CHALLENGES OF TEACHING THE SYNTACTIC STRUCTURE OF FRENCH LANGUAGE TO DEAF LEARNERS : CONTRIBUTION OF VISUAL GRAMMAR, A DIDACTIC TOOL

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Abstract : The global education context advocates quality inclusion for all. Including learners with sensory disabilities in schools is however conditioned by language teaching / learning. Teaching an oral and written language such as French to deaf learners is very difficult, due to their hearing sensory limitation which often causes language delay. The problematic, both linguistic and didactic posed is that the structural difference between the sign language, a spatial language and the French language, a linear language does not make it easy to help the learners to make a transfer of the cognitive achievements of the first language into the second language. Using the qualitative method, the main objective of the paper is to help enlighten the scientific community and anyone interested in the education of deaf children on the challenges of teaching the syntactic structure of French. The originality of the subject lies in its specificity and its interest in inclusive education. The study refers to the theory of constructivism according to Piaget (1964) and specifically to the approach to strategic teaching contributes to effective learning according to TARDIF, J. (1992) and the current of cognitive linguistics defended by authors like Ronald Langacker, R. (1987/1991). Suggested by the study, the visual grammar of French developed by René CERISE (2009) is both a didactic and a linguistic tool. It allows the deaf learner to construct representations which, as they learn, integrate their mental gestures.

Keywords: Learning, cognition, didactics, linguistics, visual grammar

Résumé : Le contexte mondial de l'éducation prône une inclusion de qualité pour tous. Inclure les apprenants handicapés sensoriels dans les écoles est cependant conditionné par l'enseignement/apprentissage des langues. L'enseignement d'une langue orale et écrite comme le français aux apprenants sourds est très difficile, du fait de leur limitation sensorielle auditive qui cause souvent un retard de langage. La problématique à la fois linguistique et didactique posée est que la différence structurelle entre la langue des signes, une langue spatiale et la langue française, une langue linéaire ne facilite pas l'aide des apprenants à faire un transfert des acquis cognitifs de la première langue vers la seconde langue. Utilisant la méthode qualitative, l'objectif principal de l'article est de contribuer à éclairer la communauté scientifique et toute personne qui s'intéresse à l'éducation des enfants sourds sur les défis de l'enseignement de la structure syntaxique du français. L'originalité du sujet tient à sa spécificité et à son intérêt pour l'éducation inclusive. L'étude se réfère à la théorie du constructivisme selon Piaget (1964) et spécifiquement de l'approche de l'enseignement stratégique selon TARDIF, J. (1992) et le courant de linguistique cognitive défendu par des auteurs comme Ronald Langacker, R. (1987/1991). Suggérée par l'étude, la grammaire visuelle du français développée par René CERISE (2009) est un outil à la fois didactique et linguistique. Elle permet à l'apprenant sourd de construire des représentations qui, au fur et à mesure de ses apprentissages, intègrent ses gestes mentaux.

Mots clés : Apprentissage, cognition, didactique, linguistique, grammaire visuelle

Introduction

The 2015 Incheon world conference on education opened up a new vision that advocates quality inclusive education for all. Despite the efforts made in five years, the learning conditions of deaf children are hard in African countries. In Burkina Faso, linguistic and didactic problematics hamper success. The structural difference between the sign language, a spatial language and the French language, a linear language does not make it possible to help the learners to make a transfer of the cognitive achievements of the first language into the second language. Teaching French is therefore very difficult because of the syntactic differences between the two languages. It requires skills and tools that teachers do not always have. Many teachers start teaching with low levels in sign language and there are not specific didactic materials. How do they help deaf learners to move from the spatial structure of sign language to the linear structure of French? Observations made in classroom situations in Burkina Faso and the interviews with teachers revealed that learners are not motivated by current methods of teaching French grammar because the curricula lack of visual approaches and tools for teaching.

The cognitive development of deaf is better supported by visual pedagogical and didactic approaches and aids. The study therefore suggests the visualization of the syntactic structure of French grammar which advocates the decomposition of the French sentence into its visual and symbolized elements.

The paper is structured in four parts. The first part presents the methodology. The second part presents the results of observations and interviews and the third part deals with discussion. The fourth part presents the visual grammar of French and its interest. A conclusion is then drawn. It opens up research perspectives.

