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THE AVAILABILITY AND USE OF ICTs IN THE TEACHING AND LEARNING OF COMPUTER SCIENCE IN SECONDARY SCHOOLS IN THE SOUTH WEST REGION OF CAMEROON

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Abstract

The purpose of the study was to investigate the availability and use of Information and Communication Technologies (ICTs) in the Teaching and Learning of Computer Science in Secondary Schools in the South West Region of Cameroon. This study employed a descriptive survey research design. The target population of this study was made up of all the students from 387 secondary schools in the South West Region of Cameroon. The accessible population was all the students from nine (9) secondary schools drawn via simple random sampling technique. The sample for the study constituted 280 students and 33 teachers from schools that offer Computer Science as a subject at the Cameroon General Certificate of Education examination. The instruments used for data collection were questionnaires designed for secondary school teachers and students. The reliability coefficients of the instruments were α = 0.85 and α = 0.76 for the questionnaire for teachers and students respectively. Data were collated and analyzed using frequency counts, percentages, mean scores and standard deviations. The study revealed that ICT tools are available to a low extent [Teachers' opinion ($\bar{x}$ = 1.51±0.60), Students' opinion ($\bar{x}$ = 1.84±0.72)]; ICT tools are used for teaching computer science to a low extent ($\bar{x}$ = 1.98±0.84) and are used for studying computer science to a low extent ($\bar{x}$ = 1.82±0.98) in Secondary Schools in the South West Region of Cameroon. The government and all stakeholders should make ICT tools available to teachers and students by creating and/or furnishing ICT centers in Secondary Schools in the South West Region and Cameroon at large.

Key words: *Availability and use, Information and Communication Technologies, Teaching and Learning of Computer Science, Secondary Schools, South West Region of Cameroon.*

Introduction

The world today is characterized by rapid technological growth, scientific advancement and the development of communication and transportation networks. For these reasons the world is shrinking into a global village though with political, geographical and socio-economic boundaries. The International Technology Education Association (ITEA, 2000) emphasized that technology is human innovation in actions that involve the generation of knowledge and process to develop systems that solve problems and extend human capabilities and innovations. Modern age has witnessed many changes such as rapid scientific and technological advancement, information revolution caused by technology, knowledge explosion, population explosion, globalization, rapid urbanization, emergence of multiculturalism and so on.

According to Daniels (2002), Information and Communication Technologies (ICTs) have become within a very short time, one of the basic building blocks of modern society. Many countries now regard understanding ICTs and mastering the basic skills and concepts of ICTs as part of the core of education, just like reading, writing and numeracy was the case in the past. All these changes and development have given education a new role and shape and thus, the role of the teacher is also in transform. The World Bank (2006) rightly stated that the development of ICTs is a prerequisite to sustain development for all countries, socially, economically, educationally, politically, among others. ICT constitutes a tool that can bring about good governance characterized by participatory decision making, accountability, transparency responsiveness and equity. ICTs are simply technologies arising from scientific and technological progress in computer sciences, electronics and telecommunications (Mbangwana, 2008).

The field of education has been affected by ICTs, which have undoubtedly affected teaching, learning and research. ICTs have the potential to innovate, accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools change (Yusuf, 2005). The advances in information and communication systems and services are evolving quickly to tear down the walls of a traditional classroom environment, giving rise to new modes of teaching and learning (Chong, 1997; cited in Mambe, 2005). There is therefore a growing importance of educational technology in educational systems worldwide. This is probably due to the impact of educational technology on educational development in general.

According to Majumdar (2006), education around the world is experiencing major paradigm shifts in educational practices of teaching and learning. Over the past few decades, ICTs have become gradually more important to schools and Universities. The development of new broadband communication services and convergence of telecommunication with computers have created numerous possibilities to use a variety of new technology tools for teaching and learning system. Majumdar stated that a wide range of researches exist to explore and study the use of ICT in the process of teaching and learning in secondary schools. Therefore, one of the basic requirements for education in the future is to prepare learners for participation in a networked information society in which knowledge will be the most critical resource for social and economic development. The fast development of technology has led to a widespread use of ICTs in education. In the so called ‘Knowledge Age’, it is necessary to help students to become knowledgeable as well as productive members of society, working and participating with others in different groups and communities.

