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Interdisciplinary Language and Culture Studies

Didacticization of Code Switching as a Tool for Bilingual Education in Mali

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ÖZET

Mali'de ulusal dilin (Bambara) okullarda öğretilmesiyle ilgili ilk denemeler 1980 yılında başlamış, ancak 2002 yılında on üç ulusal dilden on biri ilkokullarda "yakınsak pedagoji" (Convergent Pedagogy - CP) yöntemiyle uygulanmaya başlanmıştır. Bu uygulamanın amacı, yalnızca Fransızcanın öğretim dili olarak kullanılmasının, yüksek okul terk oranlarına ve sınıf tekrarlarına yol açtığı düşünüldüğü için, Mali eğitim sistemini iyileştirmektir. Yakınsak pedagoji, çocukların evde kazandıkları bilgileri, dünyayı algılayış biçimlerini ve özellikle anadilleri konusundaki bilgilerini merkeze alır. Ancak, iki dilli eğitim müfredatındaki en büyük zorluklardan biri, "dillerin etkili bir şekilde yönetilmesi" meselesidir. Teorik olarak, her bir dil için sınıflara göre bir denge oluşturulmuştur. Buna bağlı olarak, öğretmenler kod değiştirme (bundan sonra CS) yöntemini farklı şekillerde kullanmaktadır. Bu yöntem bazen öğrenciler için faydalı olurken, bazen de dilsel zayıflıkların oluşmasına neden olmaktadır. Bu çalışma, kod değiştirmenin sınıf ortamında bir öğrenme aracı olarak nasıl daha etkili kullanılabileceğine dair bir model önererek bu alandaki eksikliği gidermeyi amaçlamaktadır. Araştırmanın temel hedefi, kod değiştirmenin iki dilli eğitimde bir öğrenme aracı olarak didaktikleştirilmesidir. Araştırmada nitel bir yöntem kullanılmış ve ilkokul sınıflarında yapılan video kayıtları analiz edilmiştir. Sonuçlar, kod değiştirmenin iki dilli eğitimde önemli bir unsur olduğunu ve sınıf içi kullanımının didaktik amaçlarla sınırlandırılması gerektiğini ortaya koymaktadır.

Anahtar Sözcükler: İki dilli eğitim, Kod değiştirme, Didaktikleştirme, Ulusal diller, Yakınsak pedagoji

ABSTRACT

Mali has started experimentation of teaching the national language (Bambara) at school in 1980, but it is in 2002 that eleven of the thirteen former national languages have been experienced in primary schools through the convergent pedagogy (CP). The aim was to improve the Malian educational system because the use of French as the only medium of instruction was considered a contributing factor to the significant number of student dropouts and the high rate of repetition. The Convergent pedagogy highlights the knowledge acquired by children at home, their vision of the world and especially the knowledge they have of their mother tongue. One of the challenges of the Malian bilingual education curriculum is the question of 'effective languages management'. Theoretically, depending on the classrooms, an average has been established for each of the involved languages. Following that, teachers make use of code switching (hereafter CS) differently, sometimes it favors the learners, other times, it contributes to the development of some linguistic weaknesses. The present research tries to fill that gap through a tentative model of didacticization of CS. The overall goal of this research is the didacticization of code switching as a real tool for bilingual education. The methodology adopted is a qualitative one. The study is based on recorded videos of primary school classrooms. The results show that CS is an important element of bilingual education the usage of which needs to be constrained to didactic purposes in the classroom context.

Keywords: Bilingual education, Code switching, Didacticization, National languages, Convergent pedagogy

INTRODUCTION

Times New Roman The bilingual curriculum is based on the convergent pedagogy (CP). It is a pedagogy that focuses on the learners, their experiences and their environment. The convergent pedagogy highlights the knowledge acquired by children at home, their vision of the world and especially the knowledge they have of their mother tongue. Focusing on the CP, the bilingual curriculum requires the use of a specific medium during the classroom practices and teachers have been trained in this sense. That medium depends on the learning content, and sometimes it is French, some other times it is the national language.

Bilingual education has traditionally argued that languages should be kept separate in the learning and teaching of languages. This is mentioned in an early text on 'language distribution in bilingual schooling' (Jacobson & Faltis, 1990): ''By strictly separating the languages, the teacher avoids, it is argued, cross-contamination, thus making it easier for the child to acquire a new linguistic system as he/she internalizes a given lesson'' (p. 4). According to Cummins (2005), an explanation for this separateness is the continuing prevalence of monolingual instructional approaches in our schools that he called two solitudes (p. 588).

