Researching code-switching in teacher classroom discourse: Questioning the sufficiency of informant reports

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Abstract

This study examined the functions of code-switching in teacher classroom discourse using informant reports and direct observations to find out whether teachers were aware of their use and purposes of code-switching. The participants of the study were 18 teachers teaching Forms 1 and 2 in three Malaysian secondary schools. Non-participant observations were carried out and the lessons were audiotaped. Semi-structured interviews were subsequently conducted to obtain the teachers' reports of their code-switching practices and reasons for code-switching. Analysis of the interview transcripts showed that code-switching was mainly for the purposes of addressing students' problems in understanding terms and instructions, either to avert or solve comprehension problems. Analysis of the teacher classroom discourse using Gumperz's (1982) semantic model of code-switching functions showed that explanations of unfamiliar terms involved quotations and proper nouns. For ensuring clarity when giving instructions, the teachers code-switched for reiteration and message qualification, and performed situational code-switching. These code-switching functions account for 84.15% of the 246 instances of code-switching identified in the ten hours of teacher classroom discourse. The mismatches from the triangulation of the informant reports and teacher classroom discourse provide empirical support for the notion that code-switching is largely a sub-conscious process. The findings point to the insufficiency of informant reports in researching how code-switching is used to facilitate students' learning.

Keywords: code-switching, teacher discourse, informant reports, direct observation

Introduction

Code-switching has attracted considerable research attention over the years. Code-switching refers to the use of more than one code or language in the course of a single speech event (Gumperz, 1982). In the educational setting, code-switching has been found to be useful for informational and interpersonal purposes of communication. Studies have shown that code-switching is used to bridge gaps in comprehension arising from the students' lack of proficiency in language classes (e.g. Greggio & Gil, 2007; Mahadhir & Then, 2007; Martin, 2005; Seidlitz, 2003; Ustunel, 2004) and science classes (e.g. Then & Ting, 2009). In the Malaysian context, studies also showed that science and mathematics teachers code-switched to Bahasa Malaysia and even sought the help of the English teachers when they encountered difficulties in explaining concepts in English (Pandian & Ramiah, 2003; Tan & Chan, 2003; Yahaya et al., 2009). Of the two languages, Bahasa Malaysia is the more familiar language because it is the medium of education in Malaysia. Switching to a language familiar to both the teachers and stu-

dents ensures that the transmission of information and accuracy in the construction of meaning is not compromised.

Besides facilitating teaching of the subject matter, code-switching has also been used for interpersonal purposes of communication in the classroom. Code-switching is used conveying humour, praise, encouragement and chastising in a German as a foreign language class in Texas (Seidlitz, 2003). Based on Gumperz's (1982) semantic model, the code-switching functions are identified as personalisation versus objectivisation. In the study, the teachers also switched to English in response to topic changes and for reiteration, message qualification and interjections. From Othman and Saat's (2009) survey on pre-service science teachers in Malaysia, it was also found that teachers code-switched to gain their students' attention in class. Code-switching is also used to address personal statements to specific students (Then & Ting, 2009). Although these uses of code-switching do not directly contribute to a better explanation of the subject matter, they deal with the interpersonal aspects of the teacher-student relationship to produce a more conducive environment for the teaching and learning activities.
These studies have shed light on various aspects of how teachers use code-switching to facilitate negotiation of meaning in the classroom. Some of the studies employed questionnaires to elicit teacher self-reports of their code-switching practices (e.g. Pandian & Ramiah, 2003; Othman & Saat, 2009; Tan & Chan, 2003; Yahaya et al., 2009). The underlying assumption is that code-switching is a conscious action. "The teachers' use of code switching is not always performed consciously; which means that the teacher is not always aware of the functions and outcomes of the code switching process" (Sert, 2005, p. 2). The notion of code-switching being regarded as an automatic and unconscious behaviour emerged following the study of Blom and Gumperz (1986). In the study, interactions from informal gatherings of two groups of participants in Norway were audio-taped. The participants viewed their code-switching in the recording negatively and promised not to code-switch in the next session, but they could not totally prevent their code-switching. Based on the findings, Blom and Gumperz suggest that code-switching happens "below the level of consciousness and may be independent of the speakers' overt intentions" (p. 430). In view of this, informant reports on code-switching practices need to be triangulated with authentic data of interactions to find out if there is a correlation. To our knowledge, studies using naturally occurring classroom interactions (e.g. Greggio & Gil, 2007; Martin, 2005; Seidlitz, 2003; Ustunuel, 2004) do not incorporate teacher self-reports of their code-switching behaviour. If a relationship exists between the two data sources, informant reports can be used as an indicative source when observations of interactions are not possible.

