
TEACHING CAMEROON LANGUAGES AND CULTURES VIA A COMPUTER-ASSISTED LANGUAGE LEARNING (CALL)–BASED PERSPECTIVE FOR LEARNER AUTONOMY: INSIGHTS FROM CULTURAL HISTORICAL ACTIVITY THEORY

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ABSTRACT: *With the trend of technological evolution, language teaching methodologies have evolved to fully accommodate ICTs as integral mediation tools in language teaching/learning. This paper bridges the gap between existing studies, by placing particular emphasis on learner autonomy and learning environments especially as regards the poor appropriation of our local languages and cultures within the school milieu. Thus, we propose and show that in a context of learning local languages by secondary school students in Cameroon, an adapted approach wherein the language teaching/learning methodology is implemented with a learner management system which takes into consideration localization aspects and the beneficiary population, learner autonomy can be attained when viewed through the prism of cultural historical activity theory.*

KEYWORDS: Learner autonomy, National languages and cultures, Language teaching, localization, Activity theory

INTRODUCTION

The quest to observe and describe the development and exercise of learner autonomy in technology-mediated learning environments so that principles for the design and implementation of such environments could be formulated has taken central stage in computer-assisted language learning (CALL) studies over the past three decades (Blin, 2005; Raby, 2009; Guichon, 2011; Biloa and Meh, 2015). Within the educational landscape of Cameroon, this has prompted the use of information and communication technologies (ICTs) in education (Nkenlifack et al, 2012; Ndibnu and Nya, 2014) as well as the modelling of teaching/learning platforms i.e learning management systems (LMS) (Bilounga, 2015). The availing of these LMS in such educational settings focus on the learner to develop certain competencies but will they enhance the learning of Cameroon languages autonomously within a classroom context? It is assumed that the central question is to know if learner autonomy works in the case of Cameroon languages. But this will confuse 'autonomy', which works by definition, with attempts at 'autonomisation', which can take many different forms and may or may not succeed. Similarly, misguided are attempts to measure the development of autonomy in learners as if it could be detached from the goals and contents of learning.

This paper adopts a cultural historical activity theoretical approach (Engeström, 1987) to observe the development of learner autonomy in learners within the framework of the teaching of National Languages and Cultures (NLCs) in Cameroon's secondary education sector. The site chosen for this study is the multimedia resource centre (MRC) of Government Bilingual High School (GBHS) Dschang and the LMS preferred was *Knowledge Corporation* operating on XAMPP (Cross Platform, Apache, MariaDB, PHP and Perl) as our content management system. At the end of our study, it was observed that if we implement systems which take into

consideration localization aspects and the beneficiary population, learner autonomy in our local languages and cultures shall be attained. We begin our investigation by presenting the state of the art with respect to the teaching of national languages and to ICTs, wherefore we pursue with our methodology adopted following a mixed methods approach before highlighting autonomous behaviours developed by the learners in our analytical section and conclude our paper.

Language Teaching with ICTS in Cameroon: State of the Art

We contend that the use of computers, in the teaching/learning of our NLCs does not constitute a method per se. Computers are a medium through which a variety of methods, approaches, and pedagogic philosophies may be implemented. The effectiveness of CALL cannot thus reside in the medium itself but only in how it is put to use. With reference to Cameroon, Tonye and al (2002) states that the problems that plague the effective take-off of this field are entrenched in a specific whole and rendered more complex by contingencies and exigencies which are sometimes even contradictory. Recent developments (the ERELA¹ Project by NACALCO², Going Kompyuta by the Goethe Institute, etc.) have come to palliate to a number of these worries though the know-how still remains very prized and sensitization is still ongoing. In the domain of language teaching, Bilounga (2015) proposes a concise model for the teaching of our national languages which could be seen as bridging the didactic gaps within the educational system.

