Metastrategic use of the Internet and Academic Adaptation among Secondary Learners in the Littoral Region of Cameroon

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Abstract
This article studies the link between the metastrategic use of the internet on the academic adaptation of secondary school learners in Littoral-Cameroon. More specifically, it's interested in the use of the Internet in connection with metacognitive strategies by seeking to investigate the relationship between metacognitive strategies in learning and learners' academic adjustment. To achieve this, a survey was carried out on a sample of 144 secondary school students from Douala IV whose age varies between 18 and 21 years old. The data collected was subjected to descriptive and inferential analyzes. The result from simple linear regression analyzes under SPSS 23 show that the metastrategic use of the internet improves the academic adaptation of learners. Thus, learners who make a metastrategic use of the Internet appear to be more likely to adopt autonomous behaviors during learning by deploying before, during and after, useful skills for reflection on the teaching / learning process and by extension may adapt better academically. The planning of their research activities on the Internet, their self-regulation and their judgment on the knowledge under construction as well as on the choice of actions to be taken become essential levers for their adaptation in a rapidly changing learning environment.

Keywords: Metastrategy, internet, planning, monitoring, academic adaptation

1. INTRODUCTION

Today's modern society offers countless possibilities for training and even self-study for learners. The new directions linked to the many outlets known as the "professions of the future" considerably influence training opportunities as well as the choice of types of training by learners. In this process orchestrated from early schooling to higher education, teachers or experts now occupy a role of mediator within the educational relationship. This requires the reinforcement of certain positive behaviors as well as the mobilization of the learner to become aware of his own thinking processes as well as a reflection on his own cognitive strategies. The teacher's facilitating role now seems to be limited to helping the learner acquire effective information processing methods in order to curb academic failure. In this new context shrouded in an unprecedented frenzy of mutations, we can observe a shift of the traditional school towards a new dimension which now calls for media coverage of human interactions. This is not without counting on information and communication technologies, which the digital revolution has not spared schools. The educational community is thus more

than ever expected in the field of Computerized Human Learning Environments (EIAH) which requires from the learner a complementary suite of cognitive, metacognitive and sociocognitive skills which the new society marked by a qualitative leap demands of him towards the appropriation of the internet tool (Margarida, 2004). Like Karsenti (2004) who thinks that the "exponential presence of technologies also heralds a revolution (...) not only in education but especially in pedagogy", The Cameroonian government has engaged the entire education system of the country in professionalizing education with the inclusion of ICT (Information and Communication Technology) in school programs from kindergarten to doctorate cycle. Moreover, in 2018, the donation of the Head of State of Cameroon, consisting of 500,000 (five hundred thousand) computers distributed free to students seems to go in the direction of an awareness of the importance of ICT in the teaching-learning process. Doper, Karsenti and Kommis (2007) make it one of the greatest fights of this time and the most decisive, the unprecedented changes of which will not leave the school insensitive.

Thus, the constant concern to make learners active and ready to develop themselves new skills useful for their integral training, that is to say on the physical, intellectual and moral level will lead the actors of the school system to the search for ways and means to achieve this objective. The revolution of the century which is the Internet will prove to be impossible to circumvent in the learning process which directly engages the educational act. On this, Macedot (2006) quoting Raby (2004) shows in various research that, the use of the Internet for educational purposes allows learners to learn well and to adapt better to school. According to him, the internet can make a major contribution to improving the quality of education and learning. This makes Soudoplatff (2004: 18), quoted by Lefebvre and Fournier (2014), say that "it is in school that the society of tomorrow is built. This society will be based on knowledge and communication and the internet will be the backbone". However, it appears that the influence of the internet on the teaching-learning process is established and therefore imposes a questioning on the causes of school failures, dropouts or even dropouts that persist in the education system in general and Cameroon in particular. . Thus, during our stay at the Technical High School of Bonendale, we realized, despite the students' variable geometry access to the Internet, the intellectual and progressive impoverishment of the learners. This can be seen in the absence of pre-requisites among students during lessons, very low student participation in lessons and difficulty in completing their homework, while most of them have an internet connection.

