

## CODE SWITCHING USED BY MATHEMATICS AND SCIENCE TEACHER IN CLASSROOM INTERACTION

**Sri Hartati TB**

*English Applied Linguistics Study Program Postgraduate School, State University of Medan,  
Medan Indonesia  
Srihartati516@yahoo.com*

**Sri Minda Murni**

*English Applied Linguistics Study Program Postgraduate School, State University of Medan,  
Medan Indonesia  
srimindamurni@gmail.com*

**I Wy Dirgeyasa**

*English Applied Linguistics Study Program Postgraduate School, State University of Medan,  
Medan Indonesia  
wayandirgayasa@yahoo.com*

### ABSTRACT

*This article is entitled Code Switching Used by Mathematics and Science Teacher in Classroom Interaction. This article addresses to find out the types of code switching used by the Mathematics and Science teacher. The study was descriptive qualitative. The subjects of the study were Mathematics and Science teacher in grade one at SD Pelita Kasih Tanjung Morawa. The data of the study were the utterances uttered by Mathematics and Science teacher recorded from the conversations in the classroom interaction. The data were identified, analyzed, and categorized based on Poplack's theory (1980). The findings of the study show that there were three types of code switching found in the teachers' interaction to students namely: intersentential code switching, intrasentential code switching, and tag switching. Based on the findings, the teachers argued that code switching was needed to avoid the misleading sentences uttered to the students. Some suggestions are directed to those who are interested in understanding code switching as found in the practice.*

**KEYWORDS:** *Code Switching, Classroom Interaction, Mathematics, Science, Teacher.*

### INTRODUCTION

Globalization era makes English is badly needed. English must be learned both formal and informal education at the early age. That is why some public schools have foreign language classroom by using bilingual. The bilingual happens through code-switching in classroom interaction. The definition of bilingual is a person who has some functional ability in the second language (Spolsky, 1998: 45). In addition, Hamers and Blanc (1987: 265) define bilingual as "an individual who has an access to two or more different codes or languages".

Phenomenon of switching a language with another language occurs in the teachers' daily conversation called code-switching. It is a switching from one language to another, for example, the switching from English into Bahasa Indonesia.

Code-switching can be seen in English foreign language classroom which is done by the teachers when teaching English to their students. Teacher who delivers the lesson to the students use language by conveying some codes. It happens in classroom interaction. Classroom interaction plays an important role in teaching and learning process. It is a bridge for students to understand the lesson that is delivered by the teachers. At the time of communicating in classroom interaction, there are some codes happen. The codes happen among teacher-students interactions, student-teacher interactions, and student-student interaction. Teacher-students interaction is the basic of education since teacher delivers the knowledge to the students.

A study about code-switching has been conducted by Azwani (2012), her study attempted to investigate code switching in teaching English uttered by teachers and students at Public Senior High School. She found that, commonly, teachers switched English to Indonesian when translation session and giving instruction. The students switched English to Indonesia when clarifying the content of the lesson and giving feedback.

Mastura, Azlan and Narasuman (2013) investigated how code-switching functions as a communicative tool in English as a second language teacher education class in a tertiary institution in Malaysia. Their findings revealed that three types of code-switching known as tag switching, inter-sentential switching, and intra-sentential switching were predominant in classroom communication between students and the instructor. The study also found that English was the dominant language of communication while code switching was used to convey ideas in specific situations and to enhance solidarity in the first language.

SD Pelita Kasih Tanjung Morawa is a private school which uses foreign language in classroom interaction. This primary school use two curriculums, government curriculum and overseas curriculum. The government curriculum use Bahasa Indonesia. In the classroom interaction, both teachers and students speak Bahasa Indonesia. In delivering the subjects, the teachers prefer speaking Bahasa Indonesia to English.