This study examined the functions of code-switching in teacher classroom discourse using informant reports and direct observations to find out whether teachers were aware of their use and purposes of code-switching.

Theoretical framework

In interactional sociolinguistics, a model of code-switching which has gained prominence is that proposed by Gumperz in 1982. This model was later referred to as the semantic model of conversational code-switching by Auer (1984). In Gumperz's framework, code-switching is conceptualised as situational and metaphorical in its functions. Situational code-switching accommodates a change in setting, topic or participants (Blom & Gumperz, 1986) and serves to redefine the situation. For instance, Blom and Gumperz gave the example of teachers giving formal lectures in Brokmal but shifts to Ranamal when they want to encourage open and free discussion among students to illustrate how the teacher's change in language can facilitate a shift in activity.

In contrast, metaphorical code-switching in Gumperz's semantic model of conversational code-switching happens without any change in the social situation. Instead, metaphorical code-switching enables speakers to evoke certain mood or to change their footing or relative status with other speakers. For instance, Blom and Gumperz explained that residents carried out business transaction with the clerk in the standard language but engaged the same clerk on family affairs in dialect because it alludes to a personal and local relationship in the context of the business relationship. Gumperz outlined six metaphorical functions of code-switching, namely, quotation, addressee specification, interjections, reiterations, message qualification and personalisation versus objectivisation (See Appendix A).

According to Onyango (2009), the strength of Gumperz's semantic model lies in its ability to provide tools to account for why a speaker switches language in a particular context and explains how speakers exploit linguistic choices to convey intentional meaning. In this sense, language is a function of dy-

namic interactions and the semantic model is able to encompass "the multiple relations between linguistic means and social meaning" (Onyango, 2009, p. 153).

Method

To examine the use of code-switching in the classroom context, two sources of data were co-triangulated. The classroom data for the analysis of code-switching functions were obtained from observations and audio-recordings of teacher classroom discourse whereas the teachers' reports of their code-switching practices were elicited through semi-structured interviews.

This study involved eighteen teachers teaching Form One and Form Two in three Malaysian secondary schools in Kuching, Sarawak: nine English teachers and nine science teachers. The teachers held tertiary teaching qualifications and permanent positions in the schol. All teachers could speak English and Bahasa Malaysia but only the nine teachers of Chinese descent could speak Mandarin Chinese. In terms of student and staff ethnic composition, Schools A and B had a larger proportion of Chinese compared to Malay and Indigenous (e.g. Iban, Bidayuh) but School C was predominantly Malay. Their ethnic background determined whether Malay or Mandarin Chinese was largely used for informal interactions.

For the data collection, permission was sought from the ministry of education, the state education department, and the school principals to perform field work in the schools. All the teachers teaching English and science in Forms One and Two in the three schools were requested to participate in the study. Out of the 35 teachers approached, 18 agreed to be observed and interviewed.

Each teacher was observed two times, with each lesson lasting 30-40 minutes. The lessons were audio-taped for the analysis of code-switching functions. During the observations, field notes were taken to assist in the identification of the teacher's code-switching behaviour. For example, facial expressions and body language could indicate the teachers' emotional state that influence their use of language (e.g. the placement of the palm on the forehead could indicate frustration). Likewise, notes were taken of teachers pointing to a student or a group of students as these gestures indicated the specific addressee(s) of the message.

Semi-structured interviews with the teachers were carried out after the second observation. The interviews were audio-taped with their permission. The interviews were aimed at eliciting the teachers' reports of their code-switching practices and reasons for code-switching (See Appendix B). They were not asked to give retrospective accounts of why they code-switched at various instances during the lessons observed because this would provide a context for the situated interpretation of code-switching functions which they may not have been aware of at that point in time.

Both the teacher classroom discourse data and interview protocols were transcribed for analysis. In the transcripts, the use of languages other than English was indicated in italics while the English translation was provided in brackets ( ). Pauses were indicated with epsilon (…) and additional information were placed in square brackets [ ]. The grammaticality of the transcript was not edited to retain the authenticity of the data.

For the analysis of code-switching functions in the teachers' classroom discourse, Gumperz's (1982) semantic model was used as a guide (see Appendix A). For example, a reiteration involving a switch from English to Malay and then back to English again is treated as two instances of reiteration (e.g. Get up. *Berdiri*. Get up). However, the word "okay" was not considered code-switching due to the popular use of the word in other languages besides English and including it would over-represent the extent of code-switching (see Then & Ting, 2009).