Technological and scientific advancements have resulted in wide-spread use of electronic communication and information media taking place both in day-to-day life at home and academic life at schools. This makes access easy and quick to the body of knowledge available anywhere at any time. People have different ways and means at their discretion for this purpose, such as the internet which connects the whole world through a mouse click,

electronic media like television and radio and so on. Mobile phones are also upcoming media for sharing information and knowledge as they are portable, cost-effective and easy to use and thus having wide-spread reach (Sahu & Pradhan, 2015).

In Cameroon, during the National Forum on Education which took place in Yaoundé from the 22nd to 27th of May 1995, nothing was said about the use of ICTs in schools. However, the law of orientation of basic and secondary Education (Law No.98/004 of April 14, 1998) which is mostly based on the recommendations of the National Education Forum of 1995 generally acknowledges the potential contributions of ICTs in education. Section 25 (part III) of this same law states that:

> The education provided in schools shall take into account scientific and technological advancement and shall be tailored in terms of content and method, to national and international economic, scientific, technological, social and cultural trends.

The Cameroon government officially introduced ICTs in schools in 2001 though by the early 1990s, some private schools had already introduced ICTs into their curricula, but there was no specific policy guiding the teaching or use of ICTs in education. This made private institutions to apply different kinds of curriculum to match their objectives and teaching methods. The project for introducing ICTs in schools was only given an impetus by two presidential policy statements in 2001, which brought ICTs into the realm of education at all levels of schooling. These statements made it clear that imported computers and their accessories were to be duty free for schools. The President of the Republic promised the introduction of computing in schools and the endowment of computer rooms to schools. The impact of this Presidential policy speech accelerated in 2002, with the introduction of ICTs in secondary general and technical schools. Numerous schools have also benefited from presidential "gifts" of multimedia centers connected to internet. The Cameroonian government has spent huge sums of money and also implemented series of measures to introduce ICT education as a priority in all her levels of education. The projects are implemented in collaboration with external partners and with support from the president of the Republic. The implementation phase started in 2001 and, since then, the government has signed a number of decrees to pave the way for the introduction of ICTs in education. Official programs of ICTs were designed for secondary schools in 2003 (Josué, 2007; Etang, 2016).

The Ministry of Education by then further developed a strategy for the implementation of the national ICT policy in basic education. The strategy included the training in ICT for teachers and school directors and integration of ICT into the curriculum. It also drafted national guidelines for teaching ICT in pre-school and primary schools, with six different modules adapted to each level, from discovery and presentation skills to applying skills to knowledge construction and finally learning health and safety issues related to the use of ICT. The teacher modules include productivity and research, applying ICT to teaching and learning, evaluation, and the social, moral, and human questions related to ethics and equality (République du Cameroun, 2007a; cited by Mbangwana, 2008).

Statement of the Problem

The Cameroon government since the 2000s has been and is still adopting policies and introducing programs to encourage the acquisition and the use of ICTs especially in the educational domain. The sole aim is to equip young Cameroonians with the skills needed to assess these unavoidable technologies that have plagued the 21st century. Computer Science as a subject discipline in Cameroon secondary schools was instituted by the government of Cameroon in the 2002/2003 school year. Given its importance, it is implemented as a transversal discipline with a view to serve as a component of and also facilitate ICT integration. Drawn from three main

knowledge areas, its syllabus is intended to prepare students to demonstrate digital competency by integrating these knowledge areas: Computer Science, Information and Communication Technologies and digital literacy. Thus the aims of the syllabus reflect this peculiarity whereby students demonstrate understanding, and apply the fundamental principles and concepts of computer science, analyze problems in computational terms, and have practical experience of writing simple computer programs in order to solve problems. Students evaluate and apply Information and Communication Technologies, including new or unfamiliar technologies analytically to solve problems including using computers to learn (The Ministry of Secondary Education (MINESEC, 2014).

Unfortunately, most secondary schools in Cameroon still use the same didactic materials (blackboard, chalk, textbooks though limited) as in the traditional style of teaching to deliver lectures on computer science and other subjects. This could be either because ICTs are not available, teachers and students having no access to them or they do not know how to use them. The increasing calls and high demands for use of ICTs in the Cameroon educational systems have been addressed to a considerable extent by the Cameroonian government as a result to upgrade our traditional educational system to meet up with this present day societal changes, since education is a key agent of change in the society. The Cameroonian government since 2003 has been putting in efforts to make these ICT tools available in her schools. This therefore constitutes a critical challenge to the country and its leaders especially in making them available for usage during teaching and learning. This can be seen in the President of the Republic's (H.E Paul Biya's Higher education vision 'PB hev') ongoing gesture of donating 500,000 'PB hev' laptops to University students. It is pivotal to find out if these ICTs are available and used in the process of teaching and learning Computer Science and other subjects in schools since it is a didactic material for the subject.