1. **Method**

The study method is qualitative. It is a method which makes it possible to deal with the challenges of teaching the syntactic structure of French language to deaf learners. The approach is therefore empirical and inductive. The quality of teachers' services and the quality of educational communication are examined. The study is also fundamental and applied. It is fundamental because it is oriented towards the production of new knowledge, new approaches and offers innovation. It is applied because of its orientation towards the solution of a concrete and immediate problem. The public concerned by the study consists of 60 deaf learners and 20 teachers from four reference public and private primary deaf schools in Burkina Faso, specifically in the towns of Bobo-Dioulasso, Kaya, Ouagadougou and Ouahigouya. To collect the

data, we used two methods: direct observation in classrooms and interviews with teachers. Data were collected in the last term of 2019. To conduct the study, we preferred simple random sampling based on volunteerism. To analyze the data, the confidential nature of the process for their processing has been maintained. With the agreement of the teachers involved in the interviews, we recorded and then transcribed the data in their entirety, with encrypted coding. We personally carried out the field research, coded the forms, followed up on in-class lessons and did the interviews.

The theoretical framework is constructivism according to Piaget (1964, 1975), the basis for many other theories and educational strategies, focused on the learner and his learning. Piaget asserts that people learn from experiences. According to him, the activity of learning goes through two cognitive processes: assimilation and accommodation. Assimilation is when the individual integrates new external elements into existing representations for transformation purpose and Accommodation is the transforming activity exerted by the environment on an individual.

Constructivism has inspired linguists, didacticians, and cognitive psychologists who study how people think, perceive, remember, and learn. The specific approach of the research is strategic teaching, an approach derived from the mainstreams of didactics, linguistics and cognitive psychology. For TARDIF J. (1992), Teaching is a set of strategies adopted to contribute to the acquisition, integration and reuse of knowledge by the learner. According to TARDIF J. (1992),

- The "strategic" teacher is a mediator. The tasks he proposes must be meaningful and contextualized,
- The neurological, cognitive, metacognitive, affective and social foundations of the learning process must be made explicit,
- The autonomy of the student must be a priority so that the latter can become aware of the mechanisms put in place during the construction of his knowledge,
- Learning is an active and constructive process,
- Academic motivation determines the degree of commitment, participation and persistence of the student in his learning.

2. Results

The results of the study are presented in two parts: observation results and survey results.

2.1. *Observation results*

Observation data relate to didactics of French language, the availability of grammar teaching tools and the behavior of deaf learners during grammar lessons.

2.1.1. *Didactics of French language*

This part deals with the pedagogical communication in classrooms. The approach used in all schools is total communication. This approach uses all means of communication to prompt understanding. It uses sign language, dactylology, oral speech, signed French, illustrations, etc. In the schools, the sign language used is a dialect of American sign language (ASL). In the contact of natural sign language, ASL has been pidginized. Dactylology is the alphabet of a sign language. The ASL dactylology is also used by teachers and learners of the study. Oral speech is used by teachers for lip reading purpose. To help the learners have a mental representation of the phonology of French, words are pronounced by teachers. Signed French is a didactic strategy to teach French syntactic structure. To the linear form of French, signs are transposed. For the missing or unknown words in sign language (SL), dactylology is used to spell them.

The deaf learners we observed cannot express themselves orally, in an audible and understandable way. They communicate with signs. Sign language is a living and visual language. In its operation, the sign language uses icons and a visual-gestural modality in space and time dimensions. We observed some grammatical features through the use of the five essential parameters of the sign language used in schools: the position of the hands and fingers; the position of the hands in relation to the body, the movements performed and the face expressions. For example, the facial intensives are used in the formulation of questions with teacher or learner's frown and raised eyebrows, as the message is encoded.

Directional verbs are also used in sign language to describe directional actions, going from the teachers to the learners and vice versa. Classifiers are used as pronominal gestures that show the form accompanied by labial morphemes (configuration of the lips) and intensives of the face. Conjugation is made of three times: present, past and future. The time line used is made of reference to the speaker's body:

- The present tense: manual movement perpendicular and close to oneself,

- The past: manual movement behind you (indication over the shoulder of the speaker),

- The future: manual movement forward in front of you.

