Functions and Frequency of Using Code-switching in CLIL Lesson (Case Study, teaching Math (CLIL) in the private school, Tbilisi)

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ABSTRACT

The aim of the present study is to investigate the sociolinguistic functions and frequency of Teacher's Code Switching (CS) in the content and language integrated (CLIL) Lesson. Furthermore, our purpose is to reveal students' and teacher's attitudes towards teacher's code-switching in CLIL lesson. After a brief review of the literature concerning CLIL and the issue of code-switching the case study of teaching Math (Educational discourse) in one of the private schools in Tbilisi will be outlined as data, gathered by means of anonymous questionnaires, which were administered among students in the above-mentioned Math classes. Moreover, the qualitative research aims to single out the number of teacher's CS examples and analyze the interview with math's teacher. The results show that there are 36 cases of teacher using L1 (Georgian) in 10 lessons (9 hours). Math's teacher's CS behavior mostly serves (1) the conversational function of interjection; (2) the classroom functions of introducing unfamiliar materials and topics, explaining difficult concepts, maintaining classroom discipline and the structure of the lesson; The teacher and 13 students have negative attitudes towards using only Georgian in teaching Math's. The higher level of English the students have the more negative is attitude towards using Georgian in the classroom. Although all the students were Georgian, their competence in English is almost as high as in their mother tongue, therefore they consider English as an inseparable part of their identities.

Keywords: *Attitudes, Bilingualism, Code-Switching, CLIL, Conversational analysis, Interactional Sociolinguistics.*

1. Introduction

Nowadays, Georgian society struggles to become the part of the European world, the English language itself plays a role in forming new generations with European values. So, these days English is gaining the status of second language in Georgia. Due to the demand of current socio-political situation in the country English is becoming a language of instruction in more and more private schools of Tbilisi. Therefore, the use of L1 in CLIL classroom is an issue of great importance for all CLIL teachers in our country since it is a resource that teachers and

students may use to achieve a specific communicative purpose, improve their students' competences in the subject area.

Code-switching is "the systematic alternating use of two languages or language varieties within a single conversation or utterance" (Lightbown, 2001, 598). In the context of CLIL classroom, it can be defined as the alternate use of the students' and teachers' mother tongue and the target language as the interaction tool in the classroom. Skiba asserts that code-switching "provides continuity in speech rather than presenting an interference in language" (Skiba, 1997, 2). He states that code-switching should be viewed as a linguistic advantage rather than an obstacle in communication.

In the given study, code-switching is considered as a resource in CLIL lesson rather than a problem since it helps non-language subject teachers not only to strengthen the rapport with their students but also to impart content knowledge to students. The novelty of the present research is findings in Georgian educational discourse. The number of studies that have examined Georgian teachers' code-switching, from the sociolinguistic perspective, in this type of multilingual programs is almost non-existence. Both, quantitative and qualitative research methods are used to show a better picture of functions and frequency of using CS in CLIL lesson.

This study thus seeks to answer the following Research Questions: 1. What is the students' attitude towards teacher's code switching in Math's (CLIL) classes? 2. What is the teacher's attitude towards teacher's Code switching in Math's (CLIL) classes? 3. What are the sociolinguistic and classroom functions teacher assigns to his CS behavior in Math's classes? 4. What can results show about what values speakers assign to different languages?

Before the response to the above-given questions, some theoretical background of the study will be outlined.

1.1 Theoretical background of the research

The paper uses the concepts of the several scholars (Ferguson, 2009; Coyle, Hood and Marsh, 2010, etc.).

The term code is defined as "a set of conventions for converting one signaling system into another" (Crystal, 2003). In sociolinguistics, the term 'Code' derives from Berstein's controversial work (Berstein, 1971, Berstein, 1973). Code refers to the language and a variety

of language which are transmitted by different groups in social situations (Mey, 1998; Swann, 2004).

Code-switching is defined as alternation of two languages within a single discourse, sentence, or constituent. According to Gumperz, code-switching is "the juxtaposition within the same speech exchange of passages of speech belonging to different grammatical systems or subsystems" (Gumperz, 1982, р. 59). The general definition of codeswitching is "the use of two languages, varieties in the same conversation" (Myers-Scotton, 2006, p. 239).