It is therefore evident that in order to effectively achieve the aims of this subject discipline there is the need for the availability and use of ICTs in teaching and learning Computer Science. There is need to find out the Availability and Use of ICTs in the Teaching and Learning of Computer Science in Secondary Schools since it is one of the foundation block stages needed to build a successful academic career for Cameroonians. The problem of the study posed as a question is: To what extent are ICT tools available and used in the Teaching and Learning of Computer Science in Secondary Schools in the South West Region of Cameroon?

Specific Research Questions

1. To what extent are ICT tools available for teaching Computer Science in Secondary Schools in the South West Region of Cameroon?
2. To what extent are ICT tools available for learning Computer Science in Secondary Schools in the South West Region of Cameroon?
3. To what extent do teachers use ICT tools when teaching Computer Science in Secondary Schools in the South West Region of Cameroon?
4. To what extent do students use ICT tools when studying Computer Science in Secondary Schools in the South West Region of Cameroon?

Scope of the Study

Geographically, this study was carried out in the South West Region of Cameroon. In this study, the students and teachers of nine (9) randomly selected secondary schools were involved. The study was carried out in three randomly selected divisions in the South West region of Cameroon namely; Manyu, Meme, and Fako divisions. Content wise, the study was delimited to the availability and use of ICTs in the teaching and learning of computer science in Secondary Schools in the South West Region of Cameroon.

Research Design

This study employed a descriptive survey research design to obtain information concerning the current status of ICT tools in Cameroon. This design was found appropriate because data were collected and used to describe how Secondary schools in the South West Region of Cameroon make use of ICT tools during teaching and learning of Computer Science. According to Nworgu (1991), a survey research is one in which a group of people or items is studied by collecting and analyzing data from only a few people or items considered to be representative of the entire group.

Area of Study

South West Region constitutes part of the territories of the former Southern Cameroons which is today one of the ten regions of Cameroon with Buea as the regional capital, located at the foot of Mount Fako. The region is further divided into six major divisions namely; Fako, Koupé-Manengouba, Lebialem, Manyu, Meme, and Ndian. These are in turn broken down into subdivisions and presidentially appointed Senior Divisional Officers (SDOs) and Sub-Divisional Officers (DOs) govern each respectively. The South West Region of Cameroon occupies a surface land area of about 25,410km sq. (9,811sq. mi), a population of about 14,810,433 (2013), a density of 583/km sq. (1,510/ sq. mi) (5th).

Important towns include Buea (the regional capital), Limbe, Tiko, Kumba and Mamfe. Limbe in particular is a popular tourist resort town notable for its fine beaches. The Korup National Park is also a major attraction. Buea is at the foot of Mount Cameroon, and possesses an almost temperate climate markedly different from the rest of the regions. The region was notable for having the first English-speaking University in Cameroon, the University of Buea, 'a place to be' as is often called, and many private higher institutions of learning. The region equally has many secondary schools spotted in the various divisions and sub divisions. These institutions are Public, Denominational and Lay-private secondary schools with Teacher Training colleges and Technical secondary schools.

Population of the Study

The target population of this study was made up of all the students from 387 secondary schools in the South West Region of Cameroon. The accessible population was all the students from nine (9) secondary schools drawn via simple random sampling technique.

Sample and Sampling Techniques

The sample for the study constituted 280 students and 33 teachers from schools which offer Computer Science as a subject at the Cameroon General Certificate of Education examination. The purposive sampling technique was used to select schools that offer Computer Science, and then the simple random sampling technique was used to select the 280 students and 33 teachers which give a total sample size of 313 respondents for the study.

Instrumentation

The instruments used for data collection were questionnaires designed for secondary school teachers and students of the South West Region of Cameroon. The questionnaires were accompanied by a cover letter to explain the purpose and significance of the study as well as assurance of anonymity, confidentiality and no risk of harm as a result of participation. The questionnaires were divided into Section A and Section B. Section A sought demographic information like the name of the school, class (questionnaire for students), and teaching classes (questionnaire for teachers) was requested from the respondents, including gender and ages. Section B constituted items relating to the various research questions designed to guide the study.