The 'two solitudes' to which Cummins refers here are similarly captured by others in the research literature. Heller (1999) coins the term parallel monolingualism, in which "each variety must conform to certain prescriptive norms" (p. 271). Swain (1983) used the phrase "bilingualism through monolingualism" (p. 4); Creese and Blackledge (2008) used the term "separate bilingualism" to describe such language learning classroom contexts where teachers insist on the use of the target language only. Each term describes the boundaries put up around languages and represents a view of the multilingual/bilingual student/teacher as "two monolinguals in one body" (Gravelle, 1996: 11).

Recent research have shown that bilingual learners do not only uses the required medium in their learning activities, but they code switch (Guiré and Parisse, 2017; Nikiéma and Paré/Kaboré, 2009). Being an important element in bilingual education, the use of CS creates controversies and discussion in many research works (Sakaria and Priyana, 2018; Nurhamidah, Fauziati, & Supriyadi, 2018; MacSwan and Faltis, 2020). Learners make use of CS as a learning tool. It is part of their learning process. Therefore, a bilingual curriculum which does not take CS into account can difficultly be effective.

Since there is no particular model which explains to teachers when the use of CS can favor or disfavor learning activity, it is to researchers to work on how those observations can be transformed into concrete practices. Today, it becomes necessary to think about how CS can be used as a pedagogical tool in Malian bilingual classes. The present research tries to fill that gap through a tentative model of didactization of CS. The didactization of CS simply means the practical management of the languages involved in the bilingual classrooms. It is to know how to use CS to an effective learning and for didactic purposes only. Moreover, the didactization of CS tends to sensitize the teachers about the functional role of CS so that they may overcome their own weaknesses. CS is present in the speech of teachers as well as pupils. It is left to the appreciation of teachers to make use of it in order to make the pupils understand the course.

The overall objective of this research is to make code switching a real tool for bilingual education. The specific objectives are:

➢ to present the type of CS used in the classrooms;

➢ to identify the didactic and non didactic functions fulfilled by the use of CS in the classrooms;

➢ to come out with a tentative model of code-switching which will help teachers to make use of it for didactic purposes only.

Historical review of the bilingual education in Mali

The educational reform of 1962 first mentioned the use of the national languages at school, but it was in 1978 during the second national seminary on education that the use of national languages at school have been concretized. In 1979, the teaching of Bamanankan was tested in the regions of Segou and Koulikoro. A year after, three other languages: Fulfulde, Songhay and Tamasheq also began experimentation at school. The first years of experimentation were successful (report of UNICEF 2021), but the absence of appropriate methodology and monitoring led to the faillure.

Then, in 1987, the convergent pedagogy (CP) was developed in the city of Segou with the Bambara language only. That was the beginning of the second generation of the bilingual education. In 1994, seven other national languages began to be experimented at school (Dogoso, Bozo, Bomu, Soninke, Syenara, Mamara and Xaasongaxanŋo). The total number of national languages becomes eleven and was introduced as followed: 1994 (Bambara, Fulfulde, Songhay), 1995 (Tamasheq, Dogoso, Soninké), 1998 (Bomu, Syenara), 2000 (Bozo, Mamara), 2001 (Xaasongaxanŋo). Within the CP, the two languages were organized as follows:

Table 1. Average of the two languages in bilingual classes with the CP

School Grade	National Language %	French %
1st	100 %	0%
2nd	75%	25%
3rd and 4th	50%	50%
5th and 6th	25%	75%

Despite positive results, the convergent pedagogy was not able to provide answers to successful language transfer from the mother tongue (L1) to French (L2) (Nounta, 2015). Following that, the Malian authorities elaborated the bilingual curriculum through the PRODEC (Programme Decennal de Development de l'Education). The third generation of bilingual education in Mali started in 2005 with a bilingual curriculum. The fundamental education had been divided into four levels in the curriculum: level I (1st and 2nd grades); level II (3rd and 4th grades); level III (5th and 6th grades) ; level IV (7th ,8th and 9th grades). The bilingual curriculum is not applied to the level IV of the curriculum in Mali. The two languages are structured as followed in the curriculum:

Table 2. Languages average in the bilingual curriculum

School Grade	National Language %	French %
1st	100%	0%
2nd	75%	25%
3rd	25%	75%
4th	25%	75%
5th	50%	50%
6th	50%	50%

With such reorganization of the average, the bilingual curriculum intends to develop the pupils linguistic competence. It focuses on the question of language transfer through metalinguistic activities as opposed to the CP which emphasizes on the methodological convergence between L1 and L2.

