

Transferring scientific and technological knowledge in *Duálá* through intersemiotic translation: A case study of primary schools in Wouri Divison

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Abstract

According to the 1996 constitution and the 1998 law on the orientation of education in Cameroon, national languages are ensured a presence in the educational system. However, despite experimentation with models such as extensive trilingualism (Tadadjeu, 1997), the trajectory model (Bitjaa kody, 2012) or extensive quadrilingualism (Assoumou, 2005), minority languages are still underused as vehicles for the transmission of knowledge and their presence is generally limited to terminological translation. The main question includes how intersemiotic translation fosters knowledge in science and technology knowledge in the *duálá* language. Drawing on an interdisciplinary theoretical framework from intersemiotic translation, the history of translation studies, social semiotics and multimodality, it studies the intersemiotic translation processes involved in transmitting western science in an African language. Through interviews, observation and content analysis the author shows that semiotic artefacts supplemented with considerations of multimodality used within the framework of classroom interactions entails intersemiotic translation, and contribute to knowledge transmission in primary schools. This study

brings new insights in favour of the introduction of minority languages in Cameroon's educational system.

Key words: *duálá, intersemiotic translation, knowledge transfer, scientific and technological knowledge, primary schools.*

Résumé

Selon la Constitution de 1996 et la loi de 1998 sur l'orientation scolaire au Cameroun, les langues nationales ont une place garantie dans le système éducatif. Cependant, malgré l'expérimentation de modèles tels que le trilinguisme extensif (Tadadjeu, 1997), le modèle trajectoire (Bitjaa Kody, 2012) ou le quadrilinguisme extensif (Assoumou, 2005), les langues minoritaires sont encore sous-utilisées comme vecteurs de transmission des connaissances et leur présence se limite généralement à la traduction terminologique. La question principale est de savoir comment la traduction intersémiotique favorise la transmission des connaissances scientifiques et technologiques en langue duálá. S'appuyant sur un cadre théorique interdisciplinaire issu de la traduction intersémiotique, de l'histoire des études de traduction, de la sémiotique sociale et de la multimodalité, cette étude examine les processus de traduction intersémiotique impliqués dans la transmission de la science occidentale dans une langue africaine. À travers des entretiens, des observations et des analyses de contenu, l'auteur montre que les artefacts sémiotiques, complétés par des considérations de multimodalité utilisées dans le cadre des interactions en classe, impliquent une traduction intersémiotique et contribuent à la transmission des connaissances dans les écoles primaires. Cette étude apporte de nouveaux éclairages en faveur de l'introduction des langues minoritaires dans le système éducatif camerounais.

Mots-clés: *duálá, connaissances scientifiques et technologiques, écoles primaires, traduction intersémiotique, transfert de connaissances*

1. Introduction

The relevance of African languages in knowledge transfer has been acknowledged by missionaries, researchers, and both national and international organizations long before the early 1950s. In 1953, UNESCO advocated for multilingual education and established that such education—grounded in national languages (mother tongues) during the early years of schooling—plays a crucial role in facilitating the transition between home and school, while fostering respect for diversity. As such, multilingual education aligns with the goals of quality education, in accordance with Targets 4.5 and 4.7 of SDG No.4, namely: reflecting the dynamics of cultures and languages in promoting social cohesion, and situating education within a global context at both local and international levels.

In Cameroon, pursuant to Constitutional Law No. 96-06 of 18 January 1996 revising the constitution, as well as the Law No. 98/004 of 14 April 1998 on the orientation of Education in Cameroon, the introduction of national languages into the educational system forms part of the government’s objectives. This policy aims at the long-term use of national or local languages as tools for knowledge transfer, at least up to the secondary level, and across all or part of the school disciplines. In fact, in Cameroon, national languages are involved with education at the level of basic instruction, within the framework of both classical¹ and functional² literacy programmes targeting young learners aged between 8 and 14 (MINEDUB, 2022), and at the level of secondary education through the “National Languages and Cultures” (NLCs) teaching programme. The latter covers classes

¹ For alphabet teaching

² Teaching a language for vocational training

from form 4 to Upper sixth and has, since 2012, been extended to 74 secondary schools across the national territory (Manifi, 2021).