The Section B of the questionnaires for students and teachers consisted of items formulated from the four research questions. Research questions one and two had eleven (11) items each for respondents to tick High, Average, or Low (High = 3, Average = 2, Low = 1). Research questions three and four also has 11 items each presented in a Likert scale form for respondents to rate them by ticking Strongly Agree (SA = 4), Agree (A = 3), Disagree (D = 2), and Strongly Disagree (SD = 1).

Validity and Reliability of the Instruments

In order to ensure the validity of the instruments, four experts in the Faculty of Education, University of Buea read through and made corrections and suggestions on the language, clarity, relevance and appropriateness of items, response options and fitness or alignment to the research questions. The necessary corrections were made and the instruments were considered valid for the study.

To ensure that the instruments measured consistently what it was designed to measure, a trial test was conducted in Bilingual Grammar School Molyko Buea and Salvation Bilingual High School Buea in Fako Division. The Cronbach Alpha was used to determine the reliability of the instrument. The reliability coefficients of the instruments were 0.85 and 0.76 for the questionnaire for teachers and students respectively.

Administration of Instruments

A letter was presented to the various school principals whose schools form the sample of the study before administering the instruments. This was done in order to identify the researchers and their mission, and also to facilitate the administration process. The researchers administered 280 copies of the questionnaires to students and 33 to teachers. Data were collated and analyzed using frequency counts and percentages.

Data Analyses and Findings

Decision level: The decisions are taken based on the following mean scores; High = 2.5 - 3, Average = 2 - 2.49, Low = 1 - 1.99.

1. ***To what extent are ICT tools available for teaching Computer Science in Secondary Schools in the South West Region of Cameroon?***

Table 1: Teachers' perception on ICT tools available for teaching Computer Science

S/N	Items	H=3	A=2	L=1	Total	$\bar{x}$	s	Dec.
1.	Desktop Computer	11	20	2	75	2.27	.57	A
2.	Laptop	4	8	21	49	1.48	.71	L
3.	Interactive White Board	3	7	23	46	1.39	.66	L
4.	Video Player	1	13	20	48	1.45	.56	L
5.	Internet	1	13	21	48	1.45	.56	L
6.	Digital Camera	2	8	23	45	1.36	.60	L
7.	Printer	3	12	16	51	1.55	.67	L
8.	Multimedia Projector	1	10	22	45	1.36	.55	L
9.	Projector Screen	1	7	26	42	1.27	.52	L
10.	Scanner	0	12	21	45	1.36	.49	L
11.	Photocopying Machine	3	14	16	53	1.61	.66	L
Total / Average		**30**	**124**	**211**	**547**	**1.51**	**0.60**	**L**

H = High, A = Average, L = low, $\bar{x}$ = Mean score, s = Standard deviation, Dec. = Decision

The table above shows that only desktop computers are averagely available to teach computer science in Secondary Schools in the South West Region of Cameroon. Meanwhile laptops, interactive white boards, video players, internet, digital cameras, printers, multimedia projectors, projector screens, scanners and photocopy machines are available but to a low extent. According teachers, ICT tools are available for the teaching of computer science to a low extent ($\bar{x}$ = 1.51±0.60) in Secondary Schools in the South West Region of Cameroon.

Table 2: Students' perception on ICT tools available for teaching Computer Science

S/N	Items	H=3	A=2	L=1	Total	$\bar{x}$	s	Dec.
1.	Desktop Computer	137	119	24	673	2.40	.64	A
2.	Laptop	14	32	234	340	1.21	.52	L
3.	Interactive White Board	39	71	170	429	1.53	.73	L
4.	Video Player	67	80	133	494	1.76	.81	L
5.	Internet	96	99	85	571	2.04	.80	A
6.	Digital Camera	37	85	158	439	1.57	.72	L
7.	Printer	128	100	52	636	2.27	.76	A
8.	Multimedia Projector	44	70	166	438	1.56	.75	L
9.	Projector Screen	29	71	180	409	1.46	.68	L
10.	Scanner	90	89	101	549	1.96	.83	L
11.	Photocopying Machine	160	80	40	680	2.43	.73	A
Total / Average		**841**	**896**	**1343**	**5658**	**1.84**	**0.72**	**L**

H = High, A = Average, L = low, $\bar{x}$ = Mean score, s = Standard deviation, Dec. = Decision

From the table above, students accepted that desktop computers, internet, printers, and photocopy machines are averagely available to teach computer science in Secondary Schools in the South West Region of Cameroon. Meanwhile laptops, interactive white boards, video players, digital cameras, multimedia projectors, projector screens, and scanners are available but to a low extent. According to students, ICT tools are available for the teaching of computer science to a low extent ($\bar{x}$ = 1.84±0.72) in Secondary Schools in the South West Region of Cameroon.