Nkenlifack et al (2011) proposes a modernization of the teaching of NLCs in Cameroon schools with the aid of ICTs in a bid to promote the country's cultural diversity and the diffusion of scientific knowledge in these languages. It proposes a multimedia educational platform, not yet available to the public for general consumption but limits itself to presenting the input of ICTs in developing written competences in these languages without showcasing how this platform will enhance oral skills in them cognizant of the fact that not every technological device is a pedagogic tool.

Ndibnu and Nya (2014) presents a typology of ICT usage by student-teachers of a Higher Teachers' Training College (HTTC). Questioning the appropriation of ICTs and educational technologies by these would-be teachers, it identifies the different uses of ICTs as tools for learning and knowledge acquisition but equally stresses on a third aspect notably ICTs for self-training through the use of interactive learning platforms.

Biloua and Meh (2015) brings into perspective today's trend of technological evolution within the context of evolving language learning/teaching methodologies. It posits through some theoretical reflection that, our local languages could be integrated within ICTs for their intellectualization to render learners autonomous. It intimates a pluridisciplinary research as primordial for a CALL-based paradigm that avails Cameroon languages in technology-rich learning environments capable of fostering and developing learner autonomy.

The present study looks at the teaching of our NLCs through the prism of cultural historical activity theory which considers activity as artifact-mediated and object-oriented action (Vygotsky, 1978:40). It opines that the relationship between a human agent and objects of the environment is mediated by cultural means, tools and signs. The theory has evolved and distinguishes between collective activity and individual action to include mental functions. In its present stage, the theory includes other tenets such as contradictions (internal and external),

multiple perspectives and voices and mention is even made of networks of interacting activity systems (cf Engeström, 1987).

METHODOLOGY

Our research site and participants comprised Form three students of the German stream, seventy-nine (79) in number, of GBHS Dschang. For this class, the grammar of the Yemba language was our focus corroborating the sectorial policy for the teaching of NLCs. Using instruments like the questionnaire and the activity checklist as well as techniques like the interview, especially the focus group interview and participant observation, we obtained data that informed our analytical section. We proceeded in two phases; the first consisted of observing the learners during the fourth and fifth teaching sequences of the academic year after which we administered a pre-experimentation questionnaire so as to identify their attitudes and feelings towards the subject as well as the teaching of NLCs using a technology-rich environment. The second phase, an application of the first phase witnessed a deployment of our LMS – *Knowledge Corporation* which served as a pedagogic platform for the teaching/learning of NLCs operating on a content management system, XAMPP. The choice of XAMPP stemmed from the fact that it is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. This deployment was done during the sixth sequence of teaching and a post-experimentation questionnaire was administered to the learners. During our lessons at the MRC we adopted a blended approach which comprised a fifteen-minute theoretical session and a thirty-five-minute practical session with the LMS. During the practical sessions, priority was given to project-based pedagogy because of the need to rationalize the number of computers available to the number of learners present; this gave a ratio of one computer to four learners.

Figures 1 and 2 present screenshots of the lesson presentation interface and for the consolidation exercise as used during our teaching sequence



Figure 1. Lesson presentation screenshot and consolidation exercise

meanwhile,



Figure 2. Consolidation exercise screenshot

FINDINGS AND ANALYSES

The learners participating in the study bring to the activity some history, as spelt out by the principle of multi-voicedness given our cultural historical activity theoretical model. It is assumed that they have been ‘transformed’ as a result of their participation in a number of learning activities during the previous five sequences and as a result of studying other subjects required by the curriculum at this level. For our analysis, we identified a number of learner autonomy profiles which we categorized as per certain criteria. We then collocated the learners’ performance throughout the academic year, highlighting the sit-in-class performance vis-à-vis their performance after experimentation with the LMS.

Learner Autonomy Profiles

The learners were profiled after pooling the responses obtained from our observation and interviews as informed by our pre-experiment questionnaire and activity-checklist. Autonomous behaviour criteria were codified in response to learners’ requests for guidance and support during the learning process. It enabled us to establish three profiles of learners. These profiles highlight a measure of psychological and technical autonomy of these learners in terms of motivation and self-direction. An extract of these questions are presented in table 1 below.