However, despite these efforts—stemming from experimental and expansion initiatives inspired by Tadadjeu’s (1981) extensive trilingualism, Bitjaa Kody’s (2012) trajectory model, and Assoumou’s (2012) extensive quadrilingualism—the use of national languages as vehicles for knowledge transmission remains a major challenge to achieving quality education, especially in rural areas. These theoretical models suggest the introduction of national languages into the educational system in the short term, without necessarily linking them to non-linguistic knowledge transmission—that is, these languages are primarily introduced as subjects to be learned. However, each language embodies its own mode of thought and its own material substance. Consequently, learning a national language while using a foreign language as the medium of instruction separates local thought from its subject matter and, in a certain sense, imposes the dominance of the epistemic framework inherent to the language of instruction. Yet, as established since the works of Cheikh Anta Diop (1954), every language—including African languages—has the capacity to construct and, therefore, to transfer knowledge. While it is true that national languages terminological translation contributes to lexical creation, and that in the absence of a systematic translation activity, the goal of promoting national languages through knowledge transmission becomes difficult to achieve, it must be emphasized that knowledge transfer itself constitutes a process of translation that involves the creation or construction of meaning. This process is dynamic, multimodal, and cannot be confined solely to the linguistic symbol.

In Cameroon, access to basic education has witnessed significant improvement over the past three decades, following the adoption and implementation of the World Declaration on Education for All (see UNESCO, 1990). However, challenges persist, especially with regard to the rate of school dropout in rural areas. According to the Consortium for Economic Research in Africa (CREA), the dropout rate in rural areas stands at 11.1%, compared to 8.1% in urban areas, representing a standard deviation of 2.8 from the national average. Moreover, among rural learners who are used to national languages in their daily lives, apparent difficulties in assimilating the dominant languages—namely, the official languages French and English—impede the full expression of their intellectual capacities. Likewise, the absence or scarcity of didactic materials in national languages hinders the assimilation of academic knowledge. Additional obstacles related to knowledge systems and to the lack of valorization of indigenous epistemologies have far-reaching repercussions on their lives. Consequently, knowledge transmission through national languages—recognized as a cornerstone of inclusive education and a prerequisite for improving quality, equity, and social justice (see Incheon Declaration and Education 2030 Framework for Action, UNESCO, 2016) cannot be considered an achievement. Therefore, a more effective approach to the introduction of national languages within the educational system, aimed at the knowledge transmission in Sub-Saharan Africa, and especially in rural Cameroon, requires careful and sustained attention.

2. Data sources

The survey was conducted between September and December 2023, toward the five (05) ELAN-Afrique (École en langues

africaines) project experimental schools in the Wouri division, and project documents and textbooks.

As the main objective of the author’s survey was to determine how the translation process occurs during the knowledge transfer, she needed to physically attend the classes. This was done and amplified by video recordings. Data were supplemented by project-related documents including reports, chart, textbooks, etc.

Table 1. Name and location of ELAN project experimental schools in Wouri division

Local Authority / Subdivision locality	ELAN school	Neighborhood
Douala I	New Deido group1	New-deido
Douala II	New-Bell Aviation group 1	New-Bell
Douala III	Bomkoul PK17	PK17
Douala IV	Bonamikano group 1	Bonaberi
Douala V	Bépanda group 1	Bépanda

The five (5) schools are located in five (5) subdivisions and five (5) neighborhoods as follows:

- Douala I/New-deido group1/New-Deido;
- Douala II/New-Bell aviation/New-Bell;
- Douala III/Bomkoul PK17/PK17;
- Douala IV/Bonamikano groupe1/Bonabéri;
- Douala V/Bépanda groupe 1/Bépanda.

3. Methodology

Observing the experimental schools, and analysing textbooks, as well as project-related documents, the author explains the causal link between intersemiotic translation and scientific and technological knowledge transfer in *duála*. Elements of analysis include: primary schools’ regulatory framework for teaching in national languages, national languages and time tables,

multimodality and pedagogy. Video recordings were made *in situ*, in the most environmentally friendly way possible (preserving pupils' and teachers' identity) in the various situations in which a communication tool was used.

The regulatory framework:

The set of formal and organized prescriptions relating to the knowledge transmitted—together with learners' behavior, value orientations, and cultural capacities (Bourdieu, 1994)—is highlighted by difference and inequality. This also implies re-agency³⁴, involving a redistribution of the capacity to shape the functioning of the school, so that the power of the various agents is balanced or reoriented toward other levels of the system—namely, from curriculum design to its implementation (Kress, 2005). In the Cameroonian context, these prescriptions refer to official texts used by the government to define educational programs as well as pedagogical orientations, including the *Curriculum de l'enseignement primaire francophone* Levels 1, 2, and 3, and the *Cameroon Primary School Curriculum* Levels I, II, and III. These curricula are extended to primary schools within the Francophone and Anglophone subsystems, following the ratification by the State of the following international conventions: the *World Declaration on Education for All* (Jomtien, 1990); the *Salamanca Statement* (2000); and the *Incheon Declaration* (2015) on Sustainable Development Goals, specifically SDG 4. In addition to these conventions there are: Law No. 96-06 of 18 January 1996 revising the Constitution of June 2nd, 1972, and Law No. 98/004 of April 14, 1998 on the orientation of education in Cameroon.