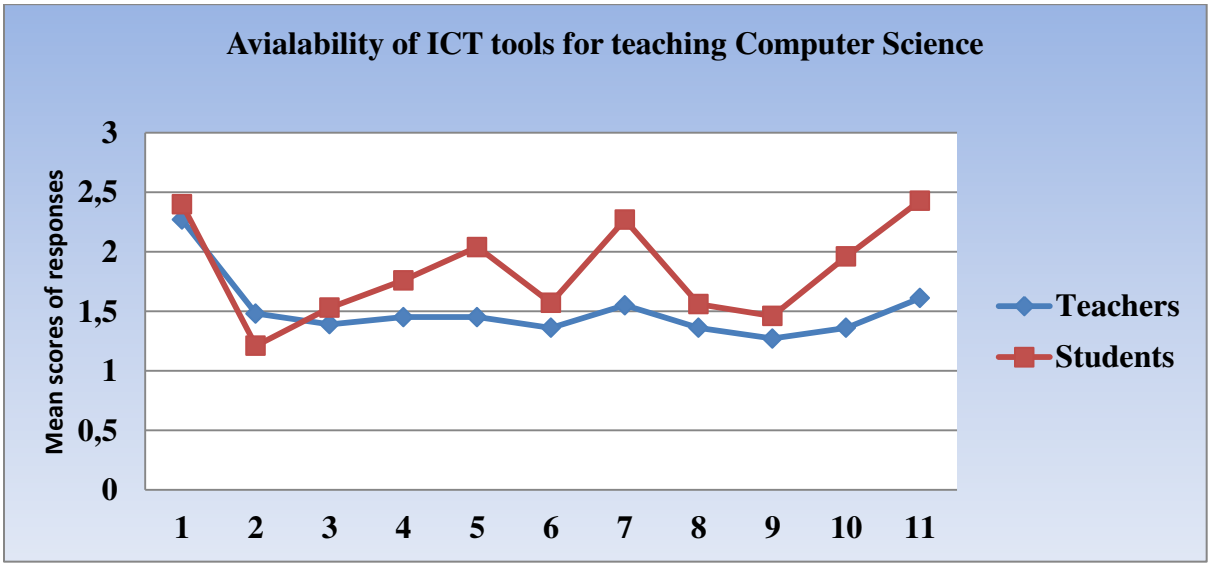

Figure 1: ICT tools available for teaching Computer Science

The relationship between the responses of teachers and students concerning the availability of ICT tools for the teaching of computer science in Secondary Schools in the South West Region of Cameroon was found to be significant (r = 0.632 at .05 level probability level).

2. ***To what extent are ICT tools available for learning Computer Science in Secondary Schools in the South West Region of Cameroon?***

Table 3: Teachers' perception on ICT tools available for learning Computer Science

S/N	Items	H=3	A=2	L=1	Total	$\bar{x}$	s	Dec.
1.	Desktop Computer	10	18	5	71	2.15	.67	A
2.	Laptop	4	9	21	50	1.51	.71	L
3.	Interactive White Board	2	9	22	47	1.42	.61	L
4.	Video Player	3	5	25	44	1.33	.65	L
5.	Internet	2	9	23	46	1.39	.61	L
6.	Digital Camera	2	8	23	45	1.36	.60	L
7.	Printer	4	8	21	49	1.48	.71	L
8.	Multimedia Projector	2	5	27	42	1.27	.57	L
9.	Projector Screen	3	3	27	42	1.27	.63	L
10.	Scanner	4	4	21	45	1.36	.70	L
11.	Photocopying Machine	6	11	16	56	1.70	.77	L
Total / Average		**42**	**89**	**231**	**537**	**1.48**	**0.66**	**L**

H = High, A = Average, L = low, $\bar{x}$ = Mean score, s = Standard deviation, Dec. = Decision

From the table above, teachers opined that only desktop computers are averagely available for learning computer science in Secondary Schools in the South West Region of Cameroon. Meanwhile laptops, interactive white boards, video players, internet, digital cameras, printers, multimedia projectors, projector screens, scanners and photocopy machines and available but to a low extent. According teachers, ICT tools are available for learning computer science to a low extent ($\bar{x}$ = 1.48±0.66) in Secondary Schools in the South West Region of Cameroon.