For the analysis of the teachers' reports of their code-switching practices, the interview transcripts were read for recurring themes and sub-themes. For example, the usefulness of code-switching in helping students to understand instructions emerged in the English Teacher 2's interviews in various ways:

I think with the vocabulary comes instruction. Yeah so if I were to give <u>instructions</u> totally in English there's <u>bound to be questions</u>. (Turn 2)

So as to facilitate the lesson … to enable students to understand and carry out my <u>instructions</u>. And it provides for a better flow. Yeah. Especially <u>if they ask the question first</u>. Definitely. (Turn 8)

I don't think I code-switch so much than the students require it. You know <u>if they look blank or they ask me to repeat my instruction</u> and they use Bahasa Malaysia then it is totally ah necessary for me to code-switch a little bit. (Turn 12)

Then I would repeat my <u>instructions</u> and maybe I will rephrase it in a way that <u>they will understand</u> like using simpler language. Ah sometimes you have to know that the students have totally not a single clue of what I say you know then I have to reluctantly code-switch. (Turn 16)

The data from the classroom observation and teacher interviews were triangulated to examine whether the teachers were conscious of their code-switching practices.

Results and Discussion

This section presents results on the teacher's self-reports of code-switching in class and the audio-taped teacher classroom discourse. The English teachers are referred to as E1 to E9 and the science teachers are referred to as S1 to S9.

1. Informant reports of code-switching in classroom teaching

From the interviews conducted, it is evident that all the 18 teachers under study resorted to code-switching when students could not understand their explanation and they constructed the different facets of the students' comprehension problems as being linked to words, instructions and concepts.

Table 1
English and Science teachers' code-switching to address different facets of student comprehension

Code-switching	Comprehension Problem	Frequency	Teacher
To solve comprehension problems	General incomprehension	18	All
	Terms	10	E4, E6, E7, E8, E9, S2, S5, S6, S8, S9
	Instructions	7	E2, E5, E6, E8, S5, S7, S8
	Concepts	2	S2, S7
To prevent comprehension problems	Terms	5	E2, E4, E7, S4, S8,
	Instructions	2	S2, S6

Based on the teachers' reports, difficulty with unfamiliar terms was the most commonly cited comprehension problem. The results showed that 10 teachers code-switched to solve comprehension problems and five reported code-switching to avert breakdown in comprehension (Table 1). At times, the code-switching was triggered by students' request to explain scientific terms in Bahasa Malaysia. In the English classes, it was the unfamiliar vocabulary that caused gaps in their comprehension.

Besides code-switching to explain terminology, nine out of 18 teachers in this study also reported using Bahasa Malaysia to give instructions. The two science teachers who code-switched while explaining laboratory procedures pointed out the usefulness of using Bahasa Malaysia to reinforce the message as illustrated in Excerpt (1) from the interview with Science Teacher 2:

> For reinforce[ment] So that they really understand what is being said in English. For example when you want to do experiment, this is not, ah, doing the elaborate lesson, the experiment, you want to reinforce the step of the experiment, then you can also speak in Bahasa [Malaysia]. (S2)

By ensuring that students understand the instructions, the teachers could move them into action. In English lessons, the instructions took the form of instructions for individual or group work. For instance, "Copy this down. *Salin ini*" [Copy this].

The final facet of code-switching for student comprehension that emerged from the interview data was the explanation of concepts but this was not as frequently mentioned as code-switching to deal with students' inability to understand terms and instructions, either to prevent or solve comprehension problems (see Then & Ting, 2010 for further details).

2. Observations of code-switching functions in teacher classroom discourse

The analysis of the 10 hours of teacher classroom discourse reveals that 11 out of 18 teachers code-switched 246 times during the two lessons observed (Table 2). For the purpose of triangulating the informant reports and observation of teacher discourse, the transcripts of the teacher classroom discourse were examined to identify the code-switching functions associated with addressing students' problems in comprehending terms and instructions. The teacher's use of code-switching for comprehension of terms was found to co-occur with quotation and proper noun, and code-switching to ensure comprehension of instructions was enacted through reiteration, message qualification, and situational code-switching.