³ Kress et al. (2005) in a schooling context, (re-)agentivity refers to occurring changes in

National languages and time tabling:

This refers to the number of national languages introduced within the educational system, the classes and subjects taught in national languages, as well as the number of instructional hours allocated to knowledge transfer in these languages.

Multimodality and pedagogy

In a broad sense, multimodality refers to the set of modes, modalities, and semiotic resources used by individuals to construct or create meaning (Jewitt, Bezemer, & O'Halloran, 2016). These modes are specific to, and operate independently across, different disciplines such as linguistics, semiotics, musicology and education. They constitute cultural and material resources shared by a community and shaped by the society to materialize meaning through representation (Kress, 2010). Within the framework of this study, the multimodal analysis focuses on images, gestures, colors, oral discourse, visual posters, and movements.

4. Results

Cameroon's regulatory framework for knowledge transfer in national languages

In general, and according to the Cameroon Primary School Curriculum published by the Ministry of Basic Education in 2018, national languages and cultures are included in the educational system as subjects or disciplines in their own right. Indeed, according to this curriculum, the teaching and learning program for national languages and cultures serves as a tool for national integration, designed to develop following competencies in learners:

1. Write correct and coherent sentences to convey information effectively

2. Communicate appropriately by producing at least five sentences in a given context
3. Sing traditional songs fluently
4. Perform cultural activities or enact cultural scenes
5. Listen attentively without interrupting the speaker
6. Read at least five sentences and demonstrate comprehension within a related theme.

According to the Cameroon Primary School Curriculum Levels I, II, and III, the contents are organized into two main components:

- The National Languages Component, which includes the following elements: listening, speaking, reading, and writing.
- The National Cultures Component, which encompasses: customs and traditions, lifestyles, and the interpretation of cultural phenomena.

Other regulatory frameworks governing the teaching of national languages in Cameroon include:

- Law No. 96-06 of 18 January 1996, revising the Constitution of June 2st, 1972, which states in Article 1, paragraph 3, that the Republic of Cameroon “shall guarantee the promotion of bilingualism throughout the national territory” and “shall endeavor to promote and protect national languages.”
- Law No. 98/004 of 14 April 1998, which provides in Articles 5, 11, 15, 16, and 17 that, beyond the promotion of official bilingualism, “the teaching of national languages and cultures” shall be encouraged and integrated into the national education system.

These frameworks operate to enhance the scope of teachers' instructional guidance, aiming to ensure the teaching of national languages and cultures (Law No. 96-06, Articles 5, 11, 15, 16, 17), a satisfactory level of pupils' performance, as well as cooperation among the involved groups. Furthermore, they are accompanied by an implementation strategy, specifically the Education and Training Sector Strategy Document (DSSEF 2013–2020), which clearly defines the roles and responsibilities of each subsystem within education and training. These objectives are monitored by the Ministry of Basic Education in collaboration with regional and divisional delegations, as well as school administrations. They are secured through the active engagement of both teachers and parents.

ELAN-project in Cameroon and the instructional hours in national languages

The *École en langues nationales* project (ELAN-project) is an initiative established by the International Organization of *La Francophonie* (OIF) and its partner structures to provide technical and financial support to twelve (12) African countries (Benin, Burkina Faso, Burundi, Cameroon, Côte d'Ivoire, Guinea Conakry, Madagascar, Mali, Niger, Democratic Republic of Congo, Senegal, and Togo) that aim to promote the use of national languages within their educational systems through multilingualism.

In Cameroon, since 2013, the project has been implemented by the Ministry of Basic Education (MINEDUB), specifically through the Directorate of Literacy, Non-Formal Basic Education, and the Promotion of National Languages. The activities related to the implementation of the ELAN-project's action plan are coordinated by a Technical Committee comprising the following MINEDUB structures: the General Inspectorate of Education (IGE), the

Directorate of Projects, the Directorate of Planning and Cooperation (DPPC), and the Directorate of Financial and Material Resources (DRFM).