The code refers to the language (English and Georgian) in the given study. As for code switching, it states alternative uses of both, English and Georgian in the same conversation.

From the sociolinguistic perspective there are several studies concerning the different types of code-switching (Appeal and Musken, 1987; Milroy, 1987; Gardener-Chloros, 1995, 2005; Myers-Scotton, 1983, Myers-Scotton, 2001) to determine how to identify the roles of each language in the community and the motivation of the speakers to switch codes. Based on a sociolinguistic approach, the speakers' incentives of choosing a particular code are determined by several aspects: 'the topic of the conversation, the participants, the setting, and the affective aspect of the message' (Hamers and Blanc, 2000, p. 266). The earliest studies on code-switching were done by Gumperz who distinguishes between the situational and metaphorical code-switching (Gumperz, 1976). Situational code-switching deals with the change in the situation the speakers are exposed to while metaphorical code-switching implicates language choice to attain special communicative effects.

The focus of Gumperz's work is on discourse and function as well as on speakers and settings. He suggests the conversation analyzing factors: a topic of discourse, speakers, their strategies as well as settings.

1.2 Two approaches to code-switching

Code-switching can be studied from several perspectives. There are some of them: the structural, the macro-sociolinguistic, conversation analytic and interactional sociolinguistics approaches. The table given below represents the comparison between interactional sociolinguistic and conversation analytic approaches.

Table 1. Comparison of two approaches (IS and CA)

Interactional Sociolinguistic approach	Conversation analytic approach
Electronic recordings, recorded naturally occurring talk, transcription.	
Interaction, conversation	
Meaning making interpretation process	Structure organization of the conversation
Dialectology/anthropology	Orderliness and structure of interaction
Social and cultural diversity focus Social diversity and cultural meanings	No cultural variation and meanings. Cultural judgments are seen subjective and misguided as accurate.

Interactional sociolinguistics grow out of traditions (dialectology and anthropology). Thus, cultural pragmatic knowledge and ethnographic methods are used to help interpret social interaction (Bailey, 2015).

Conversation analysis, in contrast, generally rejects such ethnographic methods and tries to limit the application of cultural knowledge from contexts outside the interaction. The conversation analysts attempt to collect many instances of a structure of interest and show that the participants in interaction are orienting to that structure in consistent ways.

In the given study we aim to use both approaches in combination.

1.3 Content and Language Integrated learning (CLIL) in Georgia

'Content and Language Integrated Learning (CLIL) is a dual-focused education approach in which an additional language is used for the learning and teaching both content and language.' [Coyle, Hood & Marsh, 2010, p.1]

Based on our research conducted in 2019, out of all 114 private schools in Tbilisi, full-programs of CLIL are taught in 7 schools, while only some subjects using CLIL are conducted in 3 schools. The goal of the former research was to define the features of Content and Language Integrated learning (CLIL) methodology within the process of teaching English on the Example of Georgian private high schools. Since 1990s bilingual education has had a role in Georgia. As for CLIL methodology, it has become popular last 5-6 years in our country. With the help of qualitative research (interview) and quantitative (questionnaire for CLIL teachers) we came to the following conclusions (some of them are provided below):

- Most teachers interviewed have more than 10 years of experience in teaching their subjects as well as conducting CLIL lessons.

- CLIL teachers do not collaborate with the English language teachers.

- CLIL teachers believe that students' age characteristics, interests and competence in the foreign language and subject are considered in their CLIL lessons.

- Teachers reckon that using CLIL methodology increases students' motivation.

- CLIL teachers consider that using CLIL methodology improves the subject knowledge as well as the foreign language competence.

- Most of the teachers surveyed states that the students' motivation is high not only at the lessons but also in terms of doing their homework.

- The CLIL teachers claimed that they use additional materials together with the coursebooks which are 100% in English.

- In contrast to English as a foreign language teaching, the priority of teaching CLIL is the functional and pragmatic usage of the foreign language.