Table 1. An extract of reference questions for identifying learners’ autonomy levels.

	Question	YES	NO	More or Less
14	Do you consider the NLC subject to be of any interest?	39	21	19
20	Do you have frequent access to a computer?	45	07	27
22	Do you have difficulties in handling/working with the computer?	20	30	29
26	Can you study NLCs with the aid of a computer?	24	39	16
27	Will you like your NLC lessons to be given via computer?	25	38	16
28	Will this help you to better learn the subject?	27	32	20

Table 1 portrays a ton load of information about our learners vis-à-vis their ICT exposure and their perceptions of NLC pedagogy via ICTs. These items capture the feelings and attitudinal representations of the learners in relation to NLCs, as well as ICTs and sought to juxtapose these representations to identify autonomous learning behaviours as seen in figure 3 below.

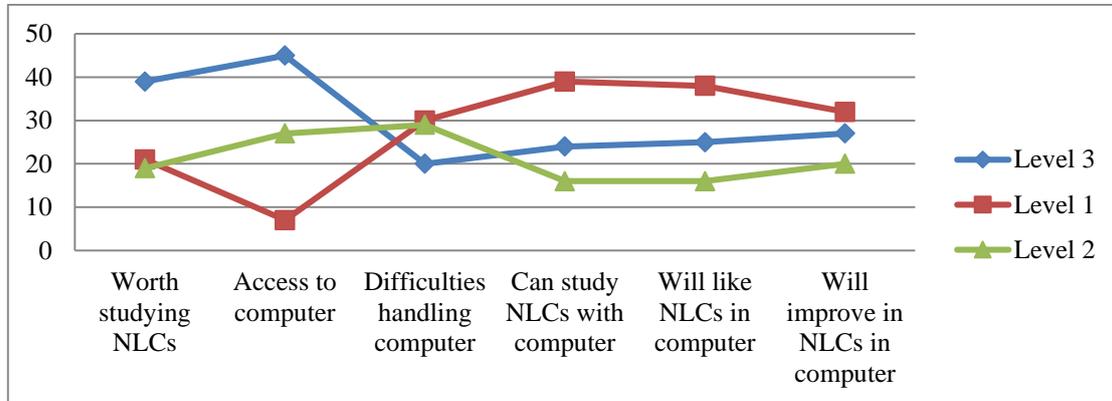


Figure 3. Learners' potential autonomy levels in NLC learning via computer-aided instruction.

Following the trends presented in figure 3 above, the responses of the students per question were averaged to enable us to categorise their autonomy levels. The descriptors used here were obtained from our activity checklist and a sit-in-class observation of these students prior to our experimentation with them. From the foregoing data, we came up with the following learner autonomy levels as presented in table 2.

Table 2. Learner autonomy profiles of students of 4e A1.

Autonomy level	Indicators	Number of Students
Level 1	Dependent, irregular, lack direction and motivation	28
Level 2	Dependent, less organized, affective factors intervene	21
Level 3	Motivated, enthusiastic, low interdependence	30

Post Experimentation Results

The results of the individual students after our experimentation served as an index to quantify the development of learner autonomy. We sought the results of their previous sequential evaluations and measured them against the results obtained during the sequential evaluation we administered with the LMS. The marks for the previous sequences were averaged and this average was compared with the final sequence evaluated at the MRC. Figure 4 below shows the average results of the students grouped into mark ranges and the results of the students after the assessment with the LMS.