It is in this sense that our concern about the persistence of adaptation difficulties among students who are nevertheless connected on a daily basis to the revolutionary learning tool is founded. This justifies the following question: are metacognitive strategies the missing element that disrupts the academic adaptation of secondary school students regularly connected to the Internet? In other words, can the metastrategic use of the Internet explain the academic adaptation among secondary school students in Littoral-Cameroon?
Then, the article analyze the link between the metastrategic use of the internet and the academic adaptation of secondary school students in the Littoral region of Cameroon. More precisely, it involves: 1) describing the use of the Internet in relation to metacognitive strategies among secondary school students in Douala IV; 2) evaluate their research for information related to metacognitive planning; 3) explore their chances of making a good decision (metacognitive judgment) while downloading and using digital media; 4) determine the role of self-regulation in learners and their interactivity on discussion forums.

2. LITERATURE REVIEW
2.1. Academic adaptation

Dobzhansky (2002), Lafortune and Saint-Pierre (1996), Ruel (1984) and Schwanen (2008) present academic adaptation as the appropriation of a teaching, a teaching material or a school environment special needs of some students due to various characteristics. They also consider it to be a synthesis of measures and activities aimed at helping students who have difficulty in harmonizing their school operations as well as with their teachers and their peers. Thus, the school would be in the process of adapting through school adaptation to the young learner rather than the reverse with regard to the adaptation problems observed in our study context such as behavioral disorders, school delays, underperformance, absenteeism and school failures or even dropouts...

Moreover, academic adaptation forms the basis of the learner's ability to adapt to the expectations and requirements of his school environment, which persuades young people to adapt to their school rather than the other way around. More explicitly, we conceive of academic adaptation as the set of attitudes to be developed by the student during learning. With regard to the figure below, this involves monitoring and active participation in the radio courses broadcast, in the review of lessons, in carrying out the exercises and in the student's performance.

Figure 1: Academic adaptation model
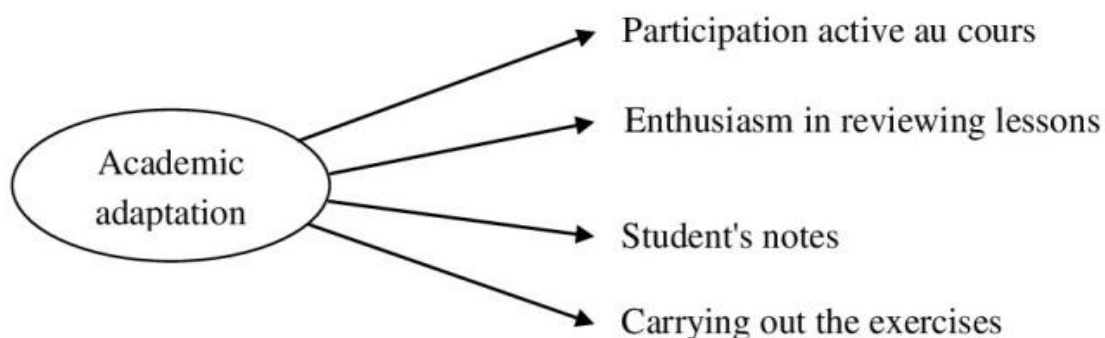
Source: Authors

From a constructivist perspective, Piaget (1947: 13) considers adaptation as "a balance between the actions of the organism on the environment and the reverse actions". In the adaptation process, two mechanisms are put in relation, namely assimilation (integration or acquisition of external elements in the mental structure / intelligence) and accommodation (structures change under the effect of the constraints of the outside world). Thus, acquiring knowledge supposes the activity of learners: activity of manipulation of ideas, knowledge and design.