David Graddol in his book 'English Next' wrote about the world now viewing English not so much as a language but as a core skill (Graddol, 2006, p.15). Georgia, as a pro-western country, agrees on the importance of having English as a core skill in the school curriculum.

The school of our case study has both Georgian and English sectors for their students. The subjects, Math, Chemistry, Physics, History, are taught in English. Moreover, the exams of the above-mentioned subjects are passed in English by those students who want to continue studying abroad.

1.4. Functions of Classroom CS (EFL)

Our research is based on two categorizations of Classroom code-switching out of which one is suggested by Ferguson, who explored the role of the code switching across different classroom context, outlined three broad functional categories:

    1. Code switching for curriculum access.

    2. Code switching for classroom discourse management.

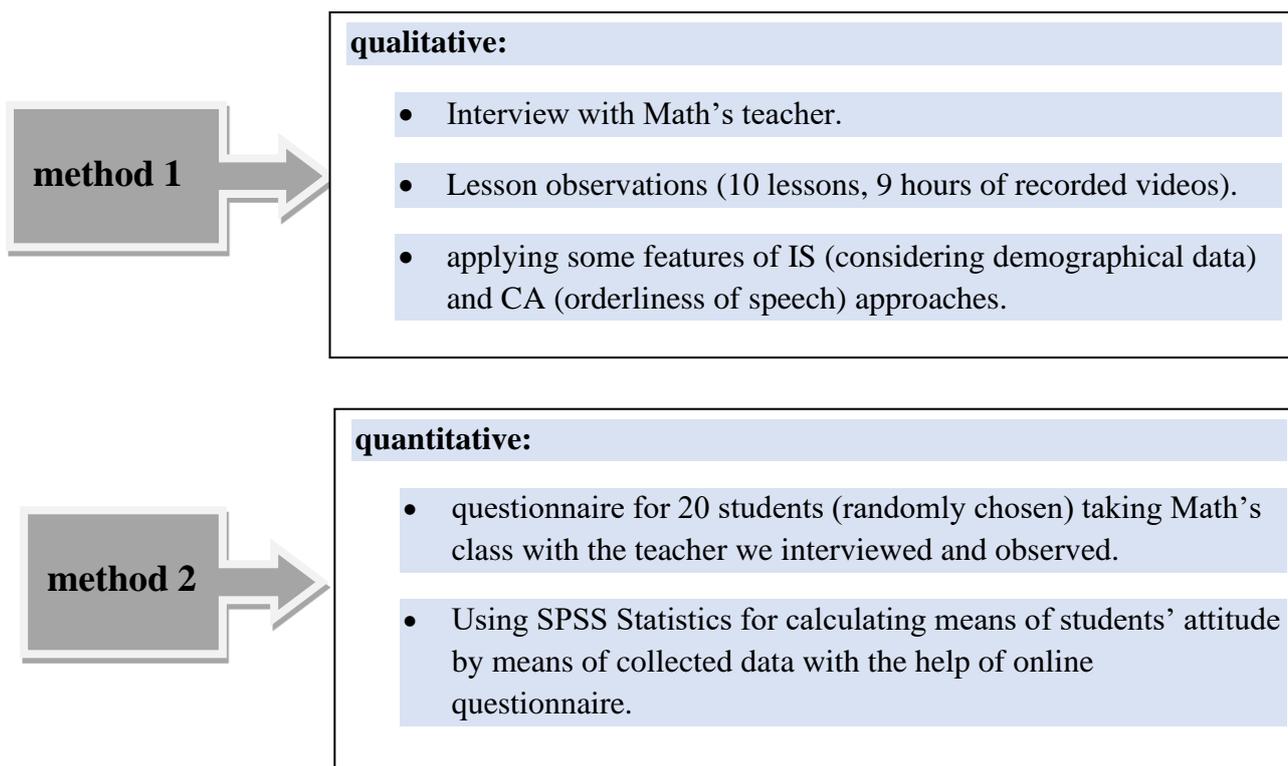   3. Code Switching for Interpersonal relations (Ferguson, 2003).