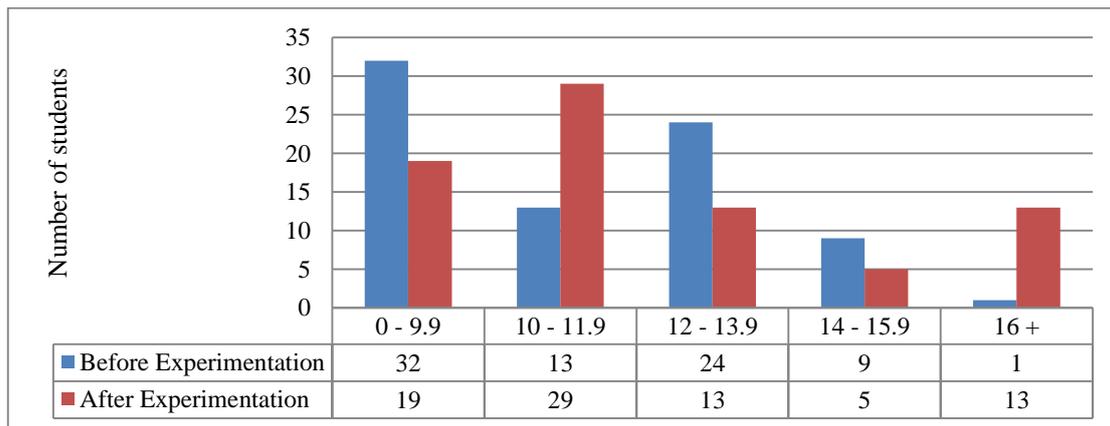


Figure 4. Range of marks obtained from students' performance throughout the academic year.

These performances are just for the subject of NLCs and not the entire array of subjects offered by the learners in this class. The column bars in blue attest to the results obtained before our experimentation while the column bars in red reflect the results obtained after our experimentation. We realize that 24% of the learners scored below 10 representing a drop from the 40% previously recorded. 37% of the learners had marks ranging from 10-11.9 representing an increase from the previous 17%. 16% scored from 12-13.9 which was a significant drop from the 30% previously registered while 6% had marks ranging from 14-15.9 registering another drop but the silver lining came from the 17% who scored above 16, a noticeable increase from the 2% previously registered.

The use of cultural historical activity theory to analyse and interpret the reactions, discussions and comments of the learners highlighted a number of processes, behaviours and practices that would have been difficult to identify otherwise. These were shown to be linked to the level of learner autonomy demonstrated by students. It was noticed that less autonomous learners (Level 1 in particular) directed their actions towards language related artefacts and tools which were likely to remain objects of the NLC learning activity over a long period of time. In contrast, the more autonomous learners (level 3) were seen to reallocate what had been their initial object to the role of tool. This group of learners was also more likely to identify and resolve emerging contradictions. The capacity to resolve contradictions was therefore considered to be an observable attribute of learner autonomy.

Revising the Profiles of Autonomous Learners

Following the experimentation with the LMS, we noticed a considerable amount of migration with the learners moving from one autonomy level to another. This is summarized in the table 3 below.

LEVEL 1 = 16

IDENT 05, IDENT 13, IDENT 14, IDENT 15
 IDENT 16, IDENT 22, IDENT 23, IDENT 24
 IDENT 25, IDENT 26, IDENT 28, IDENT 36
 IDENT 39, IDENT 72, IDENT 74, IDENT 78

Level 1 began with 30 learners but ended with sixteen (16). Among these are 09 learners of the initial 30, 06 learners dropped from level 2 to level 1 and 01 learner who dropped from level 3 to level 1

LEVEL 2 = 23

IDENT 10, IDENT 18, IDENT 27, IDENT 34
 IDENT 37, IDENT 45, IDENT 46, IDENT 47
 IDENT 48, IDENT 49, IDENT 53, IDENT 59
 IDENT 62, IDENT 63, IDENT 64, IDENT 65
 IDENT 66, IDENT 67, IDENT 68, IDENT 69
 IDENT 70, IDENT 79, IDENT 01

Level 2 began with twenty-two (22) learners and ended with twenty-three (23). Just 07 had not moved to another autonomy level from the initial group, 10 learners had progressed from level 1 to level 2 whereas 06 learners had dropped from level 3