Grammatically, the organization of the "sentence" is not the same in sign language (SL) and in French. While French has a linear subject + verb + object structure, in sign language grammar the object or circumstantial complements are usually signed first. Then, the subject and verb are signed. Thus we will have the place or time of the action, then the actant (participants in the action) and finally the action. For example,

Nayo	*va*	*à l'école*
Nayo	goes	to school
Subject (S)	Verb (V)	Object (O)
Actant	Action	Place

Is signed (SL) :

Sign of school	Orthosign of Nayo	sign of go
Object	Subject	Verb
Place	Actant	Action

In signed French we have:

Dactylology of Nayo	Sign of go	sign of school
Subject	Action	Place
Actant	Action	Place

During the courses, we noticed an intensive use of signed French by both teachers and learners to supplement the missing lexical items and get the learners keep learning the syntax of French. Another observed fact is that sign language does not use articles. For learners who have assimilated the structure of sign language, it is difficult to make a SL / French transfer. The risk of producing agrammatical sentences, which do not respect the standard of the French language is very high. The cognitive process of internalizing new contrary knowledge is also hampered by the dissimilarity of the structures of the two languages.

2.1.2. *Lack of grammar teaching materials*

In the schools, we noted that teachers and learners have no specific grammar teaching and learning materials. The curricula for earing children are used for deaf ones. The teachers are not equipped with specific documents to back teaching up. Deaf learners, who have difficulty understanding and who need to visualize learning items, are penalized. It follows a large occupation of the planned learning time, for a very small progression in the program. For a grammar course planned for an hour time,

only 1/8th of the tasks are performed with a fairly good understanding from the learners. Total communication method fails in the teaching of French syntactic structure to deaf learners. Even the 6th grade learners struggle to formulate correct written sentences.

2.1.3. *Behavior of deaf learners during grammar lessons.*

The difficulties in learning French, a language learnt to serve as a springboard to other subjects' learning demotivate deaf learners. Many of them do not find interest in paying attention to teachers. They make shrill cries in class during grammar lessons, teachers are often disturbed by some of them communicating with signs. Capturing attention to teach grammar is therefore a challenge. It has happened that a few learners were sleepy in class during the grammar lesson. Because they don't master grammar and because their vocabulary is not developed in general, deaf learners have writing delay.

2.2. *Interview results*

Following the observations of the classes, interviews were organized with the teachers to better understand their difficulties in teaching French syntactic structure to deaf learners and helping them to move from the spatiality of sign language to the linearity of French. From the interviews, three main reasons emerged: insufficient training, insufficient specific visual teaching tools, the constraints of imposed programs and the demotivation of learners. The results are presented as graphs representing the responses of the 20 teachers and their comments.

2.2.1. *Teachers' initial and continuing training*

The insufficiency of teacher training is felt in the conduct of lessons. Initial vocational training in national schools for primary school teachers includes inclusive education courses but, as far as sign language and specific training courses are concerned, deaf schools' teachers teach without prior good professional training in sign language. The distribution of the initial professional training of the 20 teachers is shown in graph1.

Graph 1: Distribution of teachers according to the time of their professional training in SL
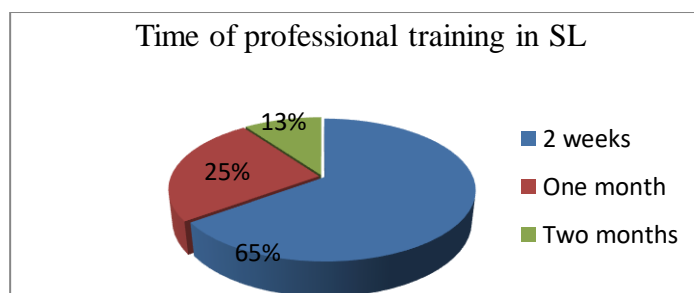
According to the teachers, the duration of their professional training in sign language was from two weeks to two months. Most of them were trained by experienced peers. Continuing training courses were organized by the National Federation of Schools for the Deaf. But the last five four years, the courses have not been organized. So, in some regions, school directors organize peer training courses to update the competences in SL semantics, including new signs. Information and communication technologies (ICT) provide opportunities for distance training to teachers through internet and social networks. To know if they use them, a question has been asked about their self-training in sign language. The distribution of answers is presented in graph 2.