These activities sometimes come to shake up, upset the learner's ways of doing and understanding. Seen from a constructivist approach, educational technologies would improve student empowerment tools allowing them to move forward at their own pace (educational platform, teaching materials) using collaborative or cooperative tools (tele-correspondence, blogs). This is how, some conceptions appeal to the member of the educational community, who plays a primordial role in the construction of their knowledge. This new conception of the construction of knowledge gave way to socioconstructivism, developed by Vygotsky. Vygotsky (1934), in developing the historical-cultural theory of development recognizes that the learner builds his knowledge through and with the other. The sociocognitive or socio-

constructive approach introduces an additional dimension, that of interactions, exchanges, verbalization work, co-construction, co-elaboration. Thus, learning becomes a self-socio-construction of knowledge and is considered more as the product of socio-cognitive activities linked to didactic exchanges between teacher-pupils and pupils-pupils. To this end, the conditions for activating learners appear essential, because what is at stake in learning is not only the acquisition of new knowledge or the restructuring of existing knowledge; it is also the development of the ability to learn, understand, analyze and master tools. Indeed, the uses of the Internet could be a springboard for the personal development of students and independent learning. Given that, for socioconstructivism, children co-construct their intelligence through their activities. To this end, the activities of learners on the internet and more specifically the search for information on search engines and sites allow them to build their intelligence.

All in all, learning is no longer limited to an individual and internal activity because, according to Siemens and Downes (2005) in a connectivist approach, learning becomes the ability to take advantage of information flows and to follow among these flows those that are important. We now also learn through all the interactions allowed by the networks. Being permanently connected allows us to constantly develop new knowledge by reacting on a forum, watching videos, participating in a debate, reading a blog, etc. In this sense, we interact with people we would not have met otherwise and we gain access to a wealth of knowledge. Everyone can share and build their own knowledge. Therefore, it becomes essential for the learner during his research on the Internet, to do some planning in order to find the right information to meet his educational needs. This is also important for the processing of this information in order to better adapt it to its context of use and especially to adjust its behaviors during its interactivity on the forums

2.2. Metastrategic use of the Internet as a lever for adaptation

The metacognitive strategy is a major player in the learning process and could help distinguish the good from the bad student. Indeed, in his work, Lancelot (1999) already posed the question of why there are only a minority of good students. He arrives at the answer that to be good, a student must be naturally and permanently metacognitive. Then, the metacognitive process allows the student to learn to know what he knows, to be competent in the designation with certainty of his knowledge, know-how and interpersonal skills. Thus, learners in difficulty are those who lack knowledge about their own knowledge or that it is inaccessible to them. To this end, "scapegoats" remain factors that the subject cannot control and which also inhibits any endurance or personal approach in defining a problem-solving strategy (Lancelot, 1999).

Regarding the examination of metacognitive strategies, it appears that learning is a cognitive process that requires planning, regulation and judgment. These strategies support the self-regulation and self-evaluation of learning that can be called upon in different types of learning. While situating cognitive strategies in the specific strategies of a discipline, it must be recognized that learning to take notes and write a report of a learning, for example, remains a metacognitive strategy, unlike learning to reference the metadata of 'a web page which is specific knowledge and therefore cognitive. This will be more accentuated when it comes to carrying out learning by pulling information from the internet. Therefore, there seems to be a problem in the use of ICTs and in particular the Internet by users. In this regard, Kutche, Ngae and Essomme (2020) indicate that the use corresponds to what actors actually do with technical objects. It refers to a set of practices that allow the user to achieve a specific goal. As such, one would expect that the use of the Internet by students would be a lever to facilitate their academic adaptation. But the reality seems to be quite different and we are

justified in asking the question of knowing what justifies the mismatch between the use of the Internet and academic adaptation among learners? Since the internet is a place where everyone publishes information, it is important for the subject to develop metacognitive strategies when on the internet. Therefore, does metacognitive use of the Internet reduce the problem of academic adaptation? According to UNESCO (1996), being connected to the Internet remains one of the most widespread sources of information and documentation in the world. This would explain why Rondeau (1997) believes that the younger generations engage more and more without moderation, for hours at a time in a larger universe of often very violent and rarely educational images that gradually transform them into loyal passive customers of sensations. , images and sounds. Thus, the problem of the mismatch between the use of the Internet and academic adaptation finds its relevance since it appears incongruous that in view of all the opportunities offered by the Internet, that a learner who uses it regularly cannot improve his knowledge and therefore adapt better to school.