There are projects which accompany the bilingual curriculum in Mali: the program SIRA (Selected Integrated Reading Activities) of USAID, started in 2016, which support the teaching in Bamanankan in the southern part of Mali, and the initiative ELAN (Ecoles et Langues Nationales en Afrique) of OIF, started in 2014, which accompanied the teaching in Bamanankan, Fulfulde, Songhay and Tamasheq all over the country. The SIRA project is concerned with the level I of the Malian bilingual curriculum (1rst and 2nd grade) and ELAN deals with the Level I, II, and III of the bilingual curricula. Those initiatives are not substitute to the curriculum, but they support the Mali authorities in the execution of the bilingual curriculum.

THEORITICAL FRAMEWORK

The theoretical framework is based on theories of CS (Poplack, 1980), bilingual education (Cummins, 1976, 2005 & 2008; Baker, 2001, 2003) and Pedagogical interaction functions (Lier, 2008, Bigot, 2005).

Code switching

Code switching used to be the interest of a few researchers in the 1950s and 1960s. It was mainly considered as an ability of a bilingual to move from one language to another according to situations (Touré, 2022). Myers-Scotton (1993) defines it as: "the selection by bilinguals or multilinguals of forms from an embedded language (or languages) in utterances of a matrix language during the same conversation" (p. 04). Gumperz (1982) refers to the term as "the juxtaposition within the same speech exchange of passages of speech belonging to two different grammatical systems or subsystems" (p. 59). For Hudson (1996): "In code switching the point at which the languages change corresponds to a point where the situation changes, either on its own or precisely because the language changes" (p. 53).

Research shows that CS is rarely institutionally endorsed or pedagogically supported (Zentella, 1981; Shin, 2005; Martin, 2005). Rather, when it is used, it becomes a pragmatic response to the local classroom context. As for Lin (2005), student and teacher CS practices are "local, pragmatic, coping tactics and responses…" (p. 46). Martin (2005) speaks of CS as offering classroom participants "creative, pragmatic and 'safe' practices … between the official language of the lesson and a language which the classroom participants have a greater access to" (p. 89).

For the present research work, it is the typology of Poplack (1980) which will be considered for the classification of CS utterances: inter-sentential, intra-sentential and extra-sentential CS. Inter-sentential code-switching concerns the switch at clause/sentence boundary. Intra-sentential code switching refers to switches occurring inside the same clause. Extra-sentential code switching involves the use of interjections or a tag in a language different from the language of the rest of the clause.

Bilingual education theory

Bilingual education is the teaching in two or more languages. Cummins (2008) defined bilingual education as "the use of two (or more) languages of instruction at some point in a student's school career" (p. 12). According to Baker (2001), there are many types of bilingual education: Submersion which is divided in two parts, structured immersion and withdrawal or pulling out programs, transitional bilingual program, segregationist bilingual program, separatist bilingual program and mainstream or English as a second language bilingual program. To Baker (2001) these types of bilingual educational programs are 'weak types' while the strong types are Immersion bilingual program, Maintenance/ heritage language program, two way/dual way bilingual program and Mainstream bilingual educational programs.

In fact, the Malian bilingual curriculum is a transitional one with the instruction beginning with the native language and a gradual shift to French as the only medium of instruction. The objective behind that curriculum is the effective acquisition of the L2. Consequently, it deals with the threshold theory. This theory was propounded by Jim Cummins in 1976. It is based on the levels of language competence needed to avoid negative cognitive effects and/or to attain cognitive advantages. It is believed here that learners need to develop in the first language before learning a second to improve cognitive development. In addition, Cummins (2005) argues for a need to articulate bilingual instructional strategies that teach explicitly for two-way cross-language transfer.

Pedagogical interaction functions

Pedagogical interaction refers to the interaction between teacher and students during their teaching and learning activities. It occurs in different forms, such as direct instruction, questioning, explanation, oral response, participation and guidance.

In the specific case of bilingual classrooms, Lier's (2008) ecological approach describes the need to consider the development of new languages alongside the development of existing languages. He stressed the importance of the interrelationship between teacher and learners in making this connection salient. According to Lier, the teacher engages the learner in pedagogic actions intended to develop "a wide panoramic view of self" (2008: 54). From this teacher–learner engagement, new identity positions associated with language learning processes can emerge, with the teacher showing the learner the possibilities of these.

Among the pedagogical interaction functions we have pragmatic, dialog and didactic functions. The current research emphasizes the didactic function. Competencies are acquired through teacher's explanations and, in the case of bilingual education, the comparison and metalinguistic activities which reinforce the learning and the transfer of competences in both languages.

METHOD

The methodology adopted is a qualitative one. The study is based on recorded videos of primary school classroom in Gao and Fana for the project 'Transfert des apprentissages (Mali, Niger, Burkina Faso)'. The present research article is independent of the project in question.