Both the Steering Committee and the Technical Committee are organized into five (5) teams corresponding to the national languages involved in the project. These teams are made up of university lecturers, linguists, national trainers, and other researchers. In terms of implementation, statistics indicate the following figures:

Table 2. Follow up report of ELAN-project activities implementation in Cameroon

Regions	Experimental language	Experimental schools	Experimental classes	No. of teachers	No. of pupils	No. of trainers	No. of follow up agents
Center	ewondo	12	72	121	4515	16	9
Far-North	fulfulde	10	60	95	7758	7	6
Littoral	duala	5	30	48	1520	4	5
	basa'a	8	48	81	3282	4	5
West	ghomala	8	48	83	2779	7	7

Source: MINEDUB, IFEF 2022-2023

According to the data above, the project is implemented in four (4) regions of Cameroon, namely: the Centre, the Far North, the Littoral, and the West. The experimental languages selected for instruction alongside French and English in these regions are *Ewondo*, *Fulfulde*, *Duálá*, *Basa'a*, and *Ghomala*. Overall, forty-three (43) schools are involved, including thirteen (13) in the Littoral region. In Wouri division, which constitutes our empirical framework, the project covers five (5) schools. According to the table above, the number of experimental classes is thirty (30) while that of teachers is forty-eight (48). It should be noted that an experimental class refers to a class in which both national and

official languages are used for instruction, while a project teacher is defined as one capable of applying the principles set forth by the project and of teaching using both national and official languages in the proportions prescribed by the project.

The overall objective of the project is to promote multilingual education, that is, the joint use of official languages (French and English) and national languages (*Duálá, Ewondo, Ghomala, Fulfulde, Basa'a*) as media of instruction in primary schools, with a view to improving the quality of education and promoting social equity. In this perspective, the project advocates for the application of multilingual didactics and a so-called Balanced Approach to Reading and Writing Instruction, which aims to foster in students the simultaneous development of reading, writing, and comprehension skills—foundation of all learning processes.

Furthermore, the ELAN approach advocates for a literate learning environment, defined as a set of adapted, available, and accessible written materials provided for pupils. These materials should be bilingual or trilingual, used as both pedagogical resources and didactic tools. According to the project, a bilingual literate environment may include the following elements:

- The teacher's boards ;
- Various posters (alphabet charts, days of the week, months of the year);
- Various labels ;
- Newspapers ;
- Books from the school library, among others.

National languages teaching rates

The multilingual teaching-learning process thus convened, provides for the complementary and additive use of the national language and French/English as languages of instruction. These are used according to a percentage corresponding to the class where one is located.

Table 3. Rate of usage of national languages as medium of instruction (MINEDUB, 2022)

Level	Class	L1 Teaching rate (%)	L2 Teaching rate (%)
I	Class 1 (SIL)	80	20
	Class 2 (CP)		
II	Class 3 (CEI)	40	60
	Class 4 (CEII)		
III	Class 5 (CMI)	20	80
	Class 6 (CMII)		

Thus, at level I (classes one and two) the national language (L1) must be used at 80% while the official language (L2) must be used at 20%; at level II (classes three and four), L1 must be used at 40% and L2 at 60%; class 5 and 6, the L1 must be used at 20% and the L2 at 80%. The L1 being first the teaching language and then the subject or discipline, while the L2 is first the subject or discipline and then the teaching language, precisely from level II. The principle of these proportions stipulates that when a concept taught in L1 functions identically in L2, it is not fully taken up in L2. We first check the achievements in L1 and only teach the different aspects. According to us, this distribution provides for the elimination of the national language.

Let us recall that the ELAN approach is a reading-writing approach whose basic components are speaking, reading and writing. It applies to linguistic and non-linguistic disciplines

(mathematics, science and technology, history, geography and civic education, etc.). In general, it aims to train learners capable of speaking, reading, writing and solving everyday problems using national and official language skills.

The timetables of the experimental classes include all the teachings of the ordinary classes as provided by the curricula. However, the project provides that they are specific and in accordance with the type of bilingualism chosen and modeled according to the realities of each region; thus, they specify the languages to be used for each discipline in accordance with the percentages provided by the approach.

Therefore, the author noted that teachings in L1 involve more (Classes one and two) and in L2, involve more class 4 to class 6 (See multilingual time tables).