Table 2
Frequency of code-switching functions

Functions of code-switching	E1	E2	E3	E4	E5	S1	S2	S3	S4	S5	S6	Total	Percentage (%)
Reiteration	18	2	4	1	32	11	0	2	3	5	3	81	32.93
Quotation	11	4	13	1	6	9	0	21	0	6	4	75	30.49
Proper noun	7	0	4	1	4	2	0	2	0	9	2	31	12.60
Interjections	2	0	2	0	5	2	1	0	2	0	1	15	6.10
Addressee specification	1	0	0	0	12	0	1	0	0	0	0	14	5.69
Message quali-fication	5	0	1	0	2	1	0	0	1	1	0	11	4.47
Situational code-switching	1	0	0	1	2	0	1	0	4	0	0	9	3.66
Objectivisation	3	0	1	1	1	0	0	0	0	0	0	6	2.44
Personalisation	1	0	1	1	1	0	0	0	0	0	0	4	1.63
Total	50	6	26	6	65	25	3	25	10	21	10	246	100.01*

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

When teachers addressed students' comprehension problems caused by unfamiliar terms, the teachers tended to quote the difficult terms either as direct quotations or in the form of reported speech before offering a gloss or an explanation in another language (30.49%). Another form of quotation which is separately categorised in this study is proper nouns and it is not part of the Gumperz's (1982) semantic model on functions of code-switching. This category of proper nouns include terms in the teaching materials (e.g. third person pronoun) and in daily life (e.g. *Teh C Peng* for iced tea with milk) and accounts for 12.60% of the total instances of code-switching in the data set. Code-switching for quotations and proper nouns account for 106 or 43.09% of the total number of code-switching instances identified.

To address students' problems in understanding instructions, the teachers tended to use code-switching for reiteration and message qualification as well as perform situational code-switching. Reiteration involves the repetition of a message from one code to another code either literally or in somewhat modified form (Gumperz, 1982). The reiteration of instructions in another language is sometimes followed by a message qualification to elaborate on the instructions. Besides giving instructions for carrying out classroom activities, the teachers were found to code-switch in the midst of explaining the subject matter in order to draw student's attention or manage interruptions to the lesson. This consti-

tutes situational code-switching. The cumulative frequency for these three functions of code-switching is 101 or 41.06%.

In this study, code-switching was seldom used for interjections (e.g. sentence fillers such as "repeat *saja* [only]") and addressee specification or for achieving personalisation and objectivisation in the form of personal comments in the midst of objective teacher talk and distancing in the teacher-student relationship respectively. The main purposes of code-switching were for explaining unfamiliar terms involving quotations and proper nouns, and for ensuring clarity when giving instructions through reiteration, message qualification and situational code-switching.

3. Triangulating informant reports on code-switching with teacher classroom discourse data

The results reported in the two previous sections link the teachers' purposes of code-switching as reported in the interviews with the relevant functions of code-switching as identified in the teacher classroom discourse. In this section, the triangulation of informant reports on code-switching and actual use of code-switching in the classroom is conducted for individual teachers.