LEVEL 3 = 40

IDENT 02, IDENT 03, IDENT 04, IDENT 06, IDENT 07
 IDENT 08, IDENT 09, IDENT 11, IDENT 12, IDENT 17
 IDENT 19, IDENT 20, IDENT 21, IDENT 29, IDENT 30
 IDENT 31, IDENT 32, IDENT 33, IDENT 35, IDENT 38
 IDENT 40, IDENT 41, IDENT 42, IDENT 43, IDENT 44
 IDENT 50, IDENT 51, IDENT 52, IDENT 54, IDENT 55
 IDENT 56, IDENT 57, IDENT 58, IDENT 60, IDENT 61
 IDENT 71, IDENT 73, IDENT 75, IDENT 76, IDENT 77

Level 3 began with twenty-seven (27) learners and ended with forty (40), a dramatic increase of about 70%. Here, 18 were of the initial batch, 11 had progressed from level 2 to level 3 while 11 had progressed from level 1 to level 3.

Table 3. A synopsis of learner autonomy groups and their respective migrations

In concrete terms, we will say that:

- Entries marked in RED relate to learners who began and ended within the same level of autonomy. For instance IDENT 05 (Level 1), IDENT 47 (Level 2) and IDENT 05 (Level 3) were noticed to have exhibited the same attributes of learner autonomy before and after our experimentation;
- The learners tagged in YELLOW were learners who moved from an immediate inferior level of autonomy to an immediate superior level. For instance, IDENT 18 moved from level 1 to level 2 while IDENT 07 moved from level 2 to level 3;
- The learner entries tagged in GREEN are the learners who began at level 1 before the experimentation and noticed to qualify as level 3 learners after the experimentation;

- The entries marked in BLUE are learners who experienced some unresolved contradictions during the experimentation. They moved a step lower from their previous level of autonomy. For instance, IDENT 10 began in level 3 and ended in level 2 while IDENT 13 who was situated under level 2 before the experiment was tagged under level 1 after the experimentation; and
- The learner tagged in GRAY moved two levels lower in terms of autonomous behaviour tagging i.e IDENT 36 was observed to have moved from level 3 to level 1.

Table 4 below illustrates a remarkable improvement in the autonomy levels of our learners when compared to table 2. This permits us to say that our objective of fostering and developing autonomous learners in the domain of NLCs given a technology-rich learning environment in Cameroon secondary schools is feasible.

Table 4. Revised learner autonomy profiles of students of 4e A1.

Autonomy level	Indicators	Number of Students
Level 1	Dependent, irregular, lack direction and motivation	16
Level 2	Dependent, less organized, affective factors intervene	23
Level 3	Motivated, enthusiastic, low interdependence	40

DISCUSSION

The results obtained were based on our questionnaire analysis looking at the data sets generated from the evaluation on the learning platform and the post-test questionnaires obtained at the end of the learning process. The relationships between learner autonomy perceptions and learning behaviours at the beginning and at the end of the experimentation were investigated and this pushed us to identify the factors that mediated learners' autonomous learning behaviours which were drawn from a thematic synthesis of semi-structured interview transcripts across cases.

The collaborative and interdisciplinary nature of the NLC learning activity provided a range of opportunities for collaborative and individual actions, which resulted in the exercise of a social and individual autonomy and in the development of new language and computer skills. It presented the learners (and teachers) with a considerable difficulty to which they rose with creativity and a high level of engagement. Being both objects and mediators of the NLC learning activity, the computer and the Yemba language penetrated and supported the activity at all levels. The use of computers in the NLC learning activity added some value to the learning experience and outcomes. It introduced an element of novelty and contributed to the learners' development of electronic literacies, which they saw as a positive outcome. This supported and enabled a complex organisation of the division of labour, though minimally experienced which played a role in the realisation of the desired outcomes.

However, contradictions emerged, which could not always be resolved during the experimentation period. In particular, technological breakdowns and the learners' limited computer skills significantly disrupted the learning activity and at times introduced prolonged and often unwelcomed focus shifts between computers and the Yemba language. As a mediator, the Yemba language equally shadowed the object of the activity and hindered

learner-learner interaction outside the boundaries of the classroom thereby reducing the potential for language use afforded by the social organisation of the learning environment.