Graph 2: Distribution of teachers in self-training with ICT

ICT is nowadays an essential tool for self-training and knowledge development. Unfortunately, the majority of teachers don't profit from the opportunities offered for initial and continuing training in this critical time of COVID 19 pandemics.

2.2.2. The lack of visual grammar teaching material and the constraints of the imposed programs

During the interviews, teachers expressed their worries about the policy of quality education for all in regards of the teaching materials and the weaknesses of the curricula. According to I.T, a teacher from Ouahigouya,

> "*Nous avons besoin d'actualiser nos connaissances. Elles sont obsolètes maintenant. L'éducation inclusive ne peut être une réalité si les enseignants des écoles qui prennent en charge des enfants sourds ne disposent pas de formations spécifiques suffisantes et de matériel didactique adapté* »[1].

They expressed the need of and harmonized sign language and linguistic materials. According to S.M, a teacher from Bobo Dioulasso speaking on behalf of his colleagues, in-service training is a need for teachers:

> *« Notre formation professionnelle est pour enseigner les entendants pas les sourds. Nous avons besoin de recyclage en langue de signes, nous avons besoin de formation en didactique, en psychologie, en pédagogie, nous n'avons pas de suivi adéquat et les programmes ne sont pas adaptés à l'éducation des sourds»*[2].

Curricula, textbooks and teachers' guides are the main didactic tools of schools which welcome deaf children. The curricula guide the lessons. They are developed in relation to the official programs of the education system. The subjects to be taught, the educational objectives, the prioritization of teaching and the management of time are specified therein. However, they do not take into account disability and impairments such as deafness. All the teachers (20/20 or 100%), said the didactic tools are unsuitable. O. P, a teacher in Kaya insisted:

> *« Les programmes scolaires sont très rigides pour les écoles de sourds. Il est très difficile, pour ne pas dire impossible de finir le programme d'une classe dans le temps imparti. Nous n'avons rien de spécifique pour enseigner la grammaire. Nous ne pouvons pas introduire des activités ludiques non plus »*.[3]

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[1] We need to update our knowledge. It is obsolete now. Inclusive education cannot be a reality if the teachers in schools which take care of deaf children do not have sufficient specific training and suitable teaching materials.

[2] Our professional training is to teach the hearing not the deaf. We need training in sign language, we need training in didactics, psychology, in pedagogy; we do not have adequate follow-up and the programs are not adapted to the education of the deaf.

[3] School curricula are very rigid for schools for the deaf. It is very difficult, if not impossible to finish a class schedule in the allotted time. We don't have anything specific to teach grammar. We can neither introduce fun activities.

They all witnessed that most of the deaf's hearing loss is filled by his sight and his memorization is built on visual elements. They also recognized that in the current Burkinabè education system, the curricula of classical education are applied to deaf learners. They do not differentiate between learners with sensory impairments such as the deaf and learners without impairments such as normal hearing pupils. The same curricula and the same learning times are allotted to both groups of learners. The teaching difficulties observed are thus threefold: the insufficiency of competence of teachers, the lack of specific linguistic and didactic tools of learners, and the unsuitability of curricula.

> "Only visual methods of teaching motivate children. It is time that we have multimedia rooms equipped to view educational documents and hope to motivate school children in their learning", O.S, teacher of Bobo Dioulasso, expressing his point of view in english.

3. Analysis

Teaching an oral language to deaf is very challenging. To help them develop scriptural skills is demanding, as the research revealed it. As Tardif, J. said, a teacher must implement new ways of teaching and contribute to effective learning. Unfortunately the set of strategies and tools required is not always available to contribute to the acquisitions by the learner and the curricula for earing children are used for deaf ones. to learning s are not properly trained and few of them think about. Furthermore, the ASL dialect is not yet documented and officially recognized. and, even with the availability of possibilities with Internet, many teachers seem not to be concerned. It also emerges that teachers have a great difficulty in explaining the grammatical concepts in sign pidgin language which, by necessity, has become a school sign language, even if is not described, harmonized and documented. It even has not an official status.