Based on these observations and the existence of a theoretical relationship between internet use and learning activities, this article focuses on the academic adaptation of secondary school students to Douala IV in a confinement context due to the Covid 19 pandemic and the development of mediated (radio and television) teaching through the personal use of metacognitive strategies by the learner during his learning (Campo & Louvet (2016), HOC (1996), Cosnefroy (2013), Brown (1987) Furthermore, this study examines the higher dimension of knowledge, in other words, "knowledge of knowledge" through the conscious gaze from within, introspection on the course of cognitive activities…

All in all, the concept of metacognition forged by Flavell in 1976 remains a skill of asking questions in order to plan, constantly assess oneself before, during and after the task and readjust as needed. It is in this sense that Romainville, Noël & Wolfs (1995) give a more exhaustive definition by making it a mental process whose objective is either a cognitive activity or a set of cognitive activities. Its objective here is to produce a judgment (usually not expressed) on the quality of the mental activities in question or of their product and possibly a decision to modify the cognitive activity, its product or even the situation which aroused it. This is why it refers to knowledge, cognition and cognitive regulation. Thus, it is summed up in an analysis that a subject makes of his intellectual functioning and thus constitutes a self-regulated process of the acquisition of knowledge. We make it a set of cognitive activities oriented towards meta-knowledge and control of the cognitive system. Accordingly, when a subject is in the presence of an activity, he must, in relation to cognitive factors, be aware of the demands of the task and of the strategies by which he can adequately perform said task.

Figure 2: Diagram of a metacognitive process.
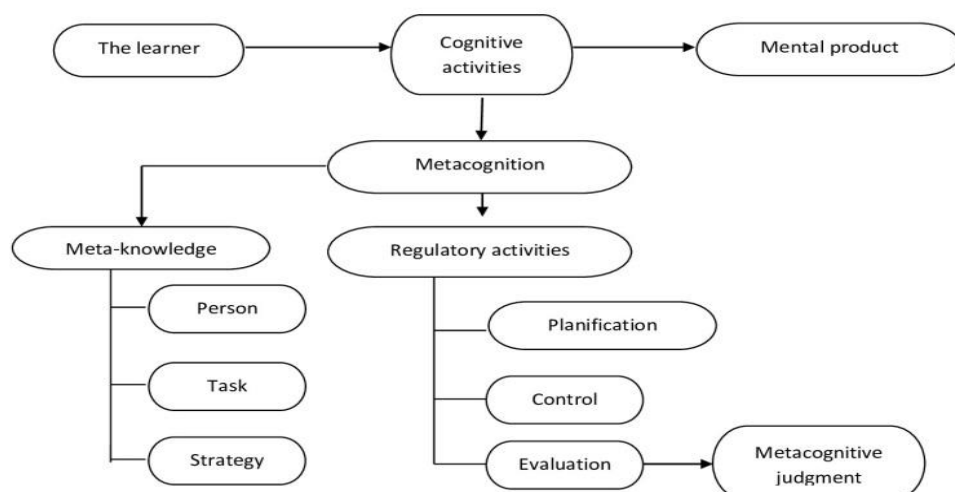
Source: Noël (1977) Taken up by Legendre (1993, p.835).

In the diagram above, metacognition is presented as a process with three main phases. In the first, the learner performs cognitive activities such as learning about a specific article on the internet. In the second, he wants to have knowledge of the activities and cognitive mechanisms he deploys: these are the meta-knowledge (person, tasks and strategies). Finally, a third phase concerns the activities of regulation of thought (planning, control, evaluation) that the learner formulates, the metacognitive judgment on his cognitive performance. This is what makes metacognition a mental product. The learner should be able to mentally organize his work before starting to perform it through metacognitive strategies.
Brown (1987) turns metacognitive strategies into "cognition regulation" activities. Distinguishing the activities of forecasting (the level of performance and difficulties specific to the task), planning (forecasting consequences, planning strategies), monitoring (control of cognitive activity) and verification of results (evaluation of the result of strategic actions with regard to the criteria of effectiveness), Brown qualifies the metacognitive strategies of activities used in order to regulate and monitor learning. These self-regulatory mechanisms are put in place during a task by "active learners" who, aware of their strategies in managing their cognitive process, make the necessary corrections during the performance of the task. This capacity underpins planning, decision-making and self-regulation in this work.