The other is related to Canagarajah, who introduced micro functions of classroom CS (Canagarajah, 1995) based on the example of teaching English as a second language in Jaffna.

The above-mentioned classifications helped us form the questionnaire for the students taking Math's classes in English.

2. Research data and methodology

To investigate sociolinguistic and classroom functions of teacher's CS behavior the following research methods were implemented. They are shown on the Figure 1 in the right succession.

Figure 1. Research Methodology

method 1

qualitative:

- Interview with Math's teacher.
- Lesson observations (10 lessons, 9 hours of recorded videos).
- applying some features of IS (considering demographical data) and CA (orderliness of speech) approaches.

method 2

quantitative:

- questionnaire for 20 students (randomly chosen) taking Math's class with the teacher we interviewed and observed.
- Using SPSS Statistics for calculating means of students' attitude by means of collected data with the help of online questionnaire.

2.1 Research Participants

The study was carried out among 20 students (randomly chosen) and their math's teacher at one of the private schools (BGS) in Tbilisi.

CLIL Teacher: The educational background of the Math's teacher is the following: The bachelor (the faculty of Mathematics); MA degree (the faculty of Mathematics); PhD (the faculty of Mathematics). His field of studies (Probability Theory and Stochastic processes). As for his age, he is 34. The place of birth is Georgia, Baghdati, the town in the west part of Georgia; The language he uses with his family members is Georgian; Having a good command of English is immensely important for him, since he considers English as an important part of his identity. Although he doesn't posses any

international certificate of English, he doesn't have any difficulties giving Math's lesson using the target language.

Students: To start with their age, 65% of the students were 15-17 years old; 35% were 18-20. The survey showed that 55% of students were female and 45% Male. A place of birth for all the students surveyed is Georgia and their mother tongue is Georgian. The language all the participants use with their family members is Georgian. Talking about the students' proficiency level in English, they consider themselves to have (Starter A0 (1/5%); Intermediate B1 (1/5%); Upper-intermediate B2 (9/45%); Advanced C1 (9/45%). They study English as a foreign language for 0-5 years (3/15%); 6-10 (11/55%); 11-20 (6/30%).

3. Results and Discussions

The teacher was asked to record zoom videos of his lessons (one in a week) during one school semester; The recordings (10 lessons, 9 hours) were observed, and CS examples were detected and analyzed using the IS and CA approaches. The chapters - equations and inequalities, graphs and transformations, straight line graphs, trigonometric ratios were covered during his lessons. He was interviewed. As for the quantitative research the Math's teacher's 20 students (randomly chosen from 11th and 12th grades) were sent the online questionnaires.

3.1 Qualitative Research:

Conducting the quantitative research, the questionnaire is based on the classification –functions of using CS in ESL Classroom (proposed by Ferguson, 2009). Taking the Georgian reality and cultural features into account, the modified version of the questionnaire is used. The present study analyses codeswitched utterances in CLIL classes of BGS High school male teacher in Tbilisi.

Based on the observations on the process of teaching, find some authentic examples from teachers' repertoire. 36 examples of CS behavior were detected in 10 lessons. The average number of CS behavior per lesson (45 min.) is 3-4; Intrasentential (21 cases); Intersentential (15 cases).

Some examples are given below:

Example 1

T: This is not equal to 11.41, yes?!

S: ზუსტად equal უნდა იყოს? (Is it a must to be equal?)

T: ნუ, or at least it must be remarkably close to 11.41.

The example of the teacher's unconscious, situational, intrasentential code-switching is introduced by means of the discourse marker (filler). According to Gumperz, the conversational function of this CS behavour is interjection, to fill the gap in the sentence. Considering the CA analysis (which studies the language choice considering the turn-taking and sequence within the conversation) the teacher is influenced by the student's question which is also an example of intrasentential CS.

Example 2

T: Okay, so, this ზუმი ეხლა მალე გაითიშება, ამიტომ მოდი, გავთიშავ და შემოდით ეგრევე, კარგი?! (Zoom will be over soon, please, come back right away)

The second example illustrates intersentential, metaphorical code switching, the language (Georgian) itself is given the function of giving directions and maintaining the structure of the lesson. Since the teacher conducted the whole lesson in English, his language competence can not be low.