As such, a number of these contradictions were beyond the learners' capacity to resolve independently, which led them to question the object of the learning activity and the internal structure of the latter, including their own practice. This brought about a contradiction between 'the new' and 'the old' language learning activities. This is consistent with Engeström's (1987) concept of tertiary contradictions whereby a 'more culturally advanced' language learning activity is met by some resistance from elements of the 'old' language learning activity.

Insights from data obtained as to how field teachers of NLCs taught and introduced strategies for improving autonomous NLC learning among their learners both in and out-of-class from a traditional classroom based perspective also informed our CALL-based approach. It revealed that their understanding of their roles in helping their learners become autonomous and in improving their own professional development was crucial. This highlights another pedagogical argument which suggests the importance of the teachers' role in supporting learner autonomy in such specific learning contexts where only limited learning resources are available and the classes are plethoric in their enrolments. The role of teachers in enabling learners become autonomous stems from two aspects;

- a) The first aspect is to be the mediator between their learner and their institution to overcome constraints that limit the possibility in supporting learner autonomy in their institutional context. For example, the way NLC teachers assess the learning of learners' and NLC appropriation is through exam-based assessment, which does not support the learning process of NLCs as well as autonomous NLC learning.
- b) The second aspect concerns the change of teachers' roles from transmitters of knowledge to facilitators of learning in ways that increase learner motivation and support learner autonomy. It is possible that, when teachers' roles and teaching methodology are changed, learners' characteristics that are dominantly negative predispositions to NLC learning will be gradually shifted. This is because learners' characteristics are conditioned by the educational system and sociocultural factors whereby learners respect their teachers.

It must be acknowledged that the national context greatly influences the way NLCs are taught in the secondary education sector. It is challenging for the teachers to try to develop learner autonomy in their institution, as they, like their learners, are subjected to the constraints of sectorial policy and ordinances prescribed by the Ministry of Secondary Education.

We note that that the larger learning contexts i.e society and culture, education system and policy all have an influence on the smaller ones i.e the institution, teachers and teaching, that sit within them, and all the layers of context have an influence on the learner using a technology-rich environment, whether directly or indirectly. However, the learners themselves have a greater share of the responsibility for becoming autonomous learners.

Learner autonomy is conveyed as a perennial dynamic process amenable to 'educational interventions' rather than a static product, a state, which is reached once and for all. For us to help learners to assume greater control over their own learning it is important to help them become aware of and identify the strategies that they already use or could potentially use. Cognizance should be taken that individual learners differ in their learning habits, interests, needs, and motivation, and develop varying degrees of independence. Our study highlights the

place of learner autonomy within a language learning context but we reiterate the need for the presence of the teacher within the language learning class even in a CALL context. The teacher still remains fundamental towards autonomisation.

We posit that flexible, autonomous, life-long learning is primordial to success in this age of information and so learner autonomy is reshaped in terms of an electronic literacy approach to language learning. Autonomous learners know how to formulate research questions and devise plans to answer them. They answer their own questions through accessing learning tools and resources synchronously and asynchronously. Moreover, autonomous learners are able to take charge of their own learning by working on individual and collaborative projects that result in communication opportunities e.g presentations, web sites, and traditional publications accessible to local and global audiences. Should NLC teachers and professionals be availed the required technological facilities for learning and the required training, they will be in a position to teach learners valuable life-long learning skills and strategies for becoming autonomous learners.

Implications to Research and Practice

Although learners are not always aware of the power of consciously using learning strategies for making learning quicker and more effective, skilled teachers can actually help their learners develop an awareness of learning strategies and enable them to use a wider range of appropriate strategies. By providing a wide range of classroom or MRC-based activities that cater for different learning styles, teachers can help learners develop beyond the comfort zone dictated by their natural style preferences. When left to their own devices and if not encouraged by the teacher or forced by the lesson to use a certain set of strategies, learners typically use learning strategies that reflect their basic learning styles. The key is in systematically offering a great variety of activities within a learner-centered, communicative approach.