In the figures, the x-axis is for the non-use or use of code-switching for addressing students' comprehension problems associated with either terms (Figure 1) or instructions (Figure 2), represented by "0" and "1" respectively in the first digit within the brackets. The categorical data were extracted from the informant reports – whether or not they mentioned code-switching for these purposes. The teachers were not specifically asked how often they code-switched for the two purposes of code-switching because these themes emerged from the analysis of the interview transcripts. The y-axis is for the frequency of code-switching instances associated with these two purposes of code-switching, represented by the second digit within the brackets. Given these, Quadrants 2 and 3 show the teachers whose reports of code-switching purposes in the interviews are consistent with their actual use of related code-switching functions in the classroom. Quadrants 1 and 4 show mismatches in these two sources of data.
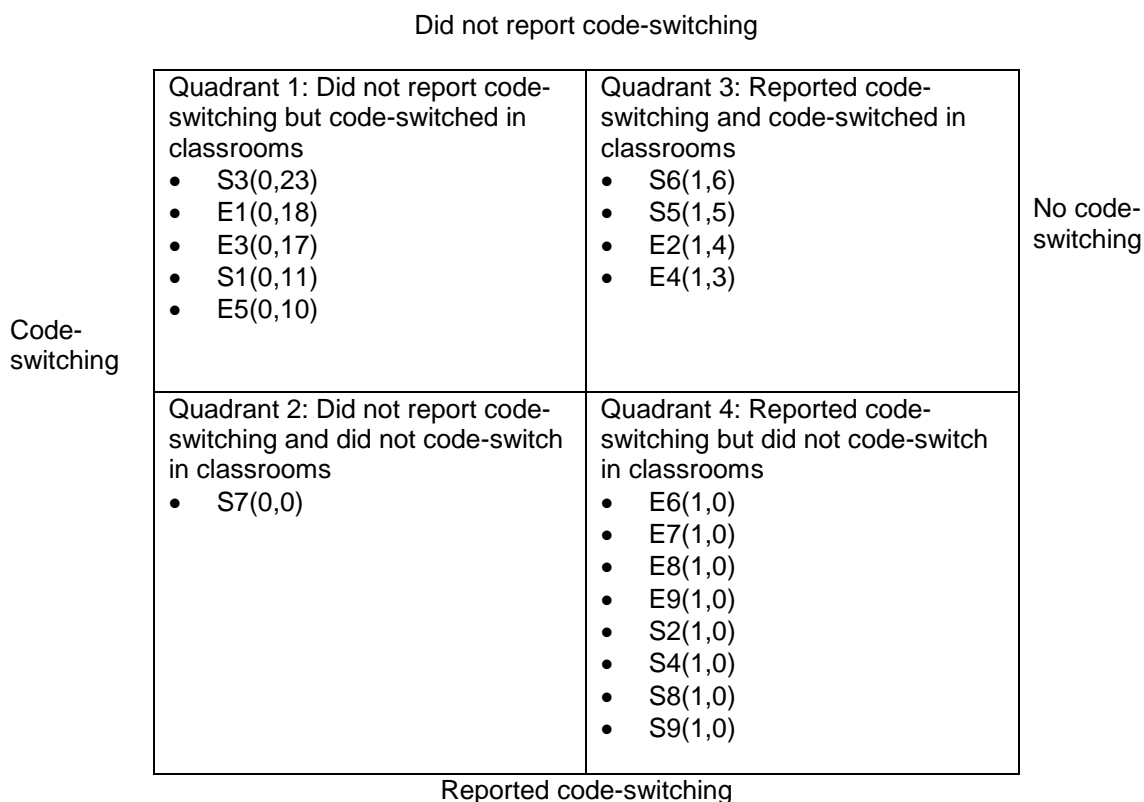
Did not report code-switching

Quadrant 1: Did not report code-switching but code-switched in classrooms	Quadrant 3: Reported code-switching and code-switched in classrooms	
• S3(0,23) • E1(0,18) • E3(0,17) • S1(0,11) • E5(0,10)	• S6(1,6) • S5(1,5) • E2(1,4) • E4(1,3)	No code-switching
Code-switching	Quadrant 2: Did not report code-switching and did not code-switch in classrooms • S7(0,0)	Quadrant 4: Reported code-switching but did not code-switch in classrooms • E6(1,0) • E7(1,0) • E8(1,0) • E9(1,0) • S2(1,0) • S4(1,0) • S8(1,0) • S9(1,0)

Reported code-switching

Figure 1. Teacher code-switching for addressing students' comprehension of terms

The results showed a mismatch in the informant reports and classroom data on the use of code-switching to address students' comprehension of terms. From Figure 1, it is clear that the number of teacher reports in interviews that do not match their code-switching practices in classrooms (13 teachers in Quadrants 1 and 4) is greater than the number of teacher reports in interviews that match their code-switching practices in classrooms (5 teachers in Quadrants 2 and 3). The Spearman correlation test results show that informant reports on the use and non-use of code-switching to help students understand terms are negatively correlated with the frequency of related code-switching functions in the teacher classroom discourse ($r = -0.76667$, $p < .05$). This means that teachers who reported code-switching to help their students understand difficult terms were not doing it in the actual classroom situation and vice versa.

<div align="center">Did not report code-switching</div>

	Did not report code-switching		
Code-switching	Quadrant 1: Did not report code-switching but code-switched in classroom • E1(0,24) • S1(0,12) • S4(0,8) • E3(0,5) • E4(0,2) • S3(0,2)	Quadrant 3: Reported code-switching and code-switched in classroom • E5(1,26) • S5(1,6) • S6(1,3) • E2(1,2) • S2(1,1)	**No code-switching**
	Quadrant 2: Did not report code-switching and no code-switching in classroom • E7(0,0) • E9(0,0) • S9(0,0)	Quadrant 4: Reported code-switching but no code-switching in classroom • E6(0,0) • E8(0,0) • S7(0,0) • S8(0,0)	

<div align="center">Reported code-switching</div>

Figure 2. Teacher code-switching for addressing student incomprehension of instructions in interview and classroom data

In contrast, for code-switching related to addressing students' comprehension of instructions, there is no significant relationship between the informant reports and teacher classroom discourse data ($r = 0.20344$, $p > .05$). From Figure 2, the number of teachers whose reports in their interviews do not match their code-switching practices in classrooms (10 teachers in Quadrants 1 and 4) is similar to the number of teachers whose reports in interviews match their code-switching practices in classrooms (8 teachers in Quadrants 2 and 3).