Figure 3: Diagram of cognitive metastrategies
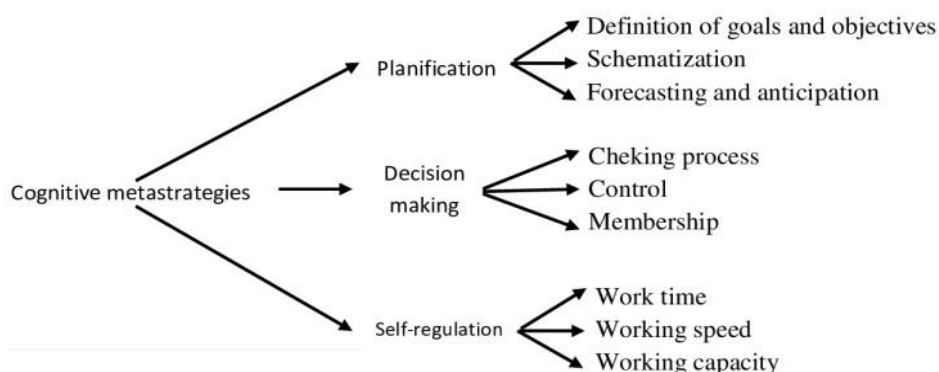
Source: Authors

3. METHODOLOGY
3.1. Participants and procedures
The target population is all secondary school students in Cameroon. Sampling was done at two levels. At the level of city choices and at the level of the establishments selected in order to retain the subjects to be evaluated. In practice, schools have been hand-selected on the basis of accessibility; as well as the proximity and interpersonal relationships that we had with managers who could facilitate data collection in certain establishments. We therefore chose three high schools in Douala namely: the Bilingual High School in Bonaberi, the Bilingual High School in Bojongo and the Bilingual High School in Sodiko. Using judgmental sampling, we retained 150 students in third grade in our high schools. We opted for non-probability sampling, precisely reasoned in order to have the chance to work with all the students willing to integrate the sample, the goal being to meet the criterion of representativeness of the sample. At the end of the administration of the questionnaire, the counting allowed us to have at the end 144 well completed questionnaires. This is explained by the special nature of the measures taken in this time of health crisis due to Covid-19 and the sufficiently overloaded schedules.

3.2. Materials

All the measuring instruments used exhibited satisfactory psychometric properties, attesting to their good internal consistency (minimum Cronbach's alpha being 0.82) and their good dimensionality (minimum total variance represented being 62% and all the commonalities greater than 50%). The study variables used are: the search for information related to planning (metacognitive), decision making (metacognitive judgment) during the downloading and exploitation of digital media, self-regulation of its interactivity on debate or discussion forum and school adaptation. Due to the qualities of the concepts handled, the data collection technique is housed in "off-line" methods which, through a questionnaire, lead to self-observation and self-assessment.

The items handled derive from the following variables: the organized selection of information on the internet; informed decisions about the use of digital media; the constant use of virtual data by Internet users; self-regulated student activity during the teaching / learning process and student grades. The self-assessment questionnaire accompanies each respondent in taking a position on a given proposal. Empirically, the participant chooses a personal position and examines himself in the situation, then positions himself according to his experience. The questionnaire begins with an identifying part (sex, age, level of education, socioeconomic status of parents). Then, another which contains the items grouped into five headings. In fact, five items assess the use of the Internet (Research on sites or search engines, research on specialized sites, use of terminology and its handling). Four items measure the downloading and use of digital media (downloading digital text media, downloading sounds and videos, downloading games, using digital text media). Finally, six relate to interactivity on debate forums (registration on debate or discussion forums, maintenance of your user profile and participation in debate forums). The peculiarity here is that the propositions are formulated in the first person of the singular "I connect from a (e): (possibility to tick several answers in order of priority using the numbers from 1 to 4)", «I develop a general plan (however modifiable) of research before engaging in research". The subjects have the feeling of being particularly challenged in their singularity to each expose their own situation, especially vis-à-vis the object under study.

On the basis of the items formulated thanks to the indicators of the variables handled, the research questions and the nature of the variables which are all nominal and plurimodal, simple linear regression analyzes were carried out using the SPSS 23.0 software carried out in order to establish a cause and effect relationship between the use of the Internet linked to metacognitive strategies (X) and academic adaptation (Y).