Example 3

T: What do we write under this diagram?

S: Ah, …… (silence)

T: აი, ძალიან სხვაგან ხართ საერთოდ რა, ონლაინ სწავლების საერთოდ აღარ გწამთ. (Ah, you are out of context, you no longer believe in online learning).

S: Frequencies.

T: Cumulative frequencies

T: And from here what is our required number? windspeed, ისა, was greater than, so we need to take subtraction.

The 3rd example illustrates teacher's unconscious, metaphorical, intersentential code-switching. Georgian Language in this case is used to show teacher's frank amotion (anger) and friendly relationship between the teacher and his students.

Example 4

T: If we don't have this assumption then of course our estimate will be very rough and not a proper estimate.

T: ანუ, უყურეთ, ასე, პროპორციით რომ ვპოულობთ, ჩვენ ვგულისხმობთ, რომ მონაცემები მეტ-ნაკლებად არის პროპორციულად და თანაბრად გადანაწილებული. თორე, ეს რომ ეგრე არ იყოს მაშინ, ცხადია, ჩვენი შეფასება ძალიან არაზუსტი იქნება, რა! (pause) გასაგებია?!

S: ვგულისხმობთ და, ანუ, არის კიდევაც ხომ პროპორციული.

T: სხვა გზა არ გვაქვს, წინასწარ არ ვიცით.

T: კარგი, okay, so, now let's do it.

The example of the teacher's conscious, metaphorical, intersentential code-switching is introduced by means of giving explanation. According to Gumperz, the conversational function of this CS behavour is reiteration or repetition, to clarify and emphasize the already-said points. Considering the CA analysis (which studies the language choice considering the turn-taking and sequence within the conversation) student is influenced by the teacher's explanation said in Georgian which is also an example of intersentential CS

3.2 The Quantitative Research

Considering the current world challenge known as Covid-19, the online questionnaire (Google forms) was found to be the most helpful instrument for conducting the quantitative research. Students (who are taking the Math's) were sent questionnaire links. The Questionnaire was based on the Ferguson's classification, functions of CS in English language classes (Ferguson, 2003).

Table 2 Validity of the responses			
	Mean	Std. Deviation	N
1. I want him to use --% English	2.90	1.021	20
2. he uses ---% English	2.90	1.071	20
1. I want him to use %---- Georgian	3.15	1.137	20
2. He uses ---% Georgian	3.45	1.050	20

The study aimed to show the validity of respondents' answers, we asked four questions 2 for preference and 2 for reality of using Georgian and English Languages. As the following intervals (1= 0-20%; 2=21-40%; 3=41-60%; 4=61-80%; 5=81-100%) were given, the mean calculated illustrates that students are more positive than negative towards teacher's English, but they want him to use less Georgian than he generally uses.

The 2nd table illustrates the correlation between students' level of English and their attitude towards usage of Georgian language by their teacher. Standard deviation is a
mathematical tool with the help of which we assess how far the values are spread above and below the mean. A high standard deviation shows that the data is widely spread (less reliable) and a low standard deviation shows that the data are clustered closely around the mean (more reliable). So, our data is reliable.

Table 3. Correlation between students' attitude and level of English

			Starter	B1	B2	C1	Total
			Level of my English				
Students' Attitude towards using Georgian	negative	Count	0	1	5	7	13
		% within Level of my English	0.0%	100.0%	55.6%	77.8%	65.0%
	positive	Count	1	0	4	2	7
		% within Level of my English	100.0%	0.0%	44.4%	22.2%	35.0%
Total		Count	1	1	9	9	20
		% within Level of my English	100.0%	100.0%	100.0%	100.0%	100.0%

The data shows that the higher the students' English level is the more negative their attitude is towards using Georgian in Math's class. Overall, 13 students feel negative towards using Georgian. The 3rd table illustrates students' answers of what functions teacher assign to his code-switching behavior. The students surveyed showed the reality (numbers in bold) and their preference (the rest). The right columns of the table show the frequently used functions by the teacher.