EMPLOI DE TEMPS MULTILINGUE DU CE1

HORAIRE	LUNDI	MARDI	MERCREDI	JEUDI	VENREDI
07H30-07H50	Routines et rituels-L2				
07H50-08H20	Nouvelles de la classe-L1				
08H20-08H50	Educ morale-L2	Educ civique-L2	Educ morale-L2	Educ civique-L2	Expression orale-L2
08H50-09H20	Littérature/Voc (Lecture-écrit)-L1	Littérature/Gram (Lecture-écrit)-L1	Littérature/Conj (Lecture-écrit)-L1	Littérature/Gram (Lecture-écrit)-L1	Littérature/Orth (Lecture-écrit)-L1
09H20-10H00	Maths(Nbr Cal)-L1	Maths(Mes Gr)-L1	Maths(Géo Esp)-L1	Maths(Nbr Cal)-L2	Maths(Stat)-L2
10H00-10H30	PAUSE				
10H30-11H00	English	English	English	English	Géographie-L1/L2
11H00-11H30	English	English	English	Littérature (Écrit guidée)-L1	Littérature (Lecture guidée)-L1
11H30-12H00	Sciences techno-L1	Sciences techno-L1	Sciences techno-L2	Sciences techno-L2	LCN-L1
12H00-12H30	Sciences techno-L1	Sciences techno-L1	Sciences techno-L2	Sciences techno-L2	LCN-L1
12H30-13H00	PAUSE				
13H00-13H30	Littérature (Écrit guidée)-L1	TIC-L1	TIC-L1	Histoire-L1/L2	TIC-L2
13H30-14H00	EA-L1	Expression orale-L2	Littérature (Écrit guidée)-L1	Expression orale-L2	Dévelop perso-L1
14H00-14H30	EA-L1	EPS-L1	EPS-L1	Dévelop perso-L1	Dévelop perso-L1/L2

L1 : 60 % ou 18H, Français et anglais : 40 % ou 12H

Figure 1. Multilingual time tables class one

Source: Bonamikano primary school

For instance, while observing this time table for class 3 where teaching in L1 represents 60% and teaching in L2 40%, the transfer of science and technology planned in L1, on Monday and Tuesday

between 11:30 a.m. and 12:30 p.m., the mathematics planned in L1, on Monday, Tuesday and Wednesday between 09:20 and 10 a.m., the ICT scheduled in L1, Tuesday and Wednesday 13:00-13:30 or even the history scheduled in L1/L2, Wednesday 13:00-13:30, are only provided in L2 at the public school of Bonamikano group.

Multimodal pedagogy of science and technology in duálá

Since the first use of *duálá* in the 1800s, up to date, knowledge about the language and through the language has been transferred through multimodal supports including oral, writing, gesture. Images, drawing, and colors, on their part, appeared later in the 60s and 70s. These modes have been developed on an ad hoc basis, depending on the context and social interactions.

New Bell Aviation Public School I

Through a description the author analyzes the progress of a science and technology lesson in *duálá* at the New Bell aviation group I public school and especially class 2; it is a lesson about the cleanliness. The author makes a brief report of this lesson, describing it as it progresses and specifying the meanings involved. In her description, the author seeks to illustrate the pedagogy of learning science and technology in *duálá* through two (02) various modes: oral speech and visual posters.

New Bell Aviation I is located in the New Bell subdivision in Douala's capital city. It is characterized by the diversity of the population (indigenous and foreign, Cameroonian or African). From a historical point of view, this diversity could be explained by the fact that since the German period, the territory of this locality was delimited to make it clear, free for the settlement of "foreigners". This would also explain a strong resettlement of internally and externally displaced persons respectively from the

North West and South West (NOSO) regions and Central African Republic (CAR) between 2014 and 2016.

Oral speech

Considering my theoretical framework, oral is the name of the mode, the resource of meaning, and speech indicates a particular social use of this resource. We focus respectively on knowledge production and verbal interactions. The first being a cognitive workplace while verbal interactions are tools for building knowledge (Turco & Plane, 1999, p.153). The teacher's discourse carries out the same pedagogical 'authoritarian/participative' discourse, with its constant structure of affirmation of one type or another. Simultaneously denied/contradicted by its contrary.

A somewhat superficial and sensible description of the characteristics of Agnès' (the teacher) speech would be the following: her voice is soft, deep, friendly, sometimes at the edge of nuance. The grammar and syntax are sometimes those of 'direction', that is to say, orders are not disguised; they are in direct form, generally imperative. For example, "*Ala leyε mba sisako*" "Show me the toothbrush" (syntactically an imperative; semantically a statement; but pragmatically, in its illocutionary force, an order) rather than [*Soñ ala leyε mba sisako* (please go and show me the toothbrush)]. Similarly, rather than saying "read, please", Agnès said "*langu*" which means "read", syntactically an imperative, and semantically/pragmatically an order etc. The same goes for statements in interrogative form. Furthermore, the questions formulated are heterolingual, ie formulated in two languages: duálá-french, french-duálá. For example, «*sisako, en français, c'est?*», «*Masonga ma sanji, c'est quelles dents?*»; «*Pour avoir des dents propres que faut-il faire? / O bene masonga ma sanji wanga men ndé o bolane ndjé ?*» Syntactically an interrogative, semantically

a question, pragmatically a request. Such an indication is a sign of power, namely the power to force the pupils to do something, to oblige the recipients to have the task requested carried out. The use of two languages to formulate the questions reveals a translation activity.