Data for the study

The study had concerned two languages of Mali: Bambara and Songhoy, and the level II and level III of the bilingual curriculum. At level II, the research was conducted in the grade four of primary school and at the level III, it is the grade five which was concerned. Both linguistic and nonlinguistic courses have been included. The linguistic courses are grammar and reading. The nonlinguistic courses are calculation and biology. The table below represents the recorded videos concerned by the present research.

Table 3. Language, grade and courses included in the data

Languages	Courses	Grade	Duration
Songhay	Reading	Four	28min 33sec
	Grammar	Four	33min 18sec
	Calculation	Five	30min 43sec
Bambara	Biology	Four	34min 24sec

Reading	Five	08min 17sec

Data transcription and analysis tool

CLAN (Computerized Language Analysis) is the software used for the transcription and analysis of the recorded data. It is a cross-platform program designed by Brian MacWhinney and Leonid Spektor. Clan has two parts: the editor part and the analysis part. The editor part allows the transcription of the files and its coding. In the analysis part, it is possible to extract results using commands. The recorded videos of the present research have been transcribed directly on the software CLAN. That allows to simultaneously have the transcription and the video in one single place, as mentioned by MacWhinney and Wagner (2010), ''… unlike Word, it allows the researcher to link individual segments of the transcript directly to the audio or video media. This form of linkage to the media is crucial in terms of allowing users to playback transcriptions to verify their accuracy'' (p. 155).

Before transcribing, the different elements have been coded. The codes for the languages are son (Songhoy) and bam (Bambara). The different courses have been coded as followed: gram (grammar), cal (calculation), bio (biology), lec (reading). The codes for grades are A4 (grade four) and A5 (grade five). To identify the main teaching language for each course, L1 has been used as the code for the mother tongue and L2 for French. The participants in the videos have also been coded: the code MTR is used for the teacher and ELV for the pupils

Based on those codes, each of the recorded videos has been named as followed: language-grade-course-teaching language for the course. The different videos named are: son-A4-gram-L2 ; son-A5-cal-L2 ; son-A4-lec-L1 ; bam-A4-bio-L1 ; bam-A5-lec-L2. After transcribing the videos on CLAN, the instances of CS have been coded on the software following Poplack's typology of CS. The codes are the followings:

Inter ----------- inter-sentential CS

Intra ----------- intra-sentential CS

Tag ------------ extra-sentential CS

Those different codes allow the automatization of extraction of the different utterances for analysis.

Analysis and result

Using CLAN, information about the typologies of CS had been extracted and a qualitative and quantitative analysis had been done. Below is an example of CLAN Output sheet.

```
*** File "son-A5-cal-L2.cha": line 565.
*MTR:   ma si@s:son trente deux wo dan@s:son la craie wo no a se@s:son %snd:"son-A5-cal-
L2"_1126999_1131124
%gls:   no don't write it give him the piece of chalk
%cs:    (1)intra|feedb|MTR
----------------------------------------
*** File "son-A5-cal-L2.cha": line 587.
*MTR:   la craie wo din zaa@s:son %snd:"son-A5-cal-L2"_1206660_1221565
%gls:   take the piece of chalk
%cs:    (1)intra|inst|MTR
----------------------------------------
*** File "son-A5-cal-L2.cha": line 592.
*MTR:   virgule dan gamey ra@s:son %snd:"son-A5-cal-L2"_1227218_1231796
%gls:   put the comma between them
%cs:    (1)intra|inst|MTR
----------------------------------------
*** File "son-A5-cal-L2.cha": line 649.
*MTR:   war si n'da@s:son questions yan@s:son %snd:"son-A5-cal-L2"_1415675_1433009
%gls:   you don't have questions ?
%cs:    (1)intra|reform|MTR

    Strings matched 93 times
```

Figure 1. example of CLAN Output sheet

In the above figure, the command: combo +t* +t%gls: +t%cs: son-A5-cal-L2*.cha +sintra*MTR   has been used to extract all intra-sentential CS produced by the teacher during the course of calculation. The first line of each utterance provides information about the file name and line number. In this case, the file name is 'son-A5-cal-L2.cha'. The second line gives the utterance produced. In this example, the line starts with *MTR which is the code for the teacher. All the utterances in this output are produced by the teacher as requested through the command used. The following line is an English translation of the utterance and start with %gls. The next line starting with %cs gives information about the type of CS, the function and the participant who produced it. The last line of the CLAN Output sheet shows the number of occurrences for the typology of CS identifies in the command. In the above example the teacher makes use of 93 intra-sentential CS.

Quantitative analysis of the CS utterances

The quantitative analysis of the CS utterances deals with the number of CS produced by each of the participants (teacher and pupil) during the different courses that composed our research data. The analysis took into consideration the different typologies of CS used. The tables below present the quantitative results for the teachers for each of the recorded courses.