In a classroom situation, whatever the levels of deaf children, the teacher is supposed to be the referent, the mediator between the learner and his learning as Tardif, J. (1975) said it. Teaching is a task that demands skills from the teacher and hearing loss requires the teacher to be able to propose meaningful, contextualized and adapted tasks. From our observations in a classroom situation, it emerges that the teaching of the French language syntactic structure is done through American pidgin sign language. Teachers resort to ASL alphabet and what they call "signed French" which

is not a sign language but a technique to support the method of total communication to teach everything including the syntax of French. The signs used are a combination of ASL signs and typing signs or alphabet of signs spelling. Signed French based on English signs is then confusing with sign language, the structure of which it distorts. Learners therefore lose their spatial sign language s SL grammatical skills due to the semantic difficulties encountered by teachers. Likewise, teachers sometimes create their own signs to cope with educational needs and lack of documents. In addition to the linguistic insufficiency, the didactic tools are unsuitable.

Dealing with the written production of the deaf child in terms of explicit and implicit learning outcomes, C. TRANSLER et al. (2005, p 317) emphasizes the importance of this form of communication in asserting that the written word allows any deaf person to communicate with any literate person without the tedious support of the oral language so difficult to master for severely deafened people. Today, social networks allow distance written communication through SMS, WhatsApp and other information and communication technologies. It's an opportunity for deaf to decompartmentalize and break down barriers and get seriously involved in their own learning process. Self-motivation of learners is their duty. As Bosson, Hessels & Hessels-Schlatter (2009) say it, a student must experience that he has skills and that his successes largely depend on his strategic investment. He needs to integrate new external elements as the syntactic structure of French into his existing representations. He also needs to accommodate by trying to manage the difficulties encountered by memorizing and using new taught elements.

In the case of the current study, the learners' writing is often biased and incomplete because of the difference between the syntactic structure of French, characterized by its linearity and the syntactic sign language which is spatial complicates the production of deaf learners. Sign language is the launching pad for learning and the essential linguistic-didactic materials need for the education of deaf children are missing in the schools for deaf in Burkina Faso. Speaking with the hands and the rest of the body is the means of communicational sharing of the deaf with his community. The polysemy of signs, their polyreferentiality, their iconicity, certainly establish a linguistic continuum between sign languages, but the transfer of knowledge acquired from SL syntax to French language syntax for learning purposes alone is very laborious for the deaf learner. It is up to the teacher to lay an emphasis on every aspect of French language to manage semantics and morphology learning in addition to syntactic structure. As Lakoff, G., (1987), Langacker R., (1987/1991), Talmy L., (1988) and Fauconnier G, (1997) recognize it, syntactic structures cannot constitute an

independent system, nor even a specific level of representation. Langacker states that the lexicon, morphology and syntax form a continuum of symbolic units which contribute to the construction of meaning. The ideal help is therefore reinforce the teachers' skills to permit them to support new tought lessons with visual tools such as the visual grammar of French. Sign language vocabulary reinforcement in both teachers and learners also allows a certain mastery of grammar and scriptural autonomy of learners.

ICT is also an opportunity not to be missed by teachers, curriculum designers and other education stake holders like parents of deaf children. They may serve to share ideas of good practices with decision makers. Lack of knowledge of the linguistic and didactic realities of schools by educational decision-makers, the non-existence of specific documents such as visual dictionaries, visual grammar materials and insufficient support for advice to teachers, are threats to the progress of learners towards their active participation and their linguistic empowerment. Specific pedagogical and didactic skills are required from teachers to meet the specific needs of learners. An innovative approach suggested to teach the syntactic structure of French is visual grammar presented in the following pages.

4. Proposal: Visualizing the syntactic structure of French with Visual Grammar

According to CERISE R. (2009) father of the visual grammar of French language, this linguistic and didactic tool has its foundation in the pedagogical tradition of teaching French to deaf children. It was inspired by the work on color grammar by WOUTS W. (1950), those on structural syntax by TESNIERE L. (1959) and critical grammar of French by WILMET M. (1997). The Visual Grammar of French was designed, according to its author, to teach its grammar to the deaf:

> *« Elle est un outil forgé par l'expérience et ajusté par l'étude ; un outil au service de l'apprentissage de la langue française, utilisable quand l'activité se déroule en français ; il l'est tout autant lorsque que la grammaire française est commentée en langue des signes » R. CERISE (2009, p 75).[4]*

The linearity of the linguistic chain of French contrasts with the spatial structure of sign language. So, to help deaf schoolchildren to move from this linearity of the French language to the spatial links of the signs which animate the reasoning of the deaf,