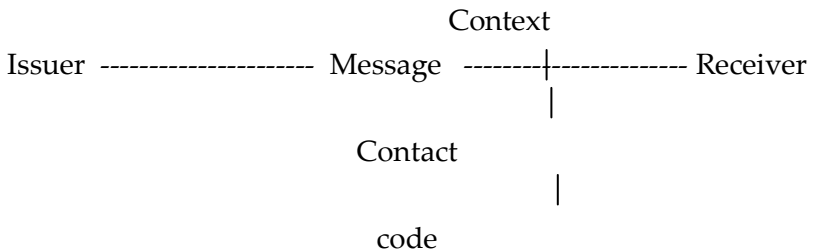
The teacher sets up a reward system in the class, in which "indirection" and "implicit criteria" are completely confused: no point allocation principle is specified. For instance, "*Massao*" (syntactically a statement, semantically a statement, but pragmatically an order), which means Applaud for your classmate. To another child, the same statement in French: "*un grand bravo*." Authority that is the source of knowledge and the point of reference are generally the teacher's questions and the beginnings of her answers: "*O bene masonga ma sanji oa bolane ndé ndjé?*", "*si-?*". However, it is neither these questions nor his beginnings of answers that reveal the principled basis of her authority or knowledge in a classroom context.

In other words, the pedagogy embodied in the form of Agnès' speech, in the quality of her voice as well as in the syntax and texture of her speech, shows the complexity and contradictions of the pedagogy; it is both a disguise of authority and its affirmation, of an implicit declaration and a need for knowledge communication that is at stake. In other words, what the form of discourse suggests about science and technology in duálá in ELAN classes is rather the existence of a cultivated sensitivity that makes this understanding and knowledge (indirect, implicit) available in an obvious way, accessible to those who are proper to this community. Such an understanding cannot be made available by direct, explicit and manifest teaching; it can only be modeled through an allusive model as it is made available here. It seems to

us that this is the significant aspect of the pedagogy of science and technology in *duálá*.

Visual posters

A poster is defined as a "printed sheet intended to bring something to the attention of the general public and displayed on walls or provided spaces." (See Le Petit Larousse); it is a medium that can be found in public places, and in this case at school. It aims to communicate a visual message or any other information. As such, it fits into the communication scheme of Roman Jakobson (1969):