Table 4. A*verage of CS produced by the teachers*

Courses	Inter-sentential CS	Intra-sentential CS	Extra-sentential CS	Total
son-A4-gram-L2	100 (21.14%)	63 (13.31%)	3 (0.63%)	166 (35.09%)
son-A5-cal-L2	22 (11.82%)	93 (50%)	8 (4.30%)	123 (66.12%)
son-A4-lec-L1	9 (2.91%)	24 (7.76%)	14 (4.53%)	47 (15.21%)
bam-A4-bio-L1	13 (4.71%)	55 (19.92%)	11 (3.98%)	79 (28.62%)
bam-A5-lec-L2	19 (25.33%)	13 (17.33%)	5 (6.66%)	37 (49.33 %)

For the grammar course (son-A4-gram-L2), we had a total of 524 produced utterances (473 produced by the teacher). The inter-sentential CS is the most produced type in this course with an average of 21.14%. When it comes to the course of calculation son-A5-cal-L2), out of 271 utterances produced,

186 were done by the teacher. As opposed to the son-A4-gram-L2 course, here is the intra-sentential CS which appears to be the most used one with an average of 50%. The total number of utterances produced during son-A4-lec-L1 course is 478 (309 of which was done by the teacher). Although the text was in French, the teacher had been explaining it in Songhoy, and then make use of a higher number of intra-sentential CS. The biology course (bam-A4-bio-L1) was composed of 402 utterances, 276 of which were produced by the teacher with more intra-sentential CS (19.92%). For the last video, which is relatively short, there was a total number of 96 utterances (75 of which were done by the teacher). Here too, the inter-sentential CS is the most produced type of CS with 25.33% done by the teacher. The following table represents the quantitative results of the CS produced by pupils.

Table 5. Average of CS produced by the pupils

Courses	Inter-sentential CS	Intra-sentential CS	Extra-sentential CS	Total
son-A4-gram-L2	4 (7.84%)	2 (3.92%)	0 (0%)	6 (11.76%)
son-A5-cal-L2	3 (3.52%)	5 (5.88%)	0 (0%)	8 (9.41%)
son-A4-lec-L1	14 (8.28%)	0 (0%)	0 (0%)	14 (8.28%)
bam-A4-bio-L1	32 (25.39%)	4 (3.17%)	0 (0%)	36 (28.57%)
bam-A5-lec-L2	1 (4.76%)	0 (0%)	1 (4.76%)	2 (9.52%)

During the grammar course (son-A4-gram-L2), the pupils produced 51 CS utterances out of a total of 524. The inter-sentential CS is the most produced type in this course with an average of 7.84%. When it comes to the course of calculation (son-A5-cal-L2), out of 271 utterances produced, 85 were done by the pupils. As opposed to the son-A4-gram-L2 course, the intra-sentential CS appears to be the most used one with an average of 5.88%. The total number of utterances produced during son-A4-lec-L1 course is 478 (169 of which was done by the pupils). The pupils used more inter-sentential CS than any other typology. The biology course (bam-A4-bio-L1) was composed of 402 utterances, 126 of which were produced by the pupils. The pupils produced more inter-sentential CS (25.39%). For the last video, there was a total number of 96 utterances (21 of which were done by the pupils). Here too, the inter-sentential CS is the most produced type of CS with 4.76% done by the pupils.

The quantitative analysis shows on the one hand that CS occupies an important part of teachers' interaction in 4th and 5th grades with the total averages ranging from 28.62% to 66.12%. This may be related to the explanatory function which may lead to the use of pupils' L1 and the need to make the content accessible to them. They also produced more intra-sentential types of CS than any other typology. The pupils on the other hand produced less CS utterances with the total averages ranging from 8.28% to 28.57%. Their speeches were only related to question answering and giving feedback.

Qualitative analysis of the CS utterances

The qualitative analysis reveals the use of CS for didactic purposes. The teachers switch to make requests, give orders or instructions for a particular task. In addition, they also used it for clarification, explanation or emphasis on a particular aspect. Moreover, CS was also employed when dealing with examples, feedback or approval of a pupils' comment. The pupils' use of CS also carried didactic functions when they ask for clarification or give feedback.

Some of the CS utterances seemed not to play didactic functions. They are more dealing with familiarity or solidarity with the interlocutor's language. Those items have been coded based on the word category or function. The different functions identified, and their codes are the following.