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[4] It is a tool forged by experience and adjusted by study; a tool for learning the French language, usable when the activity takes place in French; it is just as important when French grammar is commented on in sign language

CERISE R. has bet on the meaning of the constituents of the sentence. Visual grammar "precisely proposes to force the syntactic analysis of the sentence to agree with the logical analysis of the corresponding clause", CERISE R. (2009, p 19). For this author as for SAUSSURE, the linguistic sign is composed of a signified and a signifier. To make it well understood by deaf children, the two axes of the sentence are highlighted by visual grammar: the syntagmatic axis and the paradigmatic axis.   In the following pages, we present part of the glossary of visual grammar in French, the symbols used and concrete examples of the structuring use of GVF. The glossary of visual grammar in French therefore places the logical organization of the clause and the syntactic structure of the sentence in parallel. The symbols are empty squares, small solid squares, right angles with arrows, circles, circles crossed etc.

Table 1: Some symbols of the GVF glossary

| Symbols of syntactic structure of a sentence |
| --- |
| Subject and predicate |
| Verb ◯ |
| Copula verb/attribute ◯▣ ◯▢ ◯◉ |
| Subject ▢ |
| Direct objet ▢ |
| Indirect objet ▪▢ |
| Secondary objet ▪▢ |
| Adverbial complement (Adverb/circonstancial complement, sub-sentence) ◉ |
| Adjective ▣ |
| Quantifier of nom (The, none, four, some, every, etc.) ▣̲ |
| Characterizer of noun (red, blue, big, small, etc.) ▣‿ |
| Quantifier-characterizer of noun (this, those, that, her, our, etc.) ▣‿ |
| Term appended to the noun |
| Noun/adjective/adverb —▢ ╱ —▣ ╱ —◉ |
| Adjective complement ▣↵ |
| Adverbial complement of the adjective/adverb └→▣ ╱ └→◉ |
| Correlative complement of the adjective /adverb ▣↓ ╱ ◉↓ |

Source : Cerise, R. (2009 : 33)

The schematization of syntactic structures allows advanced primary school children to better understand the complexity of French sentences using circumstantial clauses (CC) from main clauses (MC). The following practical examples are illustration of the visualization of French grammar.

Sentence 1 - MC : S + V + O

Nayo learns her lessons

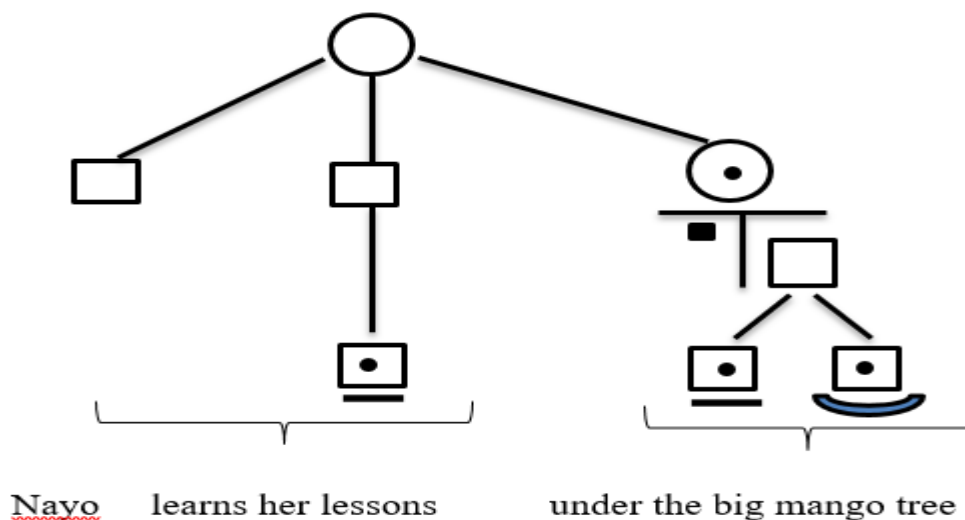Structural scheme 1- Sentence 1 syntax

S **V** **C**

Nayo   learns   her lessons
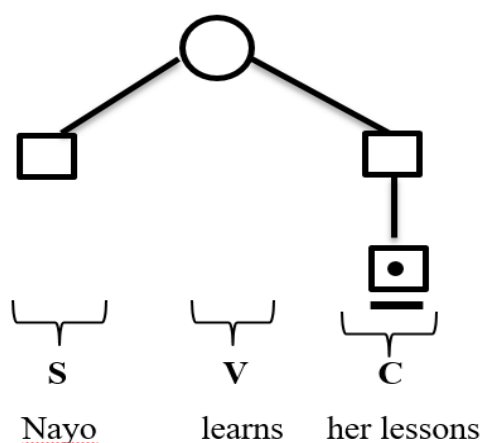
Sentence 2 -   MC + Place CC