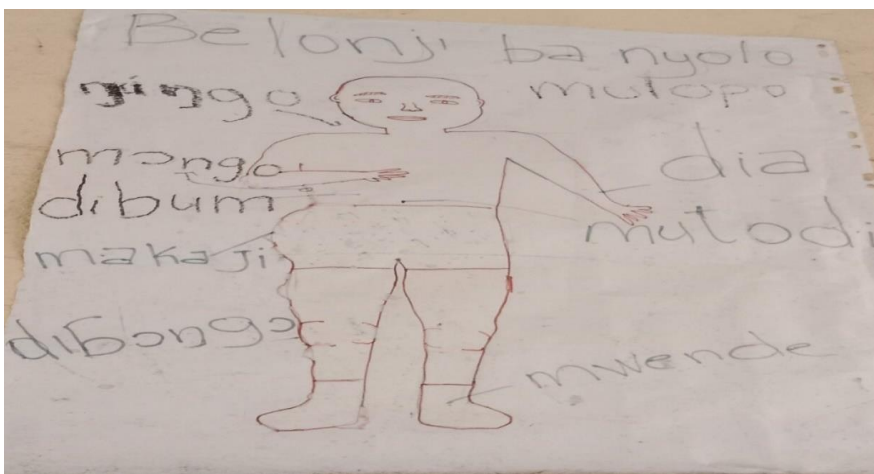


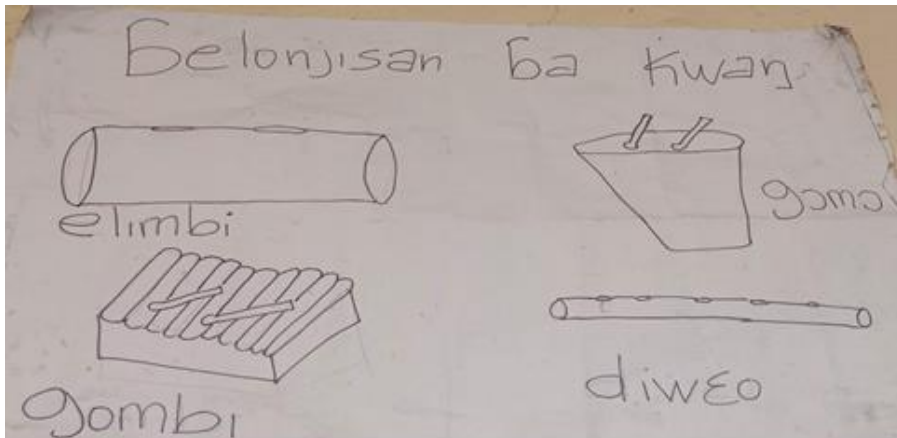
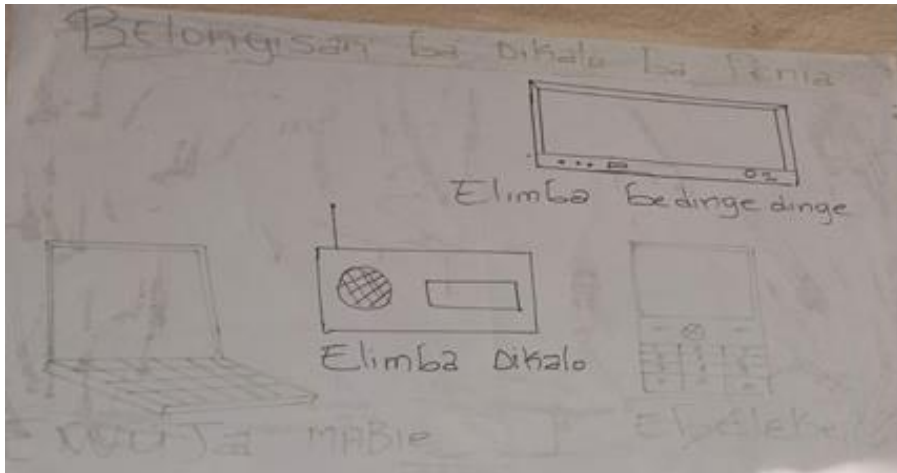
According to this figure a message is transmitted by a sender to a receiver in a code specific to both interlocutors, and in a specific context. On the other hand, the contact, is the physical medium allowing to convey the message. The configuration of the diagram above would suggest that as part of a class poster, the transmitter is invariably the teacher while the receiver are the pupils. However, it appears as we will see below that depending on the typology, the class posters are co-constructed by the teacher and the pupils.

From an educational point of view, in the case of Agnès' classroom, the same complex pedagogical discourse is found on the visual posters on the walls. Contradictions appear through the manner and form of the poster, as well as through the choice of exposed materials. From a discursive point of view, it is again a

mixture of «participation» - carried out with the help of materials that (could) be linked to the cultural world of the students - and «authority», by the simultaneous presence of materials stemming from an elite culture. The visual poster can be understood as a sign of the teacher's idea of what science and technology are in the classroom: to report on scientific and technological phenomena as defined in the social and cultural world at stake. Hence the visual most of the time corresponds to a statement specific to a science and technology class in *duálá*. As stated by Kress et al. (2005), the poster has a pedagogical force insofar as the content also expresses the social relations between the teacher and the students.

In this classroom, there is a series of drawings and texts from a wide range of disciplines: science and technology, mathematics, civic education, *duálá* language. The author will focus on posters related to science and technology. In science and technology, posters are drawings representing the human body and its parts in *duálá*, modern communication tools such as: radio, television, computer, telephone, as well as even more traditional ones such as: drum, flute, the balafon (xylophone).





As we mentioned above, some of these posters are produced by the teachers while others are co-constructed between the teacher and the students. Note that for some occasional lessons, the teacher draws directly on the board and uses colored chalk.

5. Discussions

The national language learning objectives in the English-speaking subsystem are six (06) and specific. The contents of interest associated with learning national languages and cultures in the english-speaking subsystem, are essentially related to the

learning/teaching of language and culture. It appears that in the English-speaking subsystem, national languages is a subject, and not medium for instruction. Contrary to the project's predictions, eleven (11) experimental classes out of thirty (30) are operational, as follows: Bepanda Public School Group 1: Classes 1 and 2 (SIL, CP); New Bell Aviation Public School Group 1: Classes 1 and 2 (SIL, CP); New Deido Public School Group 1: Class 1(SIL); Bonamikano Public School: Classes 1, 2 and 3(SIL, CP, CE1); Public school Bomkoul PK17: Classes1, 2, 3 (SIL, CP, CE1).