4. RESULTS

Three hypotheses are tested in this study concerning the effects of seeking information related to planning (metacognitive), decision-making (metacognitive judgment) during the downloading and exploitation of digital media and the self-regulation of its interactivity on debate forums or exchange forums on academic adaptation.

Regarding the effects of seeking information on academic adaptation (HR1), the results of the regression analyzes are given in Table 1.

Table 1: Regression model of the search for information on academic adaptation

Coefficients[a]

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	A	Std. Error	Beta		
(Constant)	2,159	,047		45,629	,000
1 Seeking information	,185	,047	,610	3,904	,000

Table 1 shows that the search for information has a positive and significant effect on academic adaptation with a very interesting Beta β = 0.610, a Student's t = 3.90 and a very significant p-value (p <0.001). Therefore, we can reject the hypothesis that the relationship found in the sample is due to chance. From this perspective, the regression equation obtained is the following Y = 0.610 X. Thus, the HR1 hypothesis according to which the search for information related to planning (metacognitive) influences academic adaptation is verified.

The second hypothesis relates to the influence of decision-making during the downloading and use of digital media on academic adaptation (HR2). The results obtained are shown in the following table:

Table 2: Regression model of decision-making during downloading and use of digital media on academic adaptation

Coefficients^a

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		A	Std. Error	Beta		
1	(Constant)	2,159	,039		55,524	,000
	Downloading supports	,373	,039	,624	9,556	,000

Table 2 indicates a very interesting Beta β = 0.624, a Student's t = 9.55 and a very significant p-value (p <0.001). From this perspective, the regression equation we obtain is the following Y = 0.624 X. Therefore, the H2 hypothesis according to which the decision-making during the downloading and the exploitation of digital media impacts special education is verified.

The result of simple linear regression analyzes relating academic adaptation and the self-regulation of its interactivity on exchange forums (HR3) are shown in Table 3:

Table 3: Regression model of self-regulation of interactivity on discussion forums on academic adaptation

Coefficients^a

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		A	Std. Error	Beta		
1	(Constant)	2,159	,049		44,008	,000
	Interactivity on exchange forums	,101	,049	,669	2,048	,002

The value of the regression coefficient beta is interesting (0.669). The Student's T associated with this regression is positive (2.048) and significant at the 1% level. So, the regression equation we come up with is Y = 0.669 X. Therefore, the HR3 hypothesis that self-regulation of interactivity on exchange forums influences school adaptation is verified.

Thus, the verification of our specific hypotheses allows us to conclude that the metastrategic

use of the Internet influences academic adaptation.

5. DISCUSSION

The results obtained show that the Internet is essential in the teaching / learning process in particular and in training in general. this is all the more true in this time of confinement due to covid-19, which requires all training institutions to adopt new behaviors, new approaches, in particular e-learning. What is more, the use of the internet combined with metacognitive strategies is essential for learners engaged in lifelong learning in order to acquire new knowledge useful for their academic improvement. Based on the foregoing, the academic adaptation of secondary school students depends on a sociocognitive sculpture marked by systematic exchanges between the learner and his immediate and distant entourage via the interconnection of networks that make the planet a global village. It is about the interdependence between learners, programs, training, goals, schedules, decision making and the use of online data or even online education, etc. However, the acquisition of new knowledge as well as its restitution is the result of an active process by the student.

A theoretical analysis of the use of the internet in relation to metacognitive strategies has enabled us to understand with constructivism that the individual construction of knowledge by the pupil is followed and consolidated by a process of social facilitation of his peers (socioconstructivism). This is what allows connectivism to make us understand that the learner can easily acquire divergent thinking because the diversity of sources is an asset in the harmonization of differential acquisitions. Multimedia learning explains in this regard that being permanently connected allows the student to constantly develop new knowledge, provided that the value of the strengths of this combination is prioritized. According to Dale (1946) in the Learning Pyramid, the memorization sequence allows learners to retain 50% of the information we have seen and heard in two weeks. This rather effective passivity in terms of learning does not exclude the low retention of only 10% of the information read. In the same lineament, Tversky and Kahneman (1983) in their model by elimination of attributes point out that the student who carries out a research on the Internet faces a multitude of possible choices in relation to a research subject. To do this, he must carefully analyze all the alternatives available to him in order to reduce as much as possible non-specific files in downloading or using the file best suited to his research. In other words, the use of the Internet in connection with metacognitive strategies will allow Douala IV students to improve their academic adaptation through planning in the search for information, decision-making during the downloading and exploitation as well as self-regulation of its participation in the fora. Thus, Raby (2004), Lefebvre and Fournier (2014) support a similar perspective by asserting that the personal and professional uses of ICT made by teachers improve their teaching practices and place them at the stage of appropriation, thus accounting for frequent performance of activities in an active and meaningful learning environment.