Nayo learns her lessons under the big mango tree

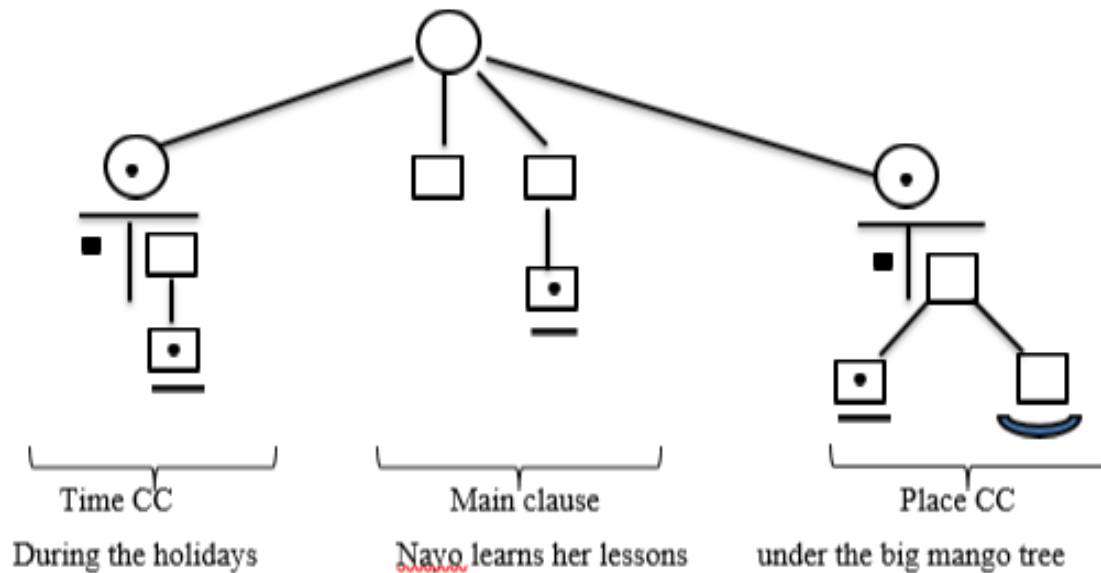Structural scheme 2- Sentence 2 syntax

Nayo   learns her lessons   under the big mango tree

Sentence 3 - Time CC + MC + Place CC

During the holidays, Nayo learns her lessons, under le big mango tree

Structural scheme 3- Sentence 3 syntax

Time CC — During the holidays

Main clause — Nayo learns her lessons

Place CC — under the big mango tree

Sentence 4 - MC + Place CC + Time CC + Manner CC

During the holidays, Nayo learns her lessons, under the big mango tree as a hard
worker