Meanwhile, the overseas curriculum use English in delivering the subjects. Teachers speak English in teaching learning process in the classroom interaction. However, the fact does not always occur like that. The teachers assume that their students could not fully understand them if they only use English. It can be understood since grade one is in the process of learning the language which is not widely used in the community. It might be possible for teacher and students to use code-switching in classroom interaction while they study Mathematics and Science. It can be seen in the examples observed in grade one classroom interaction of SD Pelita Kasih Tanjung Morawa.

S: *"Miss nomor dua apa Miss? Yang twenty, ajarin la Miss nanti."*

T: *"You write down the question, kamu tulis dulu soalnya. Coba,*

number five, what is the answer for number five? Who knows for number five? Yes, the answer...”

S: “Ten ringgit.”

T: “Ya Aurel, ten ringgit, only ten ringgit?”

S: “Ten ringgit and zero?”

Based on the context, it can be seen that teacher switched English to Bahasa Indonesia language to emphasize the instructions for the students. Teacher uttered the instructions in English and Bahasa Indonesia. However, teacher should use English only in delivered the message. It can be seen from the clause **kamu tulis dulu soalnya**. Based on the data, it can be seen that Bahasa Indonesia was inserted in the clause boundary where each clause is in different language.

T: “What is number four? Apa itu nak gambarnya? Blackcurrant.. what picture is that? Gambar apa itu?”

S: “Blackcurrent miss..”

S: “Purple...”

T: “Saya paling ga suka saya nerangkan disitu kamu main-main. Perhatikan bukumu. Andre! **Saya bilang what picture is that... Purple jawabanmu.**”

In this case, the utterance **saya bilang and jawabanmu** can be categorized as intrasentential code switching for the reason that the teacher switched different types of language within the clause boundary.

T: “What is nice smell?”

S: “Bau wangi..”

T: “Bau yang wangi.. Example of nice smells. Contoh dari benda-benda yang berbau wangi, cake kue, rose bunga mawar, soap sabun, shampoo sampo, parfume minyak wangi, coffee kopi, powder bedak. **Everytime you smell coffee, it smells nice kan?** Tiap kali kamu cium kopi, harum kan?”

The data above could be classified as tag switching. The teacher inserted a tag in Bahasa Indonesia into an utterance which is otherwise entirely in English. It is one of Bahasa Indonesia tag switching as it can be seen that the sentence **Everytime you smell coffee, it smells nice** was English at the same time she uttered **kan** where it was a tag question in Bahasa Indonesia.

Based on the phenomenon given, it can be seen that teachers must speak English in delivering the subjects. However, the fact does not always occur like that. It might be possible for teacher and students to use code-switching in classroom interaction while they study Mathematics and Science. Therefore, this study aims to analyze the types of code-switching.

## LITERATURE REVIEW

### *Bilingualism and Multilingualism*

Most people as speakers usually occupy more than one code and require a selected code whenever they choose to speak with other people. The phenomenon of people having more than one code (language) is called bilingualism or multilingualism (Wardough, 1986:101).

To clarify the term bilingualism or multilingualism, Spolsky (1998:45) defines a bilingual as “a person who has some functional ability in the second language”. This may vary from a limited ability in one or more domains, to very strong command of both languages. According to Bloomfield (1935), bilingualism is a situation where a speaker can use two languages as well.

### *Code-Switching*

Code-switching is generally defined as the shifting that occurs “between two or more languages simultaneously or interchangeably within one conversation” (Grosjean, 1982). Sert (2005) states that there are two opposing sides on the issue of code-switching in language classroom settings. On one side, there are the teachers who prefer to adhere to the formal rules of second language learning which compels students to speak only in the target language and practice communicative techniques in order to master the language well.

This opinion is supported by Taha (2008) who found that some teachers and students involved in the study of code-switching in an Arabic university believed that “alternation between English and Arabic in the classroom” should be discouraged and that all the members of the classroom were obligated to use the medium of instruction designated for the study. However, language instructors who support bilingual instruction in the form of code-switching believe it to be extremely useful to students in many different aspects, especially in the teaching of beginner students (Sert, 2005).