From the mismatch in the two sources of data on teacher code-switching in the classroom, it is indicative that the teachers are often unaware of how they use code-switching in their classrooms to assist students' comprehension. The results are admittedly suggestive and preliminary, considering the small number of teachers involved, but they provide empirical evidence in support of the notion of code-switching happening without the teachers being conscious of it (Blom & Gumperz, 1986; see also Sert, 2005). As explained by Grosjean (1994), "usually bilinguals go through their daily interactions with other bilinguals quite unaware of the many psychological and sociolinguistic factors that interact to help choose one language over another" and a bilingual rarely asks the conscious question, "Which language should I be using with this person?" (p. 4).

Conclusion

The study indicates that in most cases, speakers are not aware of when they code-switch or the reason and outcome of their code-switching behaviour. The conclusion was reached through a triangulation of informant reports on code-switching practices and direct observations of code-switching in the audio-taped teacher classroom discourse. The English and science teachers in this study frequently referred to their practice of code-switching to help their students understand unfamiliar terms and in-

structions during the interviews and this was supported by the cumulative frequency of the whole group data on related code-switching functions in their classroom discourse. However, when the informant reports were triangulated with classroom data on an individual basis, there were more mismatches than matches. The findings provide empirical support for the notion that code-switching is not always performed consciously (Sert, 2005) and hence the insufficiency of informant reports in studying the use of code-switching in daily interactions. Nevertheless, as the findings are preliminary, further research on code-switching using a triangulation of data sources is needed. In the pedagogical context, the findings suggest that there may not be much need to formulate policies on strict adherence to the language of instruction in the classroom since most code-switching occurs below the level of consciousness. Teachers would continue to code-switch irrespective of whether the education policy is for or against of code-switching in classrooms particularly when code-switching is the linguistic norm in the society and when a substantial proportion of students may not be proficient in English.

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Appendix A: Code-switching functions in Gumperz's (1982) semantic model

Function	Description	Example
Quotation	Serves as direct quotations or as reported speech.	She doesn't speak English, so, *dice que la reganan: "Si se les va olvidar el idioma a las criatura"* (she says that they would scold her: "the children are surely going to forget their language")
Addressee specification	Serves to direct the message to one of several addressees.	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] *Kǝn hai bai* (who is it)?
Interjections	Serves to mark an interjection or sentence filler.	A: Well, I'm glad I met you. B: *Andale pues* (O.K. swell). And do come again. Mm?
Reiteration	Serves to repeat a message from one code to another code either literally or in somewhat modified form.	Keep straight. *Sidha jao* [louder] (keep straight)
Message qualification	Serves to qualify constructions such as sentence and verb complements or predicates following a copula.	The oldest one, *la grande la de once anos* (the big one who is eleven years old).
Personalisation *versus* objectivisation	Serves to distinguish between talk about action and talk as action, the degree of speaker involvement in, or distance from, a message, whether a statement reflects personal opinion or knowledge, whether it refers to specific instances or has the authority of generally known fact.	A: *Vigǝlǝ ma yǝ sa americǝ* (Wigele got them from America) B: *Kanada pridǝ* (it comes from Canada). A: kanada mus I sǝgn nit (I would not say Canada).
Situational code-switching	Codeswitching resulting from a change in social setting: topic, setting or participants.	

(Taken from Gumperz, 1982, pp. 75-81)

Appendix B: Interview Guide

1) What do you think of a teacher who code-switches in an English/Science lesson?

   - Do you code-switch in your English/Science lesson? If yes, why? If no, why not?

   - When do you usually code-switch in your lesson? Why? If no, why don't you code-switch and what do you usually do?

2) What makes you decide to code-switch or not in your lesson?

3) Can you tell me some of your experience of code-switching in your English/Science lesson?

4) You've taught several classes. Do you code-switch in any of those classes? Which class?

   - What about the rest of your classes? Is there any class that you do not code-switch?

   - Why do you code-switch in some of your classes but not in other classes?

5) Would you code-switch if Ministry officials were to observe your lesson? Why?