Table 6. Identified CS functions

Didactic functions identified in the corpus	Codes
Request	*Reqt*
Explanation	*Exp*
Emphasis	*Emph*
Instruction	*Inst*
Filler	*Fill*
Example	*Exa*
Feedback	*Feedb*
Approve	*Approv*
Order	*Ord*
Non-didactic functions identified in the corpus	**Codes**
Meta-term	*Mterm*
Conjunction	*Conj*
Familiarity	*Fam*
Solidarity	*Soli*

To take an example, below is an output of the reading course in Bambara. It is an extraction of the inter-sentential CS produced by the teacher during that course.

```
                              CLAN Output
> combo +t* +t%gls: +t%cs: *bam-A5-lec-L2*.cha +sinter*MTR
inter*mtr
combo +t* +t%gls: +t%cs: *bam-A5-lec-L2*.cha +sinter*MTR
Mon Feb 26 13:09:31 2024
combo (26-Oct-2023) is conducting analyses on:
 ALL speaker main tiers
     and those speakers' ONLY dependent tiers matching: %GLS:; %CS:;
*****************************************
From file <bam-A5-lec-L2.cha>
----------------------------------------
*** File "bam-A5-lec-L2.cha": line 19.
*MTR:   a  ka kan ka tigɛ yɔrɔ jumɛn@s:bam  %snd:"bam-A5-lec-L2"_89950_105541
%gls:    where should we cut it
%cs:     (1)inter|reqt|MTR
----------------------------------------
*** File "bam-A5-lec-L2.cha": line 42.
*MTR:   a fɔrɔ ki ku tigɛ kan hakɛla@s:bam %snd:"bam-A5-lec-L2"_135603_145557
%gls:    you were asked to divide them into syllables
%cs:     (1)inter|exp|MTR
----------------------------------------
*** File "bam-A5-lec-L2.cha": line 48.
*MTR:   Diakite i tɛ sabali wa@s:bam %snd:"bam-A5-lec-L2"_146954_150549
%gls:    Diakite , stop
%cs:     (1)inter|ord|MTR
----------------------------------------
```

Figure 2. Inter-sentential CS during bam-A5-lec-L2

The reading course was in French, but the teacher switches to Bambara to make request (line 19), to give an explanation (line 42) and to give an order (line 48). During that same course, the teacher also made use of intra-sentential CS for other didactic purposes. The figure below is an illustration of such usage.

```
*** File "bam-A5-lec-L2.cha": line 99.
*MTR:   sini@s:bam cahio bɛɛ be@s:bam corriger
%gls:    tomorrow we will correct the copybooks
%cs:     (1)intra|reform|MTR
----------------------------------------
*** File "bam-A5-lec-L2.cha": line 102.
*MTR:   a ye@s:bam cahier bɛɛ datugu an k'a@s:bam correction kɛ walanbala@s:bam %snd:"bam-
A5-lec-L2"_248800_255383
%gls:    close the copybook we are going to correct on the board
%cs:     (1)intra|inst|MTR
----------------------------------------
*** File "bam-A5-lec-L2.cha": line 144.
*MTR:   a lajɛ kɔsɔbɛ i ko@s:bam RE de ye a kan hakɛ fɔlɔ ye@s:bam %snd:"bam-A5-lec-
L2"_316126_320006
%gls:    look at it very well you said that RE is the first syllable
%cs:     (1)intra|reform|MTR
----------------------------------------
*** File "bam-A5-lec-L2.cha": line 193.
*MTR:   ohon@s:bam bien a syllabe fɔlɔ e ko kalantan@s:bam %snd:"bam-A5-lec-
L2"_445282_451585
%gls:    good read the first syllable
%cs:     (1)intra|reqt|MTR
```

Figure 3. Intra-sentential CS during bam-A5-lec-L2

In line 99, the teacher made a reformulation of the given instruction in Bambara while inserting the French words 'cahier' and 'corriger'. Again, the same line is given in line 102 with those French word inserted into Bambara utterances. Through that repetition, more than giving an instruction, the teacher is also emphasizing it. In the last utterance (line 193), the teacher inserted the French word 'syllabe' while making a request. That is also a way of dealing with activities related to pupils' metalinguistic awareness of the meta-terms in French. The meta-terms are specific terms used to define or identify an element of language. The use of those meta-terms in L2 while speaking in L1 fulfills a didactic function when it applies to metalinguistic activities.