Code-switching can be defined as the use of more than one language, variety, or style by a speaker within an utterance or discourse, or between different interlocutors or situations (Romaine, 1992:110). Code-switching is a changing from one language or dialect to another language or dialect in a conversation.

### *Types of Code Switching*

According to Poplack (1980) there are three types of code-switching, they are: intersentential, intrasentential and tag-switching.

Intersentential code-switching involves a switch at a clause or sentence boundary, where each clause or sentence is in one language or another. For example: *If you are late again tomorrow, melapor dulu ke kantor.*

Intrasentential code-switching involves switching of different types of language. Different types of switch occur within the clause or sentence boundary. For example: *You are sleepy pagi-pagi, sit nicely lalu lihat booknya.*

Tag-switching involves the insertion of a tag in one language into an utterance which is otherwise entirely in the other language. The following is the example of Indonesian-English tag code-switching: You know.....*Itu tidak begitu menarik.*

## RESEARCH QUESTION

What types of code-switching are used by Mathematics and Science teacher in grade one classroom interaction at SD Pelita Kasih Tanjung Morawa?

## METHODOLOGY

This research conducted by using qualitative descriptive design. The aim of qualitative research is to truthfully present findings to others who are interested in what you are doing. Qualitative research has five features namely having natural setting, researcher as the key instrument, using descriptive words, concerning with the process rather than simply the product, analyzing data inductively and having meaning as the essential concern.

The type of this study was the observational case study because the major data had been gathered by applying participant observation. The source of data of this study were two teachers, they were one Mathematics teacher and one Science teacher in grade one. The Mathematics and the Science teacher were subject teacher in grade one. The teachers were native speakers of Bahasa Indonesia who graduated from different universities in North Sumatera. Techniques of data collection in this study applied documentary technique suggested by Bogdan and Biklen (1992) in which only the data that support the research question was taken. In this study, the data were all the texts contain code-switching in the teachers' utterances. Since the subject of this study was in written words so the process of collecting and analyzing the data had been done by the researcher, so it could be said that the researcher was the key instrument of this study. The other instrument to collect the data was the recorder.

To fulfill the trustworthiness of the study, the research conducted two of them namely credibility and conformability. To make this research credible, the researcher used triangulation technique. The triangulation technique in this research employed data triangulation and theoretical triangulation. In data triangulation, the teaching learning process in the classroom had been observed in different times to see the robustness of the data. To make this research conformable, as audit trial had been made which consist of raw data, reduce data, and reconstruct data. In addition, some codes and appendices had also been made so the readers can easily understand the data. In this research, the transcription of the teacher's code-switching in the classroom had been served to the readers. The process of analyzing are followed the steps below:

Data condensation is a process of selecting, focusing, simplifying, abstracting, and transforming the raw data. The processes are:

- Selecting the best data selection based on the reasons of code-switching used by Mathematics and Science teacher at SD Pelita Kasih Tanjung Morawa.
- Focusing in the particular attention to the suitable data.
- Simplifying to make the data easy to understand based on types of code-switching used by Mathematics and Science teacher at SD Pelita Kasih Tanjung Morawa.
- Abstracting the data which is based on the existing theories about the types of code-switching.
- Transforming the data that really relate to the study or based on the types of code-switching used by Mathematics and Science teacher.

Data display defines as an organized assembly of information that permits conclusion drawing and action taking. In this study, table was used to distinguish the dominant types of code-switching used by Mathematics and Science teacher at SD Pelita Kasih Tanjung Morawa.

The stream of analysis activity is drawing conclusion and verification. Verification may be crossing the analysis mind during writing or it may be through going and elaborate, or with extensive efforts to replicate the finding in another data set. In this study, the result of the problem had found so the objective of the study to elaborate code-switching used by Mathematics and Science teacher at SD Pelita Kasih Tanjung Morawa.