Table 4: Students' perception on ICT tools available for learning Computer Science

S/N	Items	H=3	A=2	L=1	Total	$\bar{x}$	s	Dec.
1.	Desktop Computer	179	50	43	688	2.46	.78	A
2.	Laptop	55	33	190	423	1.51	.80	L
3.	Interactive White Board	41	67	172	429	1.53	.74	L
4.	Video Player	58	74	148	470	1.68	.80	L
5.	Internet	105	91	84	581	2.08	.82	A
6.	Digital Camera	33	79	157	425	1.52	.70	L
7.	Printer	116	100	64	612	2.19	.78	A
8.	Multimedia Projector	48	80	152	456	1.63	.76	L
9.	Projector Screen	50	60	170	440	1.57	.78	L
10.	Scanner	67	93	120	507	1.81	.80	L
11.	Photocopying Machine	136	105	39	657	2.35	.71	A
Total / Average		**888**	**832**	**1339**	**5688**	**1.85**	**0.77**	**L**

H = High, A = Average, L = low, $\bar{x}$ = Mean score, s = Standard deviation, Dec. = Decision

The table above shows that desktop computers, internet, printers, and photocopy machines are averagely available for learning computer science in Secondary Schools in the South West Region of Cameroon. Meanwhile laptops, interactive white boards, video players, digital cameras, multimedia projectors, projector screens, and scanners are available but to a low extent. According to students, ICT tools are available for learning computer science to a low extent ($\bar{x}$ = 1.85±0.77) in Secondary Schools in the South West Region of Cameroon.

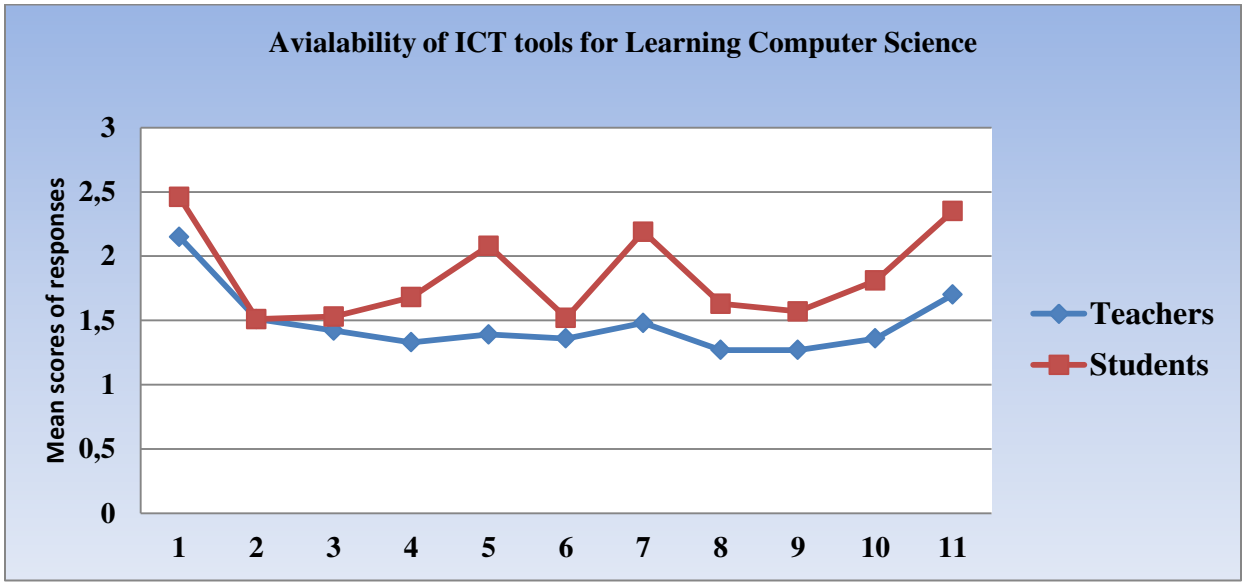

Figure 2: ICT tools available for Learning Computer Science

The relationship between the responses of teachers and students concerning the availability of ICT tools for the teaching of computer science in Secondary Schools in the South West Region of Cameroon was found to be significant (r = 0.749 at .05 level probability level).