CS may also deal with the insertion of meta-terms with no didactic functions. For example, during the grammar course in Songhoy about declarative, affirmative and negative sentences, the teacher makes use of intra-sentential CS to show the difference between the three types of sentences.

```
----------------------------------------
*** File "son-A4-gram-L2.cha": line 194.
*MTR:   n'ga tii@s:son la phrase  déclarative ihinkanto@s:son %snd:"son-A4-gram-
L2"_397402_399728
%gls:    is the declarative sentence the second one
%cs:     (1)intra|mterm|MTR
----------------------------------------
*** File "son-A4-gram-L2.cha": line 197.
*MTR:   n'ga tii@s:son la phrase négative  %snd:"son-A4-gram-L2"_399728_401153
%gls:    is the negative sentence
%CS:     (1)intra|mterm|MTR
----------------------------------------
*** File "son-A4-gram-L2.cha": line 200.
*MTR:   macin se i ga nee@s:son phrase négative %snd:"son-A4-gram-L2"_401153_403065
%gls:    what is called negative sentence ?
%cs:     (1)intra|mterm|MTR
----------------------------------------
*** File "son-A4-gram-L2.cha": line 203.
*MTR:   macin se i ga nee@s:son phrase déclarative donc %snd:"son-A4-gram-L2"_403065_405022
%gls:    so what is called declarative sentence
%cs:     (1)intra|mterm|MTR
26Oct23[E][CHAT] 265
```

Figure 4. An output of son-A4-gram-L2

During this grammar course, there was a significant number of insertion of French meta-terms (phrase, affirmative, negative, declarative) into Songhoy utterances. The teacher did not even name those

sentences in Songhoy. He kept using the French words even when he was explaining in L1. Similarly, during calculation in Songhoy, the word 'nombre' (number) has been used everywhere instead of the Songhoy based word. Maybe the French terms are the most accessible ones to the teacher, but it may also signal the lack of appropriate terminology in L1, unawareness of the terminology in L1 or unfamiliarity with the L1 terminology.

Such use of meta-terms in intra-sentential CS may lead to the development of some linguistic gap in the L1. It is essential to remind that the transitional model of bilingual education in Mali is based on the idea that the L1 mastering may help in the efficient mastering of the L2. The L2 is then acquired through comparison and reformulations between the two languages. Therefore, a mastery of the L1 meta-terms is essential for not only the fluidity of explanation, but also for the understanding of L2 meta-terms.

In addition to the meta-terms, the study also reveals the use of some inserted items due to familiarity. For example, the French expression for request 'est ce que' and conjunctions are largely used while speaking in L1.

```
----------------------------------------
*** File "bam-A4-bio-L1.cha": line 104.
*MTR:   mais@s:fra an bɛ saga faga cogodi %snd:"bam-A4-bio-L1"_336826_338606
%gls:   how do we slaughter the sheep
%cs:    (1)intra|conj|MTR
----------------------------------------
*** File "bam-A4-bio-L1.cha": line 128.
*MTR:   donc@s:fra nan tilarala , aw bɛɛ kelen kelen na ka kan ka muru fanw tɔgɔ fɔ %snd:"bam-A4-
bio-L1"_352598_359126
%gls:   at the end of the course each of you should be able to name the different part of a knife
%cs:    (1)intra|conj|MTR
----------------------------------------
*** File "bam-A4-bio-L1.cha": line 133.
*MTR:   est ce que@s:fra aw il y a famu ya ? %snd:"bam-A4-bio-L1"_361307_362561
%gls:   have you understood ?
%cs:    (1)intra|reqt|MTR
----------------------------------------
*** File "bam-A4-bio-L1.cha": line 144.
*MTR:   he aw bɛ kuluw de kɔnɔ mais@s:fra aw ba ɲɛsin ne de ma %snd:"bam-A4-bio-
L1"_379728_392283
%gls:   you are in your group but you all should look at me
%cs:    (1)intra|conj|MTR
----------------------------------------
```

Figure 5. Example of non didactic CS in bam-A4-bio-L1

The French conjunctions 'mais' in line 104 and 'donc' in line 128 and line 144 have their equivalence in the L1 but because people are familiar with their usage, they tend to replace the L1 based words. There is no didactic functions behind such intra-sentential CS with French conjunctions. Their insertion is more a question of familiarity than anything else. In addition to the French conjunctions, the French expression for request 'est ce que' in line 133 is another instance of CS with non didactic purposes. Other words have also been identified as inserted because of familiarity and constitute that category. CS is a normal result of languages in contact. As a fact, the functions it plays in casual settings seem to occur within the classroom context.