Our major concern focused on learners' motivation in learning and we are convinced that teachers should play a role in helping their learners. The learners need to be motivated to have fixed goals and objectives while the teacher should be there to guide them. This promotes autonomous learning if the motivation is high. Even if the motivation is brought with a CALL-based methodology, sustaining the learner's motivation becomes the issue to worry about.

In this regard we can consider other additional roles of the teacher to that of motivator, such as facilitator in guiding and helping their learners how to learn. The problem will be the need of training for these NLC teachers on how to facilitate self-paced learning, student-centred learning, project-based approaches, and the appropriation of all those methods and/or strategies that can help learners become autonomous. This is a domain yet unknown to most of our NLC field teachers. The teachers will need to consider changing their roles into facilitators, helping learners become more autonomous rather than mere transmitters of knowledge to their learners. This in turn will imply the need for teacher autonomy and professional development. It can be deduced from the above that the empowerment of NLC teachers through professional development and the development of their own autonomy is important to the development of learner autonomy. The teachers have their own experiences of learner autonomy and are aware of their roles in helping both their learners to become more autonomous and equally to develop as professionals. The teachers should have motivation first and then the students will have motivation i.e the teachers have to know what being autonomous means. The current NLC field teachers implicitly accept some share of the responsibility for making learners responsible for their learning. Their role in helping their learners learn and become autonomous as well as the

need for learners to become autonomous by availing them some CALL-based resource for NLC teaching/learning is non negligible. Some are willing to overcome the difficulties they face in this context by presenting themselves as candidates for training to teach in autonomous learning contexts using CALL-based resources if availed the opportunity.

CONCLUSION

In this paper, we proposed an activity theoretical model for fostering learner autonomy in the teaching/learning of NLCs via the integration of ICTs in the process. These digital devices have a non-negligible impact on the motivation of learners in the process of knowledge acquisition (Bilola and Meh, 2015). Their integration will elicit the development of competences that cut across disciplines vis-à-vis task-based or problem-solving activities with regards to learning and creativity. Globally speaking, we are advocating for a further improvement of the mindset of the population as regards the acceptability factor of our NLCs within our educational system. This argument is buttressed by the results obtained from the comparative analyses of the criteria and attributes of learner autonomy established in the study using data obtained from the pre- and post-experiment questionnaires which enabled us to ascertain that if we implement digital learning systems that take cognizance of localization aspects and the beneficiary population, learner autonomy in our NLCs is feasible.

Suggestions for Further Research

This paper falls within the framework of the modernisation of teaching our NLCs (Nkenlifack et al, 2011; Bilola and Meh, 2015). Our study provided a basis for developing and deploying virtual learning environments (VLEs) but systems that would automate or enable focus shifts between NLC learning and computers could be designed and integrated in VLEs. From this perspective, it is suggested that:

- The design and implementation of additional functionalities *for Knowledge Corporation* which integrate African SIL fonts and the provision of text space wherein learners will be required to type in text in the local language should be looked into. Work has already started on the integration of these fonts but time and logistic constraints are an issue. These developments will make it possible to further research the systemic tension between technology and language as both objects and mediators of the individual and collective language learning activity.
- Language use and language acquisition require further attention. Time constraints and space limitations prevented an in-depth analysis of the above. Yet, the corpus created for the purpose of describing and analysing the development of learner autonomy also constitutes a valuable corpus of NLC learning spanning a full academic year. Although restricted in terms of content and communicative situations, the technological and pedagogical developments outlined can enable the creation of more varied corpus of data. The framework established so far with respect to the development and exercise of learner autonomy could be expanded to include the development of language use occurring as the NLC learning activity unfolds. In particular, the capacity to resolve contradictions could be examined with respect to the communication disturbances or breakdowns resulting from language use and no longer from technological issues.

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¹ Ecoles rurales électroniques en langues africaines

² National Association of Cameroonian Language Committees