3. ***To what extent do teachers use ICT tools when teaching Computer Science in Secondary Schools in the South West Region of Cameroon?***

Decision level: Mean, $\bar{x} = \frac{4+3+2+1}{4} = \frac{10}{4} = 2.5$

Respondents accept or agree with the opinion expressed in the item if the mean score is 2.5 and above. Otherwise, they reject or disagree.

Table 5: Teachers use of ICT tools when teaching Computer Science

S/N	Items	SA	A	D	SD	Total	$\bar{x}$	s	Dec.
1.	I use Desktop Computer when teaching Computer Science.	4	23	5	1	96	2.91	.63	A
2.	I use Laptop when teaching Computer Science.	2	19	5	5	80	2.58	.85	A
3.	I use Interactive White Boards when teaching Computer Science.	0	14	4	14	64	2.00	.95	R
4.	I use Video Player when teaching	0	12	8	12	64	2.00	.88	R

	Computer Science.								
5.	I use Internet when teaching Computer Science.	0	8	10	13	57	1.84	.82	R
6.	I use Digital Camera when teaching Computer Science.	0	7	9	14	53	1.77	.82	R
7.	I used Printer when teaching Computer Science.	1	5	12	15	58	1.76	.83	R
8.	I use Multimedia Projector when teaching Computer Science.	2	4	8	17	53	1.71	.94	R
9.	I use Projector Screen when teaching Computer Science.	2	2	7	20	48	1.55	.89	R
10.	I use Scanner when teaching Computer Science.	0	6	7	15	47	1.68	.82	R
11.	I use Photocopy Machine when teaching Computer Science.	0	9	8	10	53	1.96	.85	R
Total / Average		**11**	**109**	**83**	**136**	**673**	**1.98**	**0.84**	**R**

H = High, A = Average, L = low, $\bar{x}$ = Mean score, s = Standard deviation, Dec. = Decision

The table above shows that teachers use Desktops and Laptops to a moderate extent when teaching computer science in Secondary Schools in the South West Region of Cameroon. Meanwhile interactive white boards, video players, digital cameras, multimedia projectors, projector screens, scanners, and photocopy machines are used but to a low extent. According to teachers, ICT tools are used for teaching computer science to a low extent ($\bar{x}$ = 1.98±0.84) in Secondary Schools in the South West Region of Cameroon.

4. ***To what extent do students use ICT tools when studying Computer Science in Secondary Schools in the South West Region of Cameroon?***

Table 6: Students use of ICT tools when studying Computer Science

S/N	Items	SA	A	D	SD	Total	$\bar{x}$	s	Dec.
1.	I use Desktop Computer when studying Computer Science.	94	72	20	87	726	2.59	1.26	A
2.	I use Laptop when studying Computer Science.	19	18	60	183	434	1.55	.89	R
3.	I use Interactive White Boards when studying Computer Science.	8	37	60	175	438	1.56	.83	R
4.	I use Video Player when studying Computer Science.	6	39	88	143	460	1.67	.80	R
5.	I use Internet when studying Computer Science.	41	64	48	120	572	2.10	1.13	R
6.	I use Digital Camera when studying Computer Science.	13	18	70	170	416	1.54	.82	R
7.	I use Printer when studying Computer Science.	30	51	83	116	555	1.98	1.01	R
8.	I use Multimedia Projector when studying Computer Science.	22	27	65	165	465	1.67	.94	R
9.	I use Projector Screen when	21	29	40	185	436	1.59	.96	R

	studying Computer Science.								
10.	I use Scanner when studying Computer Science.	36	39	62	143	528	1.89	1.07	R
11.	I use Photocopy Machine when studying Computer Science.	33	38	84	125	546	1.95	1.06	R
Total / Average		**323**	**432**	**680**	**1612**	**5576**	**1.82**	**0.98**	**R**

H = High, A = Average, L = low, $\bar{x}$ = Mean score, s = Standard deviation, Dec. = Decision

The table above shows that students use Desktops to a moderate extent when studying computer science in Secondary Schools in the South West Region of Cameroon. Currently, Laptops, interactive white boards, video players, digital cameras, multimedia projectors, projector screens, scanners, and photocopy machines are used but to a low extent. According to students, ICT tools are used for studying computer science to a low extent ($\bar{x}$ = 1.82±0.98) in Secondary Schools in the South West Region of Cameroon.