Structural scheme 4- Sentence 4 syntax

Time CC — During the holidays,

Main clause — Nayo learns her lessons,

Place CC — under the big mango tree

Manner CC — as a hard worker

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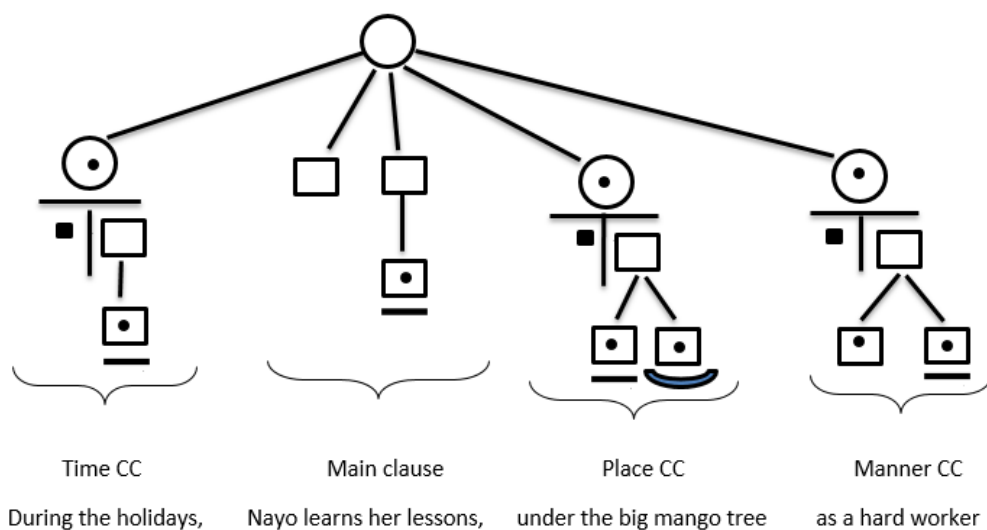
The grammatical units are linked to diagrammatic forms which illustrates the syntax. The visual grammar of French helps develop the cognitive capacities of learners.

A remark can be made to school children about the commutativity of the circumstantial clauses in relation to the main clause. For instance, at least three more formulations are possible, as follows:

- Nayo learns her lessons, under the big mango tree as a hard worker, during the holidays.

- Under the big mango tree, as a hard worker, Nayo learns her lessons during the holidays.

- As a hard worker, during the holidays, Nayo learns her lessons, under le big mango tree.

Conclusion

The paper presented the difficulties in teaching the syntactic structure of French language to deaf learners, the linearity of which opposes the spatiality of sign language grammar. It noted the inadequacies of teacher training and the inadequacy of teaching tools. It advocates the harmonization of existing tools, the strengthening of teachers' skills and suggests Visual Grammar of French (GVF), a didactic tool that meets the specific learning needs of deaf children. The study suggests this visualization for good memorization and lasting assimilation of learning items. As TARDIF J. (1992: 155) recognizes it, memory is "the central processing unit of information". This visualization helps to move from the abstractness of the structure of French sentences, as taught to deaf learners, to the concreteness of their visual decomposition into its syntactic structure which allows the learner to become aware of the linguistic and didactic mechanisms used. Many perspectives for didactic and linguistic research remain to be explored. These are, among others, the study of the logical organization of sentences in order to face the issue of the cognitive linguistic conflicts in the minds of learners. Decision makers are also required to think about innovative teaching/learning tool for the development of inclusive quality education for all.

Références

BOSSON, M.S., HESSELS, M.G. P., HESSELS-SCHLATTER, C. and BALLI, Y., Metacognitive Teaching in a Special Education Class, Journal of Cognitive Education and Psychology, Vol 8, Issue 2, DOI: 10.1891/1945-8959.8.2.182

CALBRIS, G (2001) *Principes méthodologiques pour une analyse du geste accompagnant la parole,* in La politique à l'écran : L'échec ? Volume 67, Numéro 1 pp. 129-148

CERISE, R. (2009), *La grammaire visuelle du français*, Belgique, EME, 160p.

CONGO, A. C. (2015), *Problématique de l'enseignement/apprentissage de français dans les écoles inclusives de sourds au Burkina Faso*, Thèse de Doctorat, Université de Ouagadougou, 500 p.

FAUCONNIER G. (1997), *Mappings in Thought and Language*, Cambridge University Press, 1997.

HESSELS, M. G. P. and all (2009), Metacognitive Teaching in a Special Education Class, Journal of Cognitive Education and Psychology, Vol 8, Issue 2, DOI: 10.1891/1945-8959.8.2.182

LAKOFF G. (1987) , *Women, Fire and Dangerous Things*, University of Chicago Press.

LAMBRECHT (1994), *Information structure and sentence form*, Cambridge University Press, 1994.

LANGACKER R.W. (1987/1991), *Foundations of Cognitive Grammar*, Stanford University Press (2 tomes : vol. 1 : *Theoretical Prerequisites*, 1987 et vol. 2 : *Descriptive Application*, 1991).

TARDIF, J. (1992), *Pour un enseignement stratégique,* L'apport de la psychologie cognitive, Montréal, Éditions Logiques, 474 p

TRANSLER, C. et al. (2005), *L'acquisition du langage par l'enfant sourd : Les signes, l'oral et l'écrit*. Marseille, Solal, 215 p.