## RESULT AND DISCUSSION

### *Result*

There were three types of code switching expressed by the teachers when talking to their students, namely 1) intersentential code switching, 2) intrasentential code switching, and 3) tag switching. It can be seen in the following table:

Table 1: Types of Code Switching

No.	Types of Code Switching	Subjects			
		Maths		Science	
		F	%	F	%
1.	Intersentential code switching	70	54.69	52	52.53
2.	Intrasentential code switching	54	42.19	46	46.46
3.	Tag switching	4	3.12	1	1.01
Total		128	100.00	99	100.00

Based on the table 1, it described the total codes used by Mathematics teacher consist of 128 code switching. It described the expressions of Mathematics teacher consist of 70 codes of intersentential code switching, 54 codes of intrasentential code switching and 4 codes of tag switching.

Then, the total codes used by Science teacher consist of 99 code switching. The expressions of Science teacher consist of 52 codes of intersentential code switching, 46 codes of intrasentential code switching and 1 code of tag switching. Therefore, the most dominant type of code switching was intersentential code switching.

Intersentential code switching was dominantly used by Mathematics and Science teacher in the classroom interaction. The teachers switched at a clause or sentence boundary where each clause or sentence is in one language or another. It happened since they wanted to make everything really clear for the students and they could understand well without any confusion. Probably, the teacher felt that the sentence in English she used was not familiar for the students so she needed to repeat the whole sentence in Bahasa Indonesia in order to help the students understood what she said and could follow the lesson well.

### ***Discussion***

This study found that there was a phenomenon occurred when the teacher switched her language while it was an obligation for them to speak English completely. Poplack's theory (1980) states there are three types of code switching namely: 1) intersentential code switching, 2) intrasentential code switching, and 3) tag switching. This study found that the teachers applied three of them while speaking with their students. It was similar with Kustati (2014) who investigated types of code mixing and code switching made by teachers and students in EFL cross cultural communication class and to identify reasons for the emergence of code switching and mixing in classroom. His finding shows that tag-switching, intra-sentential, inter-sentential, and intra-word were commonly used by EFL teachers and students in classroom.

In this study, the most type used by the teacher in the classroom interaction was intersentential code switching. This is contradictory with the result of the study done by Azwani (2012) who analyzed code switching in teaching English to grade eleven students of senior high school in Tebing Tinggi. She found that intrasentential code switching was frequently used by the teacher in the classroom interaction. She argued that the switching uttered by the teacher was from Bahasa as the translation of the previous clause which is uttered in English. Moreover, she stated that mostly the learning material were English grammar.

Different with the occurrence at SD Pelita Kasih Tanjung Morawa where the students are still elementary students, intersentential code switching was mainly used by the teachers. They tended to switch their language within the clause or sentence boundary. It happened since they wanted to make everything really clear for the students and they could understand well without any confusion. Probably, the teacher felt that the sentence in English she used was not familiar for the students so she needed to repeat the whole sentence in Bahasa Indonesia in order to help the students understood what she said and could follow the lesson well.

## CONCLUSION

This study focused on code switching used by the teachers to the students in classroom interaction. It was aimed to find out the types of code switching used by the Mathematics and Science teacher. After analyzing the data, there are three types of code switching used by Mathematics and Science teacher in classroom interaction. They are 1) intersentential code switching, 2) intrasentential code switching, and 3) tag switching. Intersentential code switching was the most dominant type used by Mathematics and Science teacher, followed by intrasentential code switching then the least was tag switching.

The limitation of the study were focused on the types of code switching used by Mathematics teacher and Science teacher in grade one classroom interaction at SD Pelita Kasih Tanjung Morawa. This study addresses to compare or to make distinction the use of code switching between Mathematics teacher and Science teacher in grade one at SD Pelita Kasih Tanjung Morawa.

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