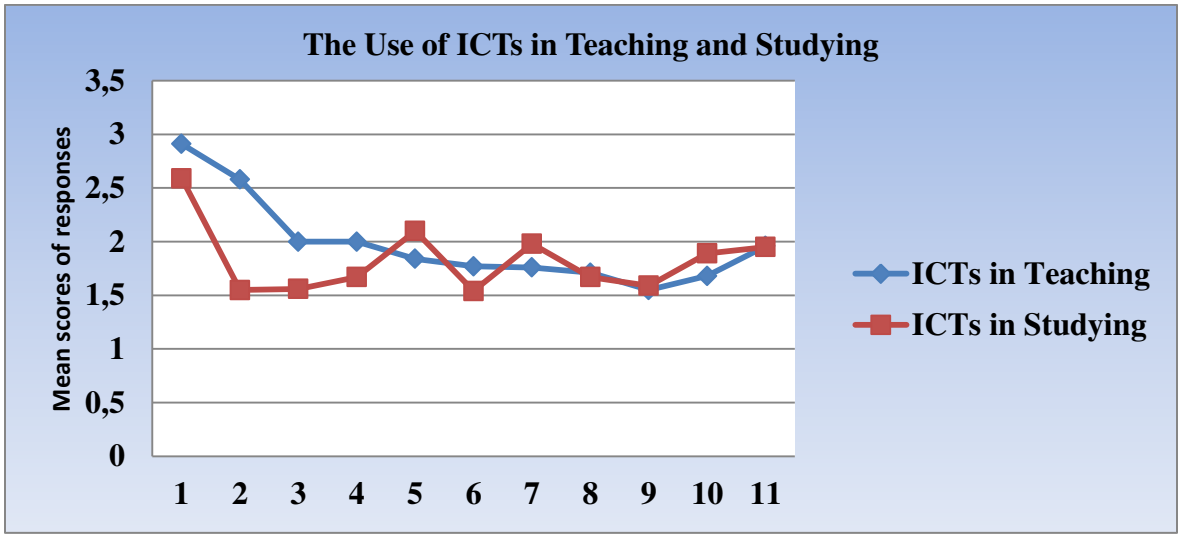

Figure 3: Use of ICT for Teaching and for Studying Computer Science

There is a moderate relationship between the responses of teachers and students concerning the use of ICT tools in teaching and in studying of computer science in Secondary Schools in the South West Region of Cameroon (r = 0.489 at .05 level probability level).

Discussion of Findings

The study revealed that there is a significant relationship between the responses of teachers and students concerning the low availability of ICT tools for the teaching of computer science in Secondary Schools in the South West Region of Cameroon. The study also revealed a moderate relationship between the responses of teachers and students concerning the use of ICT tools to a low extent in teaching and in studying of computer science in Secondary Schools in the South West Region of Cameroon.

The findings of this study are hinged on the Information Processing theory since it is concerned with how individuals analyze the many sources of information in their environment and make sense of these experiences. According to Nsamenang and Tchombe (2011), Information processing theory has become a general theory of

human cognition; the phenomenon of chunking has been verified at all levels of cognitive processing. The theory addresses short term memory where the attention span is limited and states that planning is fundamental to cognitive process. Information processing explains how learning is influenced by cognitive processes of organization and elaboration leading to meaningful learning. Information processing is likened to the computer (ICT) whereby memory receives information, stores it, manipulates it, retrieves it and responds. Clearly memory activity and process are vitally important to understand the progressive manner in which pupils and students process what they learn. With this knowledge teachers begin to understand why children at certain ages cannot memorize and read. Teachers have to sensitize children to their own learning through developing their meta-cognitive skills. That is, awareness of how they reason and think. With increasing age, children do acquire greater information processing capabilities and greater insight to how they use their memory. ICT therefore stands as a means of helping or better facilitating students' meta-cognitive skills and also makes them value knowledge discovered by them.

Conclusion and Recommendation

The study revealed that ICT tools like desktops, laptops, interactive white boards, video players, digital cameras, multimedia projectors, projector screens, scanners, and photocopy machines are used but to a low extent when teachers are teaching or when students are studying computer science in Secondary Schools in the South West Region of Cameroon. This may be due to the low extent of availability of ICT tools in the teaching and learning process. It is therefore recommended that the government and all stakeholders should make ICT tools available to teachers and students by creating and/or furnishing ICT centers in Secondary Schools in the South West Region and Cameroon at large.

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