The extra-sentential CS composed of fillers and interjections also marked the speech of teachers. Those fillers are sometimes French adverbs voilà, conjunctions like donc, or French adjectives bien, bon.

```
-----------------------------------------
*** File "bam-A4-bio-L1.cha": line 153.
*MTR:   voilà@s:frs n'a ka daw ye aw bɛ ardoisiw ta %snd:"bam-A4-bio-L1"_405333_412568
%gls:   if you want you can use your slates
%cs:    (1)tag|filler|MTR
-----------------------------------------
*** File "bam-A4-bio-L1.cha": line 210.
*MTR:   donc@s:fra kulu bɛɛ nana ka jaabi sɛbɛn %snd:"bam-A4-bio-L1"_923018_926430
%gls:   so all of the groups have put their answers on the board
%cs:    (1)tag|filler|MTR
-----------------------------------------
*** File "bam-A4-bio-L1.cha": line 309.
*MTR:   bien@s:fra an ka kulu wolonwulanan mɔgɔw lamɛn %snd:"bam-A4-bio-
L1"_1090741_1094034
%gls:   good let listen to group seven
%cs:    (1)tag|filler|MTR
-----------------------------------------
*** File "bam-A4-bio-L1.cha": line 314.
*MTR:   ana jiri bon@s:fra sisan nan ya jatiminɛ kulu minu ya jaabi %snd:"bam-A4-bio-
L1"_1095762_1100691
%gls:    and the wood now if we look at the different answers
26Oct23[E][CHAT] 69
```

Figure 6. An output of bam-A4-bio-L1

The extra-sentential CS mostly occurs when the course is in the L1 with the French words used as fillers. When the course is in L2, the extra-sentential CS items are mostly composed of interjections.

DISCUSSION

From this analysis, CS seems to be an important part of bilingual classes language contact phenomenon in Mali. As mentioned by Hornberger (2005) "bi/multilinguals' learning is maximized when they are allowed and enabled to draw from across all their existing language skills (in two+ languages), rather than being constrained and inhibited from doing so by monolingual instructional assumptions and practices" (p. 607). In the same vein, Anderson (2008) has called for flexible approaches to pedagogy to respond to bilingual learning contexts.

CS can then be used as a tool for bilingual education and open ways to more confidence in learning. Arthur and Martin (2006) described the pedagogic potentials behind CS as a way to increase inclusion, participation, and understandings and accomplishment of the learning processes. They talked about the "pedagogic validity of codeswitching" (p. 197) and considered ways in which the research might contribute to a "teachable" pedagogic resource.

The pedagogical role of CS leads to the coining of a new term: translanguaging (Williams, 1994). Translanguaging, the switch between the learning languages, has become almost synonymous with CS in bilingual teacher education circles (Gort, 2012; Palmer & Martínez, 2013; Poza, 2017; Sayer, 2013; Li, 2017). According to Garcia (2009), translanguaging and CS are different in the sense that CS is an external linguistic concept, where bilinguals alternate from one code to another whereas, translanguaging is based on the premise that bilinguals have one unitary language system that enables them to draw on and use features of their named languages (García, Ibarra Johnson & Seltzer, 2017; Orellana & García, 2014). Whatever the terminology used is, CS deserves research in order to improve learning and classroom practices in general.

Tentative model of CS

The objective of this framework is to help teachers develop a didactic set of reasons and purposes for pedagogical CS. It intends to avoid the random use of CS in the classroom context and more specifically, it uses for non-didactic purposes.

To do so, some questions need to be answered:

➢ Is CS used in the classroom context?

➢ Does it fulfill any didactic function?

➢ Does it facilitate learning?

➢ Do teacher-training schools take into account the realities of classroom languages use in such context?

After analysis, the answer to all of the above questions is "yes", except for the last one. In fact, the teacher training schools do not take into account the bilingual education classroom context and specifically the use of CS in such environment. CS appears to be an instructional strategy used by teachers to facilitate the learning process. That is why this tentative model of CS is formulated through recommendations on how to use CS for didactic purposes.

The recommended situations for making use of CS in the classroom are the following:

✧ To help pupils understand new and specialized vocabulary and expression, through reformulation, explanation, paraphrasing.

✧ To facilitate the learning of new content, through examples, emphasis, cultural or thematic comparison.

✧ To deal with meta-linguistic awareness of pupils through request, emphasis, explanation.

✧ To improve pupils' participation and involvement through request, instruction, feedback.

✧ To promote pupils' language production and prevent them from blocking situations.

What need to be avoided:

✧ To be careful with the use of intra-sentential CS with meta-terms with non-didactic purposes. Such a type of CS may lead to linguistic gaps in one of the languages used and then does not promote strong bilingualism. Mastering of the meta-terms in both languages are essential for the fluidity of the explanation and even reformulation the other language.

✧ To avoid the systematic use of CS for a question of familiarity or solidarity in order to offer more space for the practice and acquisition of the L2.

✧ To minimize the use of extra-sentential CS

CONCLUSION

Different types of CS are used in the classroom such as inter-sentential CS, intra-sentential CS and extra-sentential CS. It conveys different functions as well like explanation, request, emphasis, feedback, reformulation .CS is an important element of bilingual education, the usage of which needs to be constrained to didactic purposes in the classroom context. It is to be used in a way to facilitate learning and make the content more accessible to pupils. Some usages of CS which are not related to didactic functions need to be avoided.

Acknowledgements

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