Regarding multimodal pedagogy, it is difficult for some teachers of experimental classes to constitute sustainable literate environments for the classes, due to vandalism or the fact that they share classes with the teachers of ordinary classes, (Tiki, interviewed in October 2023). This is also due to the fact that some teachers have to build their teaching environment by their own means. This reality denotes an insufficient amount of didactic material. Moreover, the production of some materials by free publishers would denote a lack of collaboration between the State and the latter. Furthermore, in the field, the author could observe that in some classes where teaching is provided to be taught in the national language (L1), it is taught exclusively in L2.

Among the teachers listed above, only (09) teachers are native speakers. Observing among the national languages' classroom activities planned by the ELAN project, for teaching/learning linguistic and non-linguistic disciplines, as well as for transfer practices, inter- and transdisciplinarity, evaluation and remediation, which *a priori* are crucial, have the most difficulty taking shape. However, teaching-learning context, provides that the teacher prioritizes entry through knowledge or skills, and that knowledge transfer takes into account not only theoretical or

declarative knowledge (what?), but also procedural (how?) and conditional (when?, why?) knowledge; all this in an interaction; thus, as part of a lesson on the cleanliness of teeth, declarative knowledge consists of all the tools and actions implemented to make teeth clean, that is, brushing using a toothbrush and toothpaste; procedural knowledge on the other hand, would describe the process, that is to say the set of movements to be performed and finally the conditional knowledge would indicate the necessary time to brush teeth, as well as the importance of brushing them. However, upon observation, Agnès' course on the cleanliness of teeth in First Grade at the public school of New Bell Aviation, seems to focus solely on declarative knowledge (from the video); all things that limit the construction of procedural and conditional knowledge about the cleanliness of teeth in *duálá*.

It emerges from New Bell Aviation Public School that the teaching-learning process of the science course on oral hygiene in *duálá* language is an equivalence translation of the didactic language in *duálá* language. Through the analysis, these posters are of functional or didactic types, since they concern the learning carried out. Their display can be interpreted both as a demonstration of assimilation through appropriation by the learner and as a movement towards his empowerment allowing him to develop his senses and creativity. The teacher tries to mediate this knowledge – probably known in French or in English - for the pupils. The author thinks that the teacher thus realizes the contradiction at the basis of her "transmissive-participatory pedagogy". The information is there on the wall, and yet it may well remain inaccessible to the majority of pupils unless they are able and willing to work hard to make sense of it. The (national) program itself is not highlighted; there is nowhere in the space between the display of texts valued by the teacher and those of the

pupils. The teacher's voice is dominant. The teacher's work is more visible than the official program text. Thus, spatially and visually, the teacher's work is placed above the framework provided by the official curriculum, as a challenge to his authority. As a result, outside of these classes, the teachings are exclusively conducted in L2.

Upon observation, some of these posters exhibit problems of spelling and intersemiotic translation. Regarding spelling issues, the following weaknesses can be noted: *Belonji ba nyolo* (*belongi ba nyolo*: "parts of the body"); ~~*mango*~~ (*mɔŋɔ*: "the back"); ~~*makanji*~~ (*makanji*: "buttocks"); ~~*bedinge dinge*~~ (*bediŋɛdiŋɛ*: "cartoons"); ~~*Ebeleke*~~ (*Ebelan*; *musiŋa*: "telephone"); ~~*teŋiledi*~~ (*teŋiledi*: "circle"). As for intersemiotic translation, on the poster of geometric figures, the rectangle and the triangle are represented but not labelled. Yet, the translation of "rectangle" in *duálá* is *dibɛɛɛ*, while that of "triangle" is *matɔŋgo malalo*. There is also a truncated translation of "square," which is *matɔŋgo manɛɛ tɛɛ tɛɛ* instead of *Jabea*.

6. Conclusion

This article sought to examine how intersemiotic translation facilitates knowledge transmission in *duálá*. To achieve this, the author presented an overview of the regulatory framework governing knowledge transmission in national languages in Cameroon, through ELAN project, the learning rates in national languages, as well as the multimodal pedagogy of science and technology: in the English-speaking subsystem, national languages are a subject not a medium of instruction. Teachers have to provide their learning environment by their own means and this makes it difficult for them to respect the teaching rates in L1 as provided by the regulatory framework; the use of national languages as medium does not only require linguistic competence

but also pedagogical competence including declarative, procedural and conditional knowledge. Prospecting for an efficient use of national languages as knowledge transfer medium, the author recommends the introduction of translation in national languages in Translation schools' curricula, as well as the training of primary teachers in translation into national languages.

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