwell, 2009) to ensure comprehension by reiterating in Urdu, Pashto and then again in English.

It is interesting to mention that English teachers at Pakistani colleges were observed to code-switch more frequently than science teachers. Similarly, English teachers also reiterated message in Urdu more frequently than science. It is surprising but interesting too, because English learners not only learn the academic content, but also learn the target language itself i.e., English.

The data showed that science teachers code-switching frequency was lesser than English teachers. The reason might be that they could use realia for explaining concepts and quoting examples. Most of the scientific terms are already in English and used in everyday life, therefore, science teacher did not bother about translation of the terms. On the other hand, English teachers had to switch to Urdu or Pashto to help students to comprehend meaning of the English words which are not used in national or regional languages which means that unfamiliarity with English words is one of the major reasons for translation into local languages (e.g. Flyman-Mattsson & Burenhult, 1999; Zabrodskaia, 2007).

The code-switching hampers both teachers' and students' opportunity to practice and develop competence in English language. However, on the other hand, it can be argued that since language learning does not mean to learn vocabulary only, the time saved during code-switching can be affectively used for developing other language skills.

Code-switching plays an important role in facilitating learning at college level in Pakistan. However, use of code-switching has socio-political implications: to reinforce the supremacy of national or regional languages (Garcia, 1993). Urdu was declared as national language of Pakistan when it came into being. Since then, it is not only used in different contexts, it also plays a role of lingua-franca among communities with different linguistic background. Due to its wide-spread use, teachers feel comfortable to switch from language of instruction (English) to the lingua franca (Urdu).

The findings of the study regarding facilitative role of code-switching to help students in comprehension confirm the findings of other studies on code-switching in content (Setati, 1998) and language teaching (Greggio & Gil, 2007; Liebscher & Dailey- O’Cain, 2005). The use of students’ first language or language that everyone understands and speaks, assists in comprehending the content when it becomes difficult to comprehend things in language of instruction as it facilitate students through the learning process (Garcia, 1991).

Code-switching is considered necessary for effective communication, that is why, despite clear instructions from the ministry of education to use English as medium of instruction, teachers frequently code-switch for various functions. It cannot be denied that code-switching in classrooms deprives students and teacher of the opportunity to negotiate meaning in the language of instruction and hence leaving them with low proficiency in the language of instruction. However, it is also evident that disallowing code-switching can potentially affect their learning if their competence in language of instruction is not good enough. Garcia (1993) maintains that ‘in some ways code-switching may facilitate English language acquisition by providing a context from which to infer meaning’ (p. 32). Moreover, code-switching is very much natural a phenomenon especially in contexts when teachers and students share the common language (Simon, 2001).

This study has shown that how in multilingual classroom CS facilitates learning when language of instruction seems a hurdle in the way of it.

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