Connected to the computer or the telephone, the Internet is a powerful tool for the dissemination of information. One of its advantages is the possibility that it offers to search on the web rich in academic, extracurricular information, dialogue, immediate communication with other Internet users, which goes far beyond the individual relationship between the reader and the book, as well as the traditional relationship between student and teacher. Indeed, the internet in education can bring a lot to students who rely on its rich and diverse resources. It provides students with a variety of educational resources and helps make science accessible to everyone. Moreover, in Africa, where the school book is almost inaccessible to the poor, the Internet via search engines and sites can remedy this inequitable situation and place knowledge within the reach of all students without discrimination (Pouts-Lajus, 1998). Thus the Internet and its scope for learning are perceived from the outset by learners as a tool for the appropriation of knowledge, access to academic knowledge and the

production of documents. It is appreciated as having a positive impact on learning. This positive assessment assumes that the learner is accompanied by an instructor. In fact, by massively introducing digital technology into learning, we are not transforming students into special creatures, we are rather enabling them to adapt better academically.

However, it is not the Internet that will enrich the learning of learners, but the way in which they use this tool. Thus said, the student must make metacognitive use of it. In other words, he must be able to plan his internet activities through anticipation, because if he does not anticipate he might be surprised by the harmful side of the internet. Still in the same vein, the student must be able to sort through all the information obtained from the internet in order to make an optimal choice. In addition, he must monitor himself and control his interactivity on the internet. Therefore, when we embrace the spider's silk web and weave the bonds that shape our future and the nature of our networks, we must consider our values (Carchidi, 1997), because our web, our web will be a reflection of our life and our vision of the world. To take up Pelgrum's recommendations in the UNESCO report (2004), we say that this dynamic of change assumes that the teacher and learning must evolve from content to process, from cognitive development to metacognitive development and affective, from learning as an individual activity to learning as a collective initiative, from learning as the reproduction of what is known to learning as a productive process of new discoveries and solutions.

6. CONCLUSION

The objective of this article was to investigate the influence of the use of the Internet in relation to metacognitive strategies on academic adaptation based on the double observation of the progressive and intellectual impoverishment of students in terms of knowledge (school performance) while using the internet on a daily basis. Although they are familiar with this tool, they do not always use it spontaneously and primarily for their learning, hence the interest of resorting to metacognitive strategies when using the internet in the search for a better academic adaptation of students from the Littoral region in Cameroon. These strategies are techniques that are set in motion by the learner each time they engage in learning via the Internet. They take into account the latter's ability to be a planner in the search for information, to make adequate decisions during downloading and their exploitation, as well as to be self-regulator of his participation in the debate on forums. Moreover, the metacognitive uses of the Internet are not part of a utopia but of a sufficiently elaborate organization whose purpose is to make adequate learning operational. Failure to master these strategies which constitute this organization can lead the learner to make ineffective choices, to use ineffective methods and thus weaken his desire to learn.

The concern for improving the academic performance of secondary school students in the Cameroonian context and in the coastal region in particular requires that teachers first make an effort to update their knowledge and pedagogies in order to help learners to adopt genuine reflective behaviors on their ability to use the internet tool metacognitively. Thus, our findings indicate that metacognitive strategies supported by the use of the Internet are likely to improve, from a holistic perspective, the school adaptation of secondary school learners. Henceforth, strategies for planning and monitoring information (extracted or to be extracted) appear to be essential variables in all school learning, whether virtual or not. They are then presented as "skills" to be integrated into the learner to lead them optimally towards any new learning and specifically that mediated during these periods of confinement.

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