Table 4 Classification of classroom functions used in Math's class.

In the Math Classes, Teacher uses Georgian	Functions *P for Preference **R for Reality	Never		Hardly Ever		Often		Most of the Time		Every Time	
		P	R	P	R	P	R	P	R	P	R
	To review the topic of the previous lesson	3	**2**	8	**10**	8	**6**	1	**1**	0	**1**
	to explain difficult concepts	1	**2**	4	**4**	7	**5**	2	**3**	6	**6**

Curriculum access	To introduce unfamiliar materials and topics	2	**1**	7	**3**	6	**10**	2	**4**	3	**2**
	To check for comprehension	1	**1**	5	**4**	8	**7**	3	**4**	3	**4**
	To provide synchronous translation of his talk	1	**0**	9	**5**	5	**9**	5	**5**	0	**1**
	To provide parallel explanation of the topics and materials given in Georgian and English Math coursebooks	1	**0**	4	**8**	8	**7**	6	**3**	1	**2**
Classroom management	To organize classroom tasks	2	**1**	10	**7**	5	**9**	2	**2**	1	**1**
	To maintain classroom discipline and the structure of the lesson	2	**1**	4	**3**	8	**8**	4	**4**	2	**4**
	To build and strengthen interpersonal relationships between teacher and students	2	**4**	4	**3**	8	**6**	4	**5**	2	**2**
	To reduce students' anxiety in learning	3	**4**	2	**4**	9	**4**	3	**3**	3	**5**

	Math										
Interpersonal relations	To increase students' motivation and confidence in learning Math's	2	4	5	2	8	7	2	3	3	4
	To provide praise about students' performance	2	2	5	6	10	8	2	1	1	3
	To provide personal remarks about students' performance	3	3	4	2	10	8	2	4	1	3
	To provide feedback about students' performance	2	3	4	6	9	5	3	3	2	3
	To encourage students' participation in the classroom	3	4	3	3	9	5	0	2	5	6

So, from the table we can distinguish the positively encouraged functions by the teacher and his students in the Georgian educational context:

Curriculum Access
- to explain difficult concepts
- to introduce unfamiliar materials and topics
- to check for comprehension
- to provide synchronous translation of his talk

Classroom management
- to maintain classroom discipline and the structure of the lesson

Interpersonal relations

- to build and strengthen interpersonal relationships between teacher and students

- to increase students' motivation and confidence in learning Math's

- to provide personal remarks about students' performance

- to encourage students' participation in the classroom

The quantitative study represents the students' (20 students surveyed) attitudes towards their teacher's code switching.

The collected data illustrates that using only Georgian is not positively encouraged neither by teacher nor students. As for students' and teachers' attitudes towards the usage of a combination of Georgian and English is quite positive towards several functions. The interesting fact is that introducing unfamiliar materials/topics in Math (CLIL) lesson is characterized by CS more than explaining the difficult concepts in Math.

4. Conclusions

Nowadays, Georgia struggles to become the part of the European Union. English is becoming a core skill among the modern generations. Moreover, CLIL is the product of the modern world, it requires functional knowledge of the language in the subject. Beside the General English courses taught at all public and private schools, bilingual program (CLIL) is demanded at private schools. As CS appeared to be the most common behavior among bilingual speakers, it became a subject of our survey.

Thus, we came to the several conclusions:

- Math teacher's CS behaviour mostly serves the conversational function of interjection.

- Math teacher's CS behaviour mostly serves the classroom functions of introducing unfamiliar materials and topics, expressing the emotions explaining difficult concepts, showing emotions, maintaining classroom discipline and the structure of the lesson.

- Based on observations of the recorded lessons, 80% of teacher's CLIL lesson is conducted in English.

- Teacher and 13 students have negative attitudes towards using only Georgian in teaching Math.

- 18 students consider English as a part of their identity, as their level of English fluctuates between B2-C2.

- Teacher considers English as a part of his identity as he tries to use the target language while conducting the lesson.

- Based on the result, English is more valued than Georgian in Math (CLIL